Profit and Accumulation

Marxist Theories and the Australian Evidence 1949-1994

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Abstract

Profit and Accumulation: Marxist Theories and the Australian Evidence 1949-94 aims to assess the ability of contemporary Marxist economic theories to explain the Australian macroeconomic data. A realist method is used, which distinguishes the approach from alternatives that would either insulate theories from the rigours of empirical accountability or deny them access to the deeper social realities governing economic events and relationships. It is insisted that a Marxist social economics must be especially demanding of itself, logically and empirically.

A declining rate of profit emerges as the principal constraint on Australia's rate of accumulation and investment demand, which has slowed appreciably over the 45 years of national-accounting production, financial, and labour data that are modelled and analysed. In turn, diminishing returns to investment and a declining profit share are shown to have combined to cause the profit rate's fall of approximately 50%, despite a rise in the profit share in more recent years.

It is concluded that contemporary Marxist political economy neither fails the explanatory test nor has it been supplanted by a superior radical perspective. A broad Marxist profile in economics will thus continue to be a defining frame of reference and a challenging intellectual force.

For my parents, Frank and Tess Doughney

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Contents

Figures

Tables

Appendix 1

Appendix 3

Charts

Introduction

What was the principal aim of Marx's economics? The short answer is that it was designed to explain *how* capitalist economic growth would be thwarted by barriers of its own making. Thus the forces determining the rate and character of capital accumulation, and the rate and size of the profits on which accumulation depended, were the focus Marx's theoretical work. Subsequent Marxist economists have sought to improve on Marx's original formulations in various ways and to apply the approach to changed historical circumstances. However, while their theories have often been in fierce competition, each has no less centred on profit and accumulation in order to understand capitalism's economic laws of motion.[1] Accumulating profits is invariably described as the "heart and core, "basic drive," "motor," or engine of economic growth and development.[2] This, in turn, has given Marxist economics a broad ambit, with it embracing the role of factors that have a direct bearing on the accumulation process, such as class conflicts, technological change, governmental policies, and international relations.[3]

The scope of *Profit and Accumulation: Marxist Theories and the Australian Evidence 1949-94* is less panoramic: its purpose is to consider how well the various contemporary Marxist economic theories have explained capitalist macroeconomic development (with principal reference to Australia). Its grounding is the view that, for a Marxist economics to promote fruitful research and guide meaningful practical activity, its grand vision must be accompanied by the same sort of conscientious respect for the results of detailed empirical analysis that guided Marx himself from the time he began his critical journey in political

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[1] (*Capital I*, Preface to 1st. edn.: 92).
[2] Baran and Sweezy (1966: 55), Mandel (1976: 60), and Glyn (1990: 274).
[3] Glyn (1990b: 274).

economy.[4] Implicit here, too, is the view that some long unresolved debates and implacably counterposed positions within Marxist economics require the particular rigour of empirical challenge. However straightforward this approach may first appear to be, it is far from universally accepted in the social sciences today or, as will be seen, within Marxism or Marxist economics.

Thus Part I of this work outlines a realist case for the validity of the approach adopted throughout. Whether social science is inclined to acknowledge so or not, it confronts philosophical questions at the heart of its work. It is best to try to state a position on these questions, as this helps both to provide clarity of purpose and to avoid the common error of concealing unchallenged methodological assumptions.[5] It should be realised by the reader, however, that Chapters 1-2 are not a rounded discussion of either mainstream or Marxist philosophy. Their target is more specific. First, they endeavour to justify the major proposition that it is *possible* and *necessary* to evaluate Marxist theories of profit and accumulation empirically. I also argue that this approach is consistent with Marx's own method. Second, these chapters seek as well to establish some guiding principles that can be applied to problems in Marxist political economy, such as the labour theory of value, the analysis of capitalism's immanent tendencies, and the theory of crisis.

It is similarly impossible to avoid outlining in some detail the features of Marx's economic system if we wish to analyse theories of profit and accumulation essentially built on it. Marx proposed a powerful and realistic model of economic relations and categories, and this model is reconstructed critically here in Chapter 3, the first of the two chapters of Part II dealing with Marx's framework. While Marx subordinated his model to the task "of uncovering the forces determining the rate of accumulation of capital and the barriers to its self-expansion,"[6] it is undeniable that he considered the issues surrounding his conceptual framework to be of the utmost importance. Included here is the way Marx calibrated his categories using the standard of labour values: average socially necessary labour time. For him the profits on which accumulation depended were generated by

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[4] See, e.g., (*Manuscripts*: 63). "Testing by facts or by practice respectively, is to be found here in *each* step of the analysis [in *Capital*]." (Lenin *CW* 38: 318; see also *CW* 23: 272)

[5] Collier (1994: 206).

[6] King (1982: 158).

surplus value, and this was nothing but surplus or unpaid labour time. Labour values also determined prices and provided the means to measure the economic aggregates used to analyse accumulation.[7] However, the way Marx dealt with labour values was unsatisfactory, and it is impossible for a work such as this to ignore the obvious difficulties that arise. I argue in Chapter 4 that Marx's labour theory of value weakens his otherwise powerful theoretical apparatus and should be rejected. Nonetheless, it is worth warning the reader not to expect a comprehensive survey of the vast value debate, merely a targeted assessment relevant to the specific purpose of this work.

Part III takes the reader to the central concern: Marxist theories of profit, accumulation, and crisis. Chapter 5 gives an overview and sketches what should be an uncontroversial outline of crisis as such. The next three chapters detail the major strands within Marxist accumulation and crisis (or over-accumulation) theory: (i) demand-side views, including both under-consumption positions and theories that stress insufficient investment demand (Chapter 6); (ii) rising composition views, including those of Marx himself (Chapter 7); and (iii) falling profit share views, including both the rising-wage and lagging-productivity approaches (Chapter 8). The choice of particular theories and theorists is admittedly somewhat arbitrary. It is impossible in a work of this length to do justice to all views. Nor should the reader expect the accounts given in Chapters 5-8 to be an exercise in the history of political economy. Rather the discussion is governed again by the purposes described above. Before it is possible to subject theories to an empirical evaluation, they must be explained in their own terms to extract from them the main conditions necessary for their validity. By its nature this is a critical process, and it enables the perceived strengths and weaknesses of the various positions to be highlighted. Part III also states a position on two debates regarding Marx's framework that were not discussed in Part II: Chapter 5§7 examines the supposed priority of production over circulation, and Chapter 6§4 argues against using a distinction between productive and unproductive labour in theories of profit and accumulation.

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[7] King (1982: 158).

Part IV begins by proposing a model in Chapter 9 that is designed to mediate the transition from the preceding more abstract presentation of theories to their subsequent confrontation with Australian economic data. This confrontation occurs in two stages: (i) Chapter 10 looks at the rate of profit realised by businesses, focusing on explanations of its 50% decline from the early 1950s to the present; and (ii) Chapter 11 introduces financial variables and traces the path from profits to their accumulation as fixed capital, the rate of which has also declined. A transparent explanation of data sources and uses is provided with the main data tables in the Appendices. While Chapters 10-11 give some insights into Australia's post-WWII economic development, this work should not be misinterpreted as being a detailed study of Australia's postwar economic history. Nor is any serious attempt made to address international data, although a few brief comments are made in Chapter 10 and Appendix 1. Nonetheless, as a result of the theoretical analysis of Part III and the empirical research of Part IV, it is possible to suggest some significant conclusions about the Australian postwar economy in Marxist terms. Together with suggestions for further enquiry, the key results are summarised in a brief Conclusion.

Part I

METHOD

1

The Necessity of a Scientific Realism

1 Realist-Materialist Foundations

Theories can and must be confronted with empirical evidence. This proposition is the premise of *Marx's Theory of Profit and Accumulation: The Australian Evidence (1949-94)*. To justify it, a short excursion into philosophy and scientific method will be made in this and the next chapter. The excursion, however, is selective and aims merely to buttress my own approach. It is not a rounded study of philosophy, either Marxist or mainstream, nor does it do justice to the history and philosophy of science. Alternative positions are presented principally as a foil for my rather traditional realist-materialist ideas. Marx's and Engels's philosophical works generally will not be cited below, despite their obvious influence. However, Marx's Introduction to the *Grundrisse*, especially the section entitled "The Method of Political Economy," the Postface to the second edition of *Capital I*, and the Preface to *A Contribution to the Critique of Political Economy* are particular points of reference.[1] It should be noted also that the views to be expressed have been influenced heavily by the realist philosophical outlook associated principally with Bhaskar.[2]

Six major realist themes are presented below as being essential for an empirically controlled scientific theory of political economy. These are sufficient to distinguish

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[1] (*Grundrisse*: 100-02), (*Capital I*: 94-103), and (*Preface*: 19-23). See also Lenin (1961, 1958) and Trotsky (*inter alia*, 1973: 199-346; 1970: 47-53, 116-120).

[2] See Bhaskar and Collier references in the Bibliography. See also Edgley (1990, 1985, 1979), Geras (1972), Keat and Urry (1975), Novack (1978, 1975, 1972-73, 1969), Sayer (1979), Timpanaro (1975), and Williams (1981, 1980). T. Smith (1993a,b) provides many insights into the structure of Marx's approach. In Marxist economics, similar views are expressed by Dobb (*inter alia*, 1937: Chapters I and V; 1973: Introductory; 1963a: Chapter 1), Howard and King (1975), and Mandel (*inter alia*, 1990, 1976, 1975, 1968).

the perspective here from prevailing orthodox alternatives, which may be described, loosely, as "positivist" or hermeneutical.[3] The themes also clearly set my approach apart from others within the corpus that Sweezy has aptly called Marxism's "universe of discourse."[4] Prime examples of these are the approaches identified with Althusser, Lukacs, Korsch, Habermas, Della Volpe, and Colletti. More recently ascendant post-modernist and "analytical Marxist" camps have, on their own account, but tenuous connections with Marxism. It is obvious that they would find much to oppose in the six themes, too.[5]

(i) Independently real objects of study

Political economy's objects of study, like those of the natural sciences, are real. In Marx's words, these are "external" objects.[6] Moreover, "the objects of our knowledge exist and act independently of the knowledge of which they are the objects."[7] Specifically, they exist independently of theory, model, concept, description, or language and are not reducible to these dimensions of thought. While knowledge of the natural and social world is gained through theories, these theories do not constitute that world, which exists independently of them and their descriptions. For Marx, the categories of political economy were "abstract expressions of the real," and "real relations" were not mere "reifications of these abstractions."[8] This ontology stands in sharp contrast to intellectual fashion in the social sciences: e.g., opinions broadly gathered under a "post-structuralist" or "post-modern" rubric. The position that nothing can be known outside thought or knowledge itself is expressed within Marxist economics by Resnick and Wolff, and by Cullenberg. For the latter, each "theory literally *constructs* its own truth, and criteria for the validity of that truth."[9] Ontological denials also pervade the work of

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[3] Bhaskar (1993: 90).

[4] Sweezy (1981a: 16).

[5] See, e.g., Bhaskar (1993: 352; 1991: 162-85; 1989: Chapter 7, 187-89) and Anderson (1976).

[6] (*Capital I*: 125).

[7] Bhaskar (1979a: 14; see also, *inter alia*, 1991: 24-25; 1989: 13, 188, 197 n.80). See also Collier (1994: Chapter 1).

[8] (*Correspondence*: 34; see also 144-45). See also, e.g., (*German Ideology*: 31, 36, 38-40, 57, 102, 504), (*Feuerbach, SW I*: 365, 375). Jones (1978: 966-76) provides a thorough compendium of similar references. See also Sayer (1979: 29-34).

[9] Cullenberg (1994: 13; see also 12-17). He conveniently provides a family tree: "...Thomas Kuhn, Richard Rorty, Michel Foucault, Jacques Derrida, Donald McCloskey, Stephen Toulmin and Nelson Goodman in the

Hindess and Hirst in social theory. For them, too, the "[o]bjects of discourse do not exist. The entities discourse refers to are constituted in it and by it."[10] Bhaskar has called such strongly subjective views in modern philosophy "super-idealism," defining this as the belief "that we create and change the world along with our theories."[11]

(ii) Structural depth in open systems

The external reality of the objects we study creates the possibility of acquiring objective theoretical knowledge of them. However, it is insufficient to study just actual events and the way such objects appear empirically. Real systems are structured. Actual events that we experience are generated by deeper underlying mechanisms. **Figure 1.1**, which is reproduced from Bhaskar's *A Realist Theory of Science*,[12] summarises these dimensions of reality:

FIGURE 1.1

Dimensions of Reality

	DOMAIN OF REAL	DOMAIN OF ACTUAL	DOMAIN OF EMPIRICAL
Mechanism	✓		
Events	✓	✓	
Experiences	✓	✓	✓

However some definitions are needed: "The series of events that occurs can be called *the Actual*...'The Empirical' is comprised only of experiences; not all events are experienced; the Actual consists of events and experiences, but *mechanisms*, in so far as they are not realized, do not belong here; nevertheless they are real.

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nonMarxist tradition and Louis Althusser, Barry Hindess and Paul Hirst, Ernesto Laclau and Chantal Mouffe, and Stephen Resnick and Richard Wolff in the Marxist tradition" (1994: 12-13).

[10] Hindess and Hirst (1977: 20). See also Cutler, *et. al.* (1977: 216-17). See Collier's discussion of modern idealism (1994: 85-101), and also (1979b: 69-71)..

[11] Bhaskar (1989: 11; see also 196-97 n.79; 1986: 1-2). He argues that Kuhn's relativism comes close to this position in statements such as: "though the world does not change with a change of paradigm, the scientist afterward works in a different world" (Kuhn 1970: 121; see also 111, 120-23, 129, 135). See §3 on Kuhn. See also Chalmers (1982: 96), Collier (1994: 58, 86-88), and Keat and Urry (1975: 61-63).

[12] Bhaskar (1978: 13). See also Collier (1994: 42-45). Ollman (1971: 64-65) treats appearance and essence in similar way.

Theories which relegate mechanisms to a lower ontological league, as 'theoretical entities', 'logical constructs', etc., are refusing to allow causal criteria for reality -- i.e., they will only allow something through the ontological customs office if it is a possible object of experience."[13] This clarifies the traditional appearance-reality distinction. To Marx, appearances were both limited and could be misleading, false, and plainly ideological. Herein was the *raison d'être* of science: if the "immediate phenomenal forms" of economic relations coincided with their "inner connections... what need would there be" of it?[14] Moreover, real systems are open. Concrete, conjunctural events are codetermined or multiply-determined by the simultaneous operation of a number of causal-generative mechanisms. "The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse."[15] Scientific experiments are designed to obtain system closure, to isolate mechanisms so that their effects may be actualised and experienced. These, in turn, are ordered, layered, or stratified, with some strata "emerging" from more fundamental ones.[16] I will return in §5 to the important results for Marxist political economy that may be derived from an understanding of emergence and the role of tendencies in open systems.

(iii) Empirically controlled scientific explanation

Scientific knowledge advances through the work of uncovering and empirically identifying successively deeper levels of reality. It does this with the aid of existing theories, but it is anchored by the objectivity of what it seeks to explain. Subjecting theories to "rigorous empirical controls"[17] is necessary and possible. Eventually some formerly hypothesised mechanisms may be observed or otherwise experienced directly. Where mechanisms are intrinsically unobservable, they may

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[13] Collier (1994: 44).

[14] Marx to Engels, June 27, 1867, (*Correspondence*: 179). See also, e.g., (*Capital III*: 956), Bhaskar (1989: 62, 86-87), Collier (1994: 7), Geras (1972: 285-88), Howard and King (1975: 39-45, 163-64), Keat and Urry (1975: 100), Rosdolsky (1977: 561-70), Sayer (1978: 29-31), and T. Smith (1993a: 42-43). This overlaps the general Marxist issue of "fetishism." See, e.g., (*Capital I*: 163-77, 184-86, 677-82, 729-34; *Resultate*: 983, 1003, 1046, 1052-58), (*Capital II:* 303), (*Capital III*: 516, 953 ff.), and (*Grundrisse*: 241-45).

[15] (*Grundrisse*: 101). See also Collier (1994: 255-56, 1979b: 79-83).

[16] Bhaskar's references are too numerous to cite. See Collier (1994: Chapters 2, 4) for a summary. See also Edgley (1990: 117-18).

[17] Bhaskar (1994: 127).

be experienced causally: i.e., shown to exist indirectly through their effects. Gravity, magnetic fields, and societies (including class, power, and economic relationships) are of this type.[18] If the mediated unity between theory and deeper levels of reality offered by empirical control did not exist, false dichotomies would remain: *a priori* rationalism *versus* empiricism, deduction *versus* induction, theory *versus* "mere" appearance. These dichotomies have bedevilled philosophy and the philosophy of science and have persistently obfuscated discussions of method in the social sciences. The possibility of "science as an empirically-based, rational and objective enterprise" lies behind its capacity "to provide us with true explanatory and predictive knowledge."[19] Bhaskar's work in this area will be explored in §4.[20]

(iv) A qualified naturalism

While the real status of social-scientific objects may be established, appropriate allowance must be made for the fact that the very existence of these objects is testimony to various forms of human agency and consciousness, theories, and ideologies. In principle, the methods of natural science may be applied to the social sciences, within limits. Societies do differ from natural scientific objects, not least for the reason that knowledge in the social sciences is causally interrelated with the objects of that knowledge. Significantly, social sciences are denied the sorts of experiments available to the natural sciences because their systems are inherently open and more often changeable. In Marx's metaphor, microscopes and chemical reagents had to be replaced in the analysis of economic forms by the power of theoretical abstraction (using a wealth of empirical material).[21] The intractably open nature of social systems rules out the efficacy of tight predictive tests. It also cautions us against imitating experimental closure with either suspect theoretical gymnastics using *ceteris paribus* clauses or superficial statistical relationships.[22] Yet conditional predictions are possible and a prominent role must exist for

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[18] Bhaskar (1991: 113, 122-26; 1989: 69, 194 n. 16; 1986: 133; 1979a: 15-16), Collier (1994: 26, 44).

[19] Keat and Urry (1975: 5).

[20] Detailed references will be left until then. But Collier (1994: 41, 1979b), Mandel (1975), Sayer (1979), and Timpanaro (1975) provide evidence of Marx and Engels's respect for matters empirical.

[21] (*Capital I*: Preface, 90). See also Collier (1994: 41, 256).

[22] Bhaskar (1989: 15, 86; 1986: 290-91).

empirical controls and explanatory tests. I would argue that this is especially so for social theories such as Marx's that make strong claims about their explanatory power. Of course, it may be debated generally, and within the particular human and social sciences, precisely where these limits are drawn. What is clear, however, is that a qualified naturalism distinguishes itself from the hermeneutical tradition, which denies any symbiosis at all, and the Popperian denial of difference, which works to collapse the social and reduce any science of it to the study of the behaviour of individuals as the fundamental methodological units of analysis.[23]

(v) Fallibility not relativism

Valid knowledge of nature and society can be achieved, albeit fallible knowledge that is constantly being renewed, deepened, and corrected. A realist ontology in fact implies that any existing state of knowledge is limited. The nature of reality itself is not only subject to historical change but also is capable of revealing new levels of depth when probed by scientific investigation. We are also constrained by the historically and socially developing character of the theoretical and scientific-technological achievements that give us access to that reality. Developments in these areas, to a greater or lesser degree, have their own dynamics. This is the only sense in which a form of relativism is necessary for an adequate account of knowledge. That this position is a quite traditional one within Marxism is often overlooked.[24] An ontological anchor also means that a rational assessment of competing theories is a meaningful exercise. That form of relativism for which the only certainty is uncertainty about the validity of knowledge, and which thereby grants almost uncontrolled latitude to theory, receives no support from this position. Nor does it licence the view that says theories are fundamentally "incommensurable" and cannot be compared rationally.[25] As Bhaskar notes: "[T]o say that two theories conflict, clash or are in competition presupposes that there is

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[23] Popper (1962: 98; 1960: 157-58). See also Bhaskar (*inter alia*, 1989: 90-92, 184-189; 1986: 107-108; 1979a: Chapter 2), Collier (1994: Chapter 5), and Redman (1991: 108-110).

[24] For classic restatements of this position, see Engels (*Feuerbach, SW III*: 339-42, 363), Lenin (1952: 134-36, 320-26), and Trotsky (1973: 288-89, 1964b: 354). See also Collier (1994: 13-14, 237-42).

[25] See, e.g., Cullenberg (1994: 12).

something -- a domain of real objects or relations existing and acting independently of their descriptions -- *over* which they clash."[26]

(vi) Main focus on social relations

Capitalist society's social relations of production and reproduction are the most basic mechanisms generating the diverse forms of economic and social life. As such, they are the most significant objects of social scientific theory.[27] Accordingly, the particular objects of this study, accumulation and the immanent tendencies of capitalist macroeconomies, may be regarded as subordinate objects of a much larger Marxist project or research program. This understanding also helps to locate Marxist political economy within the broader perspective encompassed by "a realist ontology and a relational sociology."[28] Such a sociological focus on *relations* between individuals and groups sets Marxism apart from both methodological individualism and alternative, methodological collectivist, frameworks that see groups or nations as the fundamental units of social analysis. "Society does not consist of individuals, but expresses the sum of interrelations, the relations within which these individuals stand."[29] Marx's own explanation of his intellectual enterprise, in writings such as the *Preface*, are in much the same terms. As Mandel put it:

> "Probably the best formula for characterizing Marx's economic theory would be to call it an endeavour to explain the *social economy*. This would be true in a double sense. For Marx, there are no eternal economic laws...likewise, there are no economic laws separate and apart from specific relations between human beings, in the primary (but not only...) social relations of production."[30]

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[26] Bhaskar (1989: 32-33; see also 18-21). See also Bhaskar's criticism of Rorty (Bhaskar 1991: *inter alia*, 15-16; 1989: Chapter 8), and Collier (1994: 237-42).

[27] Blackburn (1972: 12).

[28] Bhaskar (1979a: 39; see esp. Table 2.1), citing Keat and Urry (1975), Ollman (1976, 1971). See also Collier (1994: 138-41).

[29] (*Grundrisse*: 265; see also 83-87). See also, e.g., (*Capital III*: 957) and (*Preface*: 20-21).

[30] Mandel (1990: 9). See also Howard and King (1975: Chapter 2), Green and Sutcliffe (1987: Chapter 1). Mandel also proposes a description of Marx's approach very similar to the one developed in this section (1976: 19-20).

2 Orthodox Displacements of Reality

To reinforce the premise of this work, which is that theories can and must be confronted by the evidence, an important task must now be accomplished. It is to show *how* mainstream theories in the social sciences afford themselves an undeserved degree of insulation from criticism of their theoretical and empirical inadequacy: how they may continue to limp along with one foot in untestable theories and the other in groundless hypotheses.[31] The key is that the theories rely, explicitly or implicitly,[32] on mainstream philosophies that effect a displacement of reality. If this were mere philosophy, it would not be so intrinsically relevant. Its relevance arises because its consequences are profound. Economics is a prized example (see §3). Alas, various threads of Marxist political economy are less immune than they may think themselves to be (see Chapter 2).

Displacement, as I have called it, starts with a collapse of ontology: a rephrasing of ontological questions (what exists?) into epistemological ones (what can we know?). A general ontology separate from human subjects is thereby lost. However, a new and subjectivised one is reinstated by default. Reality is flattened to the level at which it is or may be accessed by our direct observation or experience.[33] In **Figure 1.2**, a line is drawn that seals off the bottom right-hand corner while denying all to the left or above it. The real is exhausted by actual events, states, and behaviours. Deeper reality is displaced and the remaining "reality" is then taken to be the limit of our possible knowledge. These are hallmarks of an abstract "positivism," drawn from Hume's empiricism, that is often stylised to encapsulate the orthodox position.[34] But they are also a reference point for others who, while they have argued against the received wisdom, have

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[31] Apologies to Robinson (1962: 28).

[32] Bhaskar (1986: 224-25).

[33] Bhaskar (*inter alia*, 1989: 49-51; 1986: 231).

[34] Bhaskar (*inter alia*, 1993: Chapter 1; 1991: Chapters 1-2; 1989: Chapters 3-4, 180-82; 1986: Chapter 2). See also Collier (1994: Chapter 3). A so-called "received view" is sometimes presented in the role given here to "positivism" (Blaug 1992: 4; citing Suppe 1974). See also Redman (1991: 7-11). Evidence of the pervasiveness of a stylised received "positivism" can be observed in the introductions to most economics textbooks (e.g., Waud 1990: 8-11).

remained "parasitic on positivism" to one degree or another.[35] A traditional example is Popper, and a more recent one is Rorty.

FIGURE 1.2

The Mainstream Compression of Reality

	DOMAIN OF REAL	DOMAIN OF ACTUAL	DOMAIN OF EMPIRICAL
Mechanism	✓		
Events	✓	✓	
Experiences	✓	✓	✓

Hume's theory of causal laws, which defines them just as empirically repeated constant conjunctions between separate entities, retains its force within the mainstream. So, too, does its corollary: that hypotheses and theories are falsified by contrary instances, which poses the celebrated problem of induction.[36] Together with the "canonical" deductive-nomological model scientific explanation identified with Popper and Hempel, these stand as defining moments for "positivism." The deductive-nomological model posits that actual events (*explananda*) are explained if they can be deduced from a set of initial conditions and (Humean) laws (*explanans*). Prediction and explanation are thus symmetrical. However, symmetry comes at a price. Explanation is constrained by prediction and prediction by laws and initial conditions. In turn, such laws are basically reducible to the empirical occurrences they describe and no more. Indeed, laws themselves are not regarded as being real *per se*, but as "theoretical" entities or devices with no necessary ontological status. Real underlying causal mechanisms are absent. Against this apparent narrowness, Keat and Urry argue that the reason explanation "must be pursued as the primary objective of science" is that:

> "To explain phenomena is not merely to show they are instances of well-established regularities. Instead, we must discover the necessary connections between phenomena, by acquiring knowledge of the underlying structures

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[35] Collier (1994: 102).

[36] See Hume (1977: 794-97, 819-22).

> and mechanisms at work... [F]or the realist, a scientific theory is a description of the structures and mechanisms which causally generate the observable phenomena, a description that enables us to explain them."[37]

A specific corollary of the Humean theory of causal laws and the Popper-Hempel model is to suppose implicitly that closed systems prevail. Constant conjunctions are impossible in open systems. This weighs heavily against attributing law-like behaviour to societies and social relations, since experimental closure is impossible. In addition, underlying social structures must be accessed via their effects and not by direct experience. It can be seen why such a "positivism" sits easily with perspectives in the social sciences such as mainstream neo-classical economics, which are disposed towards the study of atomised individuals and their manifest behaviour rather than the study of social relations and structures.[38] This is not to say that all "positivists" are methodological individualists, nor that all methodological individualists are "positivists."[39] However, it is to say that the relationship between "positivism" and methodological individualism is a strong one.

Attention must now focus on theory itself. At this level, palpable damage has been done by the displacement of reality. Two consequences stand out. First, laws, hypotheses, models, and theories are granted only "theoretical" status. They are exhaustively accounted for as devices or conveniences to account for known "reality": i.e., actual conjunctions, patterns, and the like. In the absence of ontological depth, laws are not considered to map the operation of real mechanisms; theories are not *of* real structures.[40] This "theoretical" status is accorded irrespective of the mode of theory development (e.g., empiricist, rationalist, or Kantian, inductive or deductive, etc.). Second, in light of the "problem of induction," licence is granted in the development of theories to various

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[37] Keat and Urry (1975: 5; see also Chapters 1-4, esp. 37-40). See also Bhaskar (1993: 18-20; 1989: 68; 1979a: 12-13, 158-59) and Collier (1994: 57-59, 227).

[38] See, e.g., Bhaskar (1989: 70-73) and §3.

[39] "If Durkheim combined a collectivist conception of sociology with a positivist methodology, Weber combined a neo-Kantian methodology with a still essentially individualist conception of sociology" (Bhaskar 1989: 73). The Austrian economists, who are methodological individualists, have neo-Kantian and Machian philosophical roots (Dobb 1963a: 27-28 n. 2; Wainwright 1994: 57).

[40] Collier (1994: 4-5, 7-12). See also Keat and Urry (1975: 13-22, 37-40).

shades of rationalism and *a priorism*. Rationalism is used here to denote the view that (a) knowledge is acquired innately through the exercise of reason and (b) the basic theories of a science can be developed *a priori* in the form of applicable axioms.[41] Together these consequences throw a curious protective blanket over mainstream social science theories, methods, and practices.

3 The Problem of *A Priorism*

To illustrate this more clearly, it will be useful to extract some relevant points from the course taken by the Popper, Lakatos, and Feyerabend in the philosophy of science. Popper's work has been called as "a watershed between the old and the new views of the philosophy of science."[42] As traditional forms of positivism evolved, via logical positivism to logical empiricism within the so-called Vienna Circle, his influence was strong, with the most germane contribution being the hypothetical-deductive model of theory development and application.[43] This model helped to initiate a glide in the philosophy of science towards *a priorism*. Popper's views also helped to direct mainstream neo-classical economics towards the conventionalist-instrumentalist methodology that is so clearly influential in the discipline.

First, Popper followed Hume in regarding inductive generalisation as invalid: all general statements may be refuted by a single counter-instance. Yet he went much further than Hume, arguing that induction had no role whatever. Instead, he proposed a purely deductive method.[44] For Popper, hypotheses, in the form of *a priori* conjectures, were the starting point. While hypotheses could be subjected to the test of refutation, they could not be put to the test of verification, which Popper rejected for the same reasons as induction. However, he also unambiguously doused claims that observation itself is sufficient for theory refutation.[45] To Popper, observations were filtered through theories, and observation statements thus became "theory-impregnated (or theoretical) to a

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[41] Ayer (1973: 8), Bhaskar (1994: 19), Keat and Urry (1975: 128-29), and Novack (1978: 319).
[42] Blaug (1992: 4). See also Redman (1991: 27-32, 57-60).
[43] See, e.g., Popper (1960: 130-43).
[44] Popper (1960: 134-36). See also, e.g., Redman (1991: 29).
[45] See, e.g., Popper (1972: 111).

greater or lesser extent."[46] An alternative was needed. Acceptable empirical knowledge of the world had to be decided by convention or agreement. Thus Popper's "conventionalism allowed him to sustain the most rationalistic account of science since Kant and Whewell, though at the cost of leaving science with an entirely man-made [*sic*] empirical base."[47]

Lakatos departed from Popper in important respects: e.g., the role of crucial experiments in falsification.[48] Nonetheless, the rationalist and conventionalist features of Popper's thinking were deepened within Lakatos's approach. He proposed that theories should be considered as parts of broader, all-embracing "scientific research programmes." Lakatos maintained that all "scientific research programmes may be characterized by their 'hard core', surrounded by a protective belt of auxiliary hypotheses which has to bear the brunt of tests."[49] Significantly, the "hard core" of these programmes were granted irrefutable status as a matter of methodological decision. In Blaug's words, the hard core "consists of empirically irrefutable beliefs and hence amounts to what others have called 'metaphysics.'"[50] Lakatos further proposed a "sophisticated" form of falsification in opposition to "naive" falsification by a crucial test (counter-instance).[51] The reputation of a progressive research programme, compared with a degenerating one, is earned if it can be used to predict "new facts" (novel phenomena). In a degenerating progamme "explains Lakatos '... theories are fabricated only in order to accommodate *known* facts.'"[52] Moreover, to falsify no longer means to disprove but rather a decision by scientists to stop using the program.

The contrast between Marx and Popper (and Lakatos[53]) has ironical features. Popper considered his opposition to Marx (and Freud) to grow from his distaste for intellectual relativism, yet he maintained that "acceptance and rejection of basic statements ultimately rest on a decision reached through a process much like trial

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[46] Bhaskar (1989: 30). See, e.g., Popper (1960: 134, 134-35 n. 1).
[47] Bhaskar (1989: 30).
[48] Bhaskar (1989: 30-33), Blaug (1992: 32-37), and Redman (1991: 35-44, esp. 67 n.26).
[49] Lakatos (1978: 49-52).
[50] Blaug (1992: 34).
[51] Bhaskar (1989: 32).
[52] Redman (1991: 37), citing Lakatos (1974: 8).
[53] See, e.g., Chalmers (1982: 107, 169) and Redman (1991: 40).

by jury."[54] Moreover, he argued that science did not rest on "solid bedrock" and that the "empirical basis of objective science has nothing 'absolute' about it." Rather, the structure of scientific theories "is like a building erected on piles... driven down from above into the swamp, but not down to any natural or 'given' base..."[55]

In contrast, Marx's approach is expressed in metaphoric opposites. Theory should not be seen as "something inflexibly fixed," nor brought from above, but developed out of the living "world's own living foundations."[56] For Engels, too, principles of knowledge could never "be created and derived by thought out of itself, but only from the external world..." As if anticipating Popper, he added that "the principles are not the starting point of the investigation, but its final result; they are not applied to nature and human history, but abstracted from them..."[57] As Mehring explained, Marx took up Hegelian dialectics, "but he reversed it in that it no longer proceeded from 'pure thought', but from the pitiless facts of reality..."[58]

A few comments on Feyerabend and Kuhn are in order. Some of the tendencies already apparent above are taken to extremes in Feyerabend's hands. In particular, theoretical relativism reaches its apotheosis. From the notion of that all data are untrustworthy because of their theory-dependence emerges the claim that theories are strictly incommensurable. From there it is a short step to complete subjectivity in their appraisal: e.g., by means of aesthetics, taste, metaphysical prejudices, and religious desires.[59] Bhaskar describes Feyerabend's journey as being from ultra-Popperian to ultra-Kuhnian, disembarking where "there are neither criteria for choosing between theories within science nor criteria for choosing between science and other forms of life."[60] Collier goes further: Feyerabend has journeyed beyond Kuhn to a "more overtly voluntaristic superidealism," having also severed "the

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[54] Redman (1991: 34; see also 30, 111), referring to Popper (1972: §30).

[55] Popper (1972: 111), quoted by Redman (1991: 34).

[56] Trotsky (1973: 288-89), referring to the young Marx's correspondence with Ruge. See McLellan (1972: 165-67) for the context of Marx's remarks.

[57] (*Anti-Duhring*: 54). Marx approved of and wrote part of this work. Lenin also quotes the above passage enthusiastically (1958: 33). See also, e.g., (*Dialectics: 64*) and Lenin (*CW* 23: 272-73).

[58] Mehring (1962: 128).

[59] Chalmers (1982: 138; see also 136-39), citing Feyerabend (1975). See also Redman (1991: 47).

[60] Bhaskar (1989: 33; see also 32-40).

lifelines left by Kuhn whereby much of his [Kuhn's] theory can be retrieved from a realist standpoint..."[61]

Bhaskar has noted that unresolved tensions in Kuhn's impressive efforts to account for revolutionary changes in the thinking of scientific communities have brought him close to the view "that we create and change the world, along with our theories -- a position that renders change in either unintelligible."[62] However, while Kuhn's is

> "not a work of militant, drum-beating anti-realism...he claims that the different world-views involved in different paradigms are, or can be *incommensurable*, and hence that their adherents live, in a sense, in 'different words'. Kuhn is usually quite cautious about using this kind of language, but the doctrine that most readers seem to come away with is that there are only our incommensurable interpretations of nature, nothing outside them for them to be more or less true of."[63]

Despite the differences among them, each of the positions discussed in this section has a common attribute unavailable to realist theories. Realists open themselves to challenge because they intend to say something about matters external to themselves and against which they can be called to account.[64] However, mainstream philosophies and philosophies of science wittingly or unwittingly extend increasing latitude to theories cast in their mould. Too often in the social sciences those theories are nothing more than ideologies by another name. "Ontologically too restrictive," in that a deeper *social* reality is denied, the received philosophy of science is at once

> "... *epistemologically too permissive* in that, in the absence of relevant explanatory *a posteriori* criteria of theory appraisal and development, it is all

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[61] Collier (1994: 94-95).

[62] Bhaskar (1986: 1-2), referring also to Bachelard. Elsewhere Bhaskar says "...[Kuhn] cannot make up his mind if he is a realist or an idealist (or rather he is trying to be both)" (1989: 197 n. 79). See also §1 n. 11.

[63] Collier (1994: 89). Kuhn's statements can be somewhat ambiguous: cf. "...after a revolution scientists are responding to a different world" (1970: 111) and "...the scientist after a revolution is still looking at the same world" (1970: 129). See also (1970: 121, as quoted in n. 11, and 135).

[64] Collier (1994: 13-14).

> too easy for any general approach (and easier still for a conceptually confused or barren one, once it has become institutionally entrenched) to effectively immunise itself from criticism, making illicit or covert use of *ceteris paribus* or *mutatis mutandis* or *etc.* (holdall) clauses... And in the institutional circumstances that actually prevail, social science still all too readily degenerates into some form of technical expertise, oriented to the pious *a priori* elaboration of empirically uncontrolled and unexplanatory verities, on the one hand, and to the incessant count or (attempted) measurement of the unquantifiable or the insignificant, on the other."[65]

Nowhere is this problem more evident than in mainstream economics, where the influence of the "positivist" outlook is dominant. But there are variants that lay special stress on the *a priori* element. For example, in an hermeneutic form in the Austrian school (e.g., Hayek, Mises, Knight, Robbins), ideology and teleology are at one in theories shaped in an explicitly normative fashion by the use of Kantian synthetic *a priori* propositions and Weberian "ideal types." Literally, "particular theorems are not open to any verification or falsification on the ground of experience...the ultimate yardstick of an economic theorem's correctness or incorrectness is solely reason unaided by experience."[66]

Another form is the naturalist and conventionalist-instrumentalist approach typified by Friedman, who has been described as "Popper-with-a-twist applied to economics."[67] Saying that his own often-quoted 1953 "Essay on the Methodology of Positive Economics" was Popperian,[68] Friedman maintained that a "theory cannot be tested by comparing its 'assumptions' directly with 'reality'." True to the hypothetical-deductive method, he argued that hypotheses can be tested only by the conformity of their "implications or predictions with observable phenomena."[69]

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[65] Bhaskar (1986: 290-91).

[66] Mises (1949: 858), quoted by Blaug (1992: 80). See also Collier (1994: 231-33), citing Lawson (1994a, 1993). On Kant, see, e.g., Collier (1994: 20-29, 85-88), Novack (1978: 203), and Chapter 2§5, especially regarding synthetic *a priori* propositions. On Hayek, see Dobb (1963: 27-28 n.2, 1973: 6). Redman (1991: 27) notes Popper's influence on Hayek, while similarities and differences (e.g., naturalism, synthetic *a priori*) are also discussed by Popper (1960: 131-32 n. 2, 136-43) and Blaug (1992: 76-82, Chapter 4). On the *a priori* nature of Weberian "ideal types," see Bhaskar (1994: 90, 200; 1979a: 38-39), Swingewood (1991: 135, 145-47), and Keat and Urry (1975: 122).

[67] Blaug (1978: 714), quoted by Redman (1991: 116).

[68] Redman (1991: 116).

[69] Friedman (1953: 40-41).

From this arises their instrumental worth, their practical usefulness. While it may be argued that Friedman really owes more to the American pragmatism of Pierce and James, and to the instrumentalism of Dewey, than to Popper, his "assumptions" are similarly summoned *a priori.*[70]

The hypothetical-deductive approach informs much of the methodological thinking in economics and has a demonstrable, if implicit, presence in its practice. According to Blaug, the upshot of this is that "economics is held to be only a 'box of tools,' and empirical testing can show, not so much whether particular models are true or false, but whether or not they are applicable in a given situation." He adds that this fosters a mood "not only highly protective of received economic theory" but also "ultrapermissive within the limits of the 'rules of the game': almost any model will do provided it is rigorously formulated, elegantly constructed, and promising of potential relevance [instrumental worth] of real-world situations."[71] In concert with this evidently *laissez-faire* epistemology exists a tightly cramped ontology that defines what it is that the *a priori* deductions are all about. It is a socio-economic ontology that denies necessary underlying social relations and is constrained rather to analyse the behaviour of optimising individual economic units in markets.[72] It is precisely the atomised and flattened world of methodological individualism espoused from Popper, Hayek, and their predecessors to Thatcher: the world stalked by the genus *homo economicus* and chronicled by the species *economicus vulgaris* discussed long ago by Marx.[73]

It is perhaps not so ironic that, within the prevailing philosophic-economic orthodoxies, this methodological individualist world may be shared in peaceful coexistence by a stylised inductivist empiricism. After all, if this "social" equivalent

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[70] See Blaug (1992: 91, 95, 101, 104) and Collier (1994: 229-30; citing Lawson 1992, 1989a). I do not think that it is problematic methodologically that Friedman should be Popperian and influenced by American pragmatism-instrumentalism. On this, see Novack (1978: *inter alia*, 303, 310). See also Leontief's (1971) scathing criticism of Friedman.

[71] Blaug (1992: 110-11).

[72] See Rowthorn (1980: Chapter 1, esp. 14-15). See also Hunt (1992: 91-107; 1972) and Hunt and Schwartz (1972: 8-12).

[73] "There is no such thing as society. There are individual men and women, and there are families." (Thatcher. October 31, 1987. *Women's Own.*). Cf. (*German Ideology*: 31, 36) and (*Grundrisse*: 83-87, 265). On Popper's individualist reductionism and its relationship with the hypothetical-deductive method, see Popper (1960: 134-37, 148-49, 157-58), Bhaskar (1989: 70), and Redman (1991: 109-10). On Hayek and Friedman's normative and methodological individualism, see Marginson (1993: 58; 1992: 13-14, 39), citing Lukes (1973: 110). On "vulgar" economics, see, e.g., (*Capital I*: 174-75, 421-22, 433, 679), (*Capital III*: 956), and (*Correspondence*: 179). See also n. 14 and n. 72.

of the pre-Columban view of the world sets the limit to the experiences from which inductions will be made, there will be little to distinguish the subject matter of the respective theories. Furthermore, in so far as the inductions merely create "theoretical entities" that entail no deeper ontological commitments, empiricism too can licence itself to be less rigorous than realism about the degree to which its theories and models should correspond with reality's pitiless facts.[74]

4 Empirically Controlled Scientific Explanation

What then stands in the place of rationalist and empiricist epistemologies? This question must be tackled because the validity of a work such as this depends on the coherence of the response. The answer was noted briefly in §1(iii): empirically controlled scientific explanation. My presentation will draw heavily on Bhaskar's model of theoretical explanation.[75] In all fundamental respects, the approach outlined below is the same as Marx's. However, it articulates in greater detail, and with reference to contemporary alternatives, the brief *explicit* sketches Marx gave of his own scientific methodology found in, for example, the Introduction to the *Grundrisse* and the Postface to the second edition of *Capital I*. The latter is a good place to start:

> "Of course the method of presentation must differ in form from that of inquiry. The latter has to appropriate the material in detail, to analyse its different forms of development and to track down their inner connection. Only after this work has been done can the real movement be appropriately presented. If this is done successfully, if the life of the subject-matter is now reflected back in the ideas, then it may appear as if we have before us an *a priori* construction.
>
> "My dialectical method is, in its foundations, not only different from the Hegelian, but exactly opposite to it. For Hegel, the process of thinking, which he even transforms into an independent subject, under the name of 'the

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[74] I agree with Collier on "correspondence" and relativism. See Collier (1994: 237-42; 1979b: 81-82, 84, 103 n. 16) and Sayer (1979: 29-31). Note also Collier's comment that empiricism as well as rationalism was compromised by idealist features (1979b: 62).

[75] See also Collier (1994: 160-67), Keat and Urry (1975: Chapter 2), and Sayer (1979: 39-44).

> Idea', is the creator of the real world, and the real world is only the external appearance of the idea. With me the reverse is true: the ideal is nothing but the material world reflected in the mind of man, and translated into forms of thought."[76]

The point being made here is simple. Theory is not developed in an *a priori* way, though it may look like that way in its finished form. Rather, theory development is *a posteriori*, which implies that it should be open to a continuous process of confrontation with the evidence. This being so, how then can it avoid just remaining in the world of appearances and, in a truly scientific manner, penetrate reality's "inner physiology"[77]? How does an epistemology with explanation as its primary goal allow the natural and social sciences to move "at any one level from knowledge of manifest phenomena to knowledge, produced by means of antecedent knowledge, of the structures which generate them"?[78]

The method is neither purely inductive nor deductive. It is an iterative procedure and may be schematically presented in the following four stages:

1. Significant manifest phenomena, including regularly repeated patterns of events, trends, etc., are identified and described. These comprise *what is to be explained*. The way in which material is appropriated and its forms are analysed will involve using descriptions developed in theories (antecedent knowledge). However, it is wrong to suppose that this *ipso facto* makes such material -- e.g., data, observations, etc. -- inherently theory-specific, suspect, or invalid.[79] Marxists typically interpret social inequality in class terms, for instance, but this hardly disqualifies their descriptions and calculations of income distribution. Changes in the "official" unemployment statistics, despite their limitations, do tell Marxists something about what is happening in the economy. What is crucial here is openness, clarity, reasonableness, relevance, and timeliness in identifying and

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[76] (*Capital I*: 102). See also (*Grundrisse*: 100-108).

[77] (*TSV II*: 165).

[78] Bhaskar (1989: 20, 90-92, 184-89; 1986: 63, 107-08; 1979a: 16-17, 203).

[79] See, e.g., Keat and Urry (1975: 50-54) and Bhaskar (1986: 35-36). Regrettably, the valid concerns addressed by the notion of the theory-dependence of data, observation, etc., have been exaggerated and distorted in the cause of relativism.

describing the phenomena in question and the sources and uses (including manipulations) of data covering the phenomena.

2. Possible explanations are constructed for the phenomena in the form of models *of what might explain* them: i.e., postulated models of the systems of causal, generative structural mechanisms at work in reality. These proposed explanations are in the form known as retroductive or transcendental arguments, which overcome the traditional exhaustive induction-deduction choice. *Capital*, for example, can be regarded as an exercise in establishing what must be so in (underlying) reality for the appearances of capitalism to be possible. These arguments are crucial in the absence of closed experimental tests in the social sciences: they perform the role attributed by Marx to the power of abstraction.[80]

3. Existing theoretical resources,[81] analogy, analytical reasoning, logic, etc., are used to elaborate the model and eliminate alternative possibilities. This process is also governed by "considerations of consistency, coherence, plausibility, relevance, non-redundancy, independence (novelty), comprehensiveness, depth, fertility, empirical testability, formalisability, geometric or iconic representability, as well as others of a semi-aesthetic kind, such as elegance."[82] Note the importance of empirical testability: Popper was wrong to allege that Marxism was inherently unfalsifiable, but right to think that an untestable theory is unscientific.[83]

4. The reality of the explanation(s) should be subject to empirical testing, for identification and comparison with alternatives. Note that, in the case of a social structure, it will be necessary to use causal criteria to establish the reality of the object under study. The reason is that such a structure cannot be perceived directly: it is "irreducible to, but present only, in its effects."[84] Thus social systems can be known to be real by the effects they cause (*contra* positivism and its successors). Social theories can also be subjected to rigorous quantitative or explanatory tests (*contra* hermeneutics) even though natural-scientific experiments

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[80] Bhaskar (1979a: 65; see also 1986: 11 n. 26), Collier (1994: 20-25, 166-67, 255-56), and Sayer (1979: 40). Sayer and Bhaskar (1986: 61-62 n. 105) cite Hanson (1969) concerning retroduction. Bhaskar also notes Pierce and Aristotle.

[81] See, e.g., (*Anti-Duhring*: 25) and (*Manuscripts*: 63).

[82] Bhaskar (1986: 62), and Keat and Urry (1975: 34-35). See also (*TSV II*: 169).

[83] Collier (1994: 58-59).

[84] Bhaskar (1989: 81).

are not possible.[85] Society does not have to be reduced to empirically observable individuals and their behaviour for the study of it to be scientific (*a la* the methodological individualists), nor is it a realm of pure theory beyond the grasp of social *science*. Once identified empirically, social objects of enquiry can then be encapsulated in real definitions. This is but the first step in an iterative process that seeks to explain deeper levels of reality by repeating the process. It will also correct and improve earlier explanations. Nothing is beyond challenge. In other words, definitions of mechanisms

> "are achieved... as part of an irreducibly empirical and irreducibly historical process of inquiry, so that they are both *a posteriori* [not synthetic *a priori*] and potential explananda of further cycles of scientific work, in the course of which they may come to be re-described as well as explained."[86]

Neither in the natural sciences nor in the social sciences are these advances in knowledge "plucked a priori out of hats, spun out of thought alone."[87]

I have taken some liberties in presenting Bhaskar's model of *theoretical* explanation in order to expand on those aspects I consider more relevant to the social sciences. I have also stressed the empirical questions because they are central to the purpose of this chapter. This tilt has been important also because Bhaskar's model of *practical* explanation for the applied social sciences rests on social knowledge previously developed in this way. First, a given set of concrete developments, comprising both internally-related and externally-related parts of the complex totalities that exist in the world, need to be resolved into their components (decomposed).[88] Second, these need to be redescribed so as to make them amenable to the application of theory. Third, allowing for the particular circumstances of time, place, change, etc., an attempt must be made to assign causes to the developments. Fourth, inadequate explanations are eliminated. Fifth, and finally, appropriate explanations, in terms of the theoretically developed

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[85] Bhaskar (1979a: 16, 49-51). See also Collier (1994: 163-66).
[86] Bhaskar (1986: 64-65; see also 1989: 189).
[87] Bhaskar (1979a: 54).
[88] See §6.

generative causal mechanisms and structures, are identified. As was the case for theoretical explanation, correction of both theory and its application is implicit.

Similarities with the concrete-abstract-concrete method Marx outlined in the *Grundrisse* Introduction arise as a matter of course. If theoretical explanation can be represented as C-A, the abstraction or "abduction" of the abstract from the concrete, then practical explanation follows as A-C'. The concrete (C) is then understood more completely through theory as the concentration of many determinations (C').[89] Marx's subsequent "rejection" of this Introduction was to do with starting points for exposition of the categories of political economy, not with its substantive content.[90] It is also important to point out that, in the social domain, real explanations that expose the misleading limits of appearances also necessarily involve *critique* of theories that fetishise those appearances, as well as of the categories in which such theories are expressed.

5 Determination in Open Systems

There are ways in which the principles of §1 and the models of explanation in §4 may help to resolve some long-running disputes within Marxism, including Marxist economics. Later chapters will call on some of these themes. Approaches to emergence, causality and determination, and tendencies in open systems are especially significant. **Figure 1.3** seeks to clarify what these terms mean.[91]

The left-hand side of the figure is designed to illustrate the concept of emergence. Each successive box containing {A,... D,...} emerges from the one that precedes it in a one-way direction (arrows). The boxes represent real levels of stratification (ontological depth). Each one can be a natural or social system or set of systems. It is the structure that has the power to generate the various outcomes or events we experience: i.e., it represents the structural, causal, generating mechanisms referred to in earlier sections. An example will clarify this. Let A be

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[89] See Bhaskar (1993: 133-34; 1989: 90-91, 142-43; 1986: 107-08), Collier (1994: 160-67, 255-59), and (*Grundrisse*: 101). Collier provides a concise and insightful realist analysis of the *Grundrisse* Introduction (1979b: 79-83). See also T. Smith (1993a: 35-47) for a reading of the Introduction in terms of Hegel's logic.

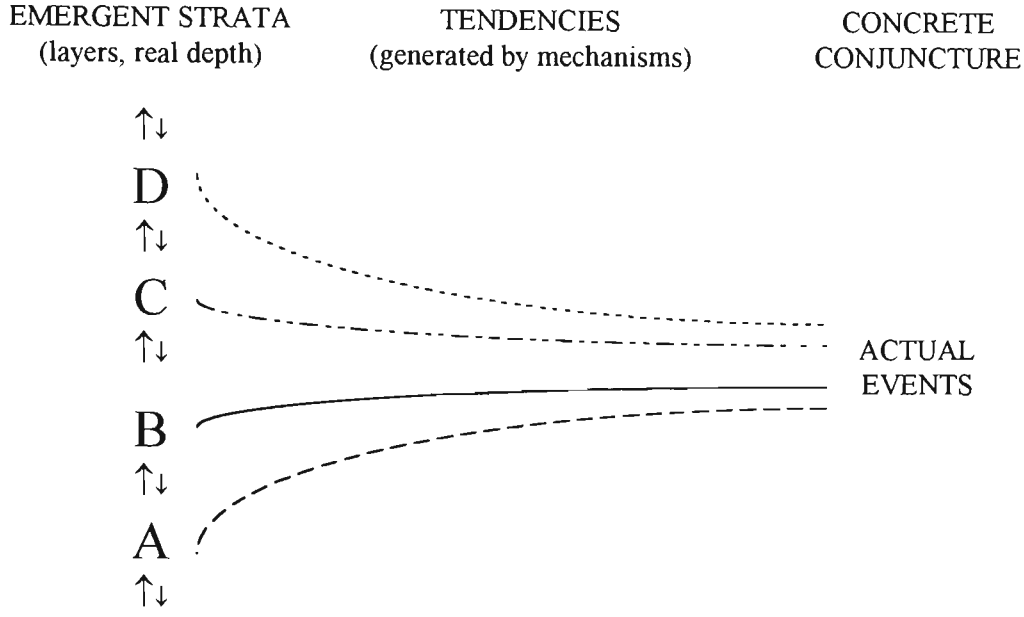
[90] Nicolaus (1972: 33-43), Sayer (1979: 32 ff.), and (*Wagner*: 45, 50-52).

[91] My discussion is based on Bhaskar, as well as Collier (1994: Chapters 2, 4, and 8). Again, I have taken some liberties.

the set of natural-physical mechanisms, B be the human-biological, C be the social, and D be human consciousness. To say that each is emergent is to say two things.

FIGURE 1.3

Determination in Open Systems



{A, ... D, ...} Causal mechanism or set of mechanisms operating at any level of reality
↑ Emergence
↓ Feedback

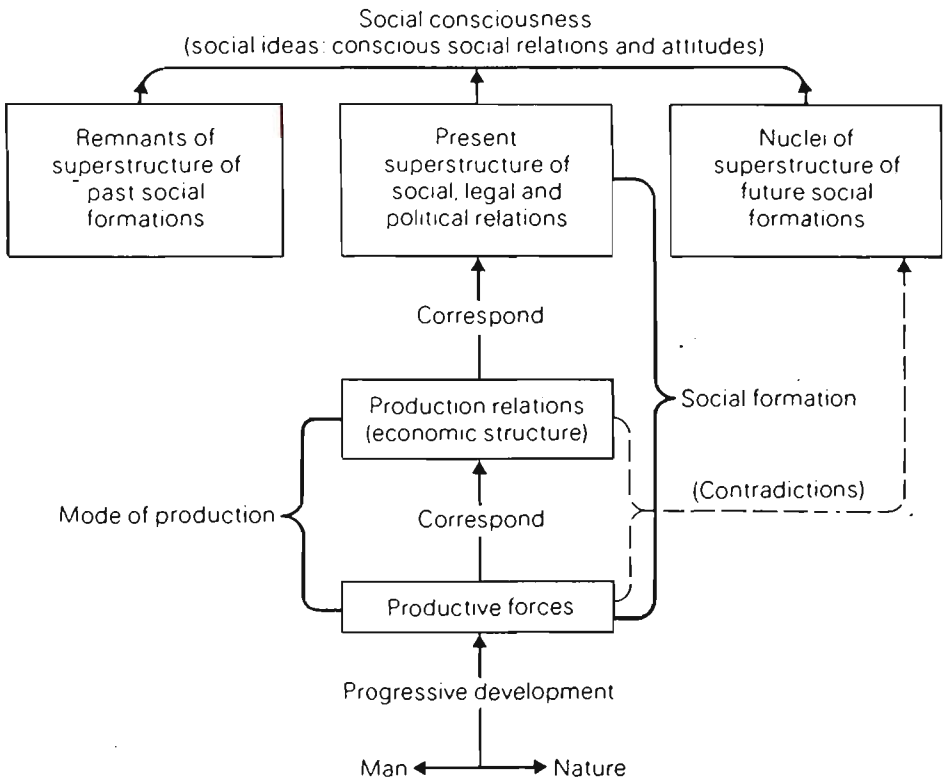
First, higher levels are rooted in lower ones, which are necessary for an understanding of them. Crudely, human brains are composed of atoms and, to that degree, are subject to the physical laws of electro-magnetism, chemistry, etc. This grounds all the references in Marxism of the type: being determines consciousness, humans first must eat, people do not make their history just as they please, etc.[92] Second, and this is crucial, emergence means that each successive layer of reality is irreducible to the one from which it emerged. It means that an explanation of C *just* in terms of B (social mechanisms in terms of biological ones) will always be insufficient and obviously fatuous. It is also to say that mechanisms at each level have their own dynamics and special characteristics, and it is this that provides the *raison d'être* of the sciences that study them. This recognition grounds all the

[92] See, e.g., (*Preface*: 21), (*German Ideology*: 30), (*Brumaire*: 398), and Engels's *Speech at the Graveside of Karl Marx* (*SW III*: 162-63) and *Karl Marx* (*SW III*: 85).

arguments within Marxism against reductive, vulgar, physicalist, and mechanistic materialisms. It also grounds the recognition of feedback (downwards arrows): e.g., the impact of human society on the natural environment and of individuals' ideas on society.

FIGURE 1.4

Emergent Strata in Marx's *Preface*



When the notion of emergence is applied to Marx's *Preface*, as illustrated using Lange's diagram in **Figure 1.4**, economic-determinist banalities are easier to deal with (as are the hostile reflexes to them).[93] Another example is useful at this point. We can regard the capitalist economic system, typified perhaps by the circuit of capital approach, as just the sort of structural mechanism (C) rooted in social relations (B) and forces (A) of production that underpins the political, juridical,

[93] Lange (1963: 33), as reproduced in Barratt-Brown (1984: 17, 1970: 13). Marx and Engels's denials of crude determinism are worth noting in this context. See, e.g., (*Capital I*: 175-76 n. 35) and Engels's letters to Bloch, Schmidt, Mehring, and Borgius (*Correspondence*: 394-402, 433-37, 441-43). See also, e.g., Bhaskar (1979a: 95 n. 43), Collier (1994: 234), Edgley (1990: 118), and Timpanaro (1975: 114).

and ideological mechanisms (D,...) extant at any time. However, a distinction of supreme importance must be made. While "determination" may be used as a surrogate for emergence, the sense in which it means determination of the concrete conjunctural situation is fundamentally different in an open system. Precisely because social mechanisms at any level cannot be isolated from those at other levels we cannot obtain pure access to them. If closure could be obtained, the law describing the mechanism's operation can be shown to be real (as in the experiments of natural science). In the open and muddy world of society "causal laws must be analysed as tendencies."[94]

The splicing of tendencies and counter-tendencies produced by systems operating at different levels and, depending on how each level is specified, within levels, is illustrated in the centre of Figure 1.3. Their precise weight-in-combination is what will determine the set of concrete, conjunctural outcomes. In open systems, it is right to say that events are codetermined or multiply-determined. Is not this what Marx said, too: "The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse."[95] Here is also the rub: debates within Marxism will be meaningless if the (vertical) frame of emergence is used to explain concrete events in a reductionist way. To explain any set of events in terms of, say, A (or even A and B), will always be insufficient. Emergence-determination of this sort is as meaningless as a yellow logarithm (to paraphrase Marx[96]). Equally impermissible, however, is to reject reductionism but to replace it with chance or contingency, which denies the forceful role tendencies can have in determining outcomes.[97]

I will use some examples from Marxist economics to demonstrate these arguments. Within the economic system described by the circuit of capital[98] it is probably valid to rank emergent sub-strata in this way: production (P) => distribution (D) => circulation-realisation (C_r) => circulation-finance (C_f). However, it is an illicit conflation of separate modes of explanation to say that,

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[94] Bhaskar (1978: 50).

[95] (*Grundrisse*: 101). See Collier (1994: 255-59).

[96] (*Capital III*: 957).

[97] If reductionism amounts to dissolving the concrete in the abstract, then contingency dissolves the abstract in the concrete.

[98] See Chapter 3§§2 and 6. See also Chapter 5§7.

because production is the fundamental *sine qua non* of the other systems, its activities and tendencies are, necessarily, also the main cause of concrete events such as economic crises. The possibility that tendencies generated from (P)... (C_f) may be determinate in a given crisis (alone or conjointly) is sufficient to rupture the argument. The strata function differently in the different roles they play in the different modes of explanation. It is also possible to point to different meanings attributable to "cause" in concrete circumstances. It may be true that a tendency to a declining rate of profit generated by production conditions is the long-run cause of systemic problems preceding a crisis. Equally, it is possible that the proximate cause of a crisis may be another tendency with a more acute impact and, moreover, that the efficient cause (trigger) precipitating the actual crisis may be a financial scandal.

Furthermore, the effects of some tendencies considered to be real enough in themselves, such as the tendency of capital to be mobile in its pursuit of higher rates of profit, which by itself would act to push profit rates towards a long-run social average, may never be manifest or actualised. This, however, does not make them mere theoretical entities or conveniences. It is just that the effects of the real activities (mechanisms) generating them may be offset completely by other tendencies. In this specific case, there are also tendencies of concentration and centralisation of capital, which can tend to restrain profit rate decreases, and for new market leaders to break from the pack, which tends to disperse profit rates.[99] There may be some outcomes that do not have dominant influences overall. In this sense, if in no other, some results in open systems may be said to be indeterminate.

Timpanaro argued in a similar way against structuralists and structuralist Marxists who, in elevating the status of theory and severing it from empirical control, were excessively inclined to see and formulate "'laws' where there are none." In some situations, an understanding of tendencies may be our limit "because the causal links are too entangled and contradictory and mutually cancelling to allow easy simplifications." This was not to say that reality was free from determination, but it was a simple measure of the

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[99] See, e.g., Engels's letter to Schmidt (*Correspondence*: 457-59), (*Capital III*: 252, 261, 273, 298, 489-91), and (*TSV III*: 462-64). See also Bhaskar (1994: 81 n.†), Hodgson (1981: 88-92), and Mandel (1975: 75-76). Cf. Howard and King (1992: 279), citing Farjoun and Machover (1983). See also Chapters 3§4 and 4§6.

> "necessary respect for empirical data which... has represented a *higher*, not lower, degree of scientificity. It is also for this reason that I think that the path towards greater scientificity in the human sciences does not always lie in the direction of a premature (and often merely exhibitionist) mathematization, but rather in the direction of an exchange of findings with other *inexact* sciences, more closely linked to empirical elements and the historical dimension."[100]

Does any of the above leave us in the realm of abject contingency, or where "over-determination" is always taken to mean indeterminism?[101] To think so is to misunderstand the argument. Nothing that has been said can be used to deny, *a priori*, historical materialist propositions, such as those concerning class struggle. Nor does it rule out the possibility that particular tendencies (e.g., rising technical composition of capital, diminishing reserve army, flagging consumption spending) may manifest themselves and even dominate particular outcomes, despite the existence of dampening tendencies. Understood properly, the argument merely denies reductionist arguments for such propositions. *A fortiori*, it also insists that separate and substantive empirically-controlled theoretical cases must be made out for them. That is, there must be *theories* of class struggle and crisis. Note, too, that capricious indeterminism, the flip-side of reductionism, is based on the same misconception: i.e., that reductionist determinism is the only other alternative.

6 Interrelation and Change

Neither the vertical explanation of emergence nor the horizontal explanation from tendency to concrete conjuncture is enough, by itself, to depict the complexity of reality. However, it is also right to query whether the two dimensions of Figure 1.3 are all there is. The answer is clearly no. Two aspects usually associated with what may be called a dialectical dimension are absent. I will

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[100] Timpanaro (1975: 189). This warning is mentioned approvingly by Williams (1980: 120). See also Dobb (1937: 130-31).

[101] See the discussion of these terms in connection with post-Althusserian positions in Chapter 2§2.

confine the following remarks on these to the social domain for convenience and merely note that I think they are applicable to nature as well. It is worth raising these concepts because they will help to give some order to the discussion in Chapter 3 about the place of profit and accumulation in the structure of Marx's theory.

First, the dependence of both dimensions of Figure 1.3 on time (history) and space (geography) must be registered. Change is inherent. While it is true that the structures on the left-hand side are less changeable than the manifest shape of tendencies or the instant condition of actual events on the right-hand side, the whole of reality is apt to change over time and from place to place. Second, the systems and structures represented will be, to a greater or lesser extent, totalities. Some or all of the parts of systems (or systems themselves) will be internally related to other parts (or other systems). Internal relatedness exists when each is necessary for the existence of others.[102] Reality is, in Marx's words, a "rich totality of many... relations" and contradictions.[103] Thus, for example, capital and labour are contradictory parts of an economic totality but cannot really exist independently of each other. Recognising both change and interrelation makes it intelligible to say about capital that it is not a thing but "a definite social relation of production pertaining to a particular historical social formation..."[104]

Now, Marx set himself the daunting task of trying to map,[105] in theory and the concepts and categories used to carry the theory, the complexities of the three dimensions as outlined. He also had to account for the conscious transforming activity of human social agency. I will return in Chapter 3§1 to Marx's formulation and presentation of his theory. For now, it will be useful just to try to clarify the principle that the realism and empirical status of Marx's social theory are not necessarily compromised just because the theory itself is necessarily complex. However, it is also proper to recognise that complexity does have unintended

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[102] "An element A is internally related to B if B is a necessary condition for the existence of A, whether this relation is reciprocal/symmetrical or not." (Bhaskar 1993: 399)

[103] (*Grundrisse*: 100). "Concrete reality is a unity, but a differentiated unity... and differentiation means opposition and contradiction." (Edgley 1990: 117) See also Bhaskar (1993: 270).

[104] (*Capital III*: 953).

[105] Collier (1994: 5, 1979b: 82).

effects that can make the reality and empirical implications of the theory more difficult to access.

Marx's secretary Lafargue reported Marx's worry that, in his zeal to reproduce the sum total of the world's manifold and constantly changing interactions and inner relations, he would be like the painter who retouched "a picture over and over again until, finally, he has produced nothing but a formless mass of paint which, however, to his biased eye is the most exact reproduction of reality."[106] Engels, too, warned readers of *Capital* not to seek "cut-and-dried" universal definitions for "things and their mutual relations."[107] Change implied that evolving explanatory frameworks would be offered instead. However, within such frameworks, Howard and King have argued, Marx "interrelates concepts to an excessive degree," and the absence of fixed definitions "creates ambiguities."[108] In addition, Timpanaro has shown not only how some later Marxists have seen "laws" where there are none but also how others have arrived at tendentious positions because of a propensity to exaggerate organic interconnection where interdependence is tenuous. Some relations are just external, a point reinforced in Timpanaro's forceful case that Marx's and Engels's materialist view of dialectics required that interrelations be established by empirical means "without doing violence to reality in order to make it agree..."[109]

All of these are valid points. However, we are still left with the unavoidable need to accommodate in theory the reality of change and totality. How far we go in so doing may be a matter of choice, but whether or not we recognise these aspects of reality is not. There are structured systems of interdependent wholes and parts, partially interdependent systems, and systems in which relations are external. There are historical change and the simultaneous existence of social realities at different stages of development. When we do not make room for these realities our theories suffer. The atomised and eternalised models of neo-classical economic are one,

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[106] Lafargue (1972: 22; see also 21).

[107] Engels (Preface to *Capital III*: 103; see also his Review of the *Critique*: 225).

[108] Howard and King (1975: 57; see also 33-39, 55-58). They cite, e.g., Engels's Preface to *Capital III*, (*Grundrisse*: 278, 512-14), and Ollman (1976, 1971). I think it is fair to note, however, that Ollman offers an extreme interpretation in the direction of internal-relatedness (Bhaskar 1979a: 53-54). So, too, does Boudin (1918). See also T. Smith (1993a: e.g., 36-38, 117).

[109] Timpanaro (1975: 89; see also 191-92). It is also fair to note that Timpanaro has strong doubts about dialectics (Novack 1978: 323; see also 117-34, 138-45, 231-55). See also Bhaskar (1991: 167).

perhaps extreme, case in point of detotalised and dehistoricised (and desocialised) thinking.[110]

The fact that concepts (categories) that recognise such realities may be definitionally unstable and infused with each other does not put them beyond empirical reach, any more than it turns them into mere theoretical entities. Capital and labour, for example, can be identified in separate terms so that they may analysed and appropriately quantified. Disputes over the best methods to do this can be resolved by asking which method best grasps reality. Similarly, the empirical implications of the theories that use interrelated and unstable concepts on a more ethereal plane can be tested for their explanatory power.[111] Marx's political economy is such that its constituent elements can be analysed and tested. We are not bound to treat it as a job lot, as many Marxists have claimed, to be "accepted or rejected in its entirety" from "foundation-stone to roof-coping."[112] It is wrong to think of analysis as "literally to pull apart -- an act of violence rather than of understanding."[113] In contrast there are occasions when an act of understanding makes it necessary to treat our object holistically. When we do, however, we can and must maintain an empirical perspective.

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[110] Bhaskar (1993: 124 ff.; 1991: 166-68, 1979a: 55).
[111] Bhaskar (1979a: 96 n. 53).
[112] Boudin (1918: 49).
[113] Collier (1994: 258).

2

Disputes in Marxist Methodology

1 Rigorous Openness to Evidence

The "special character of materialism, and that which alone gives it value," remarked Williams, "is its rigorous openness to physical evidence."[1] Williams's words succinctly express the implications of the method of theory development given in Chapter 1 for the formulation of theories and models. All aspects must be falsifiable, otherwise empirical control is impossible. This is especially important in the human and social sciences, whose worlds are intrinsically changeable and complex. Hence vital theoretical traditions within them need to be open and face regular testing. Errors can then be corrected, shortcomings progressively diminished, and explanatory strengths refined and enhanced. This chapter aims to reinforce this fundamental approach by arguing against alternatives within Marxism who would differ on various *ex ante* methodological grounds.

Contesting the claims of those Marxists who denied an empirical perspective, Mandel clearly thought the issue to be of the highest significance:

> "...Marx himself, at any rate, categorically and resolutely rejected...[a] rift between theoretical analysis and empirical data...As soon as 'laws of development' come to be regarded as so abstract that they can no longer explain the actual processes of concrete history...[a]ll that remains is a degenerate form of speculative socio-economic philosophy...For this reason, the rejection of a *mediated unity between theory and history, or theory and empirical data*, has always been connected in the history of

[1] Williams (1980: 122).

> Marxism...either with a mechanical-fatalistic determinism, or a pure voluntarism. Inability to re-unite theory and history inevitably leads to inability to *re-unite theory and practice*."[2]

However, a rigorous openness between theory and evidence requires hard work. It also exposes theories to the unpleasant possibilities of criticism and rejection. Realist Marxist theories immanently impose such stringent demands on themselves because they claim to explain a reality that is external to themselves. Not only the "positivist" and non-realist theories discussed in Chapter 1,[3] but also a considerable number of Marxists, suggest methodological reasons for weakening their sense of empirical accountability or for avoiding this responsibility altogether. This section will provide a background for the debates on this theme in §§2-5, first by exploring Marx's approach to the familiar "appearance-reality" distinction.[4] Following from this it will look at divergent views on the very nature of theory and models. Differences on this central issue have ramifications within Marxism for the status and weight attributed to the relationship between theory and empirical evidence.

Marx did not consider the deeper social relations based on ownership, class, and exploitation to be necessarily opaque. Rather their existence was disguised, mystified, shrouded, concealed, and inverted, by the appearances of normal capitalist "competition." This is why theory could not just be a "reflection" of the world. Similes that depict the layers of theory (from abstract to concrete) as a series of closer aerial photographs of terrain are misleading for this reason. Such analogies may be suitable for depicting the complexity of interrelations at a given level of reality, but they do not emphasise that painstaking scientific work is needed to demystify, uncover, dig out, and display the deeper social realities behind the events we experience. It also had to criticise theories in political

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[2] Mandel (1975: 20, emphasis added). His target was Althusser, but he also mentioned Mattick. I will leave criticisms of Mandel's own practice, e.g., Collier (1979b: 96) and Rowthorn (1980: 105), until later chapters.

[3] Collier (1994: 13-14, 88).

[4] See Figure 1.1 and Chapter 1§1(ii). Sometimes the following are used synonymously: form and content, illusion and reality, appearance and essence, phenomena and hidden substratum, form of manifestation and inner connection, outward appearance and inner reality, estranged outward appearance and internal relationships. See, esp., Geras (1972: 285). See also Collier (1994: 26), Novack (1978: 306, 324), and Keat and Urry (1975: 100, 114, 179-80).

economy that were accomplices in obscuring these deeper social realities.[5] Theory then had to be theory *about* an irreducibly independent reality that was structured. Thus it also had to be structured. Of course, theoretical structures and real structures are not the same. Nevertheless theory did need to be realistic if it were to do justice to its object. Just because deeper reality was obscure was no reason to licence obscurity in theoretical structures and models.[6] Hence it was also necessary to be empirically accountable. No accurate reading of Marx's repeated references to the empirical dimension of his work could entertain any other interpretation of his views.[7] He told Engels that it cost him "much hard toil" to ascertain the underlying interconnections elaborated in *Capital*, but then "after that had been done, one Blue Book after another arrived...and I was delighted to find my theoretical results fully confirmed by the facts."[8]

Marx's method contrasts sharply with the "positivist" tradition, in which the "observable" is given pre-eminent status. Significantly, objects that are not experienced directly are not considered to be real in themselves. They are instead granted a purely "theoretical" status. This is so whether the objects are inherently unobservable in themselves (e.g., a relation of oppression) or just not yet observed (e.g., sub-atomic particles). All such theoretical entities are then defined by so-called correspondence rules, which tie them to objects that have been directly experienced, a method that effectively reduces the scope of ontology to the field of experience and limits what theory can be about.[9] For example, women's oppression may be reduced to identifiable instances of discrimination against individual women, instead of regarding such instances as effects of a real mechanism of oppression located deeper in the social structure. The problem here is not that empirical links are sought. Rather it is that the body of theoretical laws, statements, concepts, and categories that may be used to describe empirically identified

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[5] See, e.g., (*Capital III:* 123-24, 127-31, 43-47, 138, 168, 170, 230-31, 31) and (*TSV I:* 89, 92; *TSV II:* 69; *TSV III:* 377-78). Compare Marx's criticisms of Ricardo and Smith to those directed at their vulgar epigone. See, e.g., (*TSV II:* 106, 64-69, 190-91, 437;*TSV III:* 500-01) and also the references to James Mill in (*TSV III:* 84-88).

[6] See Collier (1994: 4-6, 67-68, 238-42; 1979b: 81-83) and Sayer (1979: 29).

[7] See, e.g., (*Dialectics*: 48), (*German Ideology*: 19, 24), and (*Manuscripts*: 63). See also Bhaskar (1991: 168), Bottomore and Rubel (1961: 23), Howard and King (1975: 4, 20-21), Mandel (1971: 209-10), and Timpanaro (1975: 186, 194-95).

[8] Letter to Engels. August 24, 1867. (*Correspondence*: 180-81). Lafargue's depicts Marx as a virtual obsessive about empirical data and sources (1972: 20-25). See also Chapter 1§1(iii) and §4 and notes.

[9] Collier (1994: 7, 44) and Keat and Urry (1975: 17-22, 37-40, 159-61).

phenomena are thought of as mere devices. This is a weaker commitment than the one a realist is obliged to sustain, as it can imply that the "theoretical" construct or model is not in itself required to face probing tests that go to the heart of whether it is real or not.

However, a none-too-subtle shift of emphasis follows inexorably if the next step is taken: to the *a priori* hypothetical-deductive approach to models.[10] Popper explained it succinctly when he said that,

> "in the social sciences it is even more obvious that we cannot see and observe our objects before we have thought about them. For most of the objects of social science, if not all of them, are abstract objects; they are *theoretical* constructions (even 'the war' or 'the army' are abstract concepts strange as this may sound to some. What is concrete is the many who are killed; or the men and women in uniform, etc.) These objects, these theoretical constructions used to interpret our experience, are the result of constructing certain *models* (especially of institutions), in order to explain our experiences..."[11]

As was explained in Chapter 1§3, theoretical viability is sustained here by logical consistency (axiomaticity) and elegance, on the level of theory, and by convention or the pragmatic "usefulness" of conclusions drawn from deductive models (functional instrumentality), on the level of empirical test and practice. The level of the real is conveniently elided, as is the need for the more rigorous forms of empirical control that should accompany it.[12] The opportunity cost of hypothetical-deductive elegance, however, is the loss of robustness in application and the very instrumental insulation afforded to what may be plainly unreal and ideological models and hypotheses.

An alternative path is taken by those who recognise that immediate impressions may not be trusted but wrongly conclude that experience is merely illusion (mere appearance) and *must* not be trusted. All experience becomes dispensable at the

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[10] See Chapter 1§§2-3.
[11] Popper (1960: 135).
[12] See Chapter 1§4.

level of theory, even if it is not in practice. A corollary is to say that there is a deeper reality but it is empirically opaque.[13] Here we find various shades of objective idealism, hermeneutics, and structuralism. We also find various shades of Marxism that have, quite literally I think, taken leave of their senses. Althusser is an example. He gave privilege to the status of scientific models and theories over the empirical aspect of reality, meanwhile allowing the underlying real objects of knowledge to fade into the epistemological background.[14] Such an epistemology, according to McCarney's acute observation, acts as "an outer rampart behind which science [theory] shelters from the exigencies of the practical world."[15]

The next step from here is really a staggering leap. The reality of anything independent of theory becomes something of a dispensable essentialist curiosity. It is a leap common to an array of post-modern thinkers. The privileged position of theory and/or language is further enhanced. Theory (thought) and/or language become reality or are conflated with it. The final step, if it is taken, is only a short one: if all there is to reality is theory and language, who is to know what is meant by the theory, language, word, or image other than the receiver of the impression, the perceiver, the signifier, the interpreter, the theoree?[16] We are back in the realm of experience, but it is an entirely personalised one. Everything is relative, nothing objective, in this post-modern world that has left even Berkeley's subjective idealism behind.[17]

Marx could not grant himself such luxuries.[18] He could not exercise his mind just with pure deductive model-building.[19] Constructing his own truth was also precluded. Marx was constrained by his own methodology to uncover the deeper capitalist realities, on the back of the achievements of existing political economy, in the messy world of capitalist activity. Accordingly, no epistemological barrier

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[13] See esp. Timpanaro (1975: 186) and Williams (1981: 340).

[14] Bhaskar (1989: 188). See the discussion of Althusser in §2.

[15] McCarney (1989: 125). His target was Althusser, but Lakatosian "hard cores" and "protective belts" come to mind. See Chapter 1§2.

[16] Collier's (1994: 4) parody of this intellectual fashion, in particular deconstructionism, is exquisite.

[17] Collier (1994: 86).

[18] Luxuries 1, collapse of ontology: reality compressed into the plane of the directly perceivable. Luxuries 2, collapse of epistemology: we can only know knowledge. Luxuries 3, *a priorist* theory: rationalism, conventionalism-instrumentalism. Luxuries 4, relativism: anything goes and who can judge? Luxuries 5, superidealism: the world changes along with theories. Luxuries 6, individual relativism: the eye (literally) or mood of the beholder.

[19] Lafargue (1972: 22-23).

could be allowed to impede the necessary two-way flow between Marx's economic theories and the empirical evidence. This does not mean either that answers can simply "be read straight off the empirical world"[20] or that more general (abstract) parts of theories will be as easy to test as their particulars.[21] It does not even deny that different theoretical traditions will ask different questions and approach the subjects involved from different angles.[22] All it does is say that the process should seek to be as open on all levels as it is possible to be. In turn, this will help to ensure that the results can be assessed objectively.

2 Pathways to Relativism

One line of *ex ante* difference within Marxism to the approach of this work may be traced to Althusser. McCarney observes that Althusser's reputation "seems near to total eclipse," quoting Elliott that his status in France is close to that of "dead dog" and that his views are "largely absent" from contemporary British Marxist debates.[23] However, there is no doubt about the power his views once exercised. Their transitional role and influence on the development of currents alive today have been noted more than once.[24] Moreover, a set of "Althusserian" views remains as a marker in the social sciences in spite of Althusser's own positional shifts over the years. What will be discussed then is a position rather than the intellectual evolution of the person: a stylised Althusser, as it were. Fashion notwithstanding, this set of views maintains a strong residual presence.[25]

Althusser's formal materialist commitment is sometimes neglected.[26] He also thought that "the real object...is the absolute reference point for the knowledge that is concerned with it."[27] Nonetheless his approach to the development and

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[20] Bhaskar (1989: 88-89).

[21] See, e.g., Collier (1994: 255-56), Dobb (1973: 19), and Trotsky (1973: 232).

[22] See, e.g., Dobb (1973: 18-19) and Sweezy (1972: 55).

[23] McCarney (1989: 115), citing Elliott (1987: 1-2, 6). "Dead dog" is a play on descriptions of the status of Hegel and Spinoza discussed by Marx (*Capital I,* Postface to 2nd. edn.: 102; see also *Correspondence*: 225).

[24] See, e.g., Beilharz (1991: 13) and Bhaskar (1991: 183, 185 n. 41; citing Anderson 1980: 126, and Elliott 1987: 324ff.).

[25] See especially Althusser and Balibar (1970). Relevant explanations and criticisms of Althusser (and post-Althusserian positions) are: Anderson (1976), Beilharz (1991), Bhaskar (1991: 180-83; 1989: 142-43, 187-88; 1986: 237-38), Collier (1994: 52-54; 1979b), Mandel (1975: 13-22), Meiksins Wood (1986: Chapter 5), Novack (1978: 175-90), Sayer (1979), and Timpanaro (1975: 64-65, 185-96).

[26] Bhaskar (1986: 238).

[27] Althusser (1970: 156).

assessment of knowledge severed two fundamental epistemological linkages on which these commitments depend. The most obvious was the empirical link. Althusser displayed an "exaggerated anti-empiricism" and a "supreme disdain for the empirical," which he disparaged as mere appearance. These features of his thought covered a "disturbing inability to come down to the concrete."[28] However, appearances can be paradoxical in theories as well as in reality. I will explain shortly that severing the theory-empirical link can all too easily underwrite a contingent and empiricist practice.

The second link Althusser severed was that between knowledge of the underlying structure of the capitalist mode of production and the reality of that structure. This resulted from him distinguishing between "real objects" and "objects of knowledge" in his reading of Marx's method. Althusser thought that scientific knowledge came about by applying theory to existing concepts, which were often ideological ones. So far so good. However, the theory that transformed existing ideas was not, in Althusser's view, one that has been developed *a posteriori*. "Metaphors of extraction and essence/appearance distinctions are therefore misleading...[T]hought and reality never confront one another directly."[29] Instead theory is fashioned not "as if" but *as* an *a priori* construction. The knowledge derived by the work of theory on pre-existing ideas is, in turn, assessed on "one hundred per cent internal" theoretical criteria.[30] Of course, this is pure conventionalism. It flows directly from the view that "theoretical knowledge...does not depend on external proofs for its validity since it is purely theoretical..."[31] Reference to empirical evidence is therefore evidence of empiricism!

It has been pointed out in various ways by realist Marxists that thought (knowledge) of the real and reality itself should not be conflated.[32] Science does involve work on pre-existing theories and knowledge: it does not merely reflect reality. To think otherwise is very crude reductionism. Marx also made this "prosaically commonsensical distinction" from the other direction against Hegel,

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[28] Timpanaro (1975: 65).

[29] Sayer (1979: 28).

[30] Althusser (1970: 59). See Sayer (1979: 27-29). Bhaskar (1989: 142-43, 187-88) also represents Althusser's position as a rationalist, *a priorist*, and conventionalist strain within Marxism.

[31] Swingewood (1991: 309).

[32] Bhaskar's distinction between the transitive and intransitive objects of knowledge (1989: 188; see also 1978). See also Collier (1994: 50-54; 1979b: 82-83, 85).

whom he said reduced reality to thought.[33] Althusser's problem was not this distinction but what he did with it. Althusser removed the need for there to be some form of correspondence between theory and its real object and for there to be any form of empirical control. An external reality may exist, but our limit is theory. The effect of this is immediate: to justify the insulation of theory and to sanction relativist extrapolations. Althusser's failure to establish clearly "the real object rendered it as theoretically dispensable as the Kantian thing-in-itself and helped lay the ground for the worst idealist excesses of post-structuralism."[34]

Meiksins Wood's criticism of post-Althusserian positions demonstrates the location of some of these excesses in Althusser's social theory. In particular, she analyses how the key Althusserian phrases "mode of production," "social formation," and "over-determination" were construed. She also explains how anti-empiricism can become ultra-empiricism:

> "It is not at all clear -- and in 'post-Althusserianism' increasingly less so -- that structure has any empirical status at all, or any implications for the constitution of historical reality. The world of structure, of determinate structured relations, belongs to the realm of autonomous theory, while the empirical world, the object of historical knowledge, is a world of contingency and arbitrariness.
>
> "...The 'mode of production' as a structure of determined social relations does not exist empirically. In the 'social formation' which *does* exist empirically, structural *relations* are replaced by 'conjunctures' and juxtapositions, an arbitrary configuration of 'over-determined' elements (the potentially useful concept of over-determination[35] has increasingly become a cover for absolute contingency). In the historical world of the social formation there are no relations to be explained, only juxtapositions to be

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[33] Sayer (1979: 29), citing the Postface and the *Grundrisse* Introduction. See also n. 35. Cf. T. Smith (1993a: 75-77), who thinks Marx misrepresented Hegel here.

[34] Bhaskar (1989: 188; 1986: 237-38 n. 9). The excesses referred to by Bhaskar are those of Hindess and Hirst (see below).

[35] Bhaskar presents a view of the "potentially useful" aspect of the term (borrowed from Freud) in Althusser's writing: "It signifies the multiple determination of events, structures, and totalities, and of the contradictions which constitute, reproduce and transform them. In methodological terms it implies the need, in investigating any level or nexus of social reality, to search for internal and interconnectedly generated as well as external and analytically separable causes." (Bhaskar 1991: 181)

> described -- even if description can be given an air of theoretical 'rigour' and determinancy by means of classification in an endless proliferation of taxonomic categories. The structural determinations of the mode of production have no explanatory status, since they do not reflect the logic of any actually existing historical and social processes. At best they provide the necessary taxonomic categories."[36]

In other words, the mediated unities posed in the passage from Mandel in §1 have been broken. The result is the "ease with which the structural determinism" at the level of theory "can give way to a conception of social processes and politics as random and contingent..." She cites the development of Hindess and Hirst as a prime example of the "ludicrous extremes" to which theoretical autonomy may be pushed. They are also notable for dissolving "all causality and all determinancy into irreducible specificity."[37]

Hindess and Hirst's "ontological denials," which licence *a priorist* and autonomous theory, were encountered in Chapter 1§1(i): the sort of superidealism "which involves explicit denial of the relation of knowledge to anything outside it."[38] Their denial of causality is no less explicit. "What we are challenging is *not merely* the economic monist causality of Marxism," they state (with Cutler and Hussain), "*but the very pertinence of all such general categories of causality and the privilege they accord to certain orders of causes as against others.*"[39] In particular, this rejects the most important propositions of historical materialism concerning the determining role of the social forces and relations of production, even if this role is understood to be exercised ultimately or in the last instance.[40] There is no room here either for theories in Marxist political economy that argue for developmental or cyclical tendencies. Not so strangely, perhaps, the authors also read an *a priorist* bent into the works of classical Marxists, saying that they put the "thesis of determination in the last instance...beyond any mere empirical

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[36] Meiksins Wood (1986: 77; see also 78-79), .

[37] Meiksins Wood (1986: 78-79). See, e.g., Hindess and Hirst (1977) and Cutler, *et. al.*, (1978, 1977). See also the criticisms by Collier (1994: 87-89; 1979b: 69-79, 83 ff.).

[38] Collier (1994: 88-89).

[39] Cutler, *et. al.* (1977: 128, original italics). Cf. Chapter 1§5.

[40] Engels to Bloch. September 21-22, 1980. (*Correspondence*: 394). See also Bhaskar (1979a: 53, 95 n. 42, n. 43; 1979b: 126-27, 137 n. 41, n.42).

refutation."[41] As an astounded Collier responded, "if anyone can produce a single passage written by a 'classical Marxist' to substantiate this, I would be prepared to hang a portrait of Sir Karl Popper on my lavatory wall"![42]

Not to be outdone, the Marxist economists Resnick and Wolff propose that "Althusser's and Hindess and Hurst's efforts to break out of essentialist social theory were incomplete," though they were in the right direction.[43] "Essentialism" here is used as a synonym for any extra-theoretical or non-contingent explanation of phenomena.[44] It is a corollary of over-determination, by which they clearly mean complete indeterminism. They "pointedly" reject the view that even their own

> "concept of class is the ultimate determinant of the rest of an economy or society... [or] that any part of an economy is the ultimate, last-instance determinant of the rest. Therein lies a radical anti-determinism whose positive expression is the concept of 'overdetermination.' Every process in society, including class, is overdetermined by the interaction of all other processes."[45]

Furthermore, for Resnick and Wolff, any attempt to suggest that "theory has a...pre-existing object lying outside itself -- 'in reality' -- is to take an essentialist epistemological position." All efforts to confirm theory "by reference to empirical factuality" are described as "pathetic." Rather it should be enough to rely on "the human condition which includes the marvellous process of thinking, speaking and writing."[46] This is patently idealist (not to say fatuous). Astonishingly, Resnick and Wolff's taxonomic contributions seem to be quite influential in Marxist circles.[47]

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[41] Cutler, *et. al.* (1977: 214).

[42] Collier (1979b: 79).

[43] Resnick and Wolff (1985a: xxxiv). See also Resnick and Wolff (1992a, 1992b, and 1988), and Norton (1992: 162-65).

[44] This seems to correspond to Popper's use, too. See Bhaskar (1986: 60-61) and Keat and Urry (1975: 42-43).

[45] Resnick and Wolff (1988: 4). Cf. n. 35.

[46] Resnick and Wolff (1985a: xxi-xxiv).

[47] Reflected in their lead essays (1992a, 1988, 1985a). Kanth's highly critical review of another of their works says that Resnick and Wolff "are among the more knowledgeable and active scholars working in U.S. academe in the Marxist tradition today" (1988: 132).

Cullenberg has also argued recently that even such terms as profit and technological change have no reality outside of the theories that use them. Furthermore, because such terms "take on irreducibly different *meanings* and *significance* depending on which Marxian theory employs them," the theories as a whole are, *ipso facto*, incommensurable. The quotation establishes its own methodological genealogy:

> "The claim that different theoretical constructs impart an irreducibly different meaning and significance to the concepts which constitute them derives from a general approach to the philosophy of science and epistemology that has become increasingly influential in recent years. This approach is, in different ways associated with the work of, among others, Thomas Kuhn, Richard Rorty, Michel Foucault, Jacques Derrida, Donald McCloskey, Stephen Toulmin and Nelson Goodman in the nonMarxist tradition and Louis Althusser, Barry Hindess and Paul Hirst, Ernesto Laclau and Chantal Mouffe, and Stephen Resnick and Richard Wolff in the Marxist tradition...
>
> "...[T]he epistemological position that I will adopt in this book is premised on the idea that there is no ontological gap between theory and material reality. Theoretical discourse is not *about* a separately and distinctly constituted material reality. Instead, theory and material reality are assumed mutually to constitute one another...Therefore, there is no unique or correct way in which a theory can either be verified or falsified.
>
> "Each theory literally *constructs* its own truth, and criteria for the validity of that truth."[48]

The convergence with ultra-relativist post-modernism is complete. The differences even with their modern intellectual progenitor, Althusser, are stark enough,[49] let alone with Marx!

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[48] Cullenberg (1994: 12-13).

[49] Kanth (1988: 133) suggests a return of this current even to Althusser would be welcome. However, his preference is for Bhaskar and Timpanaro.

3 Theoretical Tendencies as Tautologies

Fine and Harris have long been well known for their pronouncements that Marx's theory should be elevated to a status above empirical control. "Empirical 'reality'" should be relegated to the domain of appearance, they have argued. It also must be distinguished from the concealed inner "reality" of capitalism.[50] In this the influence of Althusser is clear, though Fine and Harris do note their differences from him.[51] Their focus is the *logic* of Marx's laws of motion of capitalism as a mode of production. This logic all but denies these laws of motion anything other than a purely "theoretical" status. Glyn has noted Fine and Harris's attempts to argue, for example, that "there is a Law of the Tendency of the Rate of Profit to Fall even if it was manifested in a [sic] upward trend in the profit rate." He added, somewhat euphemistically, that such attempts "have not been found convincing."[52] Nonetheless, it will be useful to discuss Fine and Harris's position for the light it sheds on methodological disputes in Marxist economics, and because it was influential.

Fine argued that Marx's law of the tendency of the rate of profit to fall was argued by him at a high level of abstraction. Hence, the tendency should not be viewed as an empirical prediction at all: "The categories utilized do not correspond to the immediate complex phenomena of the concrete world..." Instead the tendency "was a theory of the cycle of production and had no implications for the long-term movements in the rate of profit." Significantly, "the law is not an empirical prediction, either for cyclical or secular movements of the rate of profit, but is a working out of the forces underlying these movements..."[53] The tendency is thus held to have theoretical validity: it is accorded "*logical* necessity" for forces "underlying the business cycle."[54] This attitude explicitly denies the necessity for the actual rate of profit to exhibit a short- or even a long-run downward trend.

Fine's strident criticisms of other interpretations make this even clearer. Wrong are those who argue either that "the organic composition of capital has not risen"

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[50] Fine (1975: 72). See also Fine (1978) and Fine and Harris (1978, 1977, 1976).

[51] As noted by Norton (1992: 163; see also 162-65).

[52] Glyn (1990b: 281), citing Fine and Harris (1978), and echoing Hodgson (1977: 98). See my view on the reality of tendencies (Chapter 1§5).

[53] Fine (1978: 73-74; see also 1975: 57-58).

[54] Fine (1975: 58, emphasis added).

or that "there is no reason why the law of the TRPF should dominate counteracting tendencies" even if it had risen. Hodgson was seen by Fine as exemplifying this particular "neo-Ricardian interpretation."[55] However, Fine also rejects the views of those who insist that a rising organic composition of capital will ensure a falling profit rate over time: i.e, that it will dominate influences working to push up the rate of profit. Such theorists, epitomised by Yaffe, are described by Fine and Harris as "fundamentalists" for thinking that the actual rate of profit would fall. Shaikh is another who falls into this category.[56] Fine also imagines such views to be "an extreme version of the neo-Ricardian analysis." The problem he sees with both approaches is that their focus on "empirical falls in the rate of profit" is misplaced.[57] Why? "In short, [because] the law of the TRPF is an abstract and not an empirical tendency."[58]

Such positions strain credulity. However, their methodological basis does need to be tackled. The germane issues were brought out in Fine and Harris's 1976-77 debate with Hodgson in the pages of the *Socialist Register*.[59] The first issue, and the most crucial one to appreciate, is that Fine and Harris's object is not a tendency for the rate of profit to fall as this may be understood in an intuitive realist sense. Instead, in what is a highly significant shift of focus, their object is Marx's *literary presentation* of the tendency in *Capital III*. This object is then illicitly called *the* "TRPF." Two elisions occur because of this shift: (i) the *real* secular trend in the rate of profit and (ii) Marx's *theory* about this trend. The consequences of both these absences will be seen shortly.

Fine and Harris's "TRPF" (i.e., Marx's presentation techniques[60]) will be designated by ø for convenience. Now, representing their case symbolically:

$$Ø = f(\Delta VC, \Delta CT)$$

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[55] Fine (1978: 74, 94 n. 21), citing Hodgson (1974).

[56] See Norton (1992: 163-64), referring to Fine and Harris (1978).

[57] Fine (1978: 74).

[58] Fine and Harris (1977: 116; see also 1976).

[59] Fine and Harris (1976: 141-78; 1977: 106-20) and Hodgson (1977: 88-105). See also Weeks (1982). My presentation here will focus on methodology and will try to avoid a detailed discussion of issues that will come up again in Chapters 3, 5, and, especially, 7.

[60] For what it is worth, I think their reading of Marx's *presentation* is right.

where VC is the value composition of capital and CT represents the set of counteracting tendencies. Invoking a *ceteris paribus* clause on CT gives:

$$Ø = f(\Delta VC = \Delta OC)$$

where OC is the organic composition of capital. The value and organic compositions are equal by definition in the absence of CT, since the organic composition is equal to the value composition if and only if there is no change in the relative value of constant to variable capital. This counteracting tendency has been eliminated by the *ceteris paribus* clause. Also by definition:

$$OC = f(\Delta TC)$$

where TC is the technical composition of capital. Hence *a fortiori*:

$$Ø = f(\Delta TC)$$

since, *ceteris paribus*, TC is the *only* variable allowed.

Fine and Harris described this process as "abstracting...from all changes...except for those which immediately and directly result from changes in the technical composition of capital."[61] The law itself (Ø), in this view, is established "tautologically," by a process of *deduction* from a rising organic composition.[62] In other words, assume a rising technical composition and ø follows consequentially. It is true by definition: truly a non-empirical literary "tendency" above disproof. It is merely a logical exercise, devoid of any ontological commitments.[63] The apparent contradiction pointed out by Glyn turns out not to be one at all. Tautology in presentation and the real tendency exist in different spaces. It is quite possible to maintain an indeterminate position as to the actual outcome of the interplay between tendency and counter-tendency. Fine and Harris also attempt to force Marx into their own framework by suggesting that he, too, should be interpreted to be an empirical agnostic.

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[61] Fine and Harris (1976: 160).

[62] Fine and Harris (1976: 161).

[63] Fine and Harris (1977: 114-15). There is an echo here of the argument that I presented in §1 that the traditional "positivist" approach of granting an entity the status of "theoretical law," "theoretical tendency," etc., may be thought to obviate the need for it to have real credentials itself.

Yet Fine and Harris asserted the commitment "of rooting concepts in real processes."[64] Their TRPF (ø) is a tautology, but they say it represents more than just this.[65] "[A]n abstract tendency *does* have a connection with observable phenomena" and Marxism must have something to say about the empirical world.[66] Crises, booms, cycles of production and exchange, and the manifest movements in the rate of profit associated with these cycles, are claimed to be caused by the contradictory relationship of the tendency and its counteracting tendencies. However, these remarks are methodologically flawed. It is elementary that a tautological set of deductions in thought cannot possibly by itself have causal effects in a real economy, nor can it have any connection at all with observable phenomena. Yet it is precisely the tautology (ø) that Fine and Harris posited as such a causal force. Their mistake is clear: the expositional convenience of "abstracting from" other influences (i.e., *ceteris paribus*) has been wrongly identified with the sort of "abstraction" (i.e., abduction or retroduction[67]) of real structures and mechanisms that do relate causally and have connections with observable phenomena. Illicitly manufactured, their counterfeit currency had then been spent illegally.

Of course, the technical composition of capital represents something real.[68] It can interact with other variables and co-determine outcomes. A tendency of a rising technical composition will exert downward pressure on the profit rate. Properly speaking, however, this cannot yet be called a tendency of the rate of profit to fall. It could be the basis for such a tendency only if there were real reasons for supposing tendencies working against it were weaker in the long-run. Marx's view was that the rate of profit would really decline in the long-run for this reason. Like other economists of his time, Marx took it to be "an actual trend for which an explanation was called for..."[69] His one-sided expositional techniques in *Capital III*, which elaborate precisely this possibility to the reader, make sense only if they

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[64] Fine and Harris (1977: 118).
[65] Fine and Harris (1976: 162).
[66] Fine and Harris (1977: 116; see also 118).
[67] See Chapter 1§4.
[68] This does not deny its complexity in a multi-commodity world. See, e.g., Steedman (1977: 132-36). See also Chapters 3§3(i) n. 85 and 5§2(i)-(ii) n. 22 and n. 28.
[69] Dobb (1973: 158).

are interpreted in this way. Marx is presenting a theory about the direction the actual rate of profit will take. To consider this exercise to be illusory, or as toying with mere appearance, would be sheer nonsense. The actual rate of profit and its constituents are real and can be accessed empirically, issues I will return to in Chapters 10-11.

Fine and Harris's presentation is strained and unconvincing because both the real tendency and the theory about it have been lost. Nowhere do they establish the reality of the tendency of the rate of profit to fall. The need to establish it in theory does not even appear as an issue. The result is an artificial dichotomy, between an insulated expositional tautology (ø), into which theory is collapsed, and an open empirical outcome of no theoretical consequence. Nothing of value can be gained from such an attempt to prove Marx right by interpreting him, against himself, in a way that makes it impossible to prove him wrong. The possibility must be left open that Marx got the theory of the tendency wrong. If so, the consequences should be faced. Instead Fine and Harris have bought theoretical certainty, but it comes at the cost of waiving the ability of theory to propose real, and thus meaningful, developmental outcomes that can enhance both understanding and practice. But maybe such a contingent practice is what they wanted: like tautological theoretical certainty, less a cost than a comfort.

4 An Instrumental Test?

A straightforward recognition that laws (mechanisms) should be analysed as tendencies and that the latter must not be seen as predictive, in the Popperian sense of refutation by an empirical counter-instance, should not be problematic for an empirical assessment of Marxist economic theories. Yet this recognition has often been used by Marxist economists to justify efforts to throw a protective blanket over their own central theoretical propositions or their interpretations of Marx. An example is provided by Sweezy. To avoid any misunderstanding I should say that I do not think Sweezy assumes anything like the extreme methodological posture

discussed in §§1-3. I will base the discussion here mainly on his relatively more recent *Four Lectures on Marxism*.[70]

Sweezy explains that it is an "erroneous interpretation to treat the law [of the rate of profit to fall] as a prediction."[71] By this he means that Marx considered it to be a tendency. He then, wrongly I believe, implies that Marx held the direction of the rate of profit to be an open question because of the existence of counter-tendencies. Of course, this is a *non-sequitur*: it *is* possible to predict a secular trend if certain tendencies are considered to be dominant. Multiple determination of outcomes in open systems does not imply contingency, a proposition I was at pains to establish in Chapter 1§5. I will return to the specific issue of Marx's approach to the direction of the rate of profit in Chapters 5 and 7. For now, the methodology involved in the development of Sweezy's argument is more important.

Significantly, Sweezy's argument on the rate of profit is not a purely deductive one. He turned instead to historical developments in capitalist production to make his case. The transition from "manufacture" to (mechanised) "modern industry," he explains, means that a rising organic composition could not be assumed. However, this development also implied a rising rate of surplus value. Hence "...it would be reasonable in these circumstances to speak of a rising tendency of the rate of profit (always bearing in mind the existence of counteracting causes)."[72] Sweezy's historical approach clearly delineates him from Fine and Harris, for example, irrespective of whether his substantive claims are valid or not. Sweezy has also made it clear that he believes theory must make sense of complex concrete reality.[73] Gillman's empirical work on the rate of profit in the US is cited to support his position concerning the organic composition of capital. He also refers to Marx and Engels's plea for empirical elaboration of the actual historical connections between production and social and political structures.[74]

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[70] Sweezy (1981a).

[71] Sweezy (1981a: 47). Mattick is in a similar category methodologically, though he disagrees with Sweezy's conclusions. See, e.g., Mattick (1969: 61 ff.) and Chapter 7§3.

[72] Sweezy (1981a:53).

[73] His seminal work with Baran draws on a detailed statistical appendix provided by their colleague Phillips (1966: 355-77).

[74] Sweezy (1972: 54-55) and Baran and Sweezy (1966: 27-28). Phillips (1966), Appendix to Baran and Sweezy (1966: 355-77). Gillman (1958: 37, 61), cited by Sweezy (1981a: 53-54). (*German Ideology*: 24), cited by Sweezy (1981a: 24).

Yet Sweezy runs a parallel argument that "[r]eliable data on historical movements of the rate of profit do not exist" and that, "even if they did, they would not throw any useful light on the validity or lack of validity of the Marxian law." Factors other than the organic composition and the rate of surplus value will intervene as well. Cause and effect are difficult to disentangle and this "would prevent the drawing of clear-cut inferences from much more precise and reliable data than we have at our disposal."[75] There are three related propositions here. The first, that reliable data do not exist, is itself an empirical question. It can be resolved by reference to the scope and quality of studies on the question. I will not dwell on this, as later chapters will grind through it exhaustively. Still, in light of the existence at the time he spoke of well-known work by Weisskopf for the US and Glyn and Sutcliffe for Britain,[76] Sweezy's attitude was unduly negative, to say the least. In principle, relevant and acceptable national accounting data for all advanced capitalist countries, based on the United Nations' System of National Accounting (SNA) framework, can be used directly or adapted for this purpose. The best that may be said in defence of Sweezy's position is that the data are less sound the further back in history they stretch.

His second proposition, concerning the influence of other factors, is also invalid. Various methods will be presented in later chapters that decompose the rate of profit into many constituents. Correlates for the rate of surplus value and the organic composition of capital are just two of these. The relative contribution of each constituent to changes in the profit rate can be calculated from the available data. Weisskopf's 1979 study was such an exercise. The third proposition is more substantial. Matters of cause and effect are always difficult to unravel, but there is no reason to assume *ex ante* that "clear-cut inferences" are prohibited and that explanations of the data are impossible to obtain. Cause-and-effect complications mean that researchers need to recognise that national accounts figures, say, are likely to be insufficient. Other evidence will be necessary if conclusions are to be stated with a greater degree of confidence.[77] Such additional empirical evidence

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[75] Sweezy (1981a: 54).

[76] Weisskopf (1979), Glyn and Sutcliffe (1972).

[77] I think Collier (1994: 251-52) is wrong to disparage the possibility of sound knowledge of the rate of profit. See Chapters 9-11. See also Spencer's (1995) similar criticism of Collier.

will need to be qualitative as well as quantitative: even questionnaires have their place.

However, these issues do not exhaust Sweezy's case. In some ways they are peripheral. A more fundamental methodological core position emerges from his discussion of the theory of monopoly capitalism. Central to this theory are the twin notions of a rising rate of exploitation (at least potentially) and a restriction of "the profitable outlets into which the accumulated surplus value can flow. The result is to accentuate the tendency to overaccumulation." The consequence of monopoly capital is that "stagnation...has become *the normal condition of capitalist economies*."[78] Now, I think it is reasonable to say that all the elements of this view are readily susceptible to empirical control: monopoly (concentration and centralisation of capital), the rate of surplus value (exploitation), the rate of profit, accumulation, and various indices of stagnation (unemployment, growth, etc.). Sweezy may disagree over the inferences that we may properly draw from the empirical data, as well as over the level of confidence we may have in them. Yet his concern for empirical questions evident over the years in the pages of *Monthly Review* shows that he cannot write off in advance empirical work on monopoly and stagnation as an empiricist infatuation.

Where I think Sweezy errs is rather in his argument that core theoretical propositions should be separated from the practical analyses of the concrete events that are drawn from these propositions. This can be seen when he argues that, if stagnation is not the actual state of capitalist economies,

> "...the reason is *not to be sought or found in the internal logic of the capitalist system, but* in the infinitely more complex historical environment within which it operates and produces its effects. By the same token, the important unsolved, or only partly solved, theoretical problems of capitalism relate not so much to that internal logic, the framework for the analysis of which Marx himself so successfully elucidated, as to the interplay between it and the historical environment that sometimes unleashes capitalism's

[78] Sweezy (1981: 43).

enormous expansionary potential and sometimes provides so little stimulation that the accumulation process grinds to a virtual standstill.

"Whether this way of looking at capitalism in its monopoly stage *is 'correct' can be neither proved nor disproved.* The interesting question is rather whether it provides a fruitful approach to the analysis of the history of the twentieth century."[79]

The focus for evaluating the theory is clearly on the fruitfulness of its analyses. These analyses, and not the theory of capitalism in its monopoly stage itself, have become theory's point of contact with the real structures and mechanisms of capitalism. Theory itself is placed above the rigorous necessity of proof or disproof. A weaker, reflective form of empirical control is substituted: i.e., the much vaguer notion of "fruitfulness" of derived analyses. Of course, the practical application of theories is important for reflecting on their worth. The problem is that it is only part of the story.

Baran and Sweezy's *Monopoly Capital* does not present matters so baldly. Indeed, their purpose was to recast Marx's theory of capitalism in a radical fashion, bringing monopoly into the core and ejecting what they considered to be a mistaken (disproven) view of competition.[80] However, some similarities are evident in their approach to models, the methodological issue I am concerned with here. They explain that a model necessarily abstracts from "non-essentials" and is thereby unrealistic to that extent. However, a good model "provides the key to understanding reality.

"There are no rules for model-building, and, as the literature of economics attests, it is much easier to build a bad one than a good one -- a bad model being one which abstracts from essentials and therefore leads to neither insight nor understanding. Nor are there any simple *a priori* tests by which a model can be judged. The proof of the pudding is in the eating. *We can only*

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[79] Sweezy (1981a: 43-44, emphasis added). For empirical criticisms of aspects of Baran and Sweezy's approach to monopoly and stagnation, see Bowles, Gordon, and Weisskopf (1987: 51-54), Glyn (1990b: 282), Green and Sutcliffe (1987: 223-24, 304), and Norton (1992: 175). See also Chapter 6§3 and Howard and King (1992: 120-23) for a brief survey of broad criticisms of the monopoly capital thesis.

[80] Baran and Sweezy (1966: 19-20).

> *start with certain hypotheses and ideas*;we can use them to separate the unimportant from the important; out of the residue of the important we can shape what looks like the parts and elements of a system; we can assemble the parts and elements, refining and polishing as we proceed. When we finally get our model, there is one test to which we must subject it: does it help to make sense of the real world?...does it help us to understand the world and act in it intelligently and effectively?"[81]

Unfortunately, the main problem is not the one posed in this passage. At issue is not whether there exists a valid *a priori* test for models but whether the models themselves should be subject to *a posteriori* empirical control. This is true irrespective of the method of theory development that was used. The *status* of the model is the most important concern: a bad model will not only abstract from essentials but also get them wrong. Without *a posteriori* control, the one-sided test of practice, vaguely implied in the reference in the above passage to "eating the pudding" for fruitfulness, can be inadequate from the outset. The power of a theory to explain or make sense of the world may be fettered or distorted by its *correctable* flaws. To press the metaphor to its limits, good ingredients make for a more fruitful pudding. For Marx's methodology, the strength of Francis Bacon's dictum, "[t]hat which is most useful in practice is most correct in theory,"[82] is its ability to be read in both directions.

It is difficult to determine whether there is any one dominant generic methodological-epistemological influence at work in Sweezy's (and Baran's) case.[83] At any rate, this is less important than identifying the sort of problems that may arise because of an instrumentalist bias. Such a leaning is surely discernible in the quoted passages. I am not saying that the possible consequences I will nominate are evident in the economic theories of Baran and Sweezy.[84] I am more concerned

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[81] Baran and Sweezy (1966: 27-28; my emphasis).

[82] Bacon (*Novum Organum*, II: lv), quoted by Novack (1975: 196). See also Collier (1979b: 95-96).

[83] A tantalising reference to Weber's "ideal types" is made (Baran and Sweezy 1966: 28). Anderson (1976: 46) points out the influence on Baran of Hegelian Marxism via the Frankfurt School, as do Howard and King (1992: 114, 119). Hegelian Western Marxism is noted for its lack of empirical concerns and its rationalism (Bhaskar 1991: 173, 177; Novack 1978: 319). Also, McLellan (1975: 59; see also 77-78 on Weber and Lukács) argues in similar terms to Sweezy and Baran.

[84] See Chapters 5§5(iii) and 6§§2-3.

to explore possibilities in this methodological section to distinguish my own approach more clearly. As I explained at the beginning of Chapter 1, alternative positions are there as a foil. It also should not be inferred that a direct parallel is being made between Baran and Sweezy and the vulgar instrumentalism of orthodox economics.

My practical criticism of the approach to models here is the step it inserts between the level at which theory remains untouchable and that at which concrete analysis is undertaken. Consider a flawed theory. I think it is fair to say that, over time, it will become less useful and will tend to be pensioned off in practice even if it is not explicitly rejected. In their own ways, Kuhn and Lakatos have identified this process in the history of science. The upshot is that practice is left effectively unguided. Analyses can lapse easily into contingent superficiality, that is, become genuinely empiricist. Simultaneously, an untouchable theory may just turn into dogma, either the *applied* dogma that makes nonsense of analysis or the pensioned variety used merely for ritual incantation. The longevity of diametrically counterposed schools within Marxist economic thought is ample empirical evidence of the problem of the "step." Each vigorously defends its stance as being "fruitful" in some general sense. Some insist that their positions are ethereal and unconcerned with practical explanation. Others try mightily to squeeze reality into the shape of their model. Nothing can be resolved without subjecting the counterposed *core* propositions to close empirical examination.

5 A Synthetic *A Priori* Method?

The methodology proposed by Laibman is equally problematic despite his salutary intentions, which are very clearly set out in his description of the role of the models he develops to incorporate "the main components" of Marx's vision. These models should not just give insight and guide empirical and non-empirical research, but they should also serve "as a test of the validity of the core concepts themselves." Laibman consistently emphasises the empirical import of his approach and contrasts it with both empiricism and rationalism.[85] However, he also endorses

[85] Laibman (1992: 261, 287-88, 293-94).

the position of Hollis and Nell, a view that is explicitly rationalist and involves using Kantian synthetic *a priori* propositions.[86]

On the assumption that dead philosophers are a bit like Banquo's ghost,[87] it is worth taking a brief look at Kant before returning to Laibman. Synthetic *a priori* propositions are statements about the experienced world that are not empirical, and they cannot be proved nor disproved empirically. However, they are not mere logical definitions or tautologies. How is this possible? To overcome the Humean problem of induction, Kant insisted that true knowledge of the objects of experience had to be established by the mind independently of experience. This was possible in Kant's view because the mind actively imposed its own pre-existing (*a priori*) framework of space, time, and categories on the world. These filtered, interpreted, and structured the world and made sense of experience. The propositions of mathematics are usually given as an example of the synthetic *a priori*. Our intuition (*Anschauung*) of space and time was the basis of such propositions: they were true "because their truth is necessary for the world to become an object of our experience."[88]

More general categories that structure thought, such as cause and effect, necessity and contingency, were equally satisfied by experience precisely because "they were imposed by us on it as a prior condition of it being accessible to our understanding."[89] Kant proposed that this structure existed just in thought and not in the world itself. We thus shape the world we know. He did not deny that there existed a world outside thought nor the sensations it produced for us. His point was that the nature of things in themselves will always be a mystery as these are independent of our processing of them. Moreover, what it is that we mould to the categories of our thought are just experiences. There is an obvious difference with realism, which holds that mathematics, logical categories, and the like must refer to really existing aspects of the world, and it is this that makes knowledge possible. A more intriguing contrast, however, shows how far from Kant some of the extremes

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[86] Hollis and Nell (1975: 1, 13, 20-2, Chapters 6 and 9). See also Blaug (1992: 107-08). Synthetic *a priori* propositions were encountered in Chapter 1§3. See also Dobb (1963: 27, 1973: 6).

[87] Or Keynes's "academic scribblers" (1936: 383).

[88] Ayer (1973: 9). See Kant (1977: 933-47).

[89] Ayer (1973: 9-10). See also Hawton (1956: 84-88), Ilyenkov (1982: 24-25, 50), Novack (1978: 203). The main relevant arguments are presented by Kant in (1977: 933-47).

of (post-) modern idealism, and some Marxists in its thrall, have travelled. For them not just knowledge but the world-in-itself and our experience of it are infused with our paradigms, theories, thoughts, or words.[90]

The point of the synthetic *a priori* was to make the world accessible by having it conform to some pre-arranged set of organising principles. Thus the rationalist and *a priorist* strategy, argued Hollis and Nell, "depends on being able to pick out what is conceptually essential [in an economic system] and then to insist that what is essential is therefore to be found in practice."[91] Laibman suggests that the labour theory of value is generically of this type. To him it comprises "neither pure logical deductions nor empirical statements about reality." Its propositions were not definitions, products of assumptions, nor "falsifiable, in Popper's sense." They are not "generalizations from experience" and are not provable as such. Instead they derive their validity "through their demonstrated role in organizing the different levels and sites of our thinking about complex socio-economic realities into systematic frameworks..."[92]

Laibman pursues the issue when discussing Marx's broader methodological stance, as outlined in the Postface to the second edition of *Capital I*. Laibman states that "the foundation concepts of a theoretical system are distilled from an enormous mass of practice-generated information ('synthesis')." Then he interprets the next stages of the process in a way that cannot be reconciled with Marx's explanations of his own approach:

> "...Exposition, as Marx indicated, begins with the results of synthesis, which thus take the form of pre-given axioms.
>
> "This gives the project a rationalist appearance: analysis takes on the semblance of an idealist exercise, with the real world literally 'constructed' out of the elements of thought. A materialist epistemology must uphold both poles of the cognition process (analysis, synthesis), and therefore strive to transcend both empiricism (denial of analysis) and rationalism (denial of synthesis). We begin, therefore, with the foundation concepts of historical

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[90] See Collier (1994: 20-29, 85-88 and ff.; 1979b: 86).

[91] Hollis and Nell (1975: 254). See also by Blaug (1992: 107).

[92] Laibman (1992: 25).

> materialism, synthetic a priori propositions (see Hollis and Nell, 1975) that must be stated initially without 'proof,' and later validated (or not) through concretization and successful application. The proof of the pudding is, as it were, in the eating."[93]

Such foundation concepts cannot be refuted by direct concrete empirical observations, but "can only be tested against a broad empirical criterion -- their ultimate utility in knowing and transforming reality."[94]

The "pudding" again has a decidedly instrumental flavour. Yet Laibman is concerned that if "the model is not in principle falsifiable *in some sense*, then it represents a lapse into idealist rationalism." To start rather than exhaust a discussion of falsifiability criteria, he suggests "fertility" and "relative validity":

> "...[W]hile the basic propositions of the theory take the form of synthetic *a priori* statements...and therefore cannot be falsified in the narrow sense, empirical study of the concrete phenomena from which the propositions are synthesised can provide a test of the *fertility* of the model: the extent to which it is able to incorporate widening empirical knowledge and establish new ways of ordering that knowledge. 'Completeness' to the point of stasis is a sign of rationalist degeneration. Second, in evaluating alternative theoretical constructions, a criterion of *relative validity* may be applied: Which framework is most robust, in the sense that it is best able to incorporate and make use of insights derived from the other(s)?"[95]

Laibman's efforts to broker a link between theory and the concrete, to open theory to widening empirical knowledge, and to absorb knowledge from other theories are notable. He has responded openly to criticism of his model of an abstract social totality and has outlined a two-way mediation between it and concrete reality: "...the concrete realities continually (not just 'initially') inform,

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[93] Laibman (1992: 261). Historical materialism arises here because the context is a discussion of theories of transition between different modes of production.

[94] Laibman (1992: 260-61).

[95] Laibman (1992: 287-88).

resubstantiate, and, where necessary, *transform*, the core theory." The "hard" part of the theory and the model's specific commitments are open to the broad empirical test that he espouses.[96] However, his *a priori* commitments are a barrier to the mediation he seeks. In particular, a fundamental problem for evaluation and transformation of theory is caused by the injunction that certain of its core propositions are above proof or disproof. This bound to create tensions. It inexorably leads towards weak instrumentalist solutions: utility in knowing and transforming, successful application, pudding-eating, and the like. In his own words, Laibman indeed opened an epistemological can of worms.[97]

Nowhere can the problems be seen more clearly than in Laibman's implicit reading of Kant's synthetic *a priori* into the Postface,[98] which was penned by Marx with the express aim of writing Hegelian *a priorism* out. Since this was one aspect of Kant's thinking that Hegel preserved, Marx's remarks applied just as much to Kant.[99] If we interpret Marx literally, it is clear enough that this quotation is saying the opposite of Laibman's disingenuous reconstruction of it. When Marx says that his method of presentation makes "it appear as if we have before us an *a priori* construction" he means literally that it is not such a construction. The method by which the theory is constructed is *a posteriori*.[100] "Marx's critique of idealism...incorporates a vigorous critique of rationalist apriorism..." Furthermore, because "of the *a posteriori* character of Marx's theory as a whole" both his critical explanations and the contradictions he identifies in reality "may be regarded as *empirically-grounded*."[101]

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[96] Laibman (1992: 294-95).

[97] Laibman (1992: 24). See also Ilyenkov (1982: 50).

[98] Laibman (1992: 261 n. 2).

[99] Hawton (1956: 94). "This is nothing but twaddle, for if this individual [Yushkevich] had the slightest respect for the printed word he would detect the *idealist* character in general, and the *Kantian* character in particular of the idea that there can be postulates which are not taken from experience and without which experience is impossible." (Lenin 1952: 175; see also 201)

[100] Hollis and Nell's (1975: 20) claim that "Marxian theorists insist that specifications and identifications be determined *a priori* by reflecting on what is essential to capitalist industrial institutions" wantonly ignores the abundant textual evidence to the contrary.

[101] Bhaskar (1991: 163, 166-67). See also Collier (1979b) and Sayer (1979).

Part I (Chapters 1 and 2) has addressed the limited objectives that were set for it: (i) to support, in realist terms, an empirical perspective, in general, and an empirical Marxism, in particular; and (ii) to contrast this perspective against, on the one hand, empiricist and positivist alternatives and, on the other, various alternatives, including some within Marxism, that tend to insulate theories from empirical challenge. Part II will proceed with a critical review of Marx's economic framework. The first section of Chapter 3 will propose how the methodology outlined in Part I applies to Marx's economic model, while the remainder will set out Marx's economic accounting. Chapter 4 will then state a position on the contentious labour theory of value, the means by which Marx sought to "demonstrate the relationship between surplus value and profit" and to measure "the economic aggregates on which his analysis of accumulation hinged."[102]

[102] King (1982: 158).

Part II
FRAMEWORK

3

Marx's Economic Accounting Model

1 Realism in Theory Construction

The workings of the capitalist economic system now must be expressed in the framework, language, and symbols of Marx's economic categories. The circuit of capital scheme, which unites production and circulation and allows financial variables to be introduced,[1] is the general grid onto which the categories will be mapped. It will be outlined in §2 and augmented in §6. This task of mapping Marx's framework must be accomplished carefully and transparently now so that it will be capable of functioning as a valid reference point for the theoretical debates that will be analysed in Chapters 4-8 and for the empirical model that will be proposed in Chapter 9. My approach, while critical, will thus be presented mainly in Marx's terms. Any changes from this convention will be explained clearly. A national-accounting model, which will build on the model developed here, will then be proposed in Chapter 9. This will permit the different theories to be brought into direct confrontation with the Australian data in Chapters 10 and 11.

It is clear enough that "Marx's prime concern in his economic work was to 'lay bare the economic law of motion of modern society' (Marx...[*Capital I*: Preface to 1st. edn.: 92]." It is also clear that "[t]o this task, that of uncovering the forces determining the rate of accumulation of capital and the barriers to its self-expansion, all else was subordinated."[2] Alas, in carrying out this admittedly difficult task Marx was not always so clear. Search as we might, we will not find a convenient summary of what Marx considered to be the essential aspects of his

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[1] (*Capital II*: 180-83, 427). See §6(iii) on this necessity.

[2] King (1982: 158).

theory of capitalism as "a mode of production *sui generis*."[3] The complexity of Marx's exposition of his framework of economic categories and their meanings can partly be explained by recognising that *Capital* actually combines three methodologically distinct processes: the *a posteriori* process of theory development; the "as if" *a priori* process of formulating into a theory the real causal economic mechanisms uncovered in the process of theory development; and the process of theory exposition, or the presentation to the reader of the substantive theoretical formulations. Within the third process Marx often uses expository conveniences and assumptions of a truly *a priori* and decidedly unrealistic type, and it is absolutely crucial to discern when these are operative.[4]

It is also crucial to be able to discern the stage Marx has reached in the formulation and exposition of his theory, because his model of capitalism emerges not at once but in a piecemeal fashion, from the more abstract formulations of the first volume to the more concrete parts of the second and third.[5] We may then understand whether his remarks apply, for example, to capitalism or to the non-capitalist but commodity-producing and -exchanging models of barter and simple commodity production.[6] In presenting the substantive theory he had formulated, Marx is also commonly said to have used an "historical-logical" method, where it is supposed that "the *logical* stages" in the exposition "correspond to *historical* stages in the development of capitalism."[7] Engels's introductory remarks to *Capital*

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[3] (*Resultate*: 1035).

[4] See the discussions in Chapters 1§§3-4 and 2§3, and in §5 below. See also (*Capital I*, Postface to 2nd. edn.: 102).

[5] The successive volumes of *Capital*, in accomplishing this progressive assembly process, were to be supplemented with later (unwritten) volumes covering international trade, the world market, and crises, etc. (*Capital III*: 969-70). See also Howard and King (1975: 45-52), Mandel (1976: 25-32), Meek (1967a), Nicolaus (1973: 52-59), and, especially, Rosdolsky (1977: 50-56; see also Part 1 *passim*). Note, too, that the terms abstract and concrete here must be construed differently from the concrete-abstract-concrete' (C-A-C') schema of theory development discussed in Chapter 1§4, where C (= mass of real, empirical, raw material), A (= abstract as thought, the formulation of theory), and C' (= the concrete understood, reproduced by way of thought, as a the concentration of many determinations, real underlying mechanisms, etc.). Here abstract means more general or simplified, and concrete means more specific or complete. Both senses of abstract and concrete can be inferred from the *Grundrisse* Introduction.

[6] Crotty (1987: 73; 1985: 51). Another example is Marx's discussion of the "formal subsumption of labour under capital," which exists prior to science, technology, and large-scale production processes being brought into the exposition. After he introduces these characteristic features of capitalism, Marx refers to labour's "real subsumption" (*Resultate*: 1025-38).

[7] Howard and King (1975: 46; see also 1989: 46-50). See, esp., Meek (1967a).

III doubtless have encouraged this interpretation.[8] However, others have argued against this, *inter alia* because there is no evidence for the actual historical existence of some of the key models Marx used, such as the supposed stage of simple commodity production in which everyone is an independent producer and commodities exchange at their labour values. Smith therefore argues that the Hegelian method of a systematic ordering of *categories*, which "moves in a step-by-step fashion" from the "simplest and most abstract (such as 'commodity,' 'exchange value,' etc.)" to "progressively more advanced determinations," is the best interpretation of Marx's presentation.[9] The approach Marx himself outlined in the *Grundrisse* Introduction fits in with this view, and he clearly acknowledged that formulation of *Capital* owed a debt to an inverted and demystified Hegel.[10]

While I think that the latter interpretation of Marx's expository dialectics is the stronger, it is also true that there is textual support for the view that Marx also used an historical-logical approach.[11] Yet it is perhaps more important to observe that Marx was not always faithful to one or both methods and that his exposition tends to jump about somewhat idiosyncratically in places. What emerges is that *Capital* and related works contain empirical descriptions, explanations of historical stages of development, and outlines of conceptual frameworks that often overlap. As Engels also noted in his Preface to the third volume, it is false to assume that Marx sought to "define where he only explains" and wrong to expect "fixed, cut-and-dried definitions" in Marx's presentation. Thus enormous care must be exercised when attempting to distil and express Marx's framework. There is another potential danger, as well. Both the historical-logical and the systematic readings leave open the possible misuse, either implicitly or explicitly, of the preservative aspects of the Hegelian notion of sublation: i.e., that, while each successive stage or level in the formulation of the theory advances on previous ones, the preceding levels are incorporated within the succeeding stage.[12] In this

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[8] Marx's ideas "are not encapsulated in rigid definitions, but are developed in their historical or logical process of formation" (*Capital III*: 103). See also Engels's review of the (*Critique*: 218-227) and his letter to Sombart of March 11, 1895 (*Correspondence*: 455-56). See also Chapter 4§3 n. 38.

[9] T. Smith (1993a: 37, 55; see also 35-47).

[10] (*Capital I*, Postface to 2nd. edn.: 102-03). "It is impossible completely to understand Marx's *Capital*...without having thoroughly studied and understood the *whole* of Hegel's *Logic*." Lenin (*CW* 38: 180). It should not be wrongly inferred that the logical-historical reading is not also Hegelian in influence.

[11] This is acknowledged by T. Smith (1993a: 39).

[12] See, e.g., T. Smith (1993a: 55).

way, it may be thought that theoretical concepts at one stage of the exposition (the labour theory of value, for instance) are justified in theory by virtue of their role in developing the categories applicable at more concrete levels or because of a supposed "historical" status.[13] In opposition to such a misconception, a Marxist economic model must be realistic, and even its most simple and general parts must describe real features of the economy it is endeavouring to model.[14] While there is nothing wrong in principle with "abstracting from" reality by using *ceteris paribus* clauses and purely expository models, to make points that might otherwise be difficult to express or to illustrate, it is wrong to think of them as having a real status in the substantive theory being constructed.

Furthermore, as Marx progressively paid more attention to the capitalist economic mechanism itself, it is not very surprising that his interests became conspicuously more practical. Ubiquitous social relations and his critique of alternative theories and categories were ever-present. However, these were supplemented with concerns of the most corporeal kind. On the mechanics of business procedure he appealed to Engels not only as an intellectual collaborator but also in his role as reluctant business person: "...you must give me an answer on this point...without theory, *purely as a matter of practice*."[15] He showed keen interest in what was then called "Italian book-keeping"[16] and believed it to be a virtue of *Capital I* that workers, manufacturers, and merchants could understand it while "learned scribes" could not.[17] His passion for the reports of England's factory inspectors and other statistical records published in government Blue Books was additional evidence of the esteem in which he held the systematic recording of capitalist activity.[18] *Capital* also clearly draws on the recording systems developed by existing classical political economy. Marx's categories, reproduction schemes, and turnover apparatus, as well as the circuit of capital, owe much to the

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[13] My comments concluding Chapter 1§6 are also applicable here.

[14] See n. 26. See Bhaskar's (1993: 184 n.*, 404) remarks on sublation and on T. Smith's reading of Marx.

[15] Marx to Engels. September 11, 1867. (*Correspondence*: 181). The specific question, in modern terms, concerned the disposition of accumulated depreciation provisions.

[16] Double-entry accounting. See (*TSV II*: 48, 155; *TSV I*: 399).

[17] Marx to Kugelmann. July 11, 1868. (*Correspondence*: 197).

[18] See, e.g., (*Capital I*: Preface to 1st. edn.: 91). See Lafargue (1972: 23-25).

Physiocrats, "the true fathers of modern political economy."[19] The parallels between the Physiocrats' tables, Marx's system, modern national income accounting, and Leontief's input-output models have also been noted.[20]

Marx's approach here was squarely within the genre of economic accounting. His principal economic objects, profit and accumulation, no doubt helped to set this direction. So did the guiding methodological requirement that theory should not only be about real activities and relationships but also be a *realistic representation of them*, not just a heuristic approach to them. This difficult undertaking was made all the more complex because Marx endeavoured to build into his system a deeper social philosophy and implicit criticisms of existing theories. Marx's framework thus appears rough-and-ready in contrast to subsequent *a priori* alternatives, in which elegance of form disingenuously purveys an insubstantial content.[21] It is easier to be theoretically tidy and mathematically precise when one is not troubled to make practical affiliations with a messy world. Marx, therefore, inevitably ran into problems in formulating his system precisely. Ironically, the various deficiencies and unresolved problems he bequeathed are signs of his system's substantive strength: its "earthiness."[22]

The framework sketched in this chapter will rely mainly on the stage of discussion reached in the third volume of *Capital*.[23] However, I *will not* sacrifice generality overall in order to incorporate many of the simplifying specifications Marx used to smooth his exposition. It should be understood especially that "abstracting from," by imposing restrictive *ceteris paribus* assumptions, gives not generality but specificity. The particular concrete case described under such assumptions, even quite moderate ones, more than likely will never really exist. An example whose meaning will become apparent shortly is the assumption that

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[19] (*TSV I*: 44; see also Chapter II) and (*Capital II*: Chapters 10 and 19). Of particular interest is (*TSV I*: Chapter VI) on Quesnay's *Tableau Économique*. See also Dobb (1973: 39-43) and Rowthorn (1980: 96).

[20] Desai (1990a: 338-39) and Tsuru (1942). See also (ABS 5216.0 1990: 1-3).

[21] See, e.g., Leontief (1971). The unfinished nature of Marx's manuscripts should also be noted.

[22] Dobb (1937: 5; see also 4-9).

[23] Engels should not be overlooked here. His realistic parenthetical additions as editor of the third volume are significant (*Capital III*: 142; Chapter 4, 334-35). Other useful summary sources are Marx's letters to Engels of June 27, 1867 and April 30, 1868 (*Correspondence*: 178-79, 191-95). The following presentation will not contain particular references unless there is a special reason. However, relevant passages are (*Capital III*: 117-18, 132-33, 235-36, 998ff.). A useful source concerning annual variables is (*Capital II*: Chapter 16). The following will contain minor differences with Marx's symbols. However, these should clarify rather than alter the fundamental meanings involved.

capital advanced for raw materials and plant and equipment turns over in exactly the same time as that advanced for labour power.[24]

2 Profit, Accumulation, and Capitalism

Despite the inevitable complications that arise in working through and interpreting Marx's exposition, it is possible to extract from it the conditions that are necessary and sufficient to define capitalism as a functioning economic system: to "reveal the economic law of motion of motion of modern society"[25] in a very general way. These conditions, which set out the structure, motivation, and behaviour of the system and its parts, constitute a broad Marxist conceptual framework,[26] within which a number of particular theories may sit. This task of specifying Marx's core propositions and the concepts in which they are embodied serves the purposes of this chapter in two ways: (i) it will permit a clearer understanding of the role and significance of profit and accumulation, the objects of this study; and (ii) it will provide the necessary link between Marx's broader social theory and his economic theory and his economic accounting, which will be outlined, expanded, and assessed in §§3-7.

(i) Social relations and the circuit of capital

Marx's circuit of capital, which enjoys wide and, apparently, increasing support among writers in the Marxist (and post-Keynesian) tradition, provides an extremely cogent structural representation of the capitalist economy as a system.[27] Moreover, it will be obvious from the following discussion that the circuit is located socially

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[24] See Chapter 2§3, which drew attention to the problems that *ceteris paribus* clauses may cause.

[25] (*Capital I*, Preface to First edn.: 92).

[26] See Dobb's (1973: 19-20) similar description of an indispensable general conceptual framework, which, he argues, may not be as easy to prove or disprove as particular statements, conditional predictions, and theoretical applications. Nonetheless, this theoretical core is methodologically "soft" and must be open to modification, as explained at length in Chapters 1-2.

[27] According to Sweezy (1986: 2, 7), it is "Marx's way of conceptualizing the capitalist economy." The circuit is first explained in (*Capital I*: Part 2, 247-80). Significantly, Part 7 of the first volume, "The Process of Capital Accumulation," is introduced with it (*Capital I*: 709-10). In addition its place in *Capital I*, it also permeates much of the *Resultate* (*Capital I*, Results of the Immediate Process of Production: Appendix, 948-1084). *Capital II*, which is sub-titled "The Process of Circulation of Capital," is wholly structured around it. See also, *inter alia*, Crotty (1987, 1985), Devine (1987), Fine (1975), Foley (1986a), Green and Sutcliffe (1987), Harris (1985), Kenway (1990a, 1990b, 1980), King (1990: Introduction), Norton (1992), Shaikh (1990a), Sweezy (1986, 1981a), and Tsuru (1952).

and historically, with the developing social relations of production governing the economic processes that the circuit depicts.[28] To regard the economy in this way, as an intrinsically interconnected and changing system that is *emergent* from underlying social strata, is vitally important, as it contrasts Marxist economics to individualist alternatives from the very outset.[29] For Marx, "[i]ndividuals producing in society -- hence socially determined individual production -- is, of course, the point of departure."[30] Individuals are presented rather as the "bearers [*Träger*] of particular class relations and interests."[31]

The circuit of industrial capital may be represented symbolically as:

$$M -- C...P...C' -- M'$$

More elaborately, this may also be expressed in the form:

$$M -- C \{MP, LP\}...P...C' \{C + c\} -- M' \{M + m\}$$[32]

This describes the continuous process whereby money capital (M) is advanced, in the sphere of circulation, to buy commodities, means of production (MP) and labour power (LP). These become inputs in the sphere of production, or production process. The form taken by capital here is productive capital (P) and this sphere is where value is added and surplus value or profit is created. New commodities emerge from production and capital now takes the form of commodity capital (C'). Because value has been added, or self-expansion of capital has occurred, C' is greater than the previous expenditure on inputs: i.e., $C' = C + c$, where c represents the surplus value, or profit, contained in the new commodities.

However, the circuit starts and ends with expanded money capital (M'). For this to happen, the new commodities must return to the sphere of circulation, or exchange, to be sold. The surplus value, or profit, contained in them may thus be realised: i.e., $M' = M + m$, where m is the money form of the value that has been

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[28] Howard and King (1975: 33). The circuit of industrial capital at the start of *Capital II* provides "an economic structure in which the social relations of production analysed in Volume I can be set" (Fine 1975: 45). See also Keat and Urry (1975: 98).

[29] See Chapter 1§§5, 1(vi), 6, and 3, esp. n. 73.

[30] (*Grundrisse*: 83). To Marx, "production" always means "production at a definite stage of social development -- production by social individuals" (*Grundrisse*: 85; see also 83-87).

[31] (*Capital I*, Preface to First edn.: 92).

[32] More complete representations will be given in Part (ii) of this section and §6.

added in production. Keynes was not often inclined to compliment Marx, but in a 1933 draft of the *General Theory* he notes how Marx's circuit accurately defined the purpose of capitalist activity, crediting Marx with the:

> "...pregnant observation...that the nature of production in the actual world is not C--M--C', i.e. of exchanging commodity (or effort) for money in order to obtain another commodity (or effort). That may be the standpoint of the private consumer. But it is not the attitude of *business*, which is a case of M--C--M', i.e. of parting with money for commodity (or effort) in order to obtain more money."[33]

The economic structure of the capitalist mode of production (as described by the circuit) also presupposes that commodity production has become generalised, in that labour power is sold as a commodity in return for wages.[34] Thus commodity production itself is the form in which surplus labour (unpaid labour) is extracted. "What distinguishes the various economic formations of society -- the distinction between for example a society based on slave-labour and a society based on wage-labour -- is the form in which this surplus labour is in each case extorted from the immediate producer, the worker."[35] Social relations of production are essentially property relations, which are essentially class relations. Workers are defined as a class because they do not own nor have direct access to the means of production. Conversely, the circuit presupposes the existence of capitalists as a class, defined by their ownership of the means of production on such a scale that they can employ labour power and set the whole process in motion. Social relations of production of this type are founded on exploitation.[36] The contradiction between labour and capital is implied in the circuit at the outset, with the real domination of capital over labour presupposing that "a definite stage in the evolution of the productive

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[33] Keynes (1979: 81, original emphasis), as quoted by Dillard (1984: 427). See also (*Capital III*: 351-52) and Sweezy (1986: 2-7).

[34] See, e.g., (*Capital III*: 1019-20).

[35] (*Capital I*: 325; see also, e.g., 769).

[36] See, e.g., (*Manifesto*: 108, n. *, added by Engels 1888), Fine (1975: 46), Howard and King (1975: 6-8; 27-29), Glyn (1990a: 104-06), Mandel (1975: Chapter 18), and Shaikh (1990a, 1990b). See also the discussions in Chapter 4§5 and 6§4(iv).

forces," including of science and technology, has been reached.[37] Another essential social relation of production is that social capital must appear in the circuit "only in the form of many individual capitals," which provides the structural basis for inter-capitalist competition.[38]

All of this permits the integration of production and circulation, as well as the distribution of income, which is contained in the purchase of labour power and the realisation of aggregate value added and profit in the sale of newly created commodities. It emerges also that capital cannot be defined merely as machinery, buildings, and other non-labour factors of production. Nor is it commodities or money and other financial assets *per se*. Capital takes different forms within the circuit, but these forms are capital only within the process described by the circuit. Capital thus functions only in the context of the given set of social relations of which it is the dominant force, as value in search of surplus value (self-expanding value).[39]

(ii) Self-expansion and expanded reproduction

How is accumulation to be understood in the context of the circuit? The dominant practical usage of accumulation in *Capital* is the reinvestment or "transformation of surplus-value into productive capital (and, correspondingly, reproduction on an expanded scale)..."[40] In various places it is referred to as simply as "capitalization of surplus value."[41] In Marx's words:

> "Earlier we considered how surplus-value arises from capital; now we have to see how capital arises from surplus-value. The employment of surplus-value as capital, or its reconversion into capital, is called accumulation of capital...Looked at concretely, accumulation can be resolved into the production of capital on an ever expanding scale."[42]

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[37] (*Resultate*: 1035; see also, e.g., 976-77, 1034-36, 1058-60). See also (*Preface*: 20-21).

[38] (*Capital II*: 431). See also Rosdolsky (1977: 41-50).

[39] A sum of money "may only be *defined* as capital if it is employed, spent, with the aim of *increasing* it" (*Resultate*: 976). See also Shaikh (1990a: 72-78) and Foley (1986a: 8-10).

[40] (*Capital II*: 396; see also 251, 579; *Capital III*: 353).

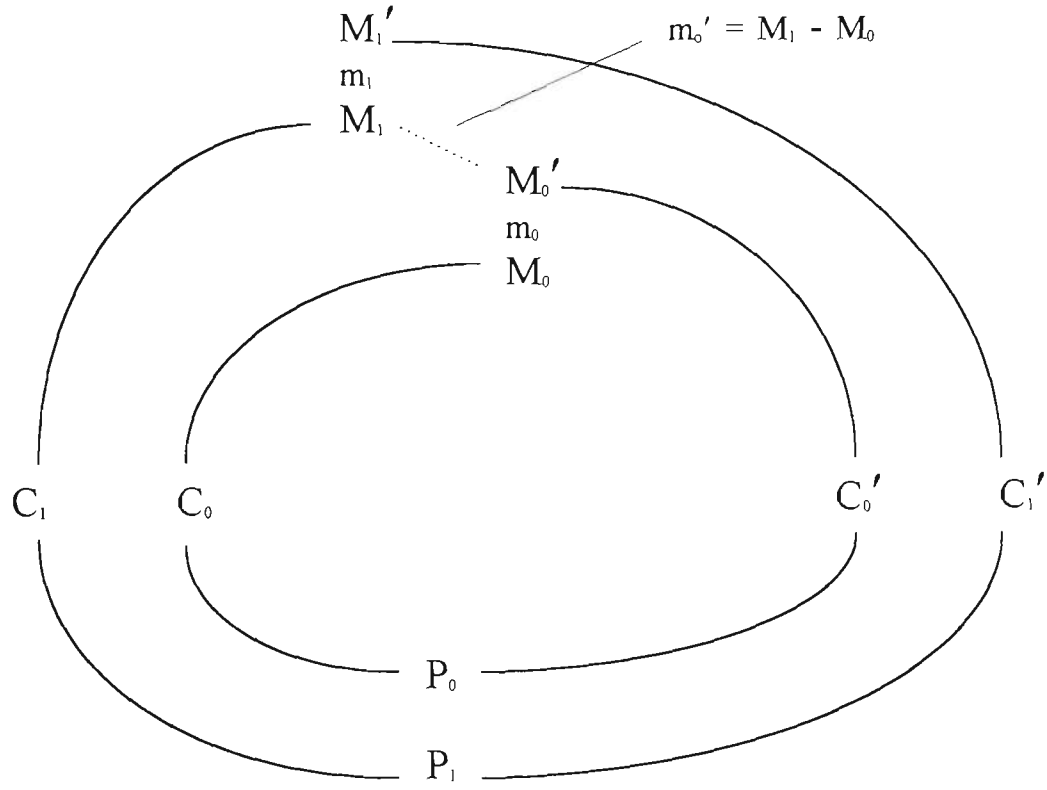
[41] (*Capital I*: 715). See also (*Capital II*: 394, 399).

[42] (*Capital I*: 725-27).

An important distinction is evident in this quotation. Profit-making, or self-expansion, is the process of creating of surplus value from capital. It may be defined in the circuit as comprising the concrete economic behaviour that constitutes the movement from M to M'. This process was the first to be considered in the first volume of *Capital*. In contrast, accumulation describes how capital arises from profit, which depends on the production of surplus value (i.e., surplus labour in production).[43] It is about the reproduction of the circuit on an expanded scale, and it was considered in the first volume only after profit-making was analysed in isolation.[44]

FIGURE 3.1

An Expanding Circuit of Capital



Using the simplest circuit of capital symbolism, the "production of capital on an ever expanding scale" originates with reinvesting m. It is the augmentation, or expansion, phase of the continuous circuit. Actual accumulation may, of course, be

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[43] King (1982: 158). See also n. 36.

[44] (*Capital II*: 428). See also n. 56 on the implications of this expositional convenience.

greater than or less than the magnitude of m. First, flows of profit that do not re-enter the circuit, such as dividends to shareholders, tax, and interest payments, which result in capitalists' consumption, other unproductive expenditures, government spending, etc., must be deducted. That part of profit which is accumulated is made up predominantly by the accounting category of retained earnings (profit). If accumulated profits are symbolised as m', then accumulation is the activity that links the smaller to the larger of the circuits in **Figure 3.1**. Second, borrowing by businesses enables a greater level of accumulation to be achieved. In large parts of *Capital*, deductions from profit are not considered, the implications of which are discussed in §3(i). Financial variables, such as borrowing and interest payments, are left by Marx until quite late in his exposition. They will be introduced here in §6(iii).

In Figure 3.1, moving from M_0' to M_1 results in the expanded circuit ("correspondingly, reproduction on an expanded scale") and a capital advanced to the enterprise of M_1'. Accumulation not only depends on each circuit's spheres, and the expression of the broad social relations of production embodied in them, but also extends the parameters of successive circuits. Profit-making and accumulation are mutually dependent phases, or moments, in the one process. "The capitalist production process is essentially, and at the same time, a process of accumulation."[45] Thus, even for one firm, the concrete process of profit-making and accumulation is continuous. However, in macroeconomic terms, the fundamental object of study for Marx is the continuous process charted by the "ensemble of capitals traversing the circuit of capital," with each likely to "have many value flows in different phases of the circuit at any one moment."[46] While it is useful to consider the process of the circuit as being continuous, its rhythms are characterised more appropriately by discontinuity, especially at the aggregate level.

Thinking of accumulation as a *process* also draws out important qualitative issues.[47] First, it integrates the social and class relations that determined the nature

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[45] (*Capital III*: 324).

[46] (Foley 1986a: 11). Circuit aggregates can be correlated with national-accounting output measures and, in principle, with modern national accounting methods of GDP measurement. Foley makes a notable but limited effort to link Marx's circuit categories and business accounting statements. See §6(i).

[47] For this reason "accumulation process" and expanded reproduction are sometimes used to summarise the whole capitalist process of production and reproduction: i.e., accumulation acquires a meaning beyond its technical definition as the growth over a period of time in the stock of productive assets (capital stock).

of the labour process. This is because, within the phase of productive capital, capital is accumulated not only as means of production but also as labour power. The capital-labour relationship is itself "accumulated," so to speak:

> "As simple reproduction constantly reproduces the capital-relation itself, i.e. the presence of capitalists on the one side, and wage-labourers on the other side, so reproduction on an expanded scale, i.e. accumulation, reproduces the capital-relation on an expanded scale, with more capitalists, or bigger capitalists, at one pole, and more wage-labourers at the other pole. The reproduction of labour-power...forms, in fact, a factor in the reproduction of capital itself."[48]

The quantitative increase in production of commodities that results from accumulation is important, but it is only part of the larger "social (as well as technical) circumstances in which [commodities] are produced -- that is, by workers under the direction of capitalists."[49]

Second, Marx "put technological change at the very center of economic theory," and since "the Marxian view lays primary stress on changes in methods of production, it implies qualitative change in social organization and social relations as well as quantitative change in economic variables as such."[50] For Foley, too, the process is social and qualitative, as well as interactive, and involves workers, technologies, and products:

> "Real accumulation involves the constant revolutionizing of the production process: the adoption of new techniques of production, often on a larger scale, the creation of new products, the reorganisation of capitals, and so on. These qualitative changes in production find their reflection in changes in the parameters that govern the circuit of capital..."

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[48] (*Capital I:* 763-64; see also 724). See also, e.g., Glyn (1900b: 275-76), Green and Sutcliffe (1987: 31-33, Chapters 3, 5, 8, and 236-39), and Rowthorn (1980: 30-45). See also Chapter 4§5.

[49] Green and Sutcliffe (1987: 327).

[50] Sweezy (1972: 139, 94).

> "Real accumulation, then, is not just a quantitative increase in the scale of production, but a continuing process of qualitative change, as new techniques and products emerge, and the sociological context of the economic system is transformed. From Marx's point of view, many of the changes that conventional economic theory sees as external shocks to the economy are in fact the systematic consequences of the accumulation of capital.
>
> "These qualitative changes are reflected quantitatively in changes in the underlying parameters of the circuit of capital."[51]

Third, Marx also stressed the symbiotic connection between the dynamics of the capital-labour relationship and technological change, particularly as the latter was designed to increase labour productivity. Accumulation expressed itself in terms of a permanent revolution in production methods and technologies,[52] and this, in turn, bound workers and capitalists tighter together in production. But nothing could not eradicate the class tension and exploitation upon which such unity was built. Instead, the revolutions in productive technique merely reflected the "antagonistic character of capitalist accumulation."[53]

(iii) Behaviour and motivation

Marx regarded the unity of profit-making and accumulation (self-expansion and expanded reproduction) as determining the "whole character of capitalist production."[54] It must "never be forgotten," Marx insisted:

> "...that the production of this surplus-value -- and the transformation of a portion of it back into capital, or accumulation, forms an integral part of surplus-value production -- is the immediate purpose and determining motive of capitalist production."[55]

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[51] Foley (1986a: 15, 43). See also (*TSV II*: 522).
[52] (*Capital III*: 353). See also, e.g., (*Capital II*: 250, 264).
[53] (*Capital I*: 799; see also 798-99).
[54] (*Capital II*: 159).
[55] (*Capital III*: 351-52). See also, e.g., (*TSV I*: 170, 227-28), (*TSV II*: 483), (*TSV III*: 421), and (*Resultate*: 1058-59).

Thus "it contradicts the essence of capitalist production" to assume that its "purpose and driving motive...is consumption, and not the grabbing of surplus-value and its capitalization, i.e. accumulation."[56] Indeed, from the perspective of historical development, the capitalist mode of production arises with the accelerated production of surplus value and its accumulation.[57] The reason for including profit-making and accumulation within Marx's core *definition* of capitalism, as activities *sine qua non* of the system, is that their inclusion provides the essential behavioural specification of the system. The purpose of capitalist production is to make profits and to accumulate: the impelling force that accounts for the motion (activity) of the structure specified here by the circuit of capital. The structure of the expanded circuit of capital would otherwise be inert.

However, this behaviour is itself generated by the motivation of the dominant participants in the process: the owners of capital. Their motivation is derived necessarily from one of the historically specific social relations of production of capitalism. The form taken by private ownership of the means of production is that capital is fragmented into autonomous competing units.[58] Aggregate social capital thus appears in the circuit only as many capitals, accumulating "in a process determined by the constraint of competition."[59] This constraint is conditioned ultimately by the needs of business survival, so that the capital advanced may be preserved. The "constant revolutions in methods of production themselves," which are an integral part of the accumulation process, cause existing capital to be devalued (moral depreciation[60]) and commodities to be cheapened, and this intensifies the competitive motive to accumulate, "merely a means of self-preservation, and on pain of going under."[61] Accumulation is " a necessity for each

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[56] (*Capital II*: 579). See also, e.g., (*Capital III*: 352) and (*TSV III*: 48-49). Note that before accumulation is introduced formally into the logical structure of *Capital I*, Marx tends to refer to profit alone as the "driving force," etc. of production.

[57] "With the accumulation of capital, therefore, the specifically capitalist mode of production develops, and, with the capitalist mode of production, the accumulation of capital." (*Capital I*: 775-76)

[58] Howard and King (1975: 15, 27-32).

[59] Mandel (1975: 563).

[60] See, e.g., (*Capital II*: 250, 264) and (*Capital III*: 358).

[61] (*Capital III*: 353).

individual capitalist," because the "constant enlargement of his capital becomes a condition for its preservation..."[62]

Under the restrictive assumptions of the first volume of *Capital*, Marx leaves little room for flexibility.[63] Competition "subordinates every individual capitalist to the immanent laws of capitalist production, as external and coercive laws. It compels him to keep expanding his capital, so as to preserve it, and he can only extend it by means of progressive accumulation."[64] Marx also explained that the coercive laws of competition (e.g., "Accumulate, accumulate! That is Moses and the prophets!"[65]) "enter into the consciousness of the individual capitalist as the motives which drive him forward."[66]

(iv) System specification

Marxist economics analysis maintains that the capitalist economy as a system inherently generates its own destructive outcomes, or immanent tendencies ("laws of motion"[67]). That is, to use McCarney's words, it represents capitalism "as a system structured by contradictions which are insoluble in its own terms."[68] These immanent tendencies are able to be specified partly in terms of the on the contradictory interplay of the main elements and processes discussed in Parts (i)-(iii) above, but they always require more or less additional specification. As was explained in Chapter 1§6, a system as a whole is more than a mere sum of its parts. Moreover, the behaviour of the system (the tendencies it generates) feeds back to shape the parts and subsequent outcomes.

Therefore it is best to separate the specification of these immanent tendencies as clearly as possible from the fundamental specification of the system itself. This is to say that theories of crisis and tendency (e.g., rising composition of capital leading

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[62] (*Capital II*: 159)

[63] Marx actually tempers his formulation of the *extent* of the competitive imperative, i.e., to accumulate to the maximum possible limit, as some of the restrictive assumptions of volume one are lifted and new considerations, such as financial variables, are introduced during the second and third volumes. See the discussion in §3(i) and Crotty (1993a).

[64] (*Capital I*: 739).

[65] (*Capital I*: 742).

[66] (*Capital I*: 433).

[67] Marx's usage of "laws of motion" is always in the sense of "tendency." See Chapters 1§§5-6 and 2§3.

[68] McCarney (1991: 30).

to a declining rate of profit, underconsumption) should not be drawn into the basic conceptual framework of the system itself. Such a separation within the overall theory makes it easier to accommodate change and the development of theoretical precision. It also makes for a more open and less dogmatic analysis of particular Marxist interpretations and debates over outcomes, while simultaneously reinforcing the view that the participants in those debates share a fundamentally similar view of capitalism. For these reasons, I will present here a relatively "minimalist" specification.[69]

A broad Marxist conceptual framework of capitalism as a system, and the place of profit-making and accumulation in it, may be summarised in the following terms:

I. *Motivation*: The aim, or motive, of separate capitalist entities is to preserve their capital and survive in an antagonistic world of competition.

2. *Behaviour*: To survive means that it is necessary to maximise profits and accumulate (or, more broadly, to invest[70]): this is the essential activity that gives life to the system.

3. *Structure*: The process of profit-making and accumulating is best represented within an expanded circuit of capital. The circuit presents the capitalist economy as one based on:

(i) generalised production and exchange of commodities, including the commodity of labour power;

(ii) the primary social relations of production[71] (and distribution), especially the core capital-labour class relation, in which actual social capital comprises many competing individual capitals; and

(iii) the existence of profit being determined by the exercise of unpaid surplus labour.

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[69] This does not deny interconnectedness is necessary in the formulation of theories, but it rejects the view that maximum organic unity is always the best approach to take. See my remarks in Chapter 1§6.

[70] This allows for financial variables and the application of depreciation provisions to investment.

[71] Mandel (1990: 9).

Accumulation, which expands the circuit (more means of production, labour power, and commodities), necessarily embodies:

(iv) constant technological change, product development, and efforts to increase labour productivity; and

(v) constant reproduction of the working population (labour power) and the capital-labour relation.

4. *Location*: The methodological starting point for analysis is always social and never ahistorical: here, a given capitalist society at a particular stage of development.

Theorising the capitalist economy in this way exposes its necessarily, antagonistic nature, which stems directly from the social motivation and behaviour of capitalists (or their agents). It also penetrates the veil of apparently equal exchange of products and labour power and enters a domain based on class, surplus labour, command, and exploitation.

However, it is also necessary to point out what the specification does not do. *Inter alia*, it does not presuppose any of the following: the level of concentration and centralisation of capital and the particular intensity of competition between capitals; the pace of accumulation and technological change or their particular emphasis (e.g., capital-widening *versus* capital deepening); the intensity and aggression with which profit-maximising and accumulation are pursued; the quantitative and qualitative relationships between any of the components and parameters of the circuit of capital (e.g., outcomes of class conflict over distribution, the direction of change in the composition of capital, rate of profit, etc.); and, importantly, the given nature of social and class relations at a more general level. To incorporate any such issues of shape, texture, and tempo into a specification of the characteristics that are sufficient and necessary to define capitalism would be to prejudge outcomes before they have been systematically elaborated and specified (let alone tested).

3 Key Variables and Ratios

Marx devoted most of his attention to the activity in the C...P...C' phase of the circuit of capital. This part of his accounting framework will be elaborated here and in §4. Problems will be discussed briefly in §5, while the contract-credit system will be integrated in §6. The relatively complete model of capitalism that emerges will enable later chapters to present the various Marxist alternatives and the empirical relationships more clearly and accurately.

(i) One production cycle (turnover)

In the C...P...C' phase the starting point again is capital: capital advanced by the capitalist to make profit or surplus-value from which accumulation may result. Here money capital (M) takes the commodity form of capital advanced (C) and the increment of capital's self-expansion (M' - M = m) becomes surplus value (s). The rate of return on the capital advanced (p') is the percentage rate of profit,[72] where:

$$p' = s/C_a$$

Profit-making and capital accumulation are the activities *sine qua non* of the system. This ratio brings quantitative representations of these activities into relation with each other. Its imposing significance in theory and practice is bound to follow. At the simplest levels of Marx's exposition there are no sources of funds for accumulation other than profit (or surplus value[73]), since there are no financial variables, workers consume their wage income (equivalent to the wage-goods bundle), and only capitalists save. If all of the profit is accumulated, which is implied by the intense level of competition behind the "external and coercive" law that "compels" capitalists to "[a]ccumulate, accumulate!,"[74] the rate of profit will

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[72] Marx uses the C of the circuit in his initial rate of profit representation (*Capital III*: 132-33). I will call it C_a (capital advanced) in rate of profit uses to distinguish it from my later use of upper-case symbols to designate annual flow variables. I will be faithful to Marx and use C for circuit of capital representations.

[73] (*Capital III*: 126-27).

[74] (*Capital I*: 739-42).

wholly determine the proportionate growth of the capital stock and the self-expansion of capital[75]:

$$s/C = \Delta C/C = m'/M$$

Thus we can interpret Marx very literally when he called the rate of profit "the spur to capitalist production" and the "stimulus of capitalist production and both the condition for and the driving force in accumulation."[76] Moreover, because the rate of profit "condition" is equal to the rate of accumulation, it also acts directly at this restricted level of the model as both the driving force of, and the barrier to, economic growth. (Note that this simple level implies that capitalists face no real investment decision and that, by reinvesting all of their profits, there (i) can be no problems of inadequate effective demand and (ii) a falling rate of profit "inevitably lowers investment."[77])

Capital advanced in commodity form (C) may be decomposed to show its constituents. Money capital advanced to buy means of production becomes constant capital (c). It has two components: buildings, machines, etc., are fixed capital (c_1), and raw materials and other production inputs are circulating constant capital (c_2). That part of money capital advanced to buy labour-power is variable capital (v). Circulating capital comprises circulating constant and variable capital (c_2+v). The rate of profit may be shown in more detail as:

$$p' = s/(c+v) = s/(c_1+c_2+v)$$

Total capital advanced can now also be seen more clearly to represent what capitalists require to establish and keep their businesses running. This presupposes that capital advanced remains tied up in the businesses. For a fresh cycle of

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[75] This parallels $r = g/s_c$ in Cambridge growth theory (with the assumption that capitalists' propensity to save from profits (s_c)=1). See Howard and King (1992: 298).

[76] (*Capital III*: 349, 368; see also 350).

[77] Crotty (1993a: 2; see also 3). Crotty's comparison of Marx's treatment of investment in *Capital I*, and his more complete treatment of it in parts of *Capital II and III*, is insightful. Crotty argues carefully that, as a result of Marx's introduction of financial variables, the possibility of realisation problems, and an "undeniably sketchy" modification of the competition imperative, the view that businesses will always "invest to the limit of...[their] financial [including profit] constraint" is too simplistic (1993a: 2-9). See §3(iii), Chapter 5§§6-7, and Chapter 11§6. See also Chapters 6§5 and 8§4, on Kalecki's profit equation and effective demand, and Chapter 11, especially §6, on the differences between the rates of profit and investment that can arise due to the roles of financial variables and different intensities of inter-capitalist competition.

production to be started, fixed and circulating capital used up in production must be replenished from money capital realised by the sale of the commodities produced.[78]

Corollaries are evident if we shift focus from capital advanced to the process of production and realisation. Some of the existing value stored up in the means of production is transferred to the total value of the output (y'). Total value also contains the new value created in production, or value added (y). Value added includes the value of variable capital and the surplus value *produced*. Production of surplus value in the labour process dovetails with Marx's explanation of exploitation. It is equal to the labour time expended by workers greater than that necessary to reproduce the equivalent in goods of the variable capital they receive as wages.[79] However, it is only later, in the sale of the newly created commodities, that value (y_r) and surplus value (s_r) may be *realised*. In general, produced and realised magnitudes will be different ($y \neq y_r$ and $s \neq s_r$). This distinction was important to Marx for its role in the critique of existing political economy (e.g., Say's Law). In *Capital I* and in large parts of *Capital II* and *III*, Marx assumes produced and realised magnitudes to be equal. Hence he has sometimes been misinterpreted as not having criticised Say's Law.[80] However, the use of this assumption has to be interpreted with reference to the systematic ordering of Marx's exposition, and it is dropped the more concrete (complete and rounded) this exposition becomes. Thus, at a more practical and realistic level, Marx regards the "barriers" to capital accumulation to be imposed not only by the production but also the "realization of profit."[81]

It follows also that an important distinction must be registered between stock and flow representations of Marx's economic categories: i.e., between stocks of capital advanced for production (c_1+c_2+v) and the flows of these elements used up in production over a period. The latter emerge as periodic cost allocations: depreciation or consumption of fixed capital ($\mathbf{c_1}$), intermediate consumption of

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[78] (*Capital II*: 331).

[79] See, e.g., (*Capital III*: Chapter 2, 235, 334-38).

[80] See, e.g., some of Robinson's early contributions, which are discussed by Howard and King (1992: 98). See also Chapters 5§1 and 6§1.

[81] (*Capital III*: 367; see also 368). This is also related to the calculation of the rate of profit (*Capital III*: 335). See also (*Capital III*: 351-53) and Chapter 6§1.

circulating capital ($\mathbf{c_2}$), and wages ($\mathbf{v}$). Their sum is designated the cost price ($\mathbf{k}$) of the commodities produced.[82]

Strictly, these symbolic relationships hold only for one turnover of variable capital advanced (v). Turnover has two parts: (i) the time or "production period" needed to produce commodities whose value is sufficient for variable capital advanced to be replenished ("working period" plus natural delays necessary for production when no work is done, e.g., cooling or drying time); and (ii) the "circulation time" ("selling time" needed to realise the variable capital advanced) plus the time needed to reconvert money into productive capital.[83] The first part is described by the C...P...C' phase of the circuit of capital: i.e., a production (or *re*production) cycle. The complete definition of turnover corresponds to the M-C...P...C'-M' phase of the circuit. In this section I will focus on the production cycle. By definition, the flow of variable capital allocated as a production cost is equal to the stock of variable capital advanced ($\mathbf{v} = v$) during this cycle.

Now, this allows Marx to give a rate of exploitation (the ratio of unpaid = surplus labour to paid = necessary labour) for the production cycle. This is the rate of surplus value (s') for the period, where:

$$s' = \mathbf{s/v}$$

Because exploitation refers to flows of labour time, it should be defined in the flow form.[84] However, the cost of obtaining a definition of the rate of surplus value in single-turnover form is that neither s' nor p' are annual rates. The deficiency is clearly regrettable, as I will show in later sections.

Another key ratio to arise now is the value composition of capital (c'), where:

$$c' = c/v$$

If c' is to compare the relative weights of the components of the of capital advanced for production, as Marx intended, it must be conceived as a stock ratio. Similarly, the technical composition of capital (c_t') and the organic composition of

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[82] Henceforth, all stocks are in normal font and corresponding flows in bold. Annual flows will be shown in Part (ii) of this section in upper case.

[83] (*Capital II*: 316-17, 326, 331).

[84] *Ipso facto*, this makes it irrelevant when wages are paid, as long as they are paid *for* the period.

capital (c_0') must also be defined as stock ratios. The technical composition may then function truly as a technological index: "...a definite number of workers...to a definite quantity of means of production."[85] The organic composition is just the technical composition multiplied by a given set of unit values of constant and variable capital. It "is determined by its technical composition and mirrors changes in" it.[86] The value composition differs from the organic composition because the relative average values of units of constant and variable capital will change over time. Clearly the crucial real ratios are the value and technical compositions.[87] It is worth noting that Marx considered the direction of the composition of capital to be related to the capital-deepening (labour-saving), as opposed to the capital-widening (output-expanding), mode of accumulation. The decisions capitalists made concerning the technological change that characterised their investments and determined the dominant mode of accumulation were, in turn, governed by a combination of the capital-labour relation and the behaviour of the rate of surplus value, on the one hand, and the capital-capital relation and the dynamics of competitive behaviour, on the other.[88]

Figure 3.2 summarises the key designations, relationships, and ratios derived so far. **Table 3.1** puts these into the first of a series of tables that will be presented successively in this chapter. *Inter alia*, these tables show how aggregation occurs in Marx's framework.[89] Rather than provide simple but not very real illustrative magnitudes, such as those given by Marx in *Capital III*, these tables use proportions based roughly on an amalgam of some Australian industry groups. Incidentally, the proportions correspond approximately to those given by Engels in the numerical examples in the fourth chapter that he added to Marx's text. The

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[85] (*Capital III*: 244; see also *Capital I*: 762). See Chapter 2§3 n. 68. The problem of aggregating and comparing qualitatively different sets of physical means of production will be noted again in Chapters 5§2(i)-(ii) n. 22 and n.28 and 10§7.

[86] (*Capital I*: 762). See also, e.g., (*Capital III*: 244) and (*TSV II*: 455).

[87] See n. 85. I think Rowthorn and Harris (1985: 347) are wrong to imply that Marx did not define the organic composition strictly. Marx's usage of value, technical, and organic compositions is imprecise, but this is to do with blurred stock-flow distinctions not definitions *per se*. Blaug is simply wrong to assert that 'Marx never explicitly defined the so-called 'organic composition of capital'" (1968: 229).

[88] See (*Capital I*: Chapter 25), (*Capital III*: 361-68), Dobb (*inter alia*, 1963a: 281-91), Crotty (1993a: 4-5), and Crotty and Goldstein (1992: 198-209). Capital-widening accumulation maintains a constant technical composition of capital. The interrelated issues here will be discussed extensively in Chapters 7-8 and 10-11. See especially Chapter 7§§6-7, 8§§1-2, and 11§6.

[89] The tables also obviate the need for tedious algebra in the main text.

coefficients $ß_1$ and $ß_1$ are the proportions of fixed and circulating constant capital advanced that are allocated as costs in one production cycle. The coefficient n stands for the number of production cycles per year. Note that outputs of the industries are not additive in any meaningful sense since the production periods differ in length.

FIGURE 3.2

Single Production Cycle (Turnover) Relationships and Ratios

Relationships

Constant capital	c	$= c_1 + c_2$
Capital advanced	C_a	$= c + v = c_1 + c_2 + v$
Cost price	**k**	$= \mathbf{c_1} + \mathbf{c_2} + \mathbf{v} = ß_1c_1 + ß_2c_2 + v$
Total product (output) value	**y'**	$= \mathbf{c_1} + \mathbf{c_2} + \mathbf{v} + \mathbf{s} = ß_1c_1 + ß_2c_2 + v + \mathbf{s}$
Surplus value	**s**	$= \mathbf{y'} - \mathbf{k}$
Value added	**y**	$= \mathbf{v} + \mathbf{s} = v + \mathbf{s}$
		$= \mathbf{y'} - (\mathbf{c_1} + \mathbf{c_2})$
Rate of profit	p'	$= \mathbf{s}/(c + v)$
		$= \mathbf{s}/(c_1 + c_2 + v)$
Rate of surplus value	s'	$= \mathbf{s}/\mathbf{v}$
Value composition of capital	c'	$= c/v$

Stock variables

- c_1 - fixed constant capital advanced (plant, equipment, buildings)
- c_2 - circulating constant capital advanced (raw materials, etc.)
- v - variable capital advanced (for wages)

Flow variables

- $\mathbf{c_1}$ - depreciation costs of fixed capital in a single production period (turnover of v_1)
- $\mathbf{c_2}$ - the cost of raw materials, etc. used up in a single production period (turnover of v_2)
- **v** - wages costs in a single production period (turnover of v_3)
- **s** - surplus value produced in a single production period (turnover of v)

Coefficients

- $ß_1$ - depreciation rate per production period (turnover of v)
- $ß_2$ - number of times c_2 turns over per production period (turnover of v)

(ii) Annual calculation

Annual flow variables in Marx's framework may be calculated by multiplying their single-cycle counterparts by the number of cycles per year (n). Similarly, annual rates of profit and surplus value can be derived. A mild cautionary note should be sounded first. Given that reproduction in reality is expanded reproduction, which is to say that technological change is continuous, it is proper

to infer that the length of production periods will change over a year.[90] All the variables given in Table 3.1 will be likely to grow for the same reason. Hence it is best to think of the single-period variables as *averages* and n as the inverse of the *average* cycle length per year.

TABLE 3.1

Marx's System: Key Production Variables in a Single Turnover

INDUS-TRY j	CAPITAL ADVANCED (STOCK) c_1	c_2	c c_1+c_2	v v	C_a c+v	c' c/v	COEFFICIENTS $ß_1$	$ß_2$	n
I	3340	110	3450	100	3550	3450%	0.009	0.06	6.75
II	2800	150	2950	100	3050	2950%	0.007	0.05	6.00
III	7300	1400	8700	100	8800	8700%	0.003	0.03	13.25
IV	980	20	1000	100	1100	1000%	0.008	9.75	7.50
V	3750	1650	5400	100	5500	5400%	0.002	0.05	21.00
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*n.a.*	*n.a.*	*10.90*

INDUS-TRY j	OUTPUT (FLOW): ONE TURNOVER **c_1** $ß_1c_1$	**c_2** $ß_2c_2$	**c** **c_1+c_2**	**v** v	**k** **c+v**	**s**	**y'** **k+s**	**y** **v+s**	s' **s/v**	p' **s/C_a**
I	30	7	37	100	137	48	185	148	48.15%	1.36%
II	20	8	27	100	127	25	152	125	25.00%	0.82%
III	22	35	57	100	157	146	303	246	146.04%	1.66%
IV	8	195	203	100	303	39	342	139	38.67%	3.52%
V	8	83	90	100	190	29	219	129	28.57%	0.52%

1. This table is illustrative only and is intended merely as a more realistic representation of approximate proportions. Thus Australian national accounts (ABS: 5204.0, 5209.0, 5221.0) and labour data (ABS: 6204.0) have been amalgamated and scaled, etc., to obtain industries I-V here. 2. For convenience, all v (unknown) = 100. Hence all n (derived) are conjectural.

First, this may be applied to the annual flows wages and profit[91]:

$$V = nv \text{ and } S = ns$$

where (v = **v**). Second, it follows that the rate of surplus value may be converted to the annual rate of surplus value (S' = S/**v**) since:

$$S' = ns' = n\,(\mathbf{s/v}) = (n\mathbf{s})/\mathbf{v} = S/\mathbf{v} = S/v$$

[90] See §2(ii).

[91] Remember that all annual flows will be given in upper case. Single-turnover flows are in lower case bold and stocks, apart from C_a, are in lower case, and there is no such thing as an annual stock. The only meaningful way in which surplus value may be thought of in stock terms is as part of inventories awaiting sale.

Clearly, if S is the known variable, then s' may be derived as an average rate applicable to the year. Note, however, that:

$$S' \neq S/V \text{ but } s' = S/V = (ns)/(nv) = \mathbf{s/v}$$

This important inequality will be discussed in §5.[92]

The elements of constant capital allocated to production as annual costs may be calculated in a similar way. If the average annual rate of depreciation of fixed capital (d) is defined as the inverse of its turnover in years, then:

$$C_1 = dc_1$$

where C_1 is the average annual cost allocated, the annual depreciation provision, or the annual value of fixed capital used up. Since the depreciation allocation for one turnover of variable capital is ($\mathbf{c_1} = ß_1c_1$):

$$C_1 = n\mathbf{c_1} = nß_1c_1 = dc_1$$

where $ß_1$ emerges clearly as the ratio of the number of turnovers per year of fixed to variable capital ($ß_1 = d/n$). Similarly, it can be shown for circulating constant capital that:

$$C_2 = n\mathbf{c_2} = nß_2c_2$$

In principle, all the problematic annual *versus* single turnover and stock *versus* flow distinctions have been accounted for. **Figure 3.3** summarises the key annual designations, relationships, and ratios that result. Admittedly, such clarity comes at the cost of simplicity and elegance. Yet simplicity and elegance have their own more expensive price tag: the destruction of general applicability due to the array of mongrel *ceteris paribus* assumptions necessarily thrown in with the purchase. The sharpest illustration of the possible conceptual and quantitative problems that such assumptions may cause is provided by the all-important rate of profit.

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[92] I will defer considering productive *vs.* unproductive labour distinctions until Chapter 6§4, for reasons that will be clear there.

FIGURE 3.3

Annual Production Relationships and Ratios

Relationships

Constant capital	c	$= c_1 + c_2$
Capital advanced	C_a	$= c + v = c_1 + c_2 + v$
Cost price	K	$= C_1+C_2+V = \mathbf{nk} = n(\mathbf{c_1}+\mathbf{c_2}+\mathbf{v}) = n(ß_1c_1+ß_2c_2+v)$
Total product (output) value	Y'	$= C_1+C_2+V+S = \mathbf{ny'} = n(\mathbf{c_1}+\mathbf{c_2}+\mathbf{v}+\mathbf{s})$
		$= (ß_1c_1+ß_2c_2+v+\mathbf{s})$
Surplus value	S	$= Y' - K = n(\mathbf{y'} - \mathbf{k}) = \mathbf{ns}$
Value added	Y	$= V + S = n(\mathbf{v}+\mathbf{s}) = \mathbf{ny} = Y'-(C_1+C_2)$
		$= n[\mathbf{y'} - (\mathbf{c_1}+\mathbf{c_2})]$
Annual rate of profit	P'	$= S/(c + v) = \mathbf{ns}/(c + v) = np'$
		$= S/(c_1 + c_2 + v) = \mathbf{ns}/(c_1 + c_2 + v)$
Annual rate of surplus value	S'	$= S/v = S/\mathbf{v} = \mathbf{ns}/\mathbf{v} = ns'$
Rate of surplus value	s'	$= \mathbf{s}/\mathbf{v} = S/V$
Value composition of capital	c'	$= c/v$

Stock variables

(See Figure 3.2.)

Flow variables

C_1 - annual depreciation costs
C_2 - annual raw materials, etc. costs
V - annual wages costs
S - annual surplus value
(See Figure 3.2 for single-turnover flow definitions.)

Coefficients

n - number of times variable capital turns over per year
(See Figure 3.2 for single-turnover ß definitions.)

Following the earlier discussion, the annual rate of profit (P') and its single-period counterpart (p') obviously will be different. The annual rate can now be given as:

$$P' = S/(c + v) = \mathbf{ns}/(c + v) = np'$$

This rate will be equal to the single-turnover rate only in the exceptional case that variable capital advanced turns over exactly one a year (n = 1). Only in this case will the two rates of surplus value also be equal. It should be noted that the same denominator is used as it is the total stock advanced to production in both cases on which a return is expected.

Engels highlighted the actual difference between P' and p' and S' and s' in Chapter 4 of *Capital III* and in a parenthetical note inserted into Marx's exposition of the tendency of the rate of profit to fall.[93] The note explains that annual variables are the significant ones in practice. Engels also remarks on the even more extreme assumption in which all capital advanced ($C_a = c + v = c_1 + c_2 + v$) turns over exactly in one year. We have here a one-year-assumption of staggering specificity. This is the case in which $ß_1$, $ß_2$, d, and n are all equal to 1. It would hardly warrant a passing thought were it not that Marx used it in an attempt to simplify his exposition.[94] He was well aware, however, of the obviously unreal nature of the one-year assumption.[95]

Unfortunately, later Marxists simply seem to pay scant regard to its limitations. Most use the single-turnover tandem of

$$y = c + v + s \text{ and } p' = s/(c + v)$$

as an "abstract" rendition of Marx's category relations. When the one-year assumption is used implicitly, the whole structure of real relations built on a recognition of stock-flow and annual-turnover distinctions is obligingly dissolved. Any ability to engage actual empirical evidence is denied when such generality is sacrificed. The one-year assumption should not be used in any of its guises. Maybe it is best to think of it as "one of those ingenious simplifying devices which often fetter subsequent thought as much as they serve a crutches to the first limping stages of analysis," as Dobb once described the Ricardian denial of demand insufficiency.[96] I will return in Chapters 5 and 7 to a significant conceptual problem in Marxist economics that flows directly from the one-year assumption.

Table 3.2 follows on from Table 3.1 to set out the relationships between the single-turnover and annual variables. It should be noted that the annual data can be aggregated and averaged meaningfully. Annual data in the table are calculated from the single-turnover data and the coefficients. This demonstrates the stock-flow

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[93] (*Capital III*: 334-35).

[94] See, e.g., (*Capital III*: 254). This simplification is the cause of Blaug's (1968: 229) complaint over Marx's poor performance on the stock-flow distinction. This complaint was earlier voiced by Robinson (1966(1942): 7; see also 1959: 105), who said that "Marx was aware of these points, but his terminology obscures them."

[95] See, e.g., (*Capital II*: 597).

[96] Dobb (1963a: 292).

connections and is consistent with the sequential development a general framework. In practice the key turnover variable (n) is more likely to be calculated retrospectively from the annual flow data for the reasons explained at the start of this discussion.

TABLE 3.2

Marx's System: Key Annual and Single-Turnover Variables

INDUS-TRY j	CAPITAL ADVANCED (STOCK) c_1	c_2	c c_1+c_2	v v	C_a c+v	c' c/v	COEFFICIENTS $ß_1$	$ß_2$	n
I	3340	110	3450	100	3550	3450%	0.009	0.06	6.75
II	2800	150	2950	100	3050	2950%	0.007	0.05	6.00
III	7300	1400	8700	100	8800	8700%	0.003	0.03	13.25
IV	980	20	1000	100	1100	1000%	0.008	9.75	7.50
V	3750	1650	5400	100	5500	5400%	0.002	0.05	21.00
Σ	18170	3330	21500	500	22000	n.a.	n.a.	n.a.	n.a.
AVG.	3634	666	4300	100	4400	4300%	n.a.	n.a.	10.90

INDUS-TRY j	OUTPUT (FLOW): ONE TURNOVER **c_1** $ß_1c_1$	**c_2** $ß_2c_2$	**c** **c_1+c_2**	**v** v	**k** **c+v**	**s**	**y'** **k+s**	**y** **v+s**	s' **s/v**	p' **s/C_a**
I	30	7	37	100	137	48	185	148	48.15%	1.36%
II	20	8	27	100	127	25	152	125	25.00%	0.82%
III	22	35	57	100	157	146	303	246	146.04%	1.66%
IV	8	195	203	100	303	39	342	139	38.67%	3.52%
V	8	83	90	100	190	29	219	129	28.57%	0.52%

INDUS-TRY j	OUTPUT (FLOW): ANNUAL (= n TURNOVERS) C1 $nß_1c_1$	C2 $nß_2c_2$	C C1+C2	V nv	K C+V	S ns	Y' K+S	Y V+S	S' ns'	P' np'
I	203	45	247	675	922	325	1247	1000	325.00%	9.15%
II	118	45	163	600	763	150	913	750	150.00%	4.92%
III	290	464	754	1325	2079	1935	4014	3260	1935.00%	21.99%
IV	59	1463	1521	750	2271	290	2561	1040	290.00%	26.36%
V	158	1733	1890	2100	3990	600	4590	2700	600.00%	10.91%
Σ	*827*	*3748*	*4575*	*5450*	*10025*	*3300*	*13325*	*8750*	*n.a.*	*n.a.*
AVG.	*165*	*750*	*915*	*1090*	*2005*	*660*	*2665*	*1750*	*660.00%*	*15.00%*

See notes to table 3.1.

4 Profit Rate Equalisation

Marx supposed that competition would create a tendency to equalise profit rates around a social average. However, "[a]verage profit does not appear as a directly given fact, but rather as the end-product of an equalization of opposing tendencies

that can only be established by investigation."[97] Despite this caveat, it was necessary to account separately for the supposed effects of the tendency. The most important effect would be that each industry would not obtain the surplus value created within it. Instead it would tend to obtain a mass of profit equal to the social average profit rate multiplied by the total capital it advanced. This amount would be added to its "cost prices" to obtain "prices of production," which are "the centre around which the market prices oscillate."[98] Prices of production thus also perform the role of long-run average prices, or long-run equilibrium prices, in Marx's scheme.[99]

Given the discussion in §3, we must be clear from the outset about which profit rate is being "equalised." Only the annual rate (P') and not the single-turnover rate (p') can exhibit the tendency towards equalisation.[100] An average is derived from aggregation: single-turnover flow magnitudes cannot be aggregated meaningfully and, therefore, are inappropriate. The average rate of profit is simply the annual social aggregate surplus value (ΣS) divided by the aggregate social capital advanced (ΣC_a). Thus the annual surplus value (S) for each industry, as shown in Figure 3.3, must be replaced by:

$$P'(C_a) = (\Sigma S / \Sigma C_a)C_a = [\Sigma S / \Sigma(c_1 + c_2 + v)] (c_1 + c_2 + v)$$

Since the weight of an industry (j) in the total capital advanced (∂_j) is:

$$C_a/\Sigma C_a = (c_1 + c_2 + v)/ \Sigma(c_1 + c_2 + v)$$

it is also possible to represent each industry's mass of profit as its share in the aggregate annual surplus value according to its weight ($\partial_j \Sigma S$). The equalisation procedure also may be expressed with the rate(s) of surplus value and the value composition of capital. Since, for industries 1 to j:

$$\partial\Sigma S = \partial\Sigma(ns) = \partial\Sigma(ns'v) = \partial\underline{ns'}\Sigma v = \partial\underline{S'}\Sigma v$$

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97 (*Capital III*: 490). See Chapter 1§5, esp. n. 99. Marx proposed to discuss separately the impediments to competition posed by such factors as monopoly and immobility (*Capital III*: 268 n. 24, added by Engels, 275, 297-98, 301).

98 (*Correspondence*: 194).

99 Howard and King (1989: 42). Prices of production also play the role that the classical economists gave to "natural prices."

100 (*Capital III*: 261, 334).

where Σv is the total social variable capital advanced, $\underline{s}'$ is the average social rate of surplus-value, $\underline{n}$ is the social average number of turnovers per year, and $\underline{S}'$ is the average annual rate of surplus value.[101] Now, ΣS may also be expressed in the form:

$$\Sigma S = [\Sigma S / \Sigma(c + v)]\, \Sigma C_a = [\underline{S}'\Sigma v / \Sigma(c + v)]\, \Sigma C_a$$

If we use a familiar form of decomposition and divide each of the terms in the square bracket by the total social variable capital:

$$\Sigma S = \{\underline{S}' /[(\Sigma c/\Sigma v) + 1]\}\, \Sigma C_a = [\underline{S}'/(\underline{c}' + 1)]\, \Sigma C_a$$

where $\underline{c}'$ is the average social value composition of capital.

Note that the average social rate of profit here is $\underline{S}'/(\underline{c}' + 1)$. This may be applied to any industry to demonstrate a result to which Marx drew attention. Hence:

$$S_j = [\underline{S}'/(\underline{c}' + 1)]C_{aj} = [\underline{S}'(c + v)_j]/(\underline{c}' + 1) = [\underline{S}'v_j(c_j' + 1)]/(\underline{c}' + 1)$$

If we follow one of Marx's assumptions for the moment and allow the (annual) rate to be the same in each industry, we now have for industry j:

$$S_j = S(c_j' + 1)/(\underline{c}' + 1)$$

which is to say that, if an industry has a higher-than-average capital composition ($c_j' > \underline{c}'$), competition will redistribute to it a profit greater than the surplus value it produces (S), and *vice versa*. Marx's comments on redistribution of surplus value and the deviation of prices of production above and below output values are grounded in such considerations.[102]

Figure 3.4 and **Table 3.3** capture the supposed reallocative effects of competition, based on the tendency of profit rates to equalise. For convenience, capital advanced in labour hours (Panel 1) and prices of production in money (Panel 2) may be regarded as having been "scaled" so as to be equal. The real

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[101] Symbols for average social rates will be underlined to distinguish their origin. P' will not be underlined because its equality is given. Remember that v = **v** by definition.

[102] See, e.g., (*Capital III*: 263-64).

FIGURE 3.4

Annual Production Relationships and Ratios
(With Profit Rate Equalisation but without Single-Turnover Variables)

Enterprise or Industry (j)

Constant capital	c	$= c_1 + c_2$
Capital advanced	C_a	$= c + v = c_1 + c_2 + v$
Cost price	K	$= C_1+C_2+V = d_1c_1 + d_2c_2 + nv$
Price of production	Y'	$= C_1+C_2+V+S = d_1c_1 + d_2c_2 + nv + \Pi$
		$= d_1c_1 + d_2c_2 + nv + P'C_{aj}$
		$= d_1c_1 + d_2c_2 + nv + \partial\underline{S}'\Sigma v$
		$= d_1c_1 + d_2c_2 + nv + [\underline{S}'/(\underline{c}' + 1)]C_{aj}$
Profit	Π	$= Y' - K$
		$= P'(c_1+c_2+v) = \partial\underline{S}'\Sigma v = [\underline{S}'/(\underline{c}' + 1)]C_{aj}$
Value added (price form)	Y	$= V + \Pi$
		$= nv + P'C_{aj}$
		$= nv + \partial\underline{S}'\Sigma v$
		$= nv + [\underline{S}'/(\underline{c}' + 1)]C_{aj}$
Annual rate of profit	P'	= (see social average below)
Annual rate of surplus value	S'	= (")*
Rate of surplus value	s'	= (")*
Value composition of capital	c'	$= c/v$

Social aggregates for all industries (1 - j)

Aggregate annual product		$\Sigma Y' = \Sigma(C_1+C_2+V+S)$
		$= \Sigma Y' = \Sigma(C_1+C_2+V+S)$
		$= \underline{d}_1\Sigma c_1 + \underline{d}_2\Sigma c_2 + \underline{n}\Sigma v + \underline{P}'\Sigma C_a$
		$= \underline{d}_1\Sigma c_1 + \underline{d}_2\Sigma c_2 + \underline{n}\Sigma v + \underline{P}'\Sigma(c_1+c_2+v)$
		$= \underline{d}_1\Sigma c_1 + \underline{d}_2\Sigma c_2 + \underline{n}\Sigma v + \underline{S}'\Sigma v$
		$= \underline{d}_1\Sigma c_1 + \underline{d}_2\Sigma c_2 + \underline{n}\Sigma v + [\underline{S}'/(\underline{c}' + 1)]\ \Sigma C_a$
Aggregate surplus value (profit)	ΣS	$= \Sigma Y' - \Sigma K = \underline{P}'\Sigma C_a$
Aggregate value added	ΣY	$= \Sigma V + \Sigma S = \Sigma nv + \underline{P}'\Sigma C_a$
Average annual rate of profit	$\underline{P}'$	$= \Sigma S/\Sigma C_a = \underline{np}'$
Average annual rate of surplus value	$\underline{S}'$	$= \Sigma S/\Sigma v = \underline{ns}'$
Average rate of surplus value	$\underline{s}'$	$= \Sigma S/\Sigma V$
Average value composition of capital	$\underline{c}'$	$= \Sigma c/\Sigma v$

Notation and Definitions

Underlined variables are social averages (e.g., $\underline{S}'$).
Italics denote the price of production form (e.g., Y)
See Figures 3.2 and 3.3 for definitions of stocks, flows, and coefficients.

* Depending on assumption, either the social average rate or as in Figures 3.2 and 3.3.

TABLE 3.3

Values and Prices of Production

See notes to Table 3.1.

(i) Profit rate equalisation

INDUSTRY	CAPITAL ADVANCED (STOCK)					COEFFICIENTS			TOTAL PRODUCT VALUE (OUTPUT): ANNUAL (FLOW)									
	c1	c2	c	v	Ca	c'				C1	C2	C	V	K	S	Y'	Y	s'	S'	P'
			c1+c2	v	c+v	c/v	d1	d2	n	d1c1	d2c2	C1+C2	nv	C+V	Y-S	K+V	V+S	S/V	S/v	S/(c+v)
Panel 1: Labour Values (Average = Socially Necessary Labour Hours) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	325	2542	1000	48%	325%	9.15%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	150	1015	750	25%	150%	4.92%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1935	4327	3260	146%	1935%	21.99%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	290	2628	1040	39%	290%	26.36%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	600	3476	2700	29%	600%	10.91%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*3300*	*13988*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*660*	*2798*	*1750*	*60.6%*	*660.0%*	*15.00%*
Panel 2: Prices of Production (Long-run Average Prices) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	533	2750	1208	79%	533%	15.00%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	458	1322	1058	76%	458%	15.00%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1320	3712	2645	100%	1320%	15.00%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	165	2503	915	22%	165%	15.00%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	825	3701	2925	39%	825%	15.00%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*3300*	*13988*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*660*	*2798*	*1750*	*60.6%*	*660.0%*	*15.00%*

(ii) Profit & surplus value rate equalisation

INDUSTRY	CAPITAL ADVANCED (STOCK)					COEFFICIENTS			TOTAL PRODUCT VALUE (OUTPUT): ANNUAL (FLOW)									
	c1	c2	c	v	Ca	c'				C1	C2	C	V	K	S	Y'	Y	s'	S'	P'
			c1+c2	v	c+v	c/v	d1	d2	n	d1c1	d2c2	C1+C2	nv	C+V	Y-V	K+V	V+S	S/V	S/v	S/(c+v)
Panel 1: Labour Values (Average = Socially Necessary Labour Hours) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	675	2892	1350	100%	675%	19.01%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	600	1465	1200	100%	600%	19.67%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1325	3717	2650	100%	1325%	15.06%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	750	3088	1500	100%	750%	68.18%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	2100	4976	4200	100%	2100%	38.18%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*5450*	*16138*	*10900*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*1090*	*3228*	*2180*	*100%*	*1090%*	*24.77%*
Panel 2: Prices of Production (Long-run Average Prices) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	879	3097	1554	130%	879%	24.77%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	756	1620	1356	126%	756%	24.77%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	2180	4572	3505	165%	2180%	24.77%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	273	2610	1023	36%	273%	24.77%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	1363	4239	3463	65%	1363%	24.77%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*5450*	*16138*	*10900*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*1090*	*3228*	*2180*	*100%*	*1090%*	*24.77%*

issue, of course, is not equality but proportionality. The model is now at the point at which the "transformation" conundrum becomes relevant.[103] Table 3.3 is in two parts: Part (i) is the general case; Part (ii) is a specific case used merely to illustrate the effect of an assumption of equal rates of surplus value. (The observant reader will have noticed also that Figure 3.4 and Table 3.3 have an annual format and that annual coefficients for depreciation (d_1) and the number of times circulating constant capital turns over in a year (d_2) have been introduced.)

5 Practical Problems in Marx's Framework

In contrast to the complications it introduces, Marx's turnover structure delivers few benefits. Of course, wisdom born of hindsight comes cheaply. Techniques of accounting for production costs, output, and returns that are in common use today were not available in the 1850s-60s. Moreover, the real concerns that the turnover structure aims to address are not irrelevant.[104] But issues that pivot on the time it takes for capital and commodities to be (re)produced and circulate can be accounted for more simply and effectively in other ways. So, too, can related concepts such as labour productivity, sales efficiency, and inventory management.[105] Practical business and (national-) accounting concepts of depreciation, stocks-sales ratios, "just-in-time" buying, and investment payback periods, internal rates of return, and net present value calculations, are sufficient in themselves to address the real concerns of turnover.

A more fundamental criticism may also be made. The entire single-turnover structure represents an unnecessary detour off the track from capital advanced to the desired destination: annual flow data for output and profits. The detour is also the source of other problems, such as the impossibility of social aggregation. Single-turnover output data for industries with turnover periods ranging from approximately two weeks (n = 22) to eight weeks (n = 6.75), to use examples from

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[103] Note that Marx's so-called invariance conditions, "total value must equal total price, and total surplus value must equal total profit" (Howard and King 1992: 229), are obtained in Table 3.3 *only* because the capital advanced (stock) data and coefficients are equal in both panels. Discussion of this, and of the labour theory of value in general, will resume directly in Chapter 4§1.

[104] See (*Capital II*: Part 2) and (*Capital III*: Chapter 4, 228-29). See also §6(iii), which takes up the financial-credit aspects of circulation time.

[105] See also §6(iii).

Tables 3.1- 3.3, cannot be added. More important to understand is that their corresponding profit rates (p') also cannot meaningfully be compared.[106] A predisposition to overcome such incompatibilities by artificial assumptions of the one-year type is inherent. The form of calculation in Figure 3.4 and Table 3.3 provides a less cumbersome and more usefully targeted Marxist framework by moving directly from stocks of capital advanced to annual flows of output. The turnover symbol (n) has the same meaning as before but its role is now more straightforward.

I suspect there was another reason that the single-turnover period was so centrally placed in Marx's accounting scheme.[107] By dissolving the stock-flow distinction, it provided a smooth transition from variable capital advanced ($v = \mathbf{v}$) to the relative shares of unpaid to paid labour in new value added. The rate of surplus value in one turnover ($\mathbf{s/v}$) is indeed the rate of exploitation. As the analysis becomes annual, which it must do to sustain a coherent notion of an average profit rate, the annual rate of surplus value ($S' = S/\mathbf{v} = n\mathbf{s/v}$) does not measure relative income shares. No doubt it will reflect changes in relative shares over time. But it will also reflect changes in productivity, expressed in shortened production cycles and a rising n.

Why, then, does not Marx define S' as S/V? This would measure relative shares and give S' an explicit link with exploitation, as I explained in §3(ii). The answer was given by Engels, about a form of expression for the profit rate that was developed in §4, namely:

$$P' = S/C_a = (S/v)/(c/v + 1) = S'/(c' + 1)$$

His point is clear enough: "The v in the numerator can now be more accurately defined by the condition that it must be equal to the v in the denominator, i.e. to the entire variable part of the capital C."[108] Variable capital was consistently limited

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[106] This is a genuine case of incommensurability.

[107] Apart from (i) its link to the incipient (agricultural) national-accounting framework of the Physiocrats (via Ricardo) that influenced classical political economy and Marx (Robinson 1977: 367-68; see also Dobb 1973: 62-63; citing Sraffa 1960: 3-10), and (ii) its purely functional joint role with the one-year assumption in streamlining presentation.

[108] Engels (*Capital III*: 167).

to its stock magnitude in Marx's (and Engels's) rate of profit, rate of surplus value, and composition of capital calculations.

There are additional problems with the notion of a stock of variable capital that should be discussed in their own right. What does this stock actually refer to? Its value is equal to the value of a stock of wage goods (workers' consumption goods). But for the capitalist variable capital itself usually exists only as a stock of money (or another relatively liquid financial asset). Its purpose is to underwrite the purchase in money of labour power. But labour power itself, unlike stocks of machines or raw materials, cannot seriously be considered to be stored up as a stock. It is best analysed as *purchased* labour power: i.e., on flow terrain.

Engels remarked in similar vein that capitalists would be unaware of their variable capital (v) as such, having regard only for the wage bill tallied annually (**vn**) and for the distinction between fixed and circulating capital. "From the same till that contains the part of his circulating capital that exists in his hands in the money form, in so far as this is not placed in the bank, he fetches both money for wages and money for raw and ancillary materials, and enters both of these in the same cash account."[109] Engels goes on to perform on actual data a "special calculation" needed to estimate v, retrospectively from the annual wage bill. It is about 2.5% of total capital advanced, far smaller than the 20% used in most of Marx's simple illustrations and much closer to current estimates.[110] Contrary to Engels's intentions, but consistent with his realism, it is reasonable to wonder whether v offers anything that cannot be explained more realistically by the annual flow of variable capital (V) and liquid balance sheet items held as working capital (e.g., the modern cheque-book and petty-cash corollaries of Engels's till).

Marx noted elsewhere that "variable capital serves here, as always when wages are taken as constant, as an index of the mass of labour set in motion..."[111] Unfortunately, this index is unreliable. The amount of money capital a firm may need to keep on hand for wages may change over time for reasons quite unrelated

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[109] Engels (*Capital III*: 167-68; referring to *Capital II*: Chapter 8). Engels also commented frankly that Marx was not always on solid ground regarding turnover and business practice and that his practical arithmetic contained "many errors and contradictions" (*Capital II*: 359).

[110] A Reserve Bank of Australia survey of balance sheets of 783 non-financial companies estimates that, in 1984, 1.5% were held in the form of cash and bank balances Jackson (1989: 338).

[111] (*Capital III*: 244).

to labour quantities. Firms today commonly press to extend pay periods from weekly to fortnightly and fortnightly to monthly so that they can minimise idle money stocks, pay more of the wage bill from generated revenue, and cut administrative costs. Similarly, totally unrelated efficiencies in revenue generation can help to minimise the amount of capital advanced to cover wages.

6 Developing the Circuit

To demonstrate that Marx's general accounting model is viable, even when the criticisms of §§4-5 are accommodated, I will present in this section a developed version of the circuit of capital. Then I will translate this circuit directly into the form of typical business financial statements: a balance sheet and an income statement. Part (i) will present a limited model of production and realisation; Part (ii) will expand on the importance of consistent valuation; and Part (iii) will introduce the finance and credit systems and other variables to create a general accounting model of production and circulation.[112] This framework will be re-engaged in Chapter 5§§6-7, which discuss possible locations of short-run crises as well as long-run problems for accumulation and growth. It will also be a frame of reference for the empirical model of Chapter 9 and the examination of the effects of financial variables on accumulation and crisis in Australia in Chapter 11. Readers are reminded that the labour theory of value and the productive-unproductive labour distinction will be dealt with in later chapters: meanwhile the variables may be interpreted openly.

(i) Production and realisation without finance and credit

Figure 3.5 develops the circuit of capital of Figure 3.1 by distinguishing between stocks and flows. It implicitly supposes an annual accounting period. No substantive simplifying assumptions are used. The outer circuit represents stocks and the inner circuit represents flows. It may be useful to think of the stock circuit as stationary at two points in time, say July 1 and the following June 30, and the flow circuit as being in perpetual rotation. Movements between the outer and inner

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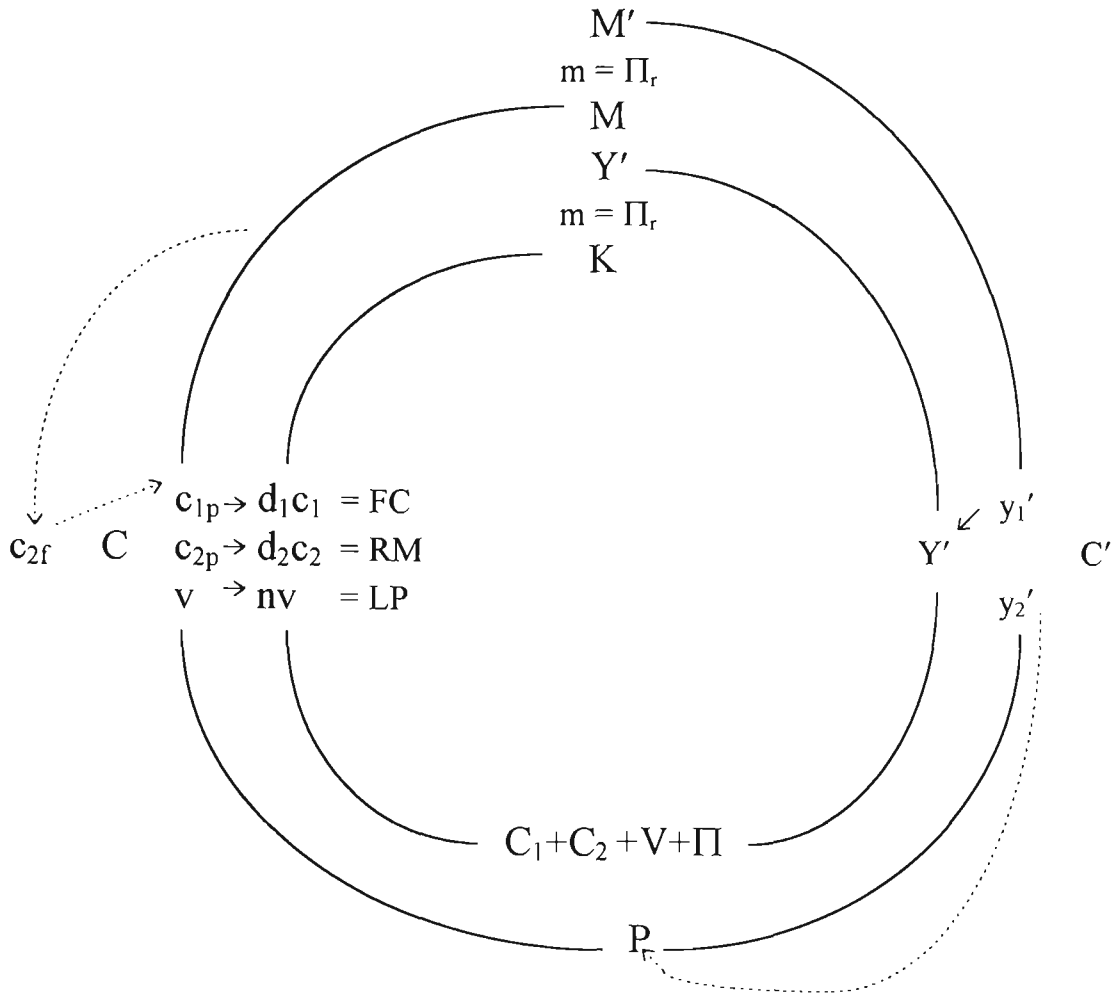
[112] This attempt is, as far as I am aware, an original one.

circuits animate the system. To follow these movements is to follow the actual processes of capitalist production and realisation.

FIGURE 3.5

Annual Stock/Flow Circuit of Capital



Outer circuit = stock variables
Inner circuit = annual flow variables

Money capital (M) is advanced in the outer circuit to buy stocks of commodity capital (C). These stocks can take the form of fixed capital assets (c_1), inventories of raw materials and other production inputs (c_{2p}), and the financial form of working capital to be used in the purchase of labour-power (v) and raw materials, etc. (c_{2f}).[113] The accounting act of allocating each of these stocks to production (P) replicates actual activity: regularly purchased labour power becomes the labour

[113] The subscripts distinguish financial$_f$ from physical$_p$ assets and will be used consistently below.

that operates the machines and converts the raw materials into commodities; fixed capital gives itself up gradually in the form of depreciation; raw materials and other inputs are taken from inventories and used. These allocations tally annually to V, C_1, and C_2, respectively. Surplus-value in the form of profit (Π^{114}) is added in production. In accounting terms, it is "inventorised." Thus the annual product value (Y') is the sum of the allocations (cost-price, cost of goods produced) and Π. At any given time, the physical output of production (P) will be held in inventories (y') of finished goods awaiting sale (y'_1) or work-in-process (y'_2). A proportion of Π is also allocated to inventories of work-in-process, corresponding to their relative completion. Finished goods are removed from the stock circuit, and actually from inventories, when they are sold. An annual flow of sales revenue (Y_r'), including profit (Π_r), is thereby realised continually in the flow circuit. Money capital is constantly being generated in the inner circuit and drawn to the outer one. For example, it really does become a stock of money in the bank. In turn, money capital constantly replenishes the stocks of commodity capital so that the perpetual rotation may continue. Thus money capital advanced (M) remains tied up in the circuit. Reinvested or retained profits, together with any change in the profit allocated to inventories, comprise the difference (m) between capital advanced and its expanded form (M'). This represents potential accumulation. Actual accumulation (m') occurs when profits are allocated to productive investment: the circuit diagram expands to depict expanded reproduction in reality.[115]

The circuit is a useful illustration of capitalist processes but it is not suitable for more complex or quantitative representations. Such tasks are accomplished far better by separating the outer (stock) and inner (flow) circuits and presenting them in the linear format of a balance sheet and an income statement. **Figure 3.6** does just this in a simple way. Depreciation reappears, but interest, tax, and dividends are not yet introduced. A "gross profit" category is also shown. Without saying so explicitly, Marx's equations define profit (surplus-value) exclusively as "net" profit

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[114] In light of §3, and in anticipation of Chapters 5, 6§4, and 9, _ may be thought of now as a general symbol capable of open interpretation: firm, industry, or aggregate economy; prices or labour values.

[115] As in the typical (Keynesian) macroeconomic model, a change in the level of inventories is included in accumulation (investment).

FIGURE 3.6

Simple Marxist Financial Statements (Production)

Part (i): BALANCE SHEET AT YEAR END
(Without Finance and Contract-Credit Variables, Tax, and Dividends)

Assets				
Financial Assets				
Working Capital	$M_1=v+c_{2f}$			
Other	M_2		M_3	
Fixed Capital				
Plant and Equipment	c_{11}			
Buildings	c_{12}	c_1		
less Accumulated Depreciation		$(\Sigma C_1 = \Sigma d.c_1)$	$c_1-\Sigma C_1$	
Inventories(1)				
Raw Materials		c_{21}		
Other Production Inputs		c_{22}	c_2	
Inventories(2)				
Finished Goods		y'_1		
Work-in-Process		y'_2	y'	
TOTAL ASSETS				M'
Liabilities				-
Equity				
Net Assets @ Year start		$M = C$		
Current Year Net Profit/Loss		$\Pi_n = m$		
TOTAL EQUITY		$= M + m$		M'
TOTAL LIABILITIES PLUS EQUITY				M'

Part (ii): PROFIT AND LOSS STATEMENT FOR YEAR
(Without Finance and Contract-Credit Variables, Rent, Tax, and Dividends)

Income				
Sales Revenue	Y'_r			
plus Increase in Inventories(2)	$\Delta y'$			
TOTAL VALUE OF PRODUCTION				Y'
Expenses				
Costs of Production(1)				
Purchases of				
Raw Materials	C_{21}			
Other Production Inputs	C_{22}			
less Increase in Inventories(1)	(Δc_2)			
Wages	V			
TOTAL COSTS OF PRODUCTION(1)		K_1		
GROSS PROFIT = $(Y' - K_1)$				Π_g
Gross Profit	Π_g			
less Gross Profit in Increase in Inventories(2)	$\Delta\Pi_{y\,g}$			
Realised Gross Profit				$\Pi_{r\,g}$
Costs of Production(2)				
Depreciation of Plant and Equipment	C_{11}			
Depreciation of Buildings	C_{12}			
TOTAL COSTS OF PRODUCTION(2)		$C_1 = K_2$		
COST PRICE = TOTAL COSTS OF PRODUCTION(1) + (2)		K		
NET PROFIT = $(Y'-K)$, $(\Pi_g - C_1)$				Π_n
Net Profit	Π_n			
less Net Profit in Increase in Inventories(2)	$(\Delta\Pi_{y\,n})$			
Realised Net Profit				$\Pi_{r\,n}$

(in this context meaning "net" of depreciation). My use of the terms also foreshadows their national-accounting definitions.[116] However, it is worth noting now that both gross and net categories in Figure 3.6 are "gross" of interest, tax, and rent (and dividends).

My balance sheet and income statements share some common ground with those presented in Foley's brief engagement with accounting, which was a rare and welcome venture within Marxist economics.[117] However, the statements here are more detailed and differ in two important respects. First, Foley's evident desire to use the circuit symbols (M-C...P...C'-M') consistently in his profit-and-loss statement implicitly means that the elements of capital advanced are assumed exhaustively and universally to turn over in a single accounting period. This is why I called Foley's statements limited.[118] Second, and far less significantly, what I have called net profit he calls gross profit.

(ii) Valuation methodology

A significant yet unstated problem must now be tackled: the valuation of the items in each of the statements of Figure 3.6. The necessity to do so results from the link between stock and flow variables (e.g., $V = nv = nv$, $C_1 = dc_1$, etc.) and the recognition that capital gives up its value to production over a longer period than one year. A valuation methodology becomes a necessity because of year-to-year change. The problem is an objective, not a subjective, one.[119] However, the possibility that annual income flows may be aggregated consistently depends on a consistent valuation of stocks. I will use labour-hours to illustrate this point, but prices could just as easily have been used. The arguments do not stand or fall with the choice of measuring units.

Constant technological innovation, productivity change, and product development are essential features of capitalism whose consequences must be

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[116] See Chapters 9-11.

[117] Foley (1986a: 11-12).

[118] See n. 46.

[119] Even some accounting theorists have questioned the reality of accounting statements, citing Popper and Kant to the effect that cost allocations are theory-dependent and cannot be verified empirically. Familiar echoes! See Kam's (1986: 222-26) survey of views.

accounted for. In particular, they mean that the number of labour hours socially necessary to produce a commodity will change, even within a single year. If a new machine or process is invented during a year, new commodities and old fixed capital items will be devalued. It is now socially unnecessary to expend the same number of labour hours to produce them as before. On any given day the value of physical stocks of commodities, including fixed capital, is just the average socially necessary labour hours required for their (re)production (or replacement) on that day. The balance sheet of Figure 3.6, in principle, may be revalued each June 30 so that it is an accurate account of the assets and liabilities extant at that time.

Abundant textual evidence exists to show that Marx held this historically relative but objective approach to valuation, but not all subsequent Marxists have been careful to follow him.[120] Indeed, historical or original cost valuation was explicitly denied by Marx: "...value depends not on the labour-time that it cost originally, but on the labour-time with which it can be reproduced, and this is continuously diminishing as the productivity of labour grows."[121] It is also true that some of the terms he used to discuss labour value can give the opposite impression: e.g., congealed, accumulated, objectified, materialised, crystallised, and embodied labour substance.[122] Marx also conjures up the image of himself as the natural scientist (bio-chemist) who uses reagents and retorts to dissolve the economic cell-form of the commodity in order to locate abstract labour in the residue. However, it is one thing to give a primary role to labour; it is quite another to fetishise it. There can be no labour, let alone labour time, really *embodied* or "hidden within" commodities. Marx must be interpreted metaphorically and not metaphysically.[123] It is just wrong and, moreover, out of character with the body of his materialist

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[120] See, *inter alia*, (*Capital III*: 78, 113-14, 140-41, 259-60, 398-99), (*TSV II*: 28, 415-16), and (*TSV III*: 438-39). See also Mandel (1990: 12). Replacement cost valuation is the favoured approach of the United Nations System of National Accounts, the Australian National Accounts (ABS 5216.0 1990: 169), the OECD (1991: 5), and the writers of accounting standards if not practicing accountants (Henderson and Peirson 1988: 113). See also Dobb (1958: 41, n. †) and Gillman (1958: 34).

[121] (*TSV II*: 416).

[122] See Steedman's (1977: 208-11) catalogue. See also Castoriadis (1984: 333, n. 11; see also 265-66), who wrongly says that "the ' law of value' necessarily implies a static technology." Alas, Steedman (1977: Chapters 10-13) does not integrate Marx's reproduction-cost valuation into key parts of his discussion, opting instead for an implicitly historical-cost view of embodied labour. The same is true of King (1982). This discussion could be expanded into a larger criticism of the use of "embodied labour" as opposed to "socially necessary labour" within Marxist economics, however such an undertaking is beyond the scope of the present work.

[123] See, e.g., (*Capital I*:138-39, 176-77). This is not to say his metaphors are always good ones.

philosophy, to stand Marx on his head.[124] The time to take Marx literally is when he says that "in the analysis of economic forms neither microscopes nor chemical reagents are of assistance. The power of abstraction must replace both."[125]

Historical cost valuation must be ruled out because it is wrong in principle to aggregate quantities that are measured using different units. Socially necessary labour hours required to reproduce an item on July 1 are different measurement units from those needed to replace it on the following June 30. However, once it is accepted that aggregation is only possible if measurement relates to the same point in time, it must be recognised that aggregation of flow variables for a year becomes problematic (but not impossible). Provided we have physical data, namely the quantity of items produced in the year to June 30 and the number of hours needed to produce an item on June 30, then we can calculate the value of production for the year in current-value (price) June 30 labour-hour units (dollars). The principle involved is consistency in the measuring unit. Hence we may choose to measure a set of years in terms of valuations appropriate on any date (or average of dates, etc.). Such constant-value (price) estimates allow the data for a number of discrete years validly to be compared, aggregated, or otherwise manipulated.

The most accurate annual valuation will always be the one that occurs at the end of a year, after the actual physical returns are in. This holds also for derived variables, such as the quotient of the annual flow of constant circulating capital and circulating capital advanced ($d_2 = C_2/c_2$). Of course, even *post festum* physical data will never be perfect. Furthermore, some other data inspire an even lower degree of confidence. The estimates for the fixed capital stock and its depreciation flow are examples. Here the physical returns also include an estimate of the *future* life-span of the assets in question. As Steedman has also explained, the existence of alternative production techniques, which are dependent on an estimation of expected profits, will affect judgements about the lives of new and old fixed capital assets.[126] Similar issues arose in the so-called Cambridge controversies and contiguous debates over the labour theory of value.[127]

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[124] As, e.g., Robinson does (1962: 36-43), citing Böhm-Bawerk (1966).

[125] (*Capital I*, Preface to 1st. edn.: 90).

[126] Steedman (1977: Chapter 10).

[127] See, e.g., Harcourt (1977), Howard and King (1992: Chapters 13-15), Hunt and Schwartz, eds., (1972: Part 3), and Rowthorn (1980: 24-26).

"Estimate" then is even more so the appropriate word for all of these reasons. The choice of depreciation method (e.g., straight-line, reducing balance, etc.) adds merely one more degree of approximation.[128] Since cost-price, output, and profit include the estimate for depreciation, they are all affected as well. We can only ever approximate reality quantitatively in the manner of "blindly working averages."[129] Is this a move towards the comforting embrace of relativism? No, it is just a recognition that we are in the same position as other sciences (and cricketers) and must engage in painstaking work to improve our averages.

(iii) Production and circulation

Financial variables and credit may be accounted for fully in the circuit of capital and the statements given in Marx's terms. The conceptual task is reasonably straightforward, as Foley has remarked about the relationship between the financial capitalist (bank, lender) and the industrial capitalist (trading enterprise, borrower):

> "Marx expresses this by extending the diagram of the circuit of capital to include an original loan and the payment of principal and interest.
>
> $$M^*\text{--}M\text{--}C\{MP,LP\}\ldots(P)\ldots C'\text{--}M'\text{--}M^{*\prime}$$
>
> Here M^* is the money capital of the *financial capitalist*, which is lent to the *industrial capitalist*, passes through the circuit of capital and expands into M', and $M^{*\prime}$ is the payment of principal and interest (part of the surplus value) to the financial capitalist."[130]

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[128] The debate can be taken a step further if assets are valued according to their earning potential in the future. See the Australian accounting profession's proposed standard "Exposure Draft 42C Proposed Statement of Accounting Concepts: Definition and Recognition of Assets" (Henderson and Peirson 1988: 75-8; see also 102-21).This makes the balance sheet depend on the profit and loss statement and introduces much more problematic issues of foresight and uncertainty. See n. 119. See also (Collier 1994: 227-29), citing Lawson (1994b).

[129] Marx to Kugelmann. July 11, 1868. (*Correspondence*: 197). See also Engels's letters to Sombart and Schmidt. March 11 and 12, 1895. (*Correspondence*: 454-60).

[130] Foley (1986a: 31-32). See also (*Capital II*: 488, 497) and (*Capital III*: Chapter 21).

Foley's representation should be interpreted considering my comments in Part (i). The money capital of the financial capitalist (M*) should also be regarded as one part only of the total capital advanced (M* < M).

While the broad conceptual issues are easy to locate, their practical application is rather more complex. One the liability side, we must account for the range of sources used to fund productive operations (equity, loans, commercial credit, etc.). All of these perform a role as capital advanced. In Marx's view, interest on loans must, therefore, must be accounted for as a deduction from profit and not as a production cost.[131] Rent is placed in the same category. On the asset side, productive organisations may also lend money capital (bills, bank deposits, etc.). Hence, the appropriate categories are those of *net* borrowing and *net* lending. This approach must be extended to the commercial credit and payment agreements that arise in the normal course of buying inputs and selling finished goods. Goods or services change hands before payment is made (or *vice versa* in the case of prepayments). We also have to account for various dispositions of internal saving awaiting accumulation (e.g., retained profit and various provisions). These normally do not just sit as deposits in a bank account.[132]

Furthermore, once we have accepted that selling and receiving payment (buying and paying) may be separate acts, other consequences ensue. Significantly, it becomes necessary to adopt somewhat arbitrary rules to define when a sale or purchase has occurred and when to recognise a revenue and an expense. With such rules come three more consequences. First, estimates of doubtful debts must be made. Second, besides the problems of already identified in Part (ii), the arbitrariness of the rules underlines the point that the data used to calculate realised profit, in particular, are *estimates*. Third, we must understand that data used to calculate the value added in production (including profit) may be affected if non-payment of debts causes "rapid devaluation" of inputs or outputs. Such rules and their consequences are as applicable to Marx's scheme as they are in modern accounting practice.[133]

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[131] (*Capital III*: *inter alia*, Chapter 22, 967-68, 1022-23) and (*TSV II*: *inter alia*, 453-54). Interestingly, the modern national-accounting treatment of interest is the same.

[132] Hence Marx's question to Engels concerning the "accumulation fund." Marx to Engels, September 11, 1867. (*Correspondence*: 181).

[133] See (Henderson and Peirson 1988: 53-60, 133-42) for an accounting discussion of the issues here.

The circuit diagram ceases to be helpful at this point: to include all of these considerations (and more) would be very messy. Now that the formal relationship between Marx's circuit and normal business accounting statements has been firmly established, it is far simpler to include the appropriate financial representations directly in the statements. At any rate, I have also laboured the message that direct use of accounting statements is implied by Marx's realist approach. The statements are presented in **Figure 3.7**. They also account for the payments from net profit applicable to tax and dividends to shareholders. The connections between profit and accumulation are now much more transparent. Note that "realisation" now absorbs a meaning consistent with *full* accrual accounting.[134] For example, realised revenue and profit must now contain an estimate of debt delinquency. Corresponding assets are reduced by a similar provision. The fettered form of Part (i) of this section, which was limited to cash-accounting of payments received, has been superseded. The framework is thus capable of sustaining a consistent notion of periodicity, the measurement of production and circulation activities that occur between given dates.

It is also possible to use Figure 3.7 to reflect on the concerns Marx discussed in the language of turnover. Reductions in turnover time result from improved productivity and efficiency. The circuit diagram of Figure 3.5 allows us to visualise these as faster revolutions of the inner (flow) circuit, the corollary being an increase in the number of annual revolutions. The accelerator may be within production (P). It can also be more efficient circulation: (i) in the movements in and out of inventories that record the real circulation of inputs and finished products (M*-M-C...C'-M-M*'), and/or (ii) more efficient management of other assets and liabilities (e.g., collection of debts). Circulation now includes financial variables and the contract-credit system, as is clear from Figure 3.7.[135]

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[134] "Under accrual accounting, the economic events are recorded as they occur rather than only when cash is received or paid." (Kam 1986:46) This applies to fixed capital and its depreciation, as well as to inventories and their use in production.

[135] In his Preface to *Capital III*, Engels refers to these as "the most important subject in the entire book" (*Capital III*: Preface, 94).

FIGURE 3.7

Simple Marxist Financial Statements (Production and Circulation)

Part (i) BALANCE SHEET AT YEAR END
(With all variables)
(Current vs. non-current distinctions not shown)

Assets

Financial Assets				
Working Capital	$M_1=v+c_{21}$			
Other Bank	M_2			
Loans	M_3			
Shares Owned	M_4			
Other Financial "Investments"	M_5			M_6
Fixed Capital				
Plant and Equipment	c_{11}			
Buildings	c_{12}	c_1		
less Accumulated Depreciation		$(\Sigma C_1 = \Sigma d.c_1)$	$c_1 - \Sigma C_1$	
Inventories(1)				
Raw Materials	c_{21}			
Other Production Inputs	c_{22}		c_2	
Inventories(2)				
Finished Goods	y'_1			
Work-in-Process	y'_2		y'	
Other Assets				
Prepayments			M_7	
Accounts Receivable$_{\text{net of debt provisions}}$			M_8	
TOTAL ASSETS$_{\text{after interest, rent, tax, dividends}}$				M'

Liabilities

Financial Liabilities				
Loans	M^*_1			
Other Financial Liabilities	M^*_2			M^*_3
Other Liabilities				
Payments in Advance	M^*_4			
Accounts Payable	M^*_5			M^*_6
TOTAL LIABILITIES$_{\text{after interest, rent, tax, dividends}}$				$M^{*'}$

Owners' Equity after interest, rent, tax, dividends

Net Assets @ Start of Year	$M_e = (M - M^*)$			
Current Year Enterprise Profit/Loss	$\Pi_e = m_e = m - m^*$			
TOTAL EQUITY $(M + m) - (M^* + m^*)$	$= M' - M^{*'}$			
TOTAL LIABILITIES PLUS EQUITY$_{\text{after interest, rent, tax, dividends}}$				M'

FIGURE 3.7

Simple Marxist Financial Statements (Production and Circulation)

Part (ii): PROFIT AND LOSS STATEMENT FOR YEAR
(With all variables and revenue and expenses recognised on sale contract)

Income			
Sales Revenue	Y'_r		
plus Increase in Inventories(2)	$\Delta y'$		
less Increase in Payments in Advance	(ΔM^*_4)		
TOTAL VALUE OF PRODUCTION			Y'
Expenses			
Costs of Production(1)			
Purchases of			
Raw Materials	C_{21}		
Other Production Inputs	C_{22}		
less Increase in Inventories(1)	(Δc_2)		
less Increase in Prepayments	(ΔM_7)		
Wages	V		
TOTAL COSTS OF PRODUCTION(1)		K_1	
GROSS PROFIT before deduction of tax and dividends $(Y' - K_1)$			Π_g
Gross Profit	Π_g		
less Gross Profit in Increase in Inventories(2)	$(\Delta\Pi_{y\,g})$		
less Gross Profit in Increase in Pay. in Adv.	$(\Delta\Pi_{M^*4\,g})$		
Realised Gross Profit			$\Pi_{r\,g}$
Costs of Production(2)			
Depreciation of Plant and Equipment	C_{11}		
Depreciation of Buildings	C_{12}		
TOTAL COSTS OF PRODUCTION(2)		$C_1 = K_2$	
COST PRICE = TOTAL COSTS OF PRODUCTION(1) + (2)		K	
NET PROFIT $(Y' - K)$, $(\Pi_g - C_1)$			Π_n
Net Profit	Π_n		
less Net Profit in Increase in Inventories(2)	$(\Delta\Pi_{y\,n})$		
less Net Profit in Increase in Pay. in Adv.	$(\Delta\Pi_{M^*4\,n})$		
Realised Net Profit			$\Pi_{r\,n}$
Payments from Realised Net Profit(1)			
Interest (all)	(IN)		
Rent	(RE)		
Tax	(T)		
REALISED NET PROFIT OF ENTERPRISE++ $= (\Pi_{r\,n} - IN)$			Π_e
REALISED NET PROFIT AFTER INTEREST, RENT, AND TAX			$\Pi_{r\,n\,a}$
Payments from Net Profit(2)			
Dividends To Shareholders	DI		
TOTAL PAYMENTS FROM REALISED NET PROFIT(1) + (2)		$K\Pi$	
RETAINED PROFIT $= (\Pi_{r\,n\,a} - DI)$, $(\Pi_{r\,n} - K\Pi)$			$R\Pi$

++ Marx's term, with some licence (*Capital III* : Chapter 23).

Engels highlighted production and both aspects of circulation in his, alas, all-too-brief Chapter 4 of *Capital III*:

> "...[T]he time required for the turnover has the effect that the whole capital cannot be simultaneously employed in production. One part of this capital therefore always lies fallow, whether in the form of money capital, stocks of raw materials, finished but still unsold commodity capital, or outstanding debts that are not yet due for payment. The capital that is in active production, active in the production and appropriation of surplus-value is always reduced by this amount, and the surplus-value that is produced and appropriated is reduced in the same proportion. The shorter the turnover time, the smaller is this idle portion of capital compared with the whole; the greater therefore is the surplus-value appropriated, other conditions being equal."[136]

Engels's business experience doubtless counted for something in this very significant chapter. His other points also make sense only if stocks and flows are assiduously demarcated and a set (annual) accounting period prevails. The simple single-turnover structure Marx used is simply inadequate to the task. I will return to this argument in Chapter 7 and show that my interest in it is not mere pedantry. The focus there will be on the production phase of the circuit and how the single-turnover framework can distort theoretical assessments of Marx's central supposition that the rate of profit would fall over time.

7 A Relatively Complete (and Critical) Model

A relatively complete economic-accounting model has been presented above. "Relatively," because the capitalism Marx described was relatively undeveloped compared with that existing more than 100 years later. The methods of business accounting were similarly unsophisticated in his day. A quick skim through an

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[136] (*Capital III*: 163). Hilferding, e.g., (1910), is one who pursued the similar themes, interpreting "credit as a means of keeping to a minimum the quantity of 'idle money' which is not used for productive purposes" (Howard and King 1989: 96). See also Grossmann (1992: 140-44).

introductory accounting text would show how simplified are the balance sheet and profit and loss statement of Figure 3.7. "Comprehensive," because the essential features of the sort of model needed to analyse capitalism today are all present and accounted for. The model is fundamentally realistic in a truly general way. It is faithful to the reality of capitalist practice, otherwise it would not permit direct translation to the accounting statements capitalists use. Yet it is also capable of making connections in theory with the structure of capitalism's underlying social relations. It is practical but not fetishistic.

Marx sought real definitions that would deny, for example, the idea that profit just appears, or seems, to spring forth from capital, as its product, independently of the role of labour. To the capitalist, the value of a commodity appeared to be just its cost-price. Profit does not appear to be produced by human labour but rather to be created in the act of selling a commodity for a price above this value. Moreover, if these impressions are right, then wages are just the price of (value) labour, capital makes its contribution and gets its reward in the form of profit, and *a fortiori* there is no exploitation: exploitation is an illusion (and logarithms may as well be any colour of the rainbow).[137] Marx's critical concern, his object as *critique*,[138] was to show the opposite. It was the same with the division of profit: interest and rent were not rewards to a mythical contribution of finance or land but could be put down to the real contribution of labour. None of these imperatives are compromised in the proposed format.

Marx's realism delivered a practical and critical economic-accounting model depicting underlying social relations. However, it was formulated under the influence of some of the existing intellectual materials and resources at his disposal. It is often remarked that Marx built on the strengths of classical political economy.[139] Yet some of the prevailing weaknesses were transmitted as well. I have offered my views on the least important of these above. The most important weaknesses that I think exist, the labour theory of value and the distinction between productive and unproductive labour, remain to be discussed. The

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[137] The ideal of the "'price of labour' is just as irrational as a yellow logarithm" (*Capital III*: 957). See also Chapter 1§5. "One can only speak of the *productivity* of capital if one regards it as the embodiment of definite social relations of production." (*TSV III*: 265)

[138] See Bhaskar (*inter alia*, 1994: 220-21; 1991: 166-68) and Geras (1972).

[139] See, e.g., (*Socialism*: 115) and Lenin (*SW I*: 19).

productive and unproductive labour issue is about how to define production, or *what it is* that the categories in the accounting framework are measuring. This must wait until Chapter 6§4. The labour theory of value, at least in its quantitative dimension, is about *how to* measure, or *what to use* to measure, the categories. Labour value measurement and its implications are the subjects of the next chapter.

4

Labour Value and Price

1 Purpose and Scope

This chapter will state a position on the labour theory of value and the transformation problem.[1] My reason for doing so is solely to justify the approach to the relationship between theory and data that will be taken in subsequent chapters. While I will not review the vast body of historical and contemporary literature, some overlap of concerns cannot be avoided. In particular, I will refer to some original formulations by Marx in the light of arguments by modern critics and (critical) supporters.[2] However, the arguments will be framed differently here. Their perspective is the aggregate (average) social form of the general accounting framework of Table 3.3, which incorporates the historically relative valuation methodology of Chapter 3§6(ii). The discussion itself will be an interrogation: do Marx's labour values stand up at this level?

All answers that depend on narrow specifying assumptions, from von Bortkiewicz[3] onwards, will not be considered directly, however meritorious (or not) they may be.[4] Arguments based on static conceptions of the labour

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[1] See Howard and King's (1989: Chapters 2-3; 1992: Part IV) summary of the main issues and contributions since Marx. See also Howard and King, eds. (1976: Part III), King, ed. (1990b: Vol. II), and the surveys by Desai (1990b), Glyn (1990b), Hunt and Glick (1990), Itoh (1992), and Vianello (1990). All 1990 references here are relevant Palgrave entries (Eatwell, *et. al.*, eds. 1990).

[2] The task of deciding which is which can be left to the reader. To me, the most insightful contributions are King (1982) and Steedman (1981, 1977). See also, for views that range across the spectrum, Bowles and Gintis (1985, 1981), Dobb (1973: Chapter 6), Fine, ed. (1986), Fine (1978), Fine and Harris (1977, 1976), Foley (1986a: Chapters 2-4, 10; 1982), Hodgson (1981, 1977), Howard and King (1975: Chapter 5), Laibman (1992: Part I), Mandel (1981: 13-30; 1971, 1967a), Shaikh (1992b), Steedman, *et. al.* (1981), and Rowthorn (1980: Chapters 1, 7-8).

[3] von Bortkiewicz (1907). See Sweezy's summary (1942: 115-25).

[4] See the list of assumptions and solutions based on them in King (1982: 160-62). See also Hunt and Glick (1990: 358).

"embodied" in fixed capital and, *ipso facto*, notions that depreciation must be interpreted to mean only physical wear and tear, are also set aside.[5] Once labour valuation of any stock or flow of commodities is defined as the average labour time *socially necessary* to *reproduce* their contemporary equivalent, then we embody changes in productivity and product obsolescence within our data.[6] The aggregate (average) form of Table 3.3, interpreted as a labour time national-accounting analogue, also absorbs *ex post* the important real problems for valuation constituted by joint production, alternative production techniques, and labour heterogeneity. I will not comment on these problems in detail, as the principal arguments have been expressed elsewhere.[7] Attention here is targeted to the problems that exist in the aggregated general Marxist accounting framework.

An important question should be answered before such problems are addressed. Why tackle them head-on and not tread the well-worn path of evasion? Supporters of Marx's labour theory of value almost invariably use price data in their empirical writing. For example, Sweezy and Mandel buttressed their theoretical interpretations of post-WWII capitalism with price and not labour-value data.[8] Neither burdened himself with methodological justifications on this account. Yet their underlying theories devolve to labour values, irrespective of their differences over the validity and meaning of Marx's transformation approach. To the question, "Why not start with price calculation?", Sweezy once replied that "[p]rice calculation...mystifies the underlying social relations of capitalist production."[9]

Despite such instances, there is a compelling reason to tackle the issue. It is that the choice between long-run average prices of production and labour values (prices or values) will deliver a different representation, or scaling, of the same economic process, aggregation, ratio, or category. The two will be *systematically disproportionate*. It is simply wrong to say, as Shaikh does, for example, that the price data calculation of "the stock of capital relative to the wages of production

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[5] See, e.g., the summary by King (1982: 165-66). See my remarks on this in Chapter 3§6(ii), especially n. 122.

[6] This does not claim that valuation (in prices or values) is easy. For example, national-accounting statisticians readily attest to the difficulties in price valuation. See ABS (5216.0: 29, 273-75), Apsden (1990: 6-10), Bailey (1981), Moore and Brown (1988), and Walters and Dippelsman (1985).

[7] Howard and King (1992: Chapters 13-14), King (1982: 163-71), and Steedman (1977: Chapter 7, Chapters 10-13). See my remarks in Chapter 3§6(ii) on valuation difficulties.

[8] See, e.g., Baran and Sweezy (1966, esp. Phillips's Appendix: 355-77), Mandel (1978a, 1975).

[9] Sweezy (1942: 129). See also the comment on Sweezy in Howard and King (1992: 283).

workers...[is] the money *equivalent* of the value composition of capital."[10] Even remarks that are qualified, such as that price and value ratios may be thought of as "correlates"[11] or as being a "reasonably good measure"[12] of each other, need to be interpreted carefully for the same reason.

If price data are used in a Marxist framework, it is plainly impossible to avoid the issue without being inconsistent. Worse, evasion may smuggle into the discussion unsubstantiated, and possibly contradictory, answers and accompanying assumptions. In §2, the transformation problem will be set within the general accounting model to prove why and how labour values and prices are systematically disproportionate, for both industry and social aggregates. This will lead directly to a discussion in §3 of the theoretical priority Marx accorded to labour values. It should be recognised that it is not possible to take on the problem in a piecemeal fashion. Marx's labour theory of value and the transformation problem are intertwined. Once this clear, other problems at the heart of the labour theory of value bare themselves automatically. These will be discussed in §§4-5.

The position I will argue for may be summarised now. It is that the claims typically made for the labour theory of value cannot be sustained. The claims are many but rely ultimately on a specific proposition that I will frame here in terms suited to this work: namely, that it is necessary and possible to explain the main features of capitalist competition with an accounting system that uses labour time as its measuring unit. Without this proposition there is no (quantitative) labour theory of value. I will argue that it is both valid and necessary theoretically to use price data in its place to consider profit, accumulation, and capitalism's immanent tendencies. No attempt will be made to justify my general position, which is that Marxist economic theory maintains its explanatory power without the labour theory of value. This is implied by the work as a whole.

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[10] Shaikh (1992a: 31, emphasis added).

[11] Glyn (1990b: 281).

[12] Rowthorn (1980: 102; see also 104). Both Glyn and Rowthorn refer to the relationship between the capital-output ratio (price) and the value or organic composition of capital. Similar formulations are offered by Gordon (1990: 130; citing Marglin 1984: 57-60, 191-2), Laibman (1992: 93, 216, 231; 1987: 34, 42), and Foley (1986a: *inter alia*, 1, 7, 9, 45-46).

2 Impossibility of a General Transformation

It is impossible in a *general* Marxist accounting framework to obtain an isomorphic (systematically proportionate) relationship between price and value representations of the same economic categories, ratios, and processes.[13] Why? Marx himself suggested the reasons in answer to the related question: how is value calculation for each industry (average socially necessary labour time) to be reconciled with the tendency of competition to equalise profit rates around a social average? Prices of production, which are formed in each industry as a result of this tendency will not generally be proportional to the labour value of the output of that industry.[14] This means, too, that individual commodities will not generally exchange in proportion to their labour values. Marx gave two reasons:

> (i) Average profit, not surplus-value, will be added to the cost prices in the industry. Hence, S in each industry will not in general be proportional to $\Pi = P'\Sigma C_a$.
>
> (ii) The proportionate differences between prices of production and values at (i) have to be incorporated at the outset in the capital advanced: prices of c_1, c_2, and v, as well as C_1, C_2, and V will in general diverge proportionately from their values.[15]

Marx's discussion of the problem, notably in Chapter 9 of *Capital III,* only addressed the first reason for the divergence. He proposed two results ("invariance conditions"): aggregate profits for all industries must equal aggregate surplus value, and aggregate prices of production for all industries must equal aggregate value.[16] Satisfaction of both conditions is sufficient to ensure that the price and value rates of profit will be equal. This is clearly an important result. Marx's central

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[13] A general framework is one without narrow (unreal) specifying assumptions, such as those used in Table 3.3 to obtain Marx's invariance conditions. See Chapter 3§4, esp. n. 103. The possibility of obtaining this result by chance exists, but it is theoretically meaningless.

[14] See Chapter 3§4, especially Table 3.3, for relationships, symbols, and definitions. I will not repeat them in this chapter.

[15] (*Capital III*: 308-10; see also 259-60, 264-65).

[16] See, e.g., (*Capital III*: 273).

purpose, which is to explain the inherent contradictions of the accumulation process, including the tendency of the rate of profit to fall, is conducted entirely in labour values.[17] Marx's one-sided answer is thus that the problem will resolve itself at the aggregate level. The total surplus labour of society will be redistributed among industries by commodity exchange, according to shares determined by profit rate equalisation. Exploitation of workers thus becomes a *social* enterprise: it is demonstrated quantitatively in the social aggregates.

Table 3.3 has already illustrated this case. Once the social average value rate of profit from Panel 1 is applied to the data of Panel 2 to develop[18] prices of production, Marx's result is a simple mathematical necessity. The result of the argument (aggregate equality) is contained in its premises: (i) the capital advanced is the same in both spaces, and (ii) the average of a set of j terms multiplied j is equal to the sum of j equal average terms. However, if we remove one of these conditions and let input prices diverge from their values, aggregate inequalities are also a mathematical necessity. **Table 4.1** illustrates this case by arbitrarily changing the capital advanced data in Panel 2. Table 4.1 provides three significant conclusions. (As it adds nothing to the explanation, the case in which rates of surplus value are also assumed to equalise is not shown in the table.)

First, Marx's aggregate invariance conditions are not obtained (compare Σ rows in Panels 1 and 2). Second, the systematic disproportions between price and values can be observed in the added Panel 3. One of Marx's invariance conditions may be obtained by definition if the price-value ratio in Panel 3 for either aggregate profits or prices were used as a standard scaling proportion. However, this normalisation procedure cannot achieve both invariance conditions[19] and would also deliver a disproportion between price and value rates of profit: $\Sigma Y'(1.11) \neq \Sigma S(0.90) \neq \Sigma P'(1.00)$. Third, key ratios will have different price and value magnitudes. For example, the data from Panels 1 and 2 give the significant aggregate capital stock-direct (living) labour flow ratio in values as 2.51 and in prices as 1.97. By definition, the denominator is the same in both cases, the value (labour time)

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[17] Howard and King (1992: 229) and King (1982: 158, 160).

[18] (*Capital III*: 257). The Penguin translation uses "developed," while the Progress Publishers (1959: 157) translation uses "deduced." The meaning of Marx's argument, however, does not alter.

[19] This is von Bortkiewicz's conclusion. See, e.g., Howard and King (1992: 229-30).

TABLE 4.1

Systematic Value-Price Disproportions

See notes to Table 3.1

INDUS-TRY	CAPITAL ADVANCED (STOCKS)					COEFFICIENTS			C1	C2	C	TOTAL PRODUCT VALUE (OUTPUT): ANNUAL (FLOW)							
	c1	c2	c	v	Ca	c'						v	K	S	Y'	Y	s'	S'	P'
j			c1+c2	v	c+v	c/v	d1	d2	n	d1c1	d2c2	C1+C2	nv	C+V	Y-S	K+V	V+S	S/V	S/v	S/(c+v)
Panel 1: Labour Values (Average = Socially Necessary Labour Hours) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	325	2542	1000	48%	325%	9.15%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	150	1015	750	25%	150%	4.92%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1935	4327	3260	146%	1935%	21.99%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	290	2628	1040	39%	290%	26.36%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	600	3476	2700	29%	600%	10.91%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*3300*	*13988*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*660*	*2798*	*1750*	*60.6%*	*660.0%*	*15.00%*
Panel 2: Prices of Production (Long-run Average Prices) @ End-of-Year Reproduction Cost																				
I	2865	119	2984	130	3115	2290%	0.061	12.17	6.75	174	1448	1623	880	2502	467	2969	1347	53%	359%	15.00%
II	2402	162	2564	130	2695	1968%	0.042	0.98	6.00	101	159	260	782	1042	404	1446	1186	52%	310%	15.00%
III	6262	1514	7777	130	7907	5968%	0.040	0.56	13.25	249	840	1089	1727	2816	1186	4002	2913	69%	910%	15.00%
IV	841	22	862	130	993	662%	0.060	76.44	7.50	50	1654	1704	977	2681	149	2830	1126	15%	114%	15.00%
V	3217	1785	5002	130	5132	3838%	0.042	0.38	21.00	135	669	804	2736	3541	770	4311	3506	28%	591%	15.00%
Σ	*15588*	*3602*	*19189*	*652*	*19841*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*709*	*4771*	*5480*	*7102*	*12582*	*2976*	*15558*	*10078*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3118*	*720*	*3838*	*130*	*3968*	*2945%*	*0.046*	*1.325*	*10.90*	*142*	*954*	*1096*	*1420*	*2516*	*595*	*3112*	*2016*	*41.9%*	*456.8%*	*15.00%*
Panel 3: Prices of Production (Long-run Average Prices)/Labour Hours (Panel 2/Panel 1)																				
I	0.86	1.08	0.87	1.30	0.88	0.66	1.00	1.00	1.00	0.86	1.08	1.05	1.30	1.13	1.44	1.17	1.35	1.10	1.10	1.64
II	0.86	1.08	0.87	1.30	0.88	0.67	1.00	1.00	1.00	0.86	1.08	0.98	1.30	1.20	2.69	1.43	1.58	2.07	2.07	3.05
III	0.86	1.08	0.89	1.30	0.90	0.69	1.00	1.00	1.00	0.86	1.08	1.02	1.30	1.18	0.61	0.92	0.89	0.47	0.47	0.68
IV	0.86	1.08	0.86	1.30	0.90	0.66	1.00	1.00	1.00	0.86	1.08	1.07	1.30	1.15	0.51	1.08	1.08	0.39	0.39	0.57
V	0.86	1.08	0.93	1.30	0.93	0.71	1.00	1.00	1.00	0.86	1.08	1.04	1.30	1.23	1.28	1.24	1.30	0.98	0.98	1.38
Σ	*0.86*	*1.08*	*0.89*	*1.30*	*0.90*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*0.86*	*1.08*	*1.05*	*1.30*	*1.18*	*0.90*	*1.11*	*1.15*	*n.a.*	*n.a.*	*n.a.*
AVG.	*0.86*	*1.08*	*0.89*	*1.30*	*0.90*	*0.68*	*1.00*	*1.00*	*1.00*	*0.86*	*1.08*	*1.05*	*1.30*	*1.18*	*0.90*	*1.11*	*1.15*	*0.69*	*0.69*	*1.00*

quantity for ΣY. Proportionality for this ratio thus could be contrived by scaling prices to values using aggregate capital advanced (ΣC_a=0.90 from Panel 3). But it would still be out of proportion with other ratios and key aggregates.

This proves it is impossible in the general case to obtain the isomorphic aggregates Marx desired. It is clear enough that "Marx saw the difficulty but offered no means of overcoming it."[20] The long, largely mathematical, quest initiated by Engels, which hoped to find a solution "without violating the law of value, but precisely on the basis of this law,"[21] has been equally unsuccessful. Hunt and Glick thus rounded off their *New Palgrave* entry on the transformation problem by saying that "its resolution will not be merely a mathematical exercise."[22] Howard and King were more direct, concluding that, "[e]ven in a single-product, single-process model," Marx's aggregate solution "is valid only under very special assumptions. Once joint production, fixed capital and alternative process are allowed for, it is almost always false."[23] This can be read more forcefully to say that the desired solution is *generally invalid* and that the existence of alternative techniques and joint production just compound the error. Two alternative approaches, however, deserve serious attention. Each can be translated in principle to the general framework proposed here, even though both were framed originally under restrictive specifying assumptions.[24] The method used by both was to redefine aspects of the transformation problem itself and then to connect prices to values using alternative scaling or normalisation procedures.

The first attached itself to Marx's brief remarks about branches of production or commodities of average composition.[25] It then followed the standard-commodity route charted by Sraffa.[26] In the general case, imagine an industry whose labour value proportions in Panel 1 of Table 4.1 corresponded exactly to the weighted

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[20] Howard and King (1989: 45).

[21] Engels (*Capital II*, Preface: 102). The beginning was the so-called Prize Essay Competition. See Howard and King (1989: Chapters 1-3, Part IV).

[22] Hunt and Glick (1990: 361; see also 359).

[23] Howard and King (1992: 283). The tables presented here do not depict joint production nor show alternative techniques.

[24] These are variations on the one-year assumption.

[25] See, e.g., (*Capital III*: 273, 309). Marx's remarks on this matter contained the same general problems already discussed.

[26] Sraffa (1960), followed by Medio (1972; see also 1977). See Howard and King (1992: Chapter 13; esp. §v) and Hunt and Glick (1990: 358-59) for summaries. See also Dobb (1970).

averages given in the bottom line of Panel 2. Call it the "average" or "standard" industry, producing average or standard commodities. Tautologically, this industry has all the qualities needed to derive prices from values: it is isomorphic with aggregate prices. **Table 4.2** shows how prices may be expressed in its terms to eliminate the systematic disproportions previously detected (see Panel 3). A unit of output of any industry or commodity having the value proportions

$$1.0019(c_1),\ 0.2315(c_2),\ 0.0419(v) \ \Rightarrow$$
$$0.0456(C_1)+0.3066(C_1)+0.4565(V)+0.1913(S) = 1(Y')$$

can be used as numéraire since its "price is equal to its *value*."[27] In turn, the connection of prices to this standard set of values can be used to defend versions of the so-called fundamental Marxist theorem.[28] This states that positive surplus value is both necessary and sufficient for there to be positive profits, or that a positive rate of exploitation gives a positive rate of profit, and *vice versa*. This it is argued, validates Marx's basic claim that the capitalist system can be shown to depend on surplus labour (i.e., exploitation).[29] Of course, this must be so in the standard industry.

Yet the weaknesses of the standard approach illustrated here are quite transparent. The standard has, at best, a precarious relationship with actual labour time valuation (Panel 1). In no sense is it an average of those values. More damaging than this, values (Panel 1) may be dropped altogether as irrelevant: the standard is a stylised "average" plucked from price aggregates alone (Panel 2). While it may well be applied to the theory of exploitation, in so far as this is adequately encapsulated in the "fundamental" theorem, the approach really "offers nothing to repair the damage done to the Marxian theory of value."[30] The latter requires, *inter alia*, that profit be shown to be just redistributed surplus value, equal in aggregate magnitude, as if governed by a principle of conservation.

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[27] Medio (1972: 335). See also Dobb (1973: 259-63). The proportions are obtained by dividing the Σ or AVG. line of Panel 2 of Table 4.2 by ΣY' or AVG. Y'.

[28] Howard and King (1992: 260). See also Hunt and Glick (1990: 359) and Medio (1972: 339).

[29] I will return to the "Fundamental Marxist Theorem" in §5 in the discussion of exploitation. While it was named by Morishima (1974, 1973; see also Morishima and Catephores 1978), the idea behind the theorem has a longer history, e.g., Charasoff, Seton (1957), and Okishio (1963). See Howard and King (1992: 230, 239, 286 n. 49) and Itoh (1992: 59).

[30] Howard and King (1992: 257).

TABLE 4.2

An Average Industry or Standard Commodity Perspective

See notes to Table 3.1

INDUS-TRY	CAPITAL ADVANCED (STOCK)					COEFFICIENTS			TOTAL PRODUCT VALUE (OUTPUT) ANNUAL (FLOW)									
	c1	c2	c	v	Ca	c'				C1	C2	C	V	K	S	Y'	Y	s'	S'	P'
			c1+c2	v	c+v	c/v	d1	d2	n	d1c1	d2c2	C1+C2	nv	C+V	Y-S	K+V	V+S	S/V	S/v	S/(c+v)
Panel 1: Labour Values (Average = Socially Necessary Labour Hours) @ End-of-Year Reproduction Cost																				
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	325	2542	1000	48%	325%	9.15%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	150	1015	750	25%	150%	4.92%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1935	4327	3260	146%	1935%	21.99%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	290	2628	1040	39%	290%	26.36%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	600	3476	2700	29%	600%	10.91%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*3300*	*13988*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*660*	*2798*	*1750*	*60.6%*	*660.0%*	*15.00%*
Panel 2: Prices of Production (Long-run Average Prices) @ End-of-Year Reproduction Cost																				
I	2865	119	2984	130	3115	2290%	0.061	12.17	6.75	174	1448	1623	880	2502	467	2969	1347	53%	359%	15.00%
II	2402	162	2564	130	2695	1968%	0.042	0.98	6.00	101	159	260	782	1042	404	1446	1186	52%	310%	15.00%
III	6262	1514	7777	130	7907	5968%	0.040	0.56	13.25	249	840	1089	1727	2816	1186	4002	2913	69%	910%	15.00%
IV	841	22	862	130	993	662%	0.060	76.44	7.50	50	1654	1704	977	2681	149	2830	1126	15%	114%	15.00%
V	3217	1785	5002	130	5132	3838%	0.042	0.38	21.00	135	669	804	2736	3541	770	4311	3506	28%	591%	15.00%
Σ	*15588*	*3602*	*19189*	*652*	*19841*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*709*	*4771*	*5480*	*7102*	*12582*	*2976*	*15558*	*10078*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3118*	*720*	*3838*	*130*	*3968*	*2945%*	*0.046*	*1.325*	*10.90*	*142*	*954*	*1096*	*1420*	*2516*	*595*	*3112*	*2016*	*41.9%*	*456.8%*	*15.00%*
Panel 3: Prices of Production (Long-run Average Prices)/Average Prices of Production (Panel 2/AVG. Panel 2)																				
I	0.92	0.17	0.78	1.00	0.78	0.78	1.33	9.19	0.62	1.23	1.52	1.48	0.62	0.99	0.78	0.95	0.67	1.27	0.78	1.00
II	0.77	0.23	0.67	1.00	0.68	0.67	0.92	0.74	0.55	0.71	0.17	0.24	0.55	0.41	0.68	0.46	0.59	1.23	0.68	1.00
III	2.01	2.10	2.03	1.00	1.99	2.03	0.87	0.42	1.22	1.75	0.88	0.99	1.22	1.12	1.99	1.29	1.45	1.64	1.99	1.00
IV	0.27	0.03	0.22	1.00	0.25	0.22	1.32	57.71	0.69	0.36	1.73	1.55	0.69	1.07	0.25	0.91	0.56	0.36	0.25	1.00
V	1.03	2.48	1.30	1.00	1.29	1.30	0.92	0.28	1.93	0.95	0.70	0.73	1.93	1.41	1.29	1.39	1.74	0.67	1.29	1.00
Σ	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*n.a.*	*n.a.*	*n.a.*
AVG.	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*

Duménil and Foley, individually and together, have taken a different tack.[31] Their alternative "new solution" redefines two aspects of the problem. First, equality (proportionality) of aggregate value added (net product or "the familiar Net National Product of national income accounting"[32]) replaces aggregate product value to avoid double-counting. Second, the rate of exploitation is defined in price or money terms, which means that the value of variable capital advanced must be derived in the general case from the annual flow of wages (just as Engels described[33]). It should be regarded as money only and not as a wage goods bundle. This obviates the need to "transform" this variable. Both propositions can be defended on realist grounds, and the treatment of variable capital is in principle the same as I proposed in Chapter 3§5. **Table 4.3** generalises the Duménil-Foley "new solution" by equating industry value and price magnitudes for variable capital advanced (v=100) and the average[34] rate of exploitation (s'=60.6; S'=660.00). These deliver the desired invariances by definition: $\Sigma S=\Sigma \Pi$ (3300) and ΣY (8750).

However, we are still left with two fundamental *variances*: (i) the set of all aggregate stock and flow variables containing constant capital are disproportionate; and (ii) as a result, the average value and price rates or profit are unequal (Panel 1: P'=15%; Panel 2: P'=16.67). "This final discrepancy would certainly have worried Marx."[35] The "new solution" cannot be regarded as a general one. A deeper criticism, similar in content to that of the standard commodity approach, may be made: the solution is determined in price space alone. It is not, therefore, of the type that Marx and Engels hoped for. "One cannot move step by step from values into prices. The two realms must be considered separately while the new solution merely provides a mapping procedure from one to the other."[36]

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[31] Duménil (1984, 1980) and Foley (1986a, 1986b, 1982). Their collaboration is mentioned by Foley (1986a: 4). See Howard and King (1992: 276-78) and Hunt and Glick (1990: 360-61; citing also Lipietz 1982) for summaries.

[32] Foley (1986a: 4).

[33] (*Capital III*: 167-68). See Chapter 3§5.

[34] Dispensing with the need for an assumed equal rate of surplus value in all industries.

[35] Howard and King (1992: 278).

[36] Hunt and Glick (1990: 361), quoted also by Howard and King (1992: 278).

TABLE 4.3

The Proposed "New Solution" to the Transformation Problem

See notes to Table 3.1

INDUSTRY	CAPITAL ADVANCED (STOCK)						COEFFICIENTS				TOTAL PRODUCT VALUE (OUTPUT): ANNUAL (FLOW)										
	c1	c2	c	v	Ca	c'				C1	C2	C	V	K	S	Y'	Y	s'	S'	P'
			c1+c2	v	c+v	c/v	d1	d2	n	d1c1	d2c2	C1+C2	nv	C+V	Y-V	K+V	V+S	S/V	S/v	S/(c+v)
Panel 1: Labour Values (Average = Socially Necessary Labour Hours) @ End-of-Year Reproduction Cost																					
I	3340	110	3450	100	3550	3450%	0.061	12.17	6.75	203	1339	1542	675	2217	325	2542	1000	48%	325%	9.15%
II	2800	150	2950	100	3050	2950%	0.042	0.98	6.00	118	147	265	600	865	150	1015	750	25%	150%	4.92%
III	7300	1400	8700	100	8800	8700%	0.040	0.56	13.25	290	777	1067	1325	2392	1935	4327	3260	146%	1935%	21.99%
IV	980	20	1000	100	1100	1000%	0.060	76.44	7.50	59	1529	1588	750	2338	290	2628	1040	39%	290%	26.36%
V	3750	1650	5400	100	5500	5400%	0.042	0.38	21.00	158	619	776	2100	2876	600	3476	2700	29%	600%	10.91%
Σ	*18170*	*3330*	*21500*	*500*	*22000*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*827*	*4411*	*5238*	*5450*	*10688*	*3300*	*13988*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3634*	*666*	*4300*	*100*	*4400*	*4300%*	*0.046*	*1.325*	*10.90*	*165*	*882*	*1048*	*1090*	*2138*	*660*	*2798*	*1750*	*60.6%*	*660.0%*	*15.00%*
Panel 2: Prices of Production (Long-run Average Prices) @ End-of-Year Reproduction Cost																					
I	2865	119	2984	100	3084	2984%	0.061	12.17	6.75	174	1448	1623	675	2298	517	2814	1192	77%	517%	16.76%
II	2402	162	2564	100	2664	2564%	0.042	0.98	6.00	101	159	260	600	860	447	1306	1047	74%	447%	16.76%
III	6262	1514	7777	100	7877	7777%	0.040	0.56	13.25	249	840	1089	1325	2414	1320	3735	2645	100%	1320%	16.76%
IV	841	22	862	100	962	862%	0.060	76.44	7.50	50	1654	1704	750	2454	161	2615	911	22%	161%	16.76%
V	3217	1785	5002	100	5102	5002%	0.042	0.38	21.00	135	669	804	2100	2904	855	3759	2955	41%	855%	16.76%
Σ	*15588*	*3602*	*19189*	*500*	*19689*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*709*	*4771*	*5480*	*5450*	*10930*	*3300*	*14230*	*8750*	*n.a.*	*n.a.*	*n.a.*
AVG.	*3118*	*720*	*3838*	*100*	*3938*	*3838%*	*0.046*	*1.325*	*10.90*	*142*	*954*	*1096*	*1090*	*2186*	*660*	*2846*	*1750*	*60.6%*	*660.0%*	*16.76%*
Panel 3: Prices of Production (Long-run Average Prices)/Aggregate Labour Hours (Panel 2/Panel 1)																					
I	0.86	1.08	0.87	1.00	0.87	0.87	1.00	1.00	1.00	0.86	1.08	1.05	1.00	1.04	1.59	1.11	1.19	1.59	1.59	1.83
II	0.86	1.08	0.87	1.00	0.87	0.87	1.00	1.00	1.00	0.86	1.08	0.98	1.00	0.99	2.98	1.29	1.40	2.98	2.98	3.41
III	0.86	1.08	0.89	1.00	0.90	0.89	1.00	1.00	1.00	0.86	1.08	1.02	1.00	1.01	0.68	0.86	0.81	0.68	0.68	0.76
IV	0.86	1.08	0.86	1.00	0.87	0.86	1.00	1.00	1.00	0.86	1.08	1.07	1.00	1.05	0.56	1.00	0.88	0.56	0.56	0.64
V	0.86	1.08	0.93	1.00	0.93	0.93	1.00	1.00	1.00	0.86	1.08	1.04	1.00	1.01	1.43	1.08	1.09	1.43	1.43	1.54
Σ	*0.86*	*1.08*	*0.89*	*1.00*	*0.89*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*0.86*	*1.08*	*1.05*	*1.00*	*1.02*	*1.00*	*1.02*	*1.00*	*n.a.*	*n.a.*	*n.a.*
AVG.	*0.86*	*1.08*	*0.89*	*1.00*	*0.89*	*0.89*	*1.00*	*1.00*	*1.00*	*0.86*	*1.08*	*1.05*	*1.00*	*1.02*	*1.00*	*1.02*	*1.00*	*1.00*	*1.00*	*1.12*

3 Inconsistent Formulation

Marx was well aware that the procedure he used in *Capital III* to illustrate the priority of values over prices was inapplicable in general. Marx was a realist, so it would be unsound methodologically to think he would permit his theory of value to turn on a mathematical proposition alone, let alone one that he knew to be pathologically doomed. In other words, the *real* significance to be attributed to Marx's deductive procedure cannot, therefore, be found in the procedure itself. The procedure should be understood to be no more than a one-sided and simplified expositional technique. Attention must be directed elsewhere, therefore, to the underlying reasons Marx believed that priority should be given to labour values. I think there were two fundamental interrelated reasons:

> (i) Labour values *ultimately* determine long-run average prices. In other words, the argument is that there is a real connection between value (average socially necessary labour time) and prices of production (long-run average prices) that gives the former priority over the latter: "...that it is values that stand behind the prices of production and ultimately determine them."[37]
>
> (ii) Labour values perform a unique critical and qualitative role in Marx's theory as a whole and in its exposition. Some would add an historical role here as well.[38]

Both of the above reasons may be used to argue that values are prior to prices in general. They would make sense of the detailed explanation in the opening chapters of *Capital I* of labour value relationships, the form of which is far

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[37] (*Capital III*: 311).

[38] See Engels (Preface to *Capital III*: 103), review of Marx's (*Critique*: 225), and letter to Sombart, March 11, 1895 (*Correspondence*: 455-56). See also Howard and King (1989: 46-50) and Meek (*inter alia*, 1967a). I have no doubt that Marx attempted to weave history into the structure of his theory; however, I am persuaded by Smith, in particular, that the historical-logical reading of *Capital* is not the best one. The existence of a period, or even an instance, resembling simple commodity production in which commodities actually exchanged at their labour values is, at best, an unproven proposition (T. Smith 1993a: Chapter III). See Chapter 3§1 n. 8. Howard and King (1992: 274-76) survey the recent debate on the so-called historical transformation problem and conclude that, even if the historical case were valid, "the (quantitative) labour theory of value cannot be rescued by the historical priority of values over prices." Hence I will not touch on the matter below.

removed from the reality of capitalism (competition). The one-sided expositional transformation of values into prices could also be justified as an illustration of a real relationship that manifests itself only approximately, on average, and in a way that is also distorted by temporary market price fluctuations caused by supply and demand imbalances.[39] It is correct methodologically to licence even mathematical loose-ends if the overall result is greater realism. "It does not seem a bad rule in a subject so wedded to complex practical issues as is Political Economy to keep one's feet firmly planted on the ground," Dobb once remarked, "even if this be at the sacrifice of some logical elegance of definition and of some impressive, but often misleading, precision of algebraic formulation."[40]

The critical qualitative role assigned to labour values will be discussed in §5. In this section and §4 the realism of presuming an underlying causal priority will be subjected to critical scrutiny. The case for it turns out to be extremely vulnerable. First, Marx clearly contradicted the notion of deduction from values when he discussed *how* the tendency of a general, average, equal rate of profit was formed in reality. The meaning of Marx's remarks on this clearly corresponds to what we would expect intuitively: (i) capital moves between industries in response to higher or lower rates of profit; (ii) this movement causes price changes that tend to equalise profit rates; (iii) the effective profit rates to which capitalists respond are those calculated using market prices; and (iv) capitalists come to ignore temporary price fluctuations and their decisions tend to be based on average prices and the rates of profit corresponding to them.[41] The negative corollary of these is that the rate of profit calculated in labour values is neither the *effective cause* of the shifts that create the tendency to equalisation, nor is it the rate that is directly *affected by* the shifts (i.e., shown in a model to be equalised). It is worth stating clearly that there has been agreement on this process, notably concerning the role of market prices in informing capitalists' decisions, among those otherwise at loggerheads in the value debate.[42]

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[39] Marx to Kugelmann. July 11, 1868. (*Correspondence*: 197). See also Engels to Schmidt. March 12, 1895. (*Correspondence*: 456-60). On supply and demand, see (*Capital III*: 278 ff., 308-10).

[40] Dobb (1937: 130-31; see also 4-9). See also Timpanaro (1975: 189) and Chapters 1§5 n. 100 and 3§1.

[41] (*Capital III*: 311-12).

[42] See, e.g., the similarities between Hodgson (1981: 90) and Shaikh (1992b: 77).

Marx was at pains to explain that "fluctuations in market prices...reduce the average market price of a commodity over a given period of time, not to its market *value* but rather to a market price of production that diverges from this market value and is something very different."[43] Thus, in reality,

> "if prices are not proportional to labour contents then the ratio [S/(C+V)], in which both the surplus product and the total capital advanced are valued in terms of labour contents, will not be equal -- flukes apart -- to the ratio of surplus product to total capital advanced, where both are 'valued' in terms of prices. This latter ratio is what is *meant* by the rate of profit. Thus [S/(C+V)] is *not* the rate of profit, contrary to Marx's assertion..."[44]

The conclusion is inescapable: *if* (i) the price of production rate of profit is the effective one *and* (ii) it does not equal the rate calculated using values, *then* any procedure that derives the effective rate from a value calculation is wrong from a realist perspective. Table 4.1 thus not only issues the wrong results, but it is flawed procedurally because it uses the wrong (value) rate of profit. Steedman, therefore, is right to argue that Marx's failure to "transform" input prices is the least of the problems in his demonstration. "The central objection is that, even if input prices are transformed, Marx's 'solution' is *internally inconsistent*."[45] Steedman added that "adherents to Marx's 'solution' never attempt a *direct reply* to the above criticism. The reason for this is simple; the criticism is sound and cannot be answered."[46]

The inconsistency, however, has implications beyond the "solution" itself. For Marx's labour theory of value to apply to capitalism, a consistent transformation must at least be possible. In Marx's terms, the scientific explanation of the inner value connection behind capitalism's price phenomena "presupposes...the *transformation of surplus value* into *profit,* and *profit* into *average profit,* etc., has been explained."[47] In a perverse way, Marxist adherents of the labour theory of

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[43] (*Capital III*: 311).
[44] Steedman (1981: 14; see also 1981: 31).
[45] Steedman (1977: 29).
[46] Steedman (1977: 31).
[47] Marx to Engels. June 27, 1867. (*Correspondence*: 178-79). See also Vianello (1990: 245-46).

value who emphasise the importance of the transformation problem are more consistent than those who are prepared to concede this point to their opponents. Moreover, if only a solution guaranteeing Marx's invariance conditions could be found, the internal inconsistency would disappear by definition. The mere hope of such a "one fell swoop" answer explains at once why some Marxists have spent the time they have on the transformation problem and so patently have not addressed the internal inconsistency. What they have not recognised is that Marx's inconsistency means that it is impossible to give values priority over prices.

Does the complete case for a labour theory of value collapse as a result? Is the argument exhausted? The answer is: not yet. The possibility remains to be explored that labour values ultimately determine long-run average prices in another, more primal, roundabout, causal, but less precise, way. Once this is done, it will be possible to consider the view that labour values perform a *unique* critical and qualitative role in Marx's theory as a whole.

4 Labour Values are Derived

The main reason that the labour theory of value should be set aside is not the one presented in §2, nor is it the one in §3. It should be rejected fundamentally because a realist case for it as an underlying causal mechanism cannot be sustained. Note that it is the economic status of the labour theory of value that is at issue here. It has this status by virtue of the role of labour values: i.e., abstract socially necessary labour time as a unit of measurement. Marx makes the very precisely structured claim that (i) the price-of-production phenomena "visible on the surface" are (ii) determined "ultimately" by values that are (iii) determined by labour time. "*In competition, therefore, everything appears upside down*" because "competition does *not* show...the determination of values [labour time] that governs the movement of production..."[48]

Too often the argument is blurred by conflating the specific role of labour values designated clearly by Marx with broader concerns such as the role of labour itself: in production, society, politics, history, and even human biological evolution. This

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[48] (*Capital III*: 311). See also, e.g., Marx to Engels, June 27, 1867, (*Correspondence*: 179). See Cohen (1981) on Marx's definitions and elaboration of the theory of value.

is a species of the general methodological error of dissolving the concrete in the abstract. Nor is this debate really about the central place of labour in Marx's social philosophy (and Hegel's).[49] It does not follow in any sense at all that to reject the labour theory of value means to reject Marx's views about the broader roles of human labour or to disparage its theoretical (and real) importance. The specific contentious point is whether it is correct to claim, as Marx does, that *labour values* exist at a deeper, determining level in the capitalist economic structure: no more, no less.

Now, it is true that a materialist-realist would argue that "knowledge may be not only of what appears, but of underlying structures, which endure longer than...appearances, and generate them or make them possible." It is also true that deep explanatory knowledge may "*contradict* appearances."[50] *Pro tanto* everything that has been said implies that it is possible that Marx's labour values may be such an underlying generative structure, despite it being proven in §§2-3 that they cannot be the direct effective determinant of the rate of profit and prices of production. If we use the form of Tables 3.3 and 4.1 as a reference, this would be to say that prices of production of inputs and outputs interact entirely in their own space (Panel 2) to create the tendency to equalise the rate of profit. However, all of these prices would be determined by labour values at one step removed, as it were (Panel 1).[51]

Something akin to this hypothetical case can be gleaned from Fine's fundamental criticism of the Sraffian position:

> "...it is argued that values are irrelevant in the *causation* of prices and profits and are thereby rendered redundant. Here, there is a clear slippage between what causes prices to be what they are and what allows them to be calculated. Because I can measure and calculate the level of rainfall, this does not imply any understanding of the causes of rainfall. By the same token, to

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[49] See T. Smith (1993a). See also Ollman (1971: 25-26), Mandel (1990:11), (*Capital I*: 131), and (*Capital III*: 954) on the notion that "[V]alue is labour."

[50] (Collier 1994: 6-7).

[51] The approach could be used, for example, to underwrite the "mapping procedure" illustrated by the Duménil-Foley and Sraffian "solutions" discussed in §2. Both had value and price spaces operating more or less independently.

> claim that technology etc. determines prices, and values do not, simply because prices can be calculated from technology and not from values, is irrelevant to the causal status of values, certainly until we know at least what determines technology to be what it is."[52]

Shaikh also casts prices of production as "the inner regulators of market prices" and labour values as the inner regulators of prices of production and profit.[53] He acknowledges that Marx's transformation procedure is incomplete and states that the "real process of capitalist competition operates on actual market prices, not on prices proportional to labour values or even on prices of production."[54] However, he claims to have remedied the incompleteness "by showing that Marx's procedure may be thought of as the first step in an *iterative* process of calculation whose end result is exactly the 'fully transformed' prices of production of Bortkiewicz or Sraffa...Thus, in the end, prices of production (and any other prices as well) are simply the expression of some redistribution of values and surplus values."[55] Shaikh argues that the empirical differences between Marx's and the corrected Sraffa-Bortkiewicz prices of production are small and that both predict market prices well.[56] Shaikh's view is thus a variant of the attempted "one fell swoop" answer.

We need to be very clear, however, about the premises needed to establish a possible "underlying" determining role for labour values. It would have to be proven that this role is real and not just a theoretical-heuristic convenience. This would need to be established carefully, and it would have to be shown that labour values are a necessary and sufficient basis for explanation: i.e., that their role is neither peripheral nor incidental, but essential. The need to establish realist

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[52] Fine (1986: 6). The issues of calculation and causality are also taken up in Wright's (1981: 36-74, 130-62) defence of the labour theory of value and the criticisms of it by Hodgson (1981: 75-99) and Bandyopadhyay (1981: 100-29).

[53] Shaikh (1992b: 77).

[54] Shaikh (1992b: 77). He denies that there is ever "*any state of equilibrium in which market prices 'converge' to prices of production* " (Shaikh 1992b: 77). Prices of production never exist as such, but only as a social average trend in market prices. Marx says this, too (*Capital III*: 1000, 1009, 1012). I have used "average," not "equilibrium," to describe prices of production.

[55] Shaikh (1992b: 77), referring to his 1984 and 1977 papers. Hunt and Glick (1990: 359-60) and Itoh (1992: 60-61) comment on Shaikh's procedure and its assumptions. The method is summarised by Shaikh (1992b: 85-88).

[56] See also Shaikh (1981) and (1990c: 307; citing Shaikh 1984, Ochoa 1984).

premises for any labour theory of value is so important that it would exist even if a logically consistent general solution to the transformation problem could be found. Mathematical deductive priority is one thing: proving the case for the real priority of values is quite another.[57]

It is incumbent on supporters of the labour theory of value to make this case. A retort that appearances and their underlying reality may not coincide on the surface proves nothing in itself. The distinction merely defines the possible grounds for the supposed role. It does not establish the existence of the role. However, I cannot point to one example where a systematic effort has been made to establish the *real* primacy of labour values. Shaikh raised some concerns but never really rose above assertion.[58] Indeed, Hodgson registered a telling criticism of Shaikh's efforts simply by noting the absence of a sustainable argument that the iterative process described anything real, that it really had more substance to it than a mere game with numbers. Hodgson replied dismissively that any set of starting numbers at all would, ultimately, but without any meaning, give the same result as Shaikh's.[59] Despite Sweezy's endorsement of Shaikh's approach, Howard and King assessed it as "neither original nor convincing," having been anticipated by Charasoff, Brody, and Morishima and parodied by Samuelson.[60]

A real underlying causal determining role for labour values has not been presented because it cannot be presented. It represents something like a category error to think labour values can function as a fundamental causal force in production. This can be seen clearly enough in Marx's own definitions:

> "Socially necessary labour-time is the labour-time required to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society...

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[57] See Chapter 1§4: "Empirically Controlled Scientific Explanation."
[58] Shaikh (1981: 272-73, 291-94).
[59] Hodgson (1981: 91-92).
[60] Howard and King (1992: 276). See Steedman, *et. al.* (1981: 25).

> "What exclusively determines the magnitude of the value of any article is therefore the amount of labour socially necessary, or the labour-time socially necessary for its production."[61]

These are definitions of a method of valuation or measurement, not an explanation of why or how labour values operate as real causal forces in an economy. However, the real underlying economic mechanisms are also mentioned: social conditions of production, skill, and intensity. *These* will determine the time needed to produce a stock of commodities at any conjuncture and the flow of commodities over a period given any stock or flow of labour input. The labour times determined by the social and technological conditions of production are thus a *derived* means of valuing (measuring) the physical commodity inputs and outputs.

In general, socially necessary labour time stands no differently in relation to these physical quantities than do prices of production. Both are derived. It is wrong in theory to identify something that is used to measure (describe) the effects of causation as itself the cause.[62] Labour values can no more determine prices of production in this underlying sense than prices of production can determine labour values. It is on this precise point, of course, that Fine's rainfall analogy breaks down. This is no less true because the base measuring unit (time) is attached to one of the inputs (labour). Steedman, however, takes the general argument a step further. In reality capitalists will choose from a number of alternative methods of production, each representing a different quantity of labour (workers and hours). Assuming that they will choose the method that offers the highest possible rate of profit (in prices), it can be said that prices, via the choice of technique, precede values.[63] Note, however, that the underlying social-technical conditions spoken of above themselves "stand behind," or are embodied in, the various techniques from among which capitalists will choose. If, say, there are three alternatives, the three different quantities of labour *time* (stock and flow) entailed by each are themselves determined prior to the choice. The price rate of profit allows a different type of determination, the three ranking of the three options and the selection of one of

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[61] (*Capital I*: 129).

[62] See Steedman's Figure 1 (1977: 48). See also Figure 4.1 in §5.

[63] Steedman (1977: 64-65; see also 147-48). See also King (1982: 164-65, 173).

them. Prices thus may be said to determine values in this sense, but they only do so ordinally and not in any more fundamental way.

5 Labour and Exploitation

It must be emphasised that it would be equally wrong on this account to dismiss the priority in theory that it is possible to give to labour in other domains and in other ways in the domain of economics. According to Howard and King:

> "The qualitative labour theory of value emerges from the post-war discussion essentially unscathed. Production is an inherently human process, the title of Sraffa's book notwithstanding. Because the producers relate to each other through the medium of commodity exchange they are also alienated from each other, and their perceptions of social reality are distorted by the resulting fetishism of commodities. This is why labour occupies a 'privileged' place in political economy, and why 'energy', 'corn' or 'peanut' theories of value...totally miss the qualitative significance of Marx's labour theory of value."[64]

Marx's error was not to make labour the central conceptual focus of his work. Given that his and Engels's political project was the emancipation of labour by labour, it could hardly have been otherwise.[65] Rather, he failed in the altogether less significant undertaking of deriving prices of production from labour values. Bhaskar suggests in similar vein that the transformation task itself, in so far as it implied a direct and immediate connection between broad social theory and a theory of relative prices, was akin to a fundamental category mistake.[66]

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[64] Howard and King (1992: 282; see also 1975: 138, 161-62, 166). The title of Sraffa (1960) was *The Production of Commodities by Means of Commodities*. See also Glyn (1990b: 279), who remarks in similar fashion. For the "peanut theory," see Bowles and Gintis (1981; see also 1985).

[65] It is also relevant to reflect on the role of labour in the intellectual traditions to which Marx and Engels were indebted: British classical political economy (labour theories of value); German classical philosophy; and the utopian socialism of, e.g., Saint-Simon, Fourier, and Owen. See Dobb (1973: 145; 1937: Chapter 1), Glyn (1990b: 275-76, 279), Hodgson (1981: 93-94), Rowthorn (1980: Chapter 1), and Sen (1990: 143-44) on the central place of the labor process in Marx's work. See also n. 49.

[66] Bhaskar (1993: 133-34).

Nonetheless, it is possible to achieve Marx's realist-materialist scientific objectives more securely. We can construct real explanations that do go behind prices and that expose impressionistic interpretations of the appearances given in "competition." At their heart must be the real social and technical conditions of production and the social distribution of income. These can explain both the level of physical output and the economic surplus received by those who perform no labour, and these, in turn, can ground an explanation of prices and profit. Of course, to frame the problem in this way shows the obvious influence of Sraffa and Steedman, in particular, and the "surplus paradigm" in economic thought, in general. However, we do not need to weld the principles informing this approach to any particular representation or model. Indeed, it has been a question of debate for some time within the surplus tradition which is the best approach to adopt in this respect.[67] The main points to recognise are that *Capital* is clearly in this surplus tradition, which is not so contentious, and that Marx's explanations of value and price do in fact rest on underlying real descriptions and definitions of a physical surplus and the social and technical conditions of production and distribution necessary for it.[68]

These conditions, however, do not exist as an ultimate foundation. They emerge from the underlying social relations and forces of production and are mediated, *inter alia*, by class and international forces, state policies, the level of centralisation and concentration of capital (monopoly), cultural determinations and the state of scientific and technological research. Far from demolishing the depth realism and critical aspects of Marx's theory as a whole, I think this approach rehabilitates them by separating them from the labour theory of value. Some attempts to overcome the irresolvable problems of the theory can all too easily violate Marx's basic materialist-realist premises and endorse explicit metaphysics (*a priorism*). An example is Laibman's representation of the labour theory of value as a set of synthetic *a priori* postulates.[69]

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[67] See the discussion in Howard and King (1992: Chapter 15). See also n. 40 and recall the point Dobb made long ago that elegantly rigorous mathematical models can have their own strains of irrealist maladies. See also Meek's (1967a: 126-27) "heretical" reference to supply and demand. See also n. 39 and Mandel (1990: 12).

[68] See, e.g., (*Capital III*: 992-1016).

[69] Laibman (1992: 25). See also Laibman's (1992: 5-11) criticism of Böhm-Bawerk (1966). Cf. Chapter 2§5 and Chapter 3§6(ii).

Figure 4.1 is offered to summarise the case so far in a simplified form.[70] It should be interpreted in the same way as the models of emergence given as Figures 1.3-1.4. Introduced into the hierarchy of Figure 4.1 at Level 3 is a block representing the physical product (necessary and surplus) and the exercise of labour (necessary and surplus) required for it. Output and labour are mutually dependent dimensions of the economic system depicted by the circuit of capital at Level 2. Prices and labour values are presented explicitly as measuring units at Level 4: they are not independent layers themselves. Recognising of the impossibility of a general transformation, they are shown to be literally incommensurable measurements. However, since they are clearly about the same real referents it is possible to compare and evaluate theories and descriptions constructed in each "language," which are commensurable.[71]

Figure 4.1 also may be used to illustrate the categorically different roles that "labour" validly can assume. It thus can clarify the types of category errors that are possible if these roles are conflated or used out of place, a very common failing of much Marxist writing on this subject. It is valid, for instance, to recognise that "*no form* of society can prevent the working time at the disposal of society from regulating production in one way or another."[72] Here labour hours are one measure of labour's *capacity* as a force of production at Level 1. Other labour-power "measures" are skill, education, and so on. The physical capital stock and technology can be conceived in corresponding ways. It is also valid to depict the regulation of economic activity at Level 3 by showing the labour time allocated to the various branches of production.[73] The labour-time measurement at Level 4 does just this. It can provide an important part of the information needed for an analysis of economic structure, development, and the social productivity of labour, across countries and modes of production, and over time. It would be an error, however, to think that the valid regulatory role of labour time at Level 1 also means that the "quantities of socially necessary abstract labour" validly shown at

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[70] My approach is similar to Steedman (1977: 48, Figure 1), Howard and King (1992: 250, Figure 13.1), and King (1982: 173, Figure 4.1; 179, Figure 4.2).

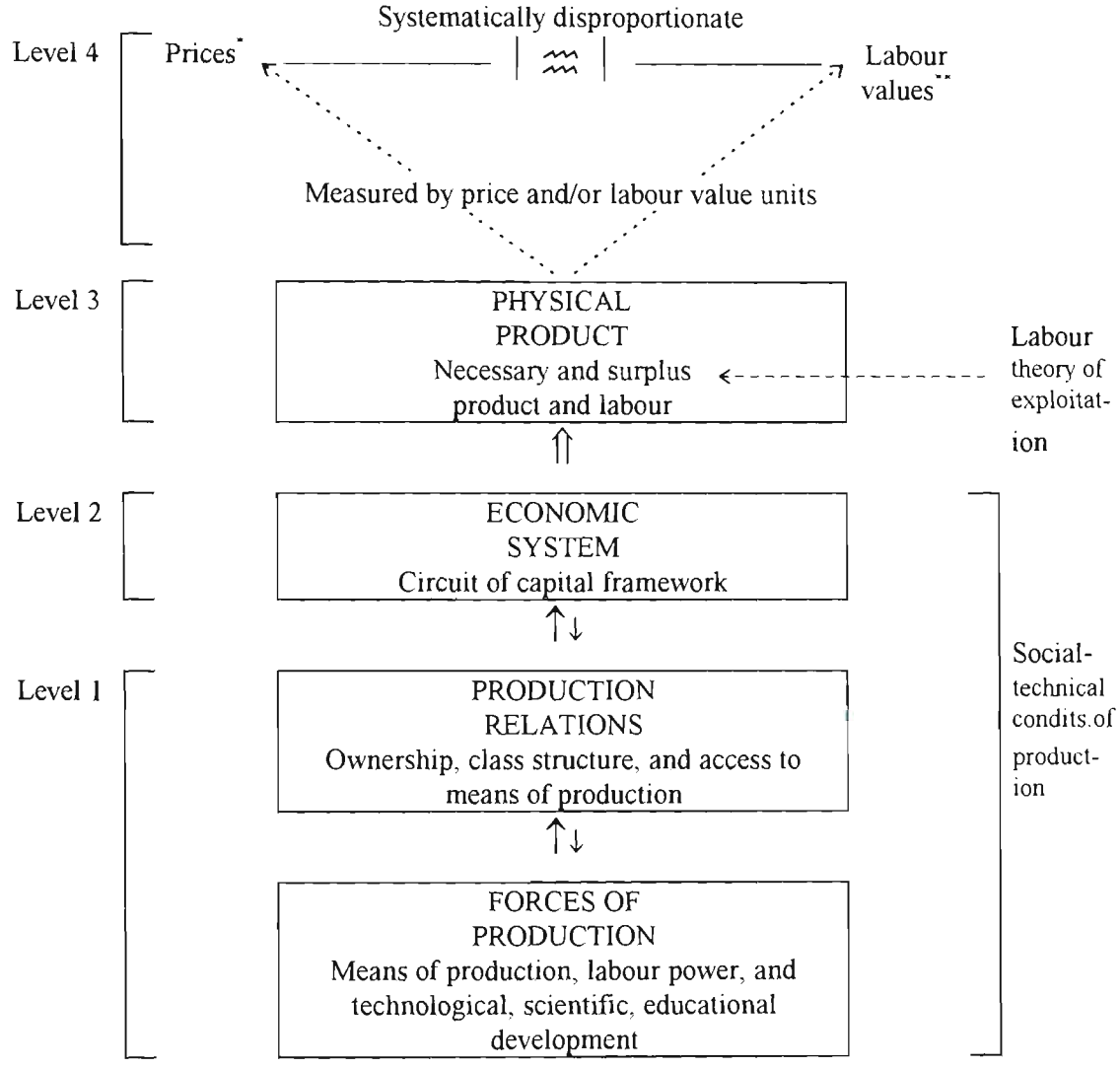
[71] A direct Russian phrase for "leg-spin" would probably be comical nonsense to the average Muscovite. She could be informed, however, about what it is that Shane Warne does.

[72] Marx to Engels. January 8, 1868. (*Correspondence*: 187). See also, e.g., (*Capital III*: 991).

[73] Marx to Kugelmann. July 11, 1968. (*Correspondence*: 195-97).

FIGURE 4.1

Prices, Labour Values, and Social-Technical Production Conditions



* Long-run average prices (prices of production) or market prices. ** Average socially necessary labour time. ↑ emergence, ↓ feedback (see Figure 1.3).

Level 4 ultimately regulate the entire economy like "Marx's version of Adam Smith's 'invisible hand'."[74] Marx himself explained to Engels that, under capitalist relations of production, the latter "regulation is accomplished...by the movement of commodity prices,"[75] which occurs within Level 3. It has been shown that labour values do not regulate this movement but only measure its results.

Tables 3.4 and 4.1 could be recast to draw some practical conclusions from the discussion so far. The labour value and price panels would no longer relate directly

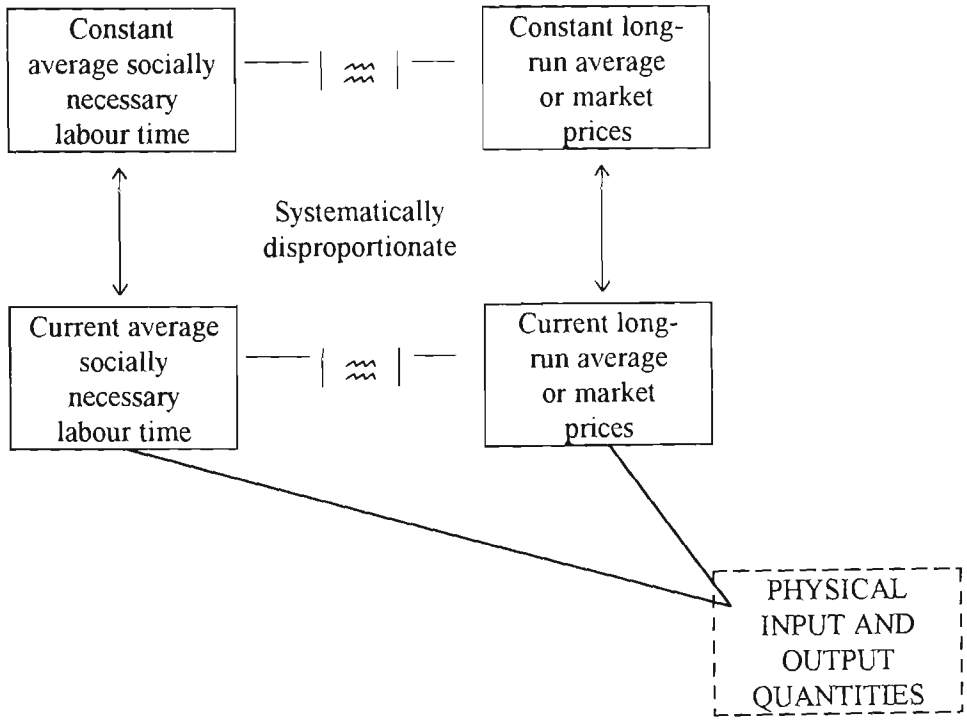
[74] Mandel, referring to the "law of value" (1990: 12).

[75] Marx to Engels. March 6, 1868. (*Correspondence*: 186-87).

to each other. Both instead may be pictured as measuring a "physical" panel with *exactly* the same form. Of course, it is impossible to aggregate diverse physical quantities (and qualities), increasingly refined and sophisticated vectors notwithstanding. Simple corn-widget models tend to disguise this. But it is possible to set a datum and to estimate physical changes over time using a constant base. In effect, the real physical panel would fade away, replaced by constant and current price and value panels and or sets of index numbers. **Figure 4.2** describes the relationships. This aspect of the valuation process was discussed in Chapter 3§6(ii) and the physical processes (e.g., inventory movements) were described in the circuit framework of Figure 3.5. Significantly, the price representations would not be all that far removed from constant- and current-price national-accounting aggregates. With some licence, cross-sectional time series for labour productivity may be "inverted" to give a rough account of labour values: the social allocation of necessary labour time.

FIGURE 4.2

Physical Quantities: Constant and Current Price Representations



A brief comment is needed on the relationship of labour productivity to labour value. While Glyn scores a point against Marx's critics when he says that their

interest in labour productivity is inconsistent with their derision of labour values, he is only partly correct in his remark that labour values are "just the inverse of average labour productivity."[76] Marx's labour values, for inputs and outputs, change according to the time that is *socially* necessary to reproduce a commodity. Hence they reflect changes in productivity and product development (obsolescence), as well changes in the nature of demand.[77] Inverted labour productivity, however, is always just average "necessary" (re)production time in a given year (or accounting period).[78] A different concern altogether is the valuation of fixed capital items and inventories carried forward over a number of periods. Unless "the inverse of labour productivity" applicable to such items is updated for each accounting period, it gives only a static, historical-cost, embodied labour account of *valuation*.[79]

However, compared with the evident temptation for supporters of the labour theory of value to attach their arguments glibly to the obvious connection between changes in aggregate labour productivity and changes in aggregate long-run average prices, the differences suggested in the previous paragraph are mere quibbles (and more likely than not quantitatively small quibbles, to boot). Such an attachment can be inferred, for example, from one of Mandel's presentations of the "operation of the law of value under capitalism," in which "relative increases or decreases of [the] productivity of labour" ultimately underlay fluctuating market prices.[80] Of course, there is a very straightforward reason that any glib reduction of the labour theory of value to a connection between labour productivity and prices is wrong: labour productivity is just as derived a variable as price or labour value (being its inverse), so all the arguments about priority above apply here as well. Statistical correlations between price and labour productivity changes are specious for the same reason: both register the effects of deeper causes. Superficially appealing high R^2's between prices and "values," such as presented by Ochoa and

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[76] Glyn (1990b: 279). It should be recognised that Glyn was not engaged in a detailed discussion of labour valuation but brief survey of claims and counter-claims about the labour theory.

[77] Ochoa (1992: 126).

[78] Mandel is one who recognises this in some places (Mandel 1990: 11-12) but not in others (1981: 30).

[79] See Chapter 3§6(ii), especially n. 122 on Steedman. Incidentally, I think that an ideal revaluation at replacement cost (to which national-accounting capital stock series estimates aspire) covers both sides of the (average) "socially necessary" coin.

[80] Mandel (1981: 30; see also 28-29).

Shaikh, thus go no way towards resolving the issue.[81] "...[L]abour values and prices of production for the US economy in the postwar period were remarkably close to each other as well as to market prices," Ochoa concludes. Moreover, "little or any accuracy is to be gained by calculating prices of production, so that either value or market-price series should be adequate in studying the behaviour of the economy in the aggregate and over time."[82] His labour values are just the inverse of a 1972 constant-dollar labour productivity series.[83] Their closeness to a current-dollar market price output series may be interesting for any number of reasons. However, this closeness does not, because it cannot, constitute anything like an empirical test of Marx's labour theory of value or even a demonstration of the specific claim "that labour values are quantitatively dominant influences in the formation of market prices."[84]

Marx argued for a very formal relationship between values and prices, and it is disingenuous to avoid facing up to the hard questions by redefining them as soft ones. The main hard question to arise from this chapter is an old one.[85] If it is unnecessary to detour via values to explain prices and profits, is an elaborate labour value apparatus needed at all? Is it even necessary to have a labour theory *of value* in order to encapsulate the central theoretical role of labour in Marx's broad social theory? The answer is no: labour values are not needed to talk about labour. The same things can be said more precisely in other ways, without potentially confusing the different roles the category "labour" can play in different parts of a comprehensive theory. Howard and King explain that labour values add nothing to the qualitative concerns to which the labour theory was addressed:

> "...as Joan Robinson put it, half a century ago, 'none of the important ideas which...[Marx] expresses in terms of the concept of *value* cannot be better expressed without it'. In particular, the labour theory of value is not necessary for a theory of exploitation, even in a qualitative sense. Profits

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[81] Ochoa (1992) and Shaikh (1990c: 307; citing Ochoa 1984 and Shaikh 1984).

[82] Ochoa (1992: 145).

[83] Ochoa (1992: 127)

[84] Ochoa (1992: 136; see also 125). I think that what we have in this claim is a case of the poverty of econometrics, to amend the title of one of Shaikh's (1981) contributions to the debate.

[85] As Glyn notes (1990b: 279), it was posed by "Robinson (1942), formalized by Samuelson (1971) and re-emphasized by Steedman (1977)," following Sraffa (1960).

> arise, as Marx himself explained, because of the capitalist class monopoly over the mean [*sic*] of production in an economy which produces a surplus. The class monopoly is the ability of the capitalists to deny access to the means of production which they own. Since the majority of the population cannot survive without such access, capitalists can establish an effective claim on part of what is produced. Subject to the qualifications [that (i) the rate of profit is expressed as a function of the conditions of production and income distribution and (ii) a positive rate of profit entails a positive rate of exploitation and vice versa]...profits can be expressed in quantities of surplus labour. But this is only one scale of measurement, and is not essential to the theory of exploitation."[86]

The second qualification cited in the above passage is Morishima's "fundamental Marxian theorem."[87] I do not think this theorem is necessary to validate the fundamental proposition underlying it: i.e., that "surplus labour is indeed the foundation of non-wage incomes."[88] The theorem measures surplus labour by time, but its spirit is not dented if it is re-expressed in terms of physical output and surplus. Necessary and surplus labour can be redefined generically and qualitatively by mapping them directly to evident quantities of necessary and surplus product. For example, necessary (surplus) labour is the *labour* expended in producing the necessary (surplus) product. The gain made by doing so is that it obviates the necessity of labour value (time) measurement to a coherent *labour theory of exploitation*.[89] This is why labour and the social product were co-located in Figure 4.1 (Level 3). Marx's broad social theory of exploitation does not have to depend inappropriately on the measuring unit he used to express it. This is not to say that socially necessary labour time, or long-run average prices, cannot be used to describe exploitation, just that neither is *necessary* to a labour theory of exploitation. As a result, the "fundamental" theorem, in its original labour-time

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[86] Howard and King (1992: 283), citing Robinson (1942). See also Steedman (1977: 111).

[87] Morishima (1974, 1973), Morishima and Catephores (1978). See Howard and King (1992: 271-74; 286, n. 49). See also Steedman (1977: Chapter 13, esp. 200-01).

[88] King (1995b: 179).

[89] A rigorous statement of a similar position on exploitation is given by Cohen (1981: 217-2; see also 1978: 330-34, 347-48, 353). See also Hodgson (1980). Collier's (1979b: 95) comments on inappropriate quantification may also provide some clues.

form, may be relocated to the transformation space between labour time and prices (surplus labour time and profit), where it surely belongs with the other (contingent) members of the transformation solution set. For the "fundamental" theorem to hold in general, it must be buttressed by additional specifying arguments, such as the redefinition of necessary labour as "the minimum quantity required to produce the wage-goods consumed by the workers."[90] Yet this solution offered by Morishima seems arbitrary, and additional problems are produced as a result, not the least of which is that the "true values" thus derived are not additive.[91]

Redefinition of necessary and surplus labour as I have suggested has two powerful consequences. It enables both the spirit of Marx's general theory of exploitation to be sustained and the quintessential status of labour in his broader theory to be reinforced. These mean, in turn, that the qualitative content of the labour theory of value and exploitation can be theorised rigorously and *underlined empirically*, since they hark back to factual socio-economic relationships, historical data, and observations from social experience about who labours and who receives the social surplus product.[92] Is surplus labour, then, necessary and sufficient for the existence of profit? Yes, since profit is the price measure of the surplus product accruing to capital by virtue of its ownership of the means of production and not through the performance of labour. Furthermore, there would be no product at all, let alone the surplus product necessary for there to be "capitalism," without the exercise of labour.[93] To restate the point as forcefully as possible: no surplus labour, means no surplus product, means no profit.

None of the aspects of "vulgar economy" that Marx criticised because they relied on appearances and obscured the underlying reality of exploitation are smuggled into the approach if the labour theory of value is rejected. Charges that critics of the labour theory of value necessarily dispose of the (critical) baby with the (value) bath water are really wildly exaggerated, at best. An unbiased reading of Steedman,

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[90] King (1995b: 179).

[91] See n. 29 and n. 87. See, esp., Howard and King (1992: 272-74), King (1982: 177-78), and Steedman (1981).

[92] These phrases are Dobb's (1973: 145-46).

[93] Hodgson and Steedman express the relationship to surplus product differently because they refer to the labour-time definition of necessary and surplus labour. However, the argument that surplus labour (*qua* time) and profit "are simply 'labour' and 'monetary expressions of the physical surplus" (Steedman 1981: 17) is clearly equivalent in principle to the one I have put forward. See also Howard and King (1992: 274; 287 n. 57).

for example, illustrates this vividly.[94] Indeed, the outline provided by Figure 4.1 shows that we are in uniquely Marxist space. So does the central place of labour in the discussion of exploitation. Price and labour-time categories become illusory and fetishised only if they are not integrated within the broader social-historical theory.

6 A Case for Prices

The case for labor values cannot be sustained. However, it is possible to argue consistently that prices should be used to study Marxist theories of profit, accumulation, and capitalism's immanent tendencies. Indeed, the national-accounting data that will be used in Chapters 10-11 to evaluate competing Marxist explanations are given in constant- and current-dollar market prices. All but two of the reasons that prices, and not labour values, are effective in accounting for capitalist economic activity have been established throughout this and previous chapters, the exceptions being (iv)(b) and (v). To make all the reasons as clear as possible I will present them quite schematically here:

(i) capitalists make decisions using market prices and profit rates derived from them in the short run (augmented to some extent by their expectations of price fluctuations);

(ii) if the forces generating the tendency of "profit rate equalisation" are real, then the long-run average prices (prices of production) that depict *this process* can be regarded as *a* centre of gravity for market prices (recognising, however, that strong counter-tendencies also operate on market prices and profit rates and that the "equalisation" depiction is one-sided);[95]

(iii) Marx's economic-accounting framework readily accommodates price variables, which can be adequately derived in Marx's realist and critical terms from their underlying physical determinants;

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[94] See, e.g., the conclusions of Steedman (1981: 17, 19; 1977: 205-07).

[95] See the brief discussion of profit rate equalisation in Chapter 1§5 and the references given there in n. 99.

(iv) it is *possible* to formulate in prices the various postulates concerning profit and accumulation that Marx formulated in values, as:

(a) Marx fully intended the real features and tendencies of capitalism that he postulated in values to be manifest in prices, since he supposed that the former would determine the latter;[96]

(b) it can be demonstrated rigorously that the same necessary conditions (social-technical and income distribution) have to exist for Marx's proposed tendencies to be true, irrespective of whether prices or values are used;[97]

(c) theories using value categories and theories using price categories are commensurable in general since they have the same (underlying) physical referents; and

(v) it is *necessary* to use price variables in theories of immanent tendency, over-accumulation, and actual crisis, especially since the *exclusively* price-based contract-credit and financial system must be introduced.[98]

A valid criticism of the scope of this chapter is that it has not engaged the argument that "prices of production" themselves fail a similar test to that faced by labour values, namely that it is improper to argue that they really do act as a centre of gravity for market prices, even if that role is interpreted to be a one-sided representation of the actual situation. Hence point (ii) has been presented in a clearly conditional form. Unfortunately, the status of long-run average prices is a bigger theoretical problem than I am able to confront in this work.[99] However, this absence does not undermine the substantive arguments in any way. Marx proposed

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[96] See also the discussion on the declining rate of profit in Chapter 2§3.

[97] See, e.g., Chapter 5§2.

[98] I think Marx says as much, too, e.g., (*Capital III*: 363). See Chapters 3§6(iii) and 5§6.

[99] See the discussion and references in Howard and King (1992: 282, 279-80, 297-300). See also Naples (1993, 1989).

a relationship between labour values and market prices that was mediated by prices of production as a result of the tendency to equalise rates of profit. In §§2-3 it was argued that Marx's arguments connecting labour values and prices of production were not coherent. On this basis §§4-5 went on to discuss whether a deeper determining relationship connected prices of production and market prices to underlying labour values, as Marx had claimed. It is irrelevant to the structure of this argument, and to the argument that underlying socio-technical production conditions are genuinely determinate of prices (and values), whether "prices" means "market" or "long-run average."[100]

* * *

It is now possible, having a clearer view of Marx's framework in mind, to discuss key alternative Marxist theories of profit, accumulation, tendency, and crisis. Part III will open with an overview of the problem in Chapter 5, using both Marx's formula for the rate of profit and an alternative annual decomposition. This chapter will also include a specific discussion of crisis and of the status of production and circulation in Marxist economic theory. Chapter 6 will analyse demand-side theories in detail, and it will also outline a position on the productive-unproductive labour distinction. Chapters 7-8 will analyse in detail rising composition of capital and falling profit share theories, respectively.

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[100] Apropos of this, it is worth noting that some supporters of the labour theory of value emphasise the labour value-market price causal route. See Farjoun and Machover (1983), Mandel (1981: 28-30), Ochoa (1992: 134-36, 145), and Shaikh (1990c: 307).

Part III
THEORIES

5

Over-Accumulation and Crisis

1 Unravelling the Threads

A substantial body of work in the Marxist tradition exists on profit, accumulation, and capitalism's immanent tendencies. The strengths of the tradition in this arena, and its evident ability over the years to rough it against theoretical opponents, are explained by its unerring focus on disturbance, disequilibrium, and disruption, rather than on harmony and equilibrium. Crisis thus emerges as an organising principle for Marxist theories of profit and accumulation. Their interrogation of capitalism is a search for explanations of why "normal" profit-making and accumulation are necessarily pushed beyond their own "immanent barriers" to beget *over-accumulation*: manifest both in crises, short-run "momentary, violent solutions for the existing contradictions, violent eruptions that re-establish the disturbed balance for the time being,"[1] *and* longer periods of weakened profit-making and accumulation.[2] Theories are structured not to demonstrate how the system may resolve "exogenous shocks" but rather how it generates intrinsic destructive tendencies.[3]

This chapter aims to sort through the main features of this dimension of Marxist economics. Chapters 6-8 can then discuss specific theories without inordinate regress to fundamentals and definitions. Two features of the Marxist corpus stand out here. First, Marx's original arguments and formulations, though somewhat

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[1] (*Capital III*: 358, 357).

[2] This broad approach to "over-accumulation" but narrow definition of "crisis" will be adhered to below. "For Marx, long periods of economic decline or stagnation were not 'crises'." (Kenway: 1990a: 110). Others take a broader view of crisis, e.g., Green and Sutcliffe (1987: 239-40). Such differences are not a matter for passionate concern if it is clear when a specific short-, medium-, or long-run interpretation is intended.

[3] See, e.g., Dobb (1937: 80-81).

dated and a little battered in parts, still exert a powerful influence that is not a mere matter of lexicography. Second, Marxist economists have been especially prolific in the years since the radicalisation of the 1960s, qualitatively enriching the tradition's range and sophistication. To accommodate these features, the focus will be on recent alternative views, but these will be organised into traditional themes. While the presentation will not be bibliographic or genealogical, and thus should not be seen as a study in the history of political economy, the thematic approach will make it necessary also to refer to *some* of the earlier seminal contributions. At this stage, theories will not be interrogated empirically but only for their answers to two interrelated questions: "what must occur in reality for the main ideas of the theory to be true, or *vice versa*?" and "is the theory formulated consistently in its own (Marxist) terms?"[4]

Before beginning to unravel the main themes, it will be useful briefly to suggest what the various approaches broadly within the Marxist tradition have in common, apart, that is, from the disposition described in the first paragraph. Most clearly follow Marx himself and stress the importance of a social perspective.[5] To a greater or lesser degree, they integrate social, political, historical, and cultural-ideological factors into their economic analysis. The approach is unlike that of neoclassical economics and cannot be reduced to the methodology of individual (subjective) decision-making.[6] All would reject the premises of Say's Law and Ricardo's advocacy of them, perhaps differing merely in the emphasis given to particular reasons for their rejection.[7]

Few Marxists would disagree over the general importance of profit-making and accumulation, nor would they dispute that rate of profit is pivotal in transmitting the problems generated by the accumulation process, acting as both effect and

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[4] The first question is a variation of the retroductive arguments employed by Bhaskar, among others. See Collier (1994: 22-25, 162-63) for definitions and references. See also Sayer (1979: 40-14).

[5] See Mandel (1990: 9), who characterises Marxist economics as the effort to explain the "*social economy*," and Glyn (1990b: 274). See also Chapter 1§5 and Chapter 3§2.

[6] The "analytical Marxism" of Roemer and Elster notwithstanding. Hunt (1992: 105) rightly asks if this school is Marxist in any meaningful sense. In other respects, the "Marxist" net will be cast quite widely here and may catch some who would perhaps prefer to be called neo-Marxist (e.g., Weisskopf 1992: 13; 1988: 68-69) or just radical.

[7] See, *inter alia*, (*TSV II*: 499-505). See also, e.g., Crotty (1987: 72-77), Dobb (1937: 40-43, 115-17), Howard and King (1992: Chapter 5), Hunt and Sherman (1981: 444-47), Kenway (1990a, 1980), King (1995b: 180), Mandel (1978a: 23-24), Sweezy (1942: 136-38), Sherman (1991: 50-56, 196-97; 1976: 35-38, 46), and Tsuru (1952).

cause. Ultimately, a reduced profit rate will mean that the system will be not sustain its previous level of activity. The

> "...intrinsic proposition of the Marxian approach to macroeconomic dynamics...[is that the] pace of the economy is driven by the rate of capital accumulation while capital accumulation in turn is fundamentally conditioned by the level and stability of capitalist profitability. As profits go, in short, so goes the economy. In order to analyze crisis, therefore, it is essential first to determine the sources of declining profitability and then go from there to trace through the connections from profitability to accumulation to economic growth."[8]

It is understood that sharpened cyclical crises, typified by take-overs, business bankruptcy, and financial panics, will ensue when a fragile and declining rate of profit, together with an inability to generate a sufficient mass of profit, runs up against the rigid financial commitments of the contract-credit system.[9] Few Marxists would disagree either over the effects of short-run and longer crises: slower or abruptly retarded accumulation and investment, lower economic growth rates and depressed demand (overproduction of commodities), increased unemployment, and intensified social and class conflict. It is also common for Marxists accept that crises can have cathartic effects for capitalism as a whole. Inefficient competitors will be wiped out, wages may be reduced while labour discipline is tightened, and relative raw materials costs for key industries can fall, etc., and results such as these can stimulate an upswing based on a (temporarily) higher rate of profit.[10]

These views, give or take some nuances, are the shared Marxist inheritance. Where the main alternative Marxist perspectives diverge is in nominating,

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[8] Bowles, Gordon, and Weisskopf (1987: 44). Alternatively: "...fluctuations of the average rate of profit are in a sense the seismograph of what happens in the system as a whole" (Mandel 1990: 32); "...profit making is the fundamental aim of capital accumulation, estimates of the rate of profit give a basic indication of the health of capitalism: they act as its thermometer" (Green and Sutcliffe 1987: 301). See also Dobb (1958: 45-46), Laibman (1992: 91, 1987: 33), Sweezy (1942: 143), and Chapter 3§§2-3.

[9] I will elaborate in §6. However, see, e.g., (*Capital I*: 236), (*Capital III*: 362-63), (*TSV II*: 511-15), and (*TSV III*: 122). Differences in emphasis over the role of financial variables can arise. See, e.g., Dobb (1937: 117-18).

[10] See, e.g., Howard and King (1992: 14) and Mandel (1981: 50-51).

explaining, and attributing weight to long- and short-run problem tendencies that are generated by capitalism. Which immanent tendencies exist (or do not)? Which are dominant? How are the tendencies generated? How do they manifest themselves in crisis? Moreover, the differences tend not to be over mere degrees of emphasis. In any concrete situation, for some views to hold others must be denied. These, then, are the issues that will be addressed in the following thematic outline.[11] Following chapters will delve further into the arguments, theories, and the writers identified with them.

2 Principal Locations and Variables

Two fundamental types of tendency are said to be generated by the capitalist economic mechanism: tendencies entailing a falling rate of profit and tendencies making it difficult for profit to be realised. Each of these major threads is tied to a characteristic form of crisis. The first form is underpinned by a reduction of the profit rate in production and distribution.[12] Realisation crises, however, occur when the rate of profit ultimately falls because of insufficient demand for products in circulation. Typically, the former is said to result from capital being "too weak," while for the latter it is "too strong."[13] Each major thread may be unravelled into two: realisation into underconsumption and disproportionality; the falling rate of profit into rising capital composition and over-accumulation of labour power.[14]

The circuit of capital framework given in Chapter 3 will be used as an aid to exposition:

$$M^*\text{--}M\text{--}C\{MP, LP\}\ldots(P)\ldots C'\text{--}M'\text{--}M^{*\prime}$$

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[11] See, especially, Howard and King (1992: Chapters 1, 4-8, 16; 1989: Chapters 6, 16). See also the following summaries: Alcaly (1978: 15-22), Bowles, Gordon, and Weisskopf (1987: 42-47, 53-57; 1985: xv-xviii), Devine (1987: 19-31), Glyn (1990b: 279-83), Gordon (1990: 129-40), Green and Sutcliffe (1987: 301-05), Norton (1992: 155-93), Shaikh (1978c: 219-41), Sherman (1991, *passim*; 1988: 94-99; 1976: 102-120), Weisskopf (1978: 241-60), Wright (1977: 195-231). See also Dobb (1963a: 281-319; 1958: 37-52; 1937: Chapter 4), Foley (1986: 42-55), Mandel (*inter alia*, 1990: 31-34; 1981: 38-56), and Sweezy (1942: Part 3).

[12] See §4, which takes up the awkward issue of separating these two locations.

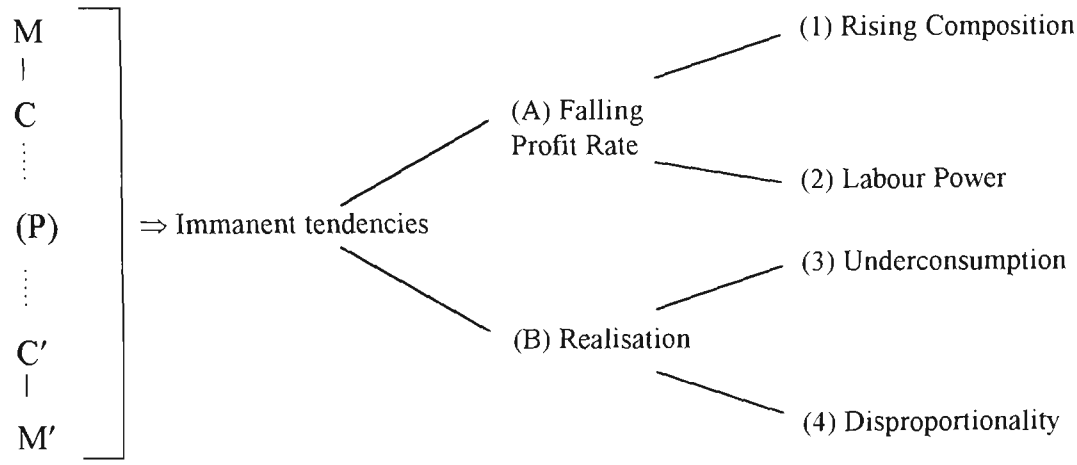
[13] Bowles, Gordon, and Weisskopf (1985: xvi).

[14] Howard and King (1992: 11), following Sweezy (1942: 145-46, 147-89). See also Dobb (1958: 37-52) and (*Capital III*: 352).

Initial emphasis, however, will be on the M...M' segment: the locus of the tendencies generated in production and circulation (exchange) just now been identified. **Figure 5.1** is also offered as a first point of reference. Acute short-run problems associated with financial variables will be left for §6, while longer-run issues to do with the internal and external financing of accumulation will be developed in Chapters 9 and 11.

FIGURE 5.1

Tendencies and Crises (1)



Two manipulations of the rate of profit will be used to illuminate the discussion. The first flows directly from Marx's format and is a traditional vehicle for illustrating tendencies and counter-tendencies, as well as counterposed theories and arguments. Unfortunately, this framework is not always adequate. It should be remembered that the *annual* form of the profit rate is the only operationally significant one.[15] Confusion can reign if single-turnover *versus* annual and stock *versus* flow distinctions are not painstakingly clarified. This is why I will also use an alternative decomposition of the rate of profit. It will become clear that this decomposition offers insights that are not so obvious in either Marx's single-turnover or annual formulations. In particular, the central but often unacknowledged importance of the output-capital ratio will be shown.[16]

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[15] (*Capital III*: 167).

[16] Definitions of variables and symbols will not be repeated if these were given in Chapter 3.

(i) The annual rate of profit in Marx's framework (M)

In annual form, Marx[17] presented the rate of profit as:

$$P' = S/C_a = S/(c+v) = ns/(c+v) = np' \qquad (5.1M)$$

where the assumption that the entire stock of capital advanced (C_a) uniformly turns over in one year is dropped. The surplus value (s) produced in one turnover of variable capital (v) is multiplied by the number of turnovers in a year (n) to obtain the annual flow of surplus value (S). This form of the profit rate also may be written as:

$$P' = ns'/(c' + 1) \qquad (5.2M)$$

where the ratio s' is the rate of surplus value or exploitation (s' = s/v) and the ratio c' is the value composition of capital (c' = c/v). It will be recalled from Chapter 3§3(ii) that s/v and the annual flow ratio of income shares (S/V) are equivalent, but they are different from the annual rate of surplus value (S' = ns'). Hence, if we ignore the 1 in the denominator for convenience, the proportionate change in the rate of profit (P'*) is determined by the proportionate changes in the number of turnovers (n*), the rate of exploitation (s'*), and the value composition of capital (c'*).[18]

The value composition of capital itself reflects relative changes in the values of the components of the capital advanced (c+v). In Marx's scheme this is the change in average unit values of means of production to the change in average unit values of the bundle of wage goods commensurate with the money variable capital advanced.[19] In turn, these changes are a function of productivity developments in capital goods industries and wage goods industries, respectively. Hence:

$$c/v = (c_p u_c)/(v_p u_v) = (c_p/v_p)(u_c/u_v) = c_p'.u' \qquad (5.3M)$$

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[17] See Chapter 3§1 n. 23, which explains that Engels can be thanked for additions to the third volume of *Capital* that present Marx's formulae in annual terms.

[18] The asterisk (*) will be used consistently to show proportionate changes in any variable or ratio, except when it is used in the circuit form (where it represents financial capital).

[19] See, e.g., (*Capital III*: 244-45, 342-43)

where c_p' is an index of the physical composition of capital (c_p/v_p)[20] and u' is an index of relative unit values of constant (u_c) and variable capital (u_v).

The rate of profit now can be shown more completely to be a function of four key variables (ratios):

$$P' = ns'/(c_p'u' + 1) \qquad (5.4M)$$

and the proportionate change in the rate of profit is determined by the relative magnitudes of the proportionate changes in the four variables, the annual number of turnovers (n*), the rate of surplus value or exploitation (s'*), the physical counterpart of the value composition of capital (c_p'*), and an index of the relative unit values of constant to variable capital (u'*). Because it was constrained by the one-year assumption, Marx's discussion of tendency and counter-tendency focussed principally on s'*, c_p'*, and u'*. He held that changes in these variables would be generated by the productivity increases flowing from the technological change intrinsic to capital accumulation.

To help in understanding later arguments, two additional explorations will be completed now. First, the physical composition of capital may be decomposed to yield:

$$c_p' = c_p/v_p = c_p/(wl) \qquad (5.5M)$$

where the denominator shows the labour time (l) bought with a given variable capital advanced (v) at a given real wage (w).[21] The real wage is defined as the physical wage goods bundle earned per unit of labour time ($w = v_p/l$). At a given real wage, any change in c_p' will be due to a change in the ratio of the stock of physical capital advanced to the flow of labour time in one turnover of v. This ratio (c_p/l) may be imagined as a multiple of Marx's key variable, the technical composition of capital (c_t'). The technical composition is best given in stock terms,

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[20] The reason for inserting this term into the discussion will become clear.

[21] Armstrong, Glyn, and Harrison (1984: 462) use the term product wage to capture the same concept, as does Lowe (1995: 126).

as the number of workers needed to run a given quantity of machines at a given point in time or on a given day.[22]

Second, the number of turnovers per annum (n) also can be shown as a direct function of the growth in productivity. Consider the case of a constant flow of labour time in given turnover (l) corresponding to a given variable capital advanced (v). Productivity growth means that it will now take a shorter time to produce the commodities needed to cover the corresponding wage goods bundle, at the prevailing real wage. With a given amount of labour time for each production cycle, the time for each cycle will fall in inverse proportion to the increase in output per labour time (labour productivity). Accordingly, the number of production cycles (turnovers) each year (n*) will increase *pari passu* with the average proportionate increase in labour productivity for the year $(Y_p/L)^*$. A shorter cycle implies also that more labour may be employed each year, since a given stock of variable capital is now capable of supporting a greater annual flow. A given quantum of labour (l) multiplied by an increased number of turnovers per year (n) gives a bigger annual flow of labour time (L = nl). Thus the aggregate labour value added to annual output (L=Y) will also increase. However, the value added to each unit of output will fall, since productivity (Y_p/L) has risen.

Marx and later Marxist theorists have almost always neglected change in the turnover variable (n*). Yet unless this factor is considered, the full productivity effects of technological change on the rate of profit and output will not be expressed.[23] I will leave aside the effect of changes in circulation time on the number of turnovers in a given year. It is worth noting, however, that, if demand falls, commodities will spend a longer time in circulation and the length of turnover

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[22] See, e.g., (*Capital I*: 762), (*Capital III*: 244), and (*TSI' II*: 455). See also n. 28 and Chapter 3§3(i). Average stocks are also possible here: e.g., (labour time in hours for a given single turnover period) = (the daily average number of workers) x (the average daily hours worked) x (the number of days in a turnover). The "daily average" is the same in principle as the statistical aggregate "labour force" (ABS 6203.0, 6204.0). As I pointed out in Chapters 2§3 n. 68 and 3§3(i) n. 85, the technical composition becomes a very complex ratio in multi-commodity world. See Chapter 10§6 concerning problems in estimating the technical composition and related ratios.

[23] See Chapter 3§5 and Chapter 7§§2 and 8. Dobb (e.g., 1973: 155, n. *, 156; 1937: 96, n. 2; 108) is one of the few who acknowledges turnover effects on the annual rate of profit. See also Howard and King (1975: 232 n. 25) and Robinson (1966: 7; 1959: 105).

time will be extended accordingly. This will act as a counter-tendency to the various effects of productivity growth.[24]

(ii) A preferred alternative decomposition of the rate of profit (A)

A less roundabout route to the same destination is possible if (i) all variables are presented in annual form from the start, and (ii) the separate role of variable capital advanced is dropped. I have argued in Chapter 3§5 that variable capital advanced is a problematic concept. While it may remain, embraced within total capital advanced (C_a), it is quantitatively insignificant. The alternative is to exclude it and to define capital advanced purely as capital tied up in means of production. The convention in empirical work seems to be to do the latter. Not only does this avoid the "conceptual problems that arise in connection with the troublesome concept of a stock of 'variable capital'," but it also recognises that "financial capital tied up in short-term securities to meet payrolls is negligible in comparison to that tied up in long-term physical plant and equipment." Leaving it out, therefore, "seems appropriate for modern industrial conditions."[25]

The following decompositions[26] of the rate of profit are now possible:

$$P' = \Pi/C_a \qquad (5.1A)$$

$$P' = (\Pi/Y)(Y/C_a) \qquad (5.2A)$$

Either prices or labour values may be used here.[27] If aggregate labour values are used, the annual flow of new (living) labour hours (L) and surplus value (S) replace

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[24] Production and circulation effects are noted by Engels (*Capital III*: 163-64). O'Hara (1995) delves into the circulation, but not production, effects of turnover time. Other discussions of turnover also focus on less direct effects on the rate of profit than the one highlighted here. See, e.g., Grossmann (1992: 140-44), Haass (1992), and Mandel (1978b: 117, n. 5; 1975: Chapter 7). However, as Dobb (1937: 98, n. 1) noted: "For Marx, only the *value* of the constant and the turnover of the *variable* affected the rate of profit directly."

[25] Laibman (1992: 232). "In U.S. manufacturing in 1977, there was almost $25,000 tied up in machinery and equipment for each production worker; this would be almost one hundred times the funds required to service a single paycheck (*Statistical Abstract of the United States, 1980*)" (Laibman 1992: 232 n. 1). Of course, companies will hold more than one "paycheck" as working capital for wage payments. See Chapter 3§5.

[26] I suspect that Dobb, e.g., (1958: 37-52), is one of the original sources of the following approach, which is now common. An influential mathematical-symbolic presentation is given by Weisskopf (1979, 1978). See Chapter 7 n. 22. See also Laibman (1987: 35), Menshikov (1975: 119-20), and Chapter 9 n. 39.

[27] Although I favour prices, the value form also will be presented. This will allow theories and arguments presented in value form to be assessed in later chapters, especially in Chapter 7.

the value added component of annual output (Y) and profit (Π), respectively. The term (Π/Y) is the profit share in the value of output, a proxy for Marx's rate of surplus value. A finer decomposition of the profit share is also possible (see §3). The ratio (Y/C_a) or (L/C_a) is the price or value output-capital ratio (in value added form). From (5.2A), this can be decomposed further, so that:

$$P' = (\Pi/Y)[(Y_p/C_p)(U_y/U_c)] \tag{5.3A}$$

thereby exposing the physical output-capital ratio (Y_p/C_p) and the ratio of average unit values of aggregate output to capital stock at replacement or reproduction cost (U_y/U_c). (Note that $U_y = Y/Y_p = L/Y_p$ and $U_c = C_a/C_p$.) The physical output-capital ratio from (5.3A) can be decomposed further, so that:

$$P' = (\Pi/Y)\{[(Y_p/L)/(C_p/L)](U_y/U_c)\} \tag{5.4A}$$

thereby showing a term for annual labour productivity (Y_p/L) and the annual physical capital stock-labour flow ratio (C_p/L). This last ratio may be regarded as an annual multiple of Marx's technical composition of capital.[28] In labour values, it is also possible to consider this ratio as a physical capital-output ratio. Significant theoretical issues concerning this ratio will be discussed in Chapters 7 and 10, especially in Chapter 10§6.

The alternative decomposition clearly has yielded the same basic influences on the rate of profit that were identified in Marx's framework in part (i) of this section. These are proportionate changes in the following variables: (i) labour productivity $(Y_p/L)^*$; (ii) the technical composition, in so far as this translates into $(C_p/L)^*$; (iii) relative unit valuations in average output and constant capital $(U_y/U_c)^*$, which reflect relative productivity changes in all industries compared with those producing means of production; and (iv) the profit share $(\Pi/Y)^*$, which partly reflects productivity changes in wage goods industries compared with all others and partly the distributional struggle between capital and labour. Note also that the

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[28] (C_p/L) = (year-end, -start, or -average physical capital stock)/(the average daily number of workers x the average hours worked per day x the average number of days worked per year), assuming that the physical (wage goods) correlate of variable capital advanced is either (i) negligible within C_p, or (ii) it is excluded from C_p.

first three of these ratios resolve into the physical output-capital ratio (Y_p/C_p) and its price (Y/C_a) or value counterparts (L/C_a).

The substantive dependence of the four itemised ratios on social-technical production conditions and income distribution, irrespective of their price or value form, reinforces the arguments of Chapter 4§6. Conditions (i) and (ii) are identical. Different price and value magnitudes would be given for the ratios shown at (iii) and (iv), as Chapter 4 established clearly. However, the conditions are given as proportionate changes not absolute magnitudes. It is reasonable to think that in both instances proportionate changes in price and value magnitudes would be in the same direction, at least. Additional influences on the rate of profit will be explored in §§3-5 and later chapters.

3 Declining Profit Rate: Rising Composition

The first major thread among Marxist theories of a declining profit rate is Marx's tendency of the rate of profit to decline because of a rising composition of capital. The dominant variable affecting the profit rate here is C_p/L. Behind it stands a rising technical composition of capital (c_t'). The location of the mechanism generating the tendency is the production phase of the circuit (P). Marx elaborated this tendency in a way that left little doubt that he also considered that (i) the rate of exploitation would also rise, and (ii) the relative unit values of constant to variable capital would decline. These are precisely the two major counteracting tendencies Marx specified clearly.[29]

However, Marx did not complete his work and this tendency is, at best, incompletely specified. The full productivity effects of technological change are not dealt with, save for a few comments in apparently less significant parts of the exposition.[30] An important reason for this is the imposing influence of the one-year straight jacket. In particular, this precludes consideration of reduced turnover time in production. The fundamental necessary condition, which must prevail if the rate of profit is to decline due to a rising composition of capital, is thus not addressed at

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[29] (*Capital III*: 161, Chapter 14). See Chapter 7§1.

[30] See, e.g., (*Capital III*: Chapter 4‡, 142‡, 242-43, 252, 334-35‡, 424-25), and (*TSV III*: 229, 390-91).The symbol ‡ indicates an editorial insertion by Engels.

all by Marx. It is easiest to see the problem in the alternative decompositions of the rate of profit (see equations 5.3A and 5.4A). Now, if we follow Marx's specification, both the profit share (Π/Y) and the ratio of unit values (U_y/U_c) must be allowed to rise. Hence the minimum *necessary* condition for a falling profit rate is that the physical output-capital ratio (Y_p/C_p) should fall. For this fall to be *sufficient* for a falling profit rate, it must be proportionately greater than the combined effects of the proportionate increases in the profit share (corresponding to s') and the valuation ratio (corresponding to u').

A falling physical output-capital ratio means that there must be diminishing returns to accumulation: each successive increment of physical capital advanced for production will result in a smaller increment in physical output. (Returns to accumulation are defined here to include all possible variations on capital-deepening, including technological change and possible economies of scale.) For accumulation to exhibit diminishing marginal returns, labour productivity must grow by less proportionately than the capital-labour ratio. Thus, for Marx's tendency to hold, it is necessary that:

$$(Y_p/C_p)^* < 1 \Rightarrow (C_p/L)^* > (Y_p/L)^* \qquad (5.5A)$$

Why any of this should be so is under-theorised within Marxism. It is not that Marx's tendency is an impossibility. It can even be shown to hold with increasing returns to scale, provided the proportionate increase in the technical composition and the proportionate fall in the output-capital ratio are large enough. However, once the full productivity effects of accumulation are accounted for, the sufficient conditions become much more difficult to achieve in the terms that Marx specified. "[D]iminishing productivity of investment" may result during a long wave of capitalist expansion "as the stock of inventions becomes gradually exhausted." However,

> "...although plausible, such an argument may not always hold in practice...[T]here is simply no reason to suppose that the physical productivity of investment in manufacturing industry (which is the arena to

> which this analysis properly applies) will suffer a *permanent* decline. Marx himself provided no such reason, and neither has anyone else."[31]

The same results are readily demonstrable within the traditional Marxist form of the rate of profit given in §2(i).[32] While these results cast doubt over the necessity of the outcome, it is nonetheless true to say that Marx's discussion of the tendency, "shorn of its determinism and expressed in price rather than value terms, provides a useful framework in which the effects on the profit rate of distributional conflict and technical change can be analyzed."[33] Of course, this can be accomplished only in an annual framework that takes account of stock-flow distinctions.

4 Declining Profit Rate: Falling Profit Share

The rate of profit also may decline because capital appropriates a reduced share of the value newly added in production: i.e., the rate of exploitation is reduced. The dominant variable here is (Π/Y). Closer inspection, however, reveals that there may be two different locations in which a tendency for the rate of exploitation to fall may be generated. Two more threads are thereby untangled, as can be seen in the following decomposition of the profit share:

$$\Pi/Y = (Y-V)/Y = [1-(V/Y)] \tag{5.6A}$$

where V is the annual flow of variable capital (wages). Dividing both terms of the fraction by the annual flow of labour time (L) gives:

$$\Pi/Y = [1-(V/L)/(Y/L)] = 1 - w/(Y/L) \tag{5.7A}$$

where w is the average wage (e.g., the annual flow of wages divided by the total hours worked).[34] If there are no relative changes in price or value among the variables, the ratios and rates can be considered to represent physical quantities (i.e., w_r is the real wage rate and Y becomes Y_p). Marx defined the value of

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[31] Rowthorn and Harris (1985: 349). See also Dobb (1937: 97). A detailed discussion of views will occur in Chapter 7.

[32] The two approaches were shown to be the same in §2(i). See also Chapter 7§§2-3.

[33] King (1995b: 180).

[34] See, e.g., Green and Sutcliffe (1987: 305), King (1990a: 168), and Moseley and Wolff (1992: 2).

labour-power as the average labour time needed to produce a physical bundle of wage goods, that is, "...the value of the means of subsistence habitually required by the average worker."[35] Wages, the price of labour-power, may or may not correspond to this value. The real wage, the quantity of wage goods that the money wage could buy, is determined jointly by the nominal price of labour power and the prices of the means of subsistence.

The first possibility identified by the decomposition of the profit share is that real wages (w) may rise so as to reduce Π/Y. This could be due to increased costs or lower productivity in wage-goods industries or for imported wage goods.[36] Wage pressures could also be generated by "a rate of capital accumulation fast enough to exhaust the reserve army of the unemployed"[37] and increase the bargaining power of workers. Such increases in wages would show up in the M - C (LP...) phase of the circuit. The second possibility identified is that lagging average productivity, and not real wages *per se*, may be the effective cause of a shift in new value added away from profits. Such problems may arise from struggles over work intensity or may simply be due to slackening levels of technological change relative to other variables. The location of this tendency is in production itself (P), and the operative variable is clearly output per labour hour (Y_p/L).

In both cases it can be seen that the real wage and productivity interact to determine the *necessary* (but not sufficient)[38] condition of a falling profit share. It should be remembered that both real wages and productivity are likely to grow over time. At issue is which variable is the dominant one.[39] It should also be remembered that Marx's deliberations on productivity and wages need to be interpreted in their expository context. For example, his comments in the first volume of *Capital* focus on the rate of surplus value, not the rate of profit.[40] Contemplation of annual productivity increases that will increase the rate of profit,

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[35] (*Capital I*: 655).

[36] See §5(i). Increased costs in wage-goods industries show up in the M-C(LP) phase of *their* circuits, while lower productivity would be felt in their (P) phase.

[37] Howard and King (1992: 11; see also 13).

[38] As with the rising composition case, sufficiency is obtained (i) when the proportionate change in the necessary variable (condition) prevails over counteracting proportionate changes, or (ii) it combines in a dominant way with other changes to this effect.

[39] As is also the case with (Y_p/L) and (C_p/L) in determining (Y_p/C_p).

[40] (*Capital I*: Parts 3-4; see esp. Chapter 17).

while leaving the rate of exploitation unchanged, is rarely explicit.[41] Similarly, the prevalence of the one-year assumption in *Capital III* precludes such contemplation outright.

To summarise the discussion, the following decomposition of the profit rate is presented:

$$P' = (U_y/U_c)[(Y_p/L)/(C_p/L)]\,[1 - w_r/(Y_p/L)] \qquad (5.8A)$$

This expands on the decomposition at (5.4A) above and shows that productivity change is significant in determining both the profit share and the output-capital ratio.

5 Problems of "Realisation"

(i) "Realisation" and the rate of profit

For realisation problems, too, "[t]he starting point of the crisis is in the decline in the rate of profit."[42] However, the decline in the rate of profit is at the *end* of the story, and the path to this point is distinctly different from those discussed in §§3-4. In this instance, the tendencies inherent in the system make it increasingly difficult for capitalists "to realise the full value of the commodities which they produce."[43] The reason is

> "a general shortage in effective demand for commodities, not indeed in the sense that the demand is insufficient to buy all the commodities offered, but that it is insufficient to buy them all at a satisfactory rate of profit."[44]

Realisation problems will manifest themselves in the C' - M' phase of the circuit. However, their cause may arise at any point from M* to M*', as will be explained in the discussion of disproportionality and rising exploitation that follow.

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[41] However, see (*Capital I*: 752-53). See also the important discussion by Dobb (1963a: 282-85, esp. 284 n. 1, 288).

[42] Sweezy (1942: 146).

[43] Sweezy (1942: 156).

[44] Sweezy (1942: 146; see also 156-89).

Before moving on to discuss the different demand-side explanations of over-accumulation and crisis, it is important first to distinguish two meanings of "realisation" that may not be obvious immediately: (i) realisation difficulties themselves, and (ii) how these may come about. Unfortunately, this distinction is not always clearly made, and confusing explanations can result. To see why, it is necessary to introduce the notion of potential *versus* actual output, which corresponds also to potential profit (surplus) *versus* actual profit. Compare the following decompositions of the rate of profit, the first representing potential and the latter being its actual counterpart:

$$P^{p\prime} = \Pi^p/C_a = (\Pi^p/Y^p)(Y^p/C_a) \qquad \text{(Potential}^p\text{)}$$

$$P^{a\prime} = \Pi^a/C_a = (\Pi^a/Y^a)(Y^a/C_a) \qquad \text{(Actual}^a\text{)}$$

In period of crisis, relatively lower economic growth, or stagnation, the actual rate of profit will be lower that the potential one. Since we are dealing with the potential and actual output corresponding to a given capital advanced, C_a will be the same in both decompositions. However, it is obvious immediately that $\Pi^p > \Pi^a$ because production levels are beneath their potential: i.e., $Y^p > Y^a$. If we assume for the moment that profits and output have fallen from their potential level by the same proportion, the respective profit shares will be equal: i.e., $(\Pi^a/Y^a) = (\Pi^p/Y^p)$.[45] Therefore the difference between the respective profit rates is explained by the obvious differences in the actual and potential output-capital ratios. This may be explained further if the actual profit rate is decomposed to account for capacity use:

$$P^{a\prime} = (\Pi^a/Y^a)(Y^a/C_a) = (\Pi^a/Y^a)(Y^a/C_u)(C_u/C_a) \qquad (5.9A)$$

where the ratio C_u/C_a stands for capacity use and Y^a/C_u represents the ratio of actual output to capital in use. It is easy to see that the ratio of actual output to the capital in use is equal to the potential output to the total capital advanced: i.e., $(Y^a/C_u) = (Y^p/C_a)$. Hence, the operative ratio is the capacity use ratio.[46] This

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[45] However, see discussion below and in n. 69.

[46] See Weisskopf (1978: 242-44, 246-47) for a slightly different approach that is, however, equivalent in principle. His decomposition is $r = \Pi/K = (\Pi/Y)(Y/Z)(Z/K)$, where the first term is "the share of profits in

concept or a correlate is thus crucial in all demand-side theories.[47] "Realisation problems" must be interpreted here as referring to the difference between "actual" variables and the "potential" that could be realised were the economy operating at its social potential. (It is worth noting that *all* Marxist theories, and not just demand-side ones, would agree that such problems of "realisation" arise in crises, whatever their particular causes may be.)

Alternatively, when it refers to the way crises, lower growth, or stagnation are caused, "realisation" has a more specific functional meaning.[48] The necessary link to demand-side explanations of over-accumulation is also clearer. Here the focus is in the role of "realisation" problems in the *transition to* crises, lower growth, or stagnation. Compare the two profit rate equations below:

$$P^{r'} = \Pi^r/C_a = (\Pi^r/Y^r)(Y^r/C_a) \qquad \text{(Realised}^r\text{)}$$

$$P' = \Pi/C_a = (\Pi/Y)(Y/C_a) \qquad (5.2A)$$

The first is the realised rate of profit, while the second is the rate of profit in production from equation (5.2A) in §2(ii). Note, in particular, that the latter rate (P') is conceptually and practically different from the potential rate given above. In fact, both $P^{r'}$ and P' are "realised" and "produced" versions of the actual rate ($P^{a'}$). Their differences were ignored above to emphasise the cleavages between actual and potential levels of output and surplus that occur in a contraction.

However, to explain the transition to a contraction, demand-side, or "realisation," theories focus on the cleavage that opens up between the rate of profit in production (P'), which capital hopes to realise, and the rate that it does actually realise in product markets ($P^{r'}$). Since $P' > P^{r'}$ is one among a number of symptoms of supply having outstripped effective demand (over-production), this cleavage will be a short-lived one. It foreshadows a cutback in output and reduced use of productive capacity. The result, an economy operating at less than its full

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net income," the second is "the average rate of capacity utilization," and the third is "the average ratio of productive capacity to capital stock" (1978: 242). Weisskopf's approach has been used widely (e.g., Howard and King 1992: Chapter 16; Devine 1987: 22-25). My approach accords with Gordon's (1990: 130). See Chapter 9§2(ii).

[47] Foster (1987: 63), Sherman (1991: *inter alia*, 201, 236-37), and Sweezy (1981a: 39, 43). See also Weisskopf's precis (1978: 242-44, 246-47).

[48] Chapter 3§6(i) and Figure 3.6 are useful points of reference.

potential, will mean that the actual rate of profit ($P^{a'}$) will fall below the potential rate ($P^{p'}$).

(ii) Disproportionality

The disproportionality variant of "realisation" problems is the harder to nail down because it is used to refer to two distinct aspects of the unplanned nature of capitalist decision-making: (i) disproportionalities between industries and sectors,[49] and (ii) a rejection of the idea the system can effectively or harmoniously absorb (equilibrate) disturbances. In Marx's view, the second aspect is invariably associated in capitalism with the rigidities of the contract-credit system and financial commitments (see §6). Any crisis, including one generated by a falling rate of profit in production, involves over-production of commodities. Realisation problems appear because production is reduced, demand declines, unemployment rises, etc. A crisis necessarily erupts somewhere: disproportionalities are inherent in the way acute crises are triggered and then transmitted.[50]

The first aspect of the disproportionality variant suggests that crises may be caused by the impact on realised profits of substantial over-investment, over-capacity, and/or over-production in major industries, including those related to export demand. Such imbalances were seen widely by Marxists to be the inevitable result of the anarchy of capitalist production.[51] Realised profits in particular industries may be cut also by significant or sharp price changes, which may affect critical raw materials such as oil. Commodities traded internationally are especially vulnerable to price changes. General fluctuations in a country's terms of trade and exchange rate obviously have an impact.[52] Perhaps the instances mentioned in this paragraph can be called the *differentia specifica* of "disproportionality." The crisis

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[49] (*TSV II*: 521).

[50] Sweezy (1942: 157-58).

[51] Howard and King (1992: 14).

[52] See, e.g., Armstrong, Glyn, and Harrison (1984: 179, 251, Chapter 13, Chapter 16); Bowles, Gordon, and Weisskopf (1987: 46; 1984: 289-95), Devine (1987: 22), Dobb (1963a: 308-09; 1958: 52), Howard and King (1992: 312), Mandel (1978b: Chapter 1 *passim*), Sherman (1991: Chapter 13), Sweezy (1981a: 32). The effects on realised profits mentioned in this paragraph assumes that there is no compensating domestic income redistribution from wages to profits.

possibilities contained in should also be integrated with a rigorous understanding of the action of the multiplier on effective aggregate demand.[53]

However, these diverse instances hardly qualify as the basis of a stand-alone theory of an immanent tendency. Only when the disproportionality is that between Department I (industries producing means of production) and Department II (industries producing consumer goods), in the language of the reproduction schemes Marx introduced in *Capital II*, does "disproportionality" seem to have such a quality.[54] However, this is precisely where it entails the other main thread of realisation crisis: underconsumption. Hilferding, for example, emphasised the element of disproportionality in all crises, thus underconsumption could be regarded as one major subset of it.[55] However, the emphasis also landed on underconsumption, and "the disproportionality variant of realisation theory...sometimes became indistinguishable from a theory of underconsumption." Indeed, for Moszkowska, disproportionality actually "meant underconsumption."[56] Even the definitions blur. "Realization problems are problems of disproportionality," explains Crotty, "between the distribution of income...and the distribution of demand as it is affected by the distribution of income."[57] Though influential at earlier times within Marxist crisis theory, and within the crisis theories of individual Marxists, the disproportionality variant has lost favour throughout this century.[58]

(iii) Underconsumption

Underconsumption tendencies are said to arise in two ways when the accumulation process is pushed beyond its limits. On the one hand, productivity increases that flow from accumulation will raise the rate of exploitation or profit share. For the moment, it is sufficient to point to the terms on the right-hand side

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[53] Howard and King (1992: 14).

[54] I will not pursue the specifics of Marx's reproduction schemes in this treatment, but see Desai (1990a), Harris (1972), Howard and King (1975: 183-95), Kenway (1990b), Mandel (1978a: 27-38), and Rosdolsky (1977: 457-59) for brief accounts.

[55] Howard and King (1992: 11; 1989: 97-98).

[56] Howard and King (1992: 14-15), referring to Moszkowska (1935, 1929).

[57] Crotty (1993a: 6-7). See also Foster (1987: 61).

[58] Howard and King (1992: 109, 312). See also Sweezy (1942: 184-86).

of equation (5.8A) to show that a proportionate increase in labour productivity greater than that in real wages will have this effect.[59] On the other, "...capitalism has an inherent *tendency* to expand the capacity to produce consumption goods more rapidly than the demand for consumption goods."[60] For Sweezy, the result was likely to be stagnation, "a combination of sluggish growth, rising unemployment, and a chronically low level of utilization of productive capacity," which "has become *the normal condition of capitalist economies.*"[61] Others would disagree with this conclusion, and a short-run or cyclical underconsumption theory can be articulated instead.[62] However, in both cyclical and stagnation versions, underconsumption *manifests* itself in capitalists' inability to realise the desired profit on the volume of production due to inadequate effective demand: i.e., in the C' - M' phase of the circuit.[63] Underlying causes of this, if related to productivity, are located in the production phase (P) and, to a lesser degree, in the M - C phase, in so far as conditions affecting the purchase of labour power affect the social distribution of income.

In Sweezy's underconsumption-stagnation explanation, if (i) production of consumption goods (Department II) grows in proportion to production of means of production (Department I); but (ii) consumption spending falls as a proportion of total output; then (iii) there will be a tendency to overproduction in Department II.[64] In demand (D) and supply (S) terminology, the following disequilibrium will exist:

$$(S_{II}^*/S_I^*) > (D_{II}^*/D_I^*) \qquad (5.10A)$$

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[59] Marx's discussion of an increase in "relative surplus value" is raised in Chapters 6§2 and 7§§1-2. See also Dobb (1958: 40-41; 1937: 97).

[60] Sweezy (1942: 180). See also Sweezy (1981a: Chapter 2), Foster (1987: 61), and the precis by Weisskopf (1978: 243-44).

[61] Sweezy (1981a: 43). Sweezy (1981a: 33, 34-35, 38-39; 1942: 177, 180) thought that underconsumption could cause both stagnation and short-run crises. See also Sherman (1991: 193).

[62] See Sherman (1991: 194-96, 198-207; see also 1976: 102-120) for criticisms of long-run stagnation theories and "An Underconsumptionist (or Realization or Demand-Side) Business Cycle Theory" and model. Dobb (1958: 46 ff.) also sketches such a possibility. See also King (1990a: 201), citing Sawyer (1985: Chapter 3).

[63] Realisation problems in relation to the circuit are discussed by, e.g., Devine (1987: 21-23), Kenway 1990b: 326; 1980: *passim*), Sweezy (1981a: Chapter 2, 1942: Chapter 8), and, briefly, by King (1990b, Vol. III: ix).

[64] Sweezy (1942: 182-83).

where the I and II are abbreviations for the two departments. Supply reductions in Department II will subsequently translate into reduced demand and supply in Department I. Supply will be reduced *pari passu* until the disequilibrium is eliminated at a lower growth rate. According to Sweezy, proposition (i) rested on an historical evaluation of developed capitalist economies.[65] Proposition (ii), which says that production expands at a greater rate than "society's power of consumption," was explained neither by "the absolute power of production nor...the absolute power of consumption but rather by the power of consumption within a given framework of antagonistic conditions of distribution."[66] That is, it rested on a rising rate of exploitation. Together with a contingent assumption that workers consume their wage income entirely and capitalists have a diminishing marginal propensity to consume theirs,[67] a rising rate of exploitation meant that consumption spending (D_{Π}) was bound to decline in relation to supply (S_{Π}).

The two rate-of-profit equations above may be used to explain the mechanics. Constrained consumption levels will first result in overproduction in Department II. The realised rate of profit (Π^r/C_a) will start to fall. Orders for new machines will be cancelled, which will see the process repeated in Department II. "Properly understood, therefore, 'underconsumption' and 'overproduction' are opposite sides of the same coin."[68] Realised profits are squeezed because inventories of unsold goods build up or prices fall to clear excess inventories (or both). Clearly, both Y^r and Π^r will fall to a level below Y and Π. It is immaterial to the explanation which of Y^r and Π^r falls by the greater rate or, consequently, whether (Π^r/Y^r) falls or rises.[69] The important consequences, in any event, are that production and employment will be cut back and that Π and Y will move towards equality with Π^r and Y^r at the lower level corresponding to the demand and supply equilibrium given above.

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[65] Sweezy (1942: 182, 187).

[66] (*Capital III*: 352).

[67] Sweezy (1942: 181-82, 187).

[68] Sweezy (1942: 183).

[69] Generally, aggregate wages do not fall as much as profits in the depth of downturns and wages do not rise by as much as profits in the initial upswing, due to "labour hoarding" (Armstrong, Glyn, and Harrison 1984: 346-47). See also Chapter 10§§4 and 6.

Hence the profit rate in production (Π/C_a) will also be lower, excess capacity will exist, and stagnation will ensue. Without major stimuli such as war, significant technological innovation, or the discovery of new markets, "there is nothing in the logic of the reproduction process to push the economy off dead centre and initiate a new period of expansion" once stagnation had set in.[70] Short-run upswings, however, may be initiated within a period of stagnation by the process of inventory replenishment.[71] What should be noted, in both the transition to long-run stagnation and in the demise of such short-run upswings, are the *necessary* (but not sufficient[72]) conditions of a rising rate of exploitation (profit share), as accumulation is extruded into over-accumulation, and reduced capacity use, as growth declines.

A cyclical model of underconsumption, such as that presented by Sherman, is obviously similar in places to Sweezy's, but it also has important differences.[73] Sherman's underconsumption model proposes a consumption function in which workers' marginal propensity to consume is "significantly" greater than that of capitalists. This, together with an income distribution function by virtue of which the "profit share (and the rate of exploitation) generally rises throughout the expansion and falls throughout the contraction"[74] (and *vice versa*), are sufficient to ensure a declining ratio of consumption to output during an expansion. The model also uses "the simplest version of the accelerator," in which the level of investment demand is a function of the previous change in aggregate demand. "Unlike the long-run stagnation models, this cyclical model makes the investment function one of the key foundations of its theory."[75] It is also possible to include the influence on investment demand of the rate of profit, total profits, or both, but "it would be necessary to assume that the rate of profit is itself a function of the aggregate demand." This, in turn, "emphasizes the role of profit, and its dependence on

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[70] Sweezy (1981a: 39).

[71] Sweezy (1981a: 34).

[72] See n. 38.

[73] Sherman (1991: Chapter 13; see also 1976: 102-120) also introduces the cyclical behaviour of costs into a broader model. I will concentrate on the underconsumption aspects here. Note Sherman's (1991: 204-05) comments on the limits of this model.

[74] Sherman (1991: 200), referring also to Kalecki (1969) and the discussion of Kalecki by Sawyer (1985: Chapters 2 and 4).

[75] Sherman (1991: 201).

realization through aggregate demand."[76] In a lucid outline, Sherman explains how the consumption, distribution, and investment functions interact during the cycle to bring about underconsumption:

> "As recovery begins, national income is rising, including both property and labor income. The rising national income causes more consumer spending, leading to more output demanded. As output demanded rises, this leads -- through the accelerator principle -- to more net investment. The new investment means more employment and income (both wages and profits), which leads to increased spending on consumption and -- through the multiplier -- to a further increase in national income...
>
> "As the expansion continues, the rising output is accompanied by a declining labour share...[I]n the average expansion real wages rise more slowly than do real profits, so the [social] marginal propensity to consume falls...Therefore, the combined result of the behavior of the distribution function and the consumption function is that consumer demand grows, but more and more slowly because of the shifting income distribution.
>
> "The slower growth of consumer demand is reflected in a slower growth of aggregate demand. The accelerator principle says that when aggregate output demanded grows more slowly, net investment will decline absolutely. This decline of net investment means less income and employment, so a contraction begins [and becomes cumulative]."[77]

However, and this is a crucial to distinguish the cyclical from the stagnationist approaches, the anti-cyclical nature of the labour share, which increases in the contraction, acts to increase the social average marginal propensity to consume. This not only helps to arrest the decline in consumption and output, but the "slower decline in aggregate output demanded leads eventually to a small increase in net investment. This sets off the recovery and a cumulative expansion begins."[78]

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[76] Sherman (1991: 202), referring to Kalecki (1969) and Sawyer (1985: Chapter 3). See also Sherman's (1991: 247) conclusion that "profits and profit rates are strongly procyclical."

[77] Sherman (1991: 203).

[78] Sherman (1991: 204).

Now the ingredients of this model are very clear. It turns on a rising profit share as the expansion gathers pace, and it would anticipate realisation problems to manifest themselves as investment declined and output slowed ahead of a cumulative downturn. Clearly, this would show up in declining levels of capacity use (as explained above).

6 Crisis

Marxist theories of capitalist development clash, first, over which of the possible tendencies identified in §§3-5 are thought to exist, and, second, over the degree of emphasis those tendencies should be given. The differences are then complicated because degrees of emphasis may be permitted to alter in specific circumstances. A tendency considered to be dominant in the long-run can be supplanted in a theory by the short-run impact of a less important alternative. Theorists usually present theories of long-run tendencies overlaid by medium- and short-run ones. They also suggest that concrete crises, especially the sharper cyclical ones, have triggers that are difficult to specify without concrete knowledge. Explanations thus become increasingly complex.

To simplify the discussion in the following chapters, theories (and criticisms) will be classified according to which tendency is given dominant explanatory emphasis. Nuances will be considered as *obiter dicta* to the main arguments. **Figure 5.2** summarises the principal threads established above: the rising rate of exploitation (under-consumption) explanation, together with a more general demand-side approach; theories of a rising composition of capital; and rising wage and lagging productivity explanations of a falling rate of exploitation. These four positions dominate contemporary Marxist accounts.[79] Unique disproportionality positions have petered out in recent years, though aspects of the traditional arguments surface within the other explanations (e.g., raw material costs, terms of trade,

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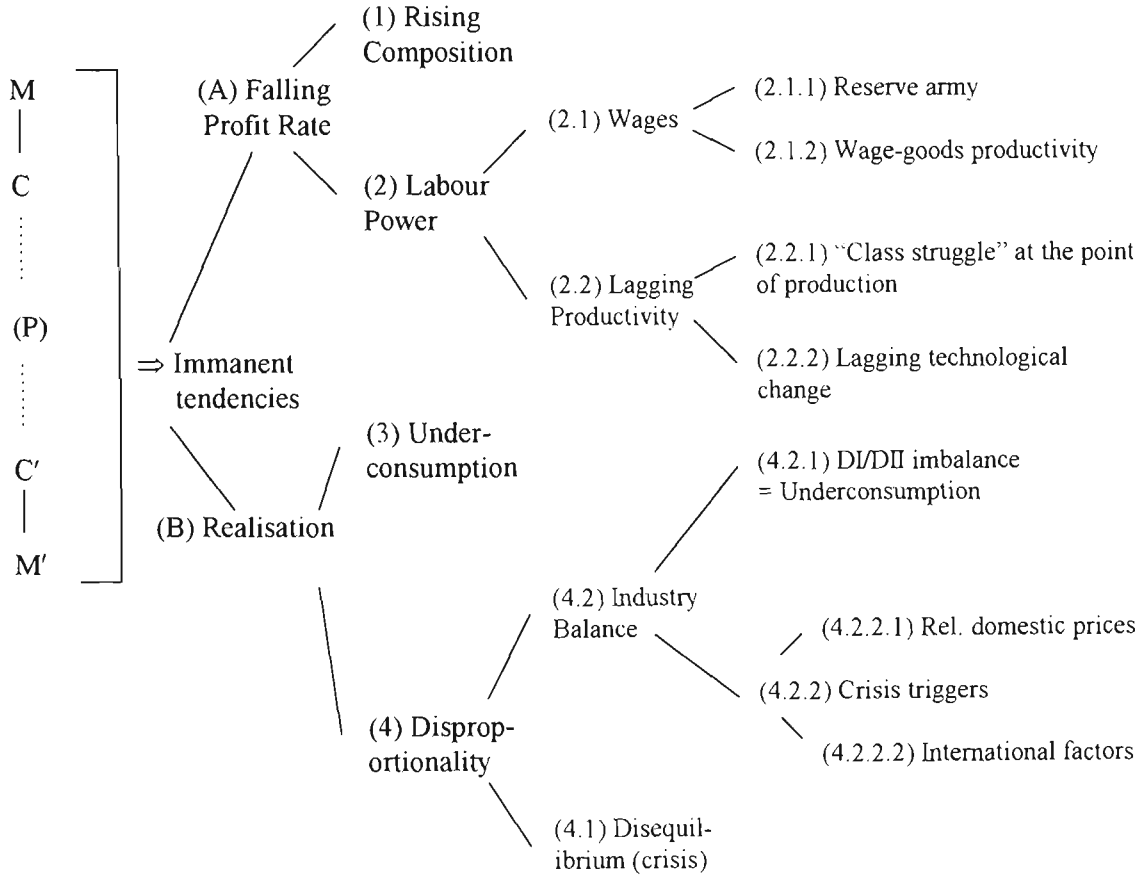
[79] Howard and King (1992: 328). See also Alcaly (1978: 17-18), Glyn (1990b: 281-83), and Weisskopf (1978: 243-44). A word on my use of "over-accumulation" to cover all views is needed. It is probably apt historically to call the rising wage version *the* "overaccumulation" approach (Howard and King 1992:11, 13-14, 109, 318-22; but cf. 330 n. 7). However, Glyn (1990b) applies it to all supply-side views and Foster (1987) to all demand-side views. My use recognises that all approaches (i) hark back to a relative overproduction of capital and (ii) seem to have appropriated the name. See, e.g., Sweezy (1981a: 34).

exchange rates, etc.).[80] The figure demonstrates how the various threads of this approach have been absorbed into other aspects of Marxist economic theory.

FIGURE 5.2

Tendencies and Crises (2)



There is one aspect of over-accumulation and crisis that can, and should, be treated independently of the substantive claims and counter-claims of the theories. In *lieu* of a better name, this aspect may be called crisis denouement: the theory of crisis in its own right. However, Marxists have given the study of crises a particular twist. As they are mainly concerned to explain how over-accumulation hastens the demise of longer periods of capitalist expansion, Marxist theories usually consider crises in the context of the development of, or transition to, longer periods of malaise characterised by weakened accumulation and stagnant growth.[81] This overlap can create some confusion.

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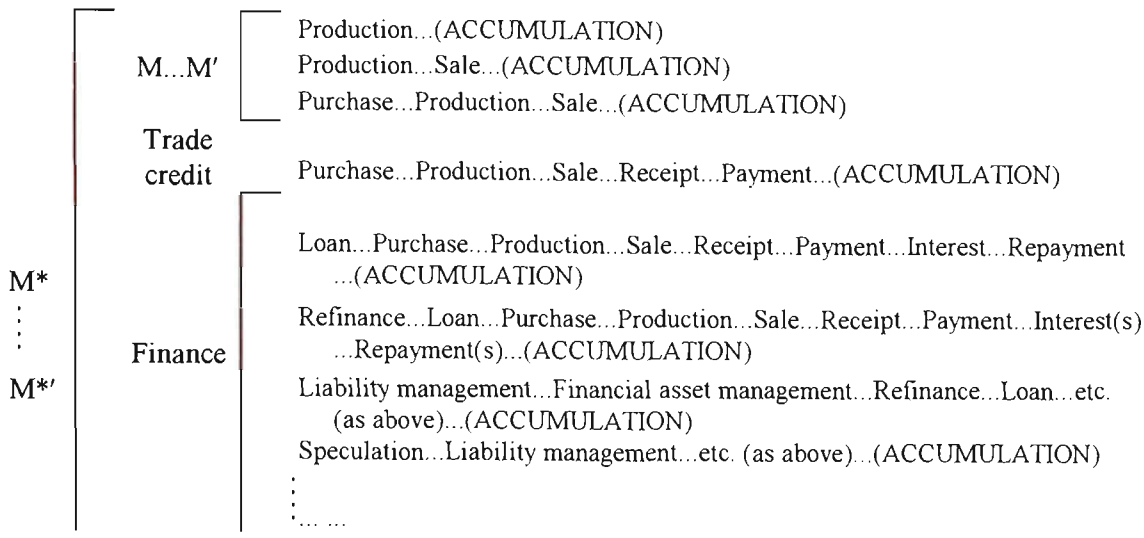
[80] For instance, there is no relevant entry in the *Palgrave: Marxian Economics* collection (Eatwell, *et. al.* Eds. 1990).

[81] See n. 1. Marx also may be interpreted in this way. See, e.g., (*Capital III*: 363).

FIGURE 5.3

Crisis Possibility: Ascending Separations and Obligations



Moreover, while Marx provided an important series of clues, he did not leave "a completed, fully worked-out theory of crisis. His observations on the industrial cycle and capitalist crises of overproduction are dispersed among several of his major books and a whole number of articles and letters."[82] In *Capital I* and *II* he focussed on general features of exchange that made crises possible, disavowing in the process suppositions such as Say's law.[83] **Figure 5.3** summarises the "abstract forms" of crisis as an ascending series of separations in time and space made possible by the various functions of money. Each separation (ellipsis) suggests the *possibility* of rupture, their interlocking nature the probability of contagion.[84] In some parts of *Capital III* Marx linked crises to over-accumulation and capitalism's immanent tendencies, thus going beyond possibilities to discuss the conditions that would make crises a necessity.[85] In other parts of *Capital III*, and in Chapter 17 of the *Theories of Surplus Value*, Marx began do draw the discussion together and made a prescient contribution on the need to integrate financial variables and the contract-credit system. Actual crises, he said, could be explained only "from the

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[82] Mandel (1981: 38).

[83] See, e.g., (*Capital I*: Chapter 3). See also Crotty (1987: 71-77) and Kenway (1990a). See also n. 7.

[84] Marx did not include financial variables at this point in his exposition. However, this is not a matter of principle. Crisis "possibility" prevails at all levels of the figure.

[85] See, e.g., (*Capital III*: 352, 357-59, 365-68).

real movement of capitalist production, competition and credit."[86] Until recently, insufficient explicit theoretical attention has been paid to this contribution.[87]

Other dimensions of the issue also need to be clarified. In particular, long- and short-run tendencies, which presage a longer decline and are a necessary condition for crises, should be distinguished formally from proximate causes of particular crises, though they may also function in this role. As Marx noted, tendencies generated by the economic mechanism themselves feed back as causes of other tendencies, so that "the same cycle of errors is pursued once more."[88] For example, capitalists may for a while try to overcome a falling profit rate by accelerating competitive accumulation. But this can reduce the reserve army, increase wages, lead to over-production in some markets, etc. The effect can be to reduce the rate of profit further.[89] Proximate causes, which push the system to the brink, should also be distinguished from specific "triggers" that initiate a crisis, though they, too, may function in both roles. For example, while a rising composition may be the major contributor to a declining profit rate, a sharp increase in wages as the system overheats may be the specific reason for its intense vulnerability, but a banking crisis or a collapse in a major industry may set off the characteristic chain of business failures. A wave of bankruptcies, or the threat of them,[90] and the sharp production cuts they entail are really what defines a crisis.

Traditional Marxist presentations of crisis denouement have focussed mainly on production and competition in the M...M' phase of the circuit. They stressed how failing profitability can end an expansion by reducing orders for new capital goods. As a result, "there will be unemployment and under-capacity working in those industries which make machinery..., which will spread the shrinkage of demand to the products of other industries, thereby making the decline general and cumulative."[91] Such an emphasis lends itself more to an analysis of longer-run interpretations of crisis than to the mechanisms by which a wave of failures and

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[86] (*TSV II:* 512; see also 492 ff., esp. 511-17) and (*Capital III*: 363, 572, 619-21, 706, 742). See also, e.g., (*Capital I:* 209).

[87] Crotty (1987: 71, 81) and Foley (1986a: 54-55).

[88] (*Capital III*: 364).

[89] (*Capital III*: 365-66).

[90] Crotty (1987: 80).

[91] Dobb (1958: 45-46).

sharp cutbacks in output are transmitted. Accordingly, it reflects the shared view that the tendencies generated by (over-)accumulation, which manifest themselves in problems for the rate of profit, lay behind capitalism's longer periods of ill health. This is not to say that a cumulative decline of the sort described may not also may be the proximate cause that pushes the system towards the cyclical brink. However, Dobb argued strongly against being too prescriptive. Crises are "not the inevitable product of any one" tendency but an expression of the basic contradictions of the system that may materialise "in a variety of particular forms...[B]ooms may break, not for the same, but for different reasons (so far as proximate or immediate causes are concerned)..." These, in turn, can only be studied concretely.[92]

The explanation, however, is not yet sufficient. It has not answered the crucial question: why does a decline in the profit rate end in a crisis "rather than a mere slowing down in the rate of accumulation?"[93] An adequate answer to this requires that financial and contract-credit variables be fully integrated into an explanation that spans the full M*...M*' circuit and that some attention be paid to expectations and the timing of investment. It also raises the possibility that "financial" variables may be more active in the longer run and as proximate causes of crises, not merely as crisis detonators.[94] Chapter 3§6(iii), and especially Figure 3.7, can now be seen to provide a useful framework to link financial variables and theories of over-accumulation and crisis as they have been presented to this point.

Crotty has summarised Marx's approach, as well as developing it. In so doing, Minsky's contribution has been significant.[95] The principal points are:

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[92] Dobb (1958: 51-52). Mandel (1990: 31-32; 1981: 48 ff.; 1978b: 165, 171-72; 1975: 37-39) makes similar points in his arguments for multi-causal, and against mono-causal, explanations of crisis. However, he exaggerated his case by casting the mono-causal net a bit too widely, I think: e.g., by catching Sweezy. See Chapter 6§2.

[93] Crotty (1987: 81).

[94] This possibility will be examined empirically in Chapter 11, as will be the proposition that longer run problems are caused, fundamentally, by production, realisation, and distribution tendencies. See also Chapter 9§5.

[95] See Crotty (1987: esp., 77-81; 1985). Crotty (1987: 151), in turn, refers to the contributions of de Brunhoff, Foley, Harvey, Kenway, Pollin, and Wolfson, in the Marxist tradition, and Minsky, in the (post-)Keynesian tradition. Glyn (1990b: 282; see also 279) comments on the work of Japanese Marxists in this area, citing Itoh (1980). See also Mandel (1990: 33; 1981: 50, 52, 53-56; 1978b: 171-74), Martin (1987), Sherman (1991: Chapter 14; 1976: 108-110), and Sowell (1967: 61-62). Crotty's work also helps to organise the empirical links in Chapters 9 and 11. See also Crotty (1993 a, b, c).

(i) the contract-credit system enables accumulation, financed by borrowing, to be pushed beyond the constraint set by retained profits, provided that relatively favourable conditions for profit-making and accumulation exist to start with;

(ii) for a time, debt (external) financing can enhance and accelerate the accumulation process, provided that interest-profit rate margins and other conditions such as confidence are propitious;

(iii) "what might have been a moderate expansion in the absence of cheap and available credit may become a runaway boom when superheated" by the credit and banking systems, which "'become the most powerful means for driving capitalist production beyond its own barriers...'"[96];

(iv) overheating implies over-accumulation and the generation of tendencies that eat into the rate (and mass) of profit and thus threaten default on contract-credit obligations;

(v) the gap between interest and profit rates, or more generally between credit obligations and cash flows,[97] which may have widened during early expansion, begins to narrow in response to an increased demand for funds, including distress borrowing, and a reduced supply of finance, including falling retained earnings, as over-accumulation takes hold;

(vi) the narrower the gap and tighter the "web of financial and other contractual commitments" woven around the rate of profit, "the center of gravity around which the contract-credit system develops,"[98] the more sensitive ("oversensitive"[99]) the whole system becomes to realising its crisis

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[96] Crotty (1987: 78), quoting (*Capital III*: 742).

[97] Ultimately, this gap is between $\Pi=P'C_a$ and $[(\mathbb{N}=i.M^*_3)+M^*_5]$, where $\mathbb{N}$ is the mass of interest payments and i is an appropriate weighted average interest rate. See Figure 3.7.

[98] Crotty (1987: 78-79). See Figure 5.3.

[99] (*Capital III*: 706).

possibility (that is, the chain of payment and credit obligations being "broken in a hundred places"[100]); and

(vii) with the system squeezed between a descending profit-rate ceiling, provided by capitalism's long- and short-run tendencies, and a rising floor of financial obligations, a wave of bankruptcies and/or abrupt production cutbacks may be triggered by either (a) a "semi-autonomous monetary and financial crisis"[101] or event (e.g., credit squeeze or interest rate hike, perhaps initiated by government), or (b) a further collapse in the rate of profit due to the immanent tendencies themselves.

7 Production, Distribution, and Circulation

A contingent issue can now be dealt with, in anticipation of a possible line of criticism. How does the argument that "Marx got it right -- money and finance belong at the center of crisis theory"[102] gel with Marx's view that circulation was subordinate to production in general?[103] The same question may be asked of theories that licence any cause of crisis other than one deriving from a rising composition of capital. Providing an answer here is not too hard: Marx's views are not contradictory because they are addressed to distinct problems that should not be conflated. The methodological perspective on this very issue was set out clearly in Chapter 1§5 (Figures 1.3-1.4), which discussed emergence and the multiple determination of concrete circumstances and events in open systems. The same principles were applied to the category "labour" in Chapter 4§5 (Figure 4.1). It is also worth pointing out that Marx employed the category "production" both generically and specifically. Generically, it covered everything from the human-nature relationship to production relations and mode of production. In this sense, even financial swindling *is* production. To try to deduce concrete conclusions from

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[100] (*Capital III*: 363).
[101] Crotty (1987: 79).
[102] Crotty (1987: 81)
[103] See, e.g., the *Grundrisse* Introduction and the *Preface*.

the generic form, corresponding as it does to basic emergent strata, is a transparent category error.[104]

A more specific determination of production is given when it is considered within the capitalist economic system (circuit of capital). Here, "production, distribution, exchange and consumption are...the members of a totality, distinctions within a unity."[105] This dialectical view, in which "production and circulation constitute a unified whole,"[106] and "reproduction is precisely a (contradictory) unity of production and circulation,"[107] resonates through all of Marx's economic writing and that of the majority of his followers. The central role of the circuit depends on it. Of course, within a totality some strata may be emergent. Production *is* more fundamental in this sense because circulation and distribution would not exist without it.[108] However, circulation and distribution are not reducible to production; nor are the tendencies they generate. As **Figure 5.4** shows, tendencies generated at all levels combine to determine concrete outcomes. Moreover, the admittedly arbitrary distinctions I have drawn above (long-run tendency, short-run tendency, proximate cause, and efficient cause = trigger) show that concrete events such as crises have their own characteristic modes of determination, in which any set of causes can assign quite distinct roles to its members.

The point is that "aspects of production have no *a priori* logical priority over aspects of circulation *in the analysis of accumulation and crisis*" and that it is wrong to think they do.[109] Some Marxists, however, commit exactly this error. In an effort to deny realisation and circulation, they offer an ultimately meaningless reduction that crosses the categorical divide: peeling the crisis orange to expose

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[104] *Reductio ad absurdum*: crisis is a caused by "[i]ndividuals producing in society" (second line of *Grundrisse*: 83).

[105] (*Grundrisse*: 99). See also T. Smith (1993a: 85-86) and Chapter 1§6 on totalities.

[106] Crotty (1987: 72).

[107] Mandel (1990: 31-32). See also his criticism of Grossmann, Yaffe, and Mattick (supporters of a rising composition approach) for ignoring competition and circulation (Mandel 1981: 38-40; 1978b: 179-80; 1975: 31), citing (*Capital III*: 352-53, 360-61, 368), (*TSV II*: 534-35;) and (*Grundrisse*: 410-11). See also Chapter 7§3.

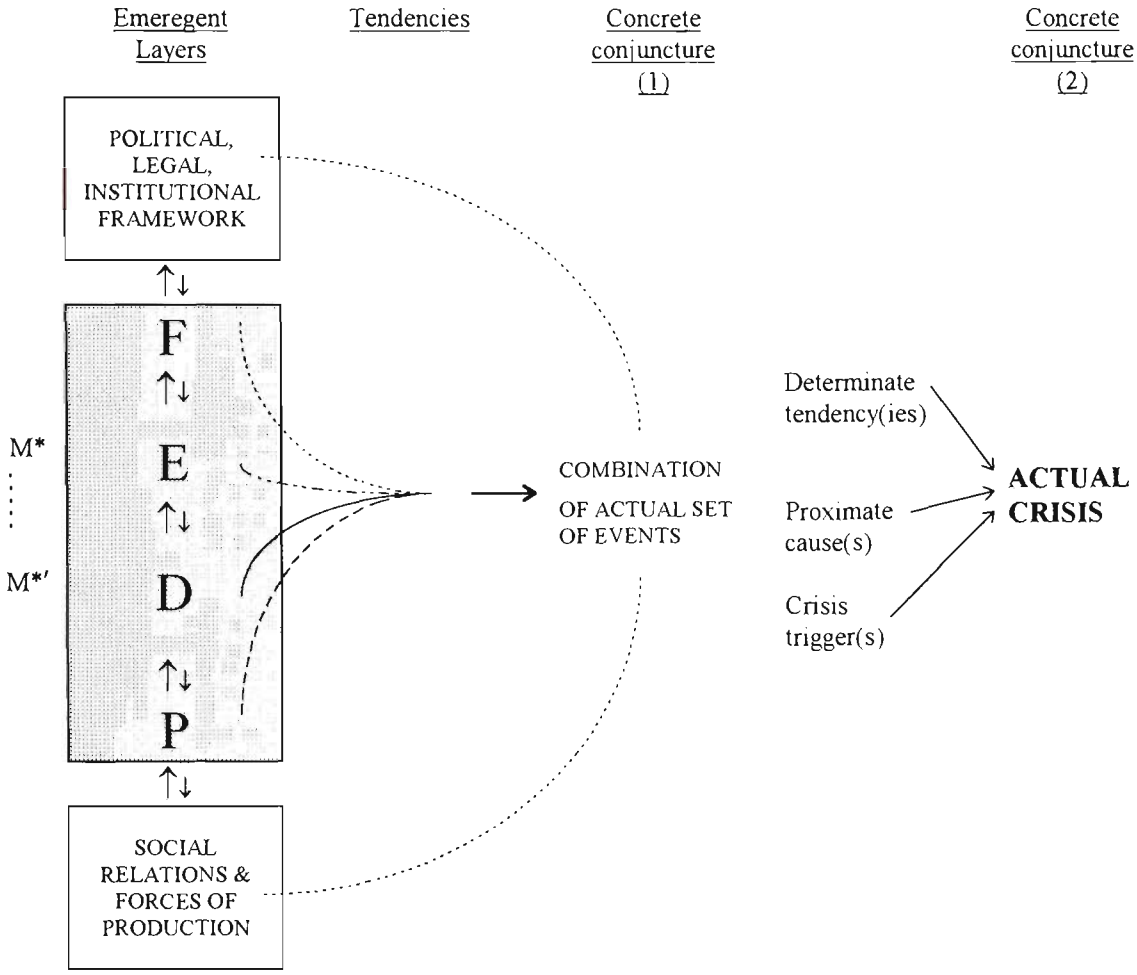
[108] Marx's comments on this matter can be interpreted precisely in this way, especially since he also specifies feedback effects and co-dependence (*Grundrisse*: 99-100). It is also valid to recognise this feature of reality in a systematic ordering of theoretical categories (T. Smith 1993a). Dobb (1973: 145-48) notes the nexus between production and the labour theory of value; cf. Chapters 4§5 and Chapter 6§4.

[109] Crotty (1987: 72, emphasis added).

the apple core of "production."[110] The point, however, is not to deny *a priori* that any of the tendencies discussed in this chapter can, singularly or in concert, sometimes or more often, really occupy a substantive place in a theory of crisis.[111] All that has been argued is that it is wise not to be didactic about the concrete interplay of tendencies in actual crises and that the contract-credit system must be integrated into any crisis theory.

FIGURE 5.4

Crisis Actuality: Production, Distribution, Exchange, and Finance



P = Production, D = Distribution, E = Exchange, F = Finance, ↑ = Emergence, ↓ = Feedback. Shaded area represents the capitalist economic system.

Reductionist arguments are profoundly regrettable because they are intuitively, not to say empirically, superficial. They provide all too convenient a platform from

[110] They may be called "inner logic" reductionists or determinists. Examples are Grossmann (1992) and Yaffe (1973a, b). R. Kuhn (1995) has recently offered a particularly vulnerable article in this tradition. See Howard and King (1992: 132, 142-43; 1989: 317-18) and King (1995a). See also Chapter 7§3 and n. 34.

[111] See Chapter 1§5.

which to launch illicit journeys in the opposite direction: from crises, seen as over-determined and contingent, to the substitution of a series of classifications, locations, entry points, and the like for the role of immanent tendencies.[112] The *possibility* of rigorous, empirically testable, theories of (over-)accumulation and crisis is lost somewhere between the two alternatives in this fictitious counterposition. It is to such theories, the conditions necessary for them to be supported empirically, and to their critics that we can now turn. Chapter 6 will explore demand-side views, Chapter 7 will analyse the traditional rising composition approach, and Chapter 8 will look at falling profit share explanations.

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112 See, e.g., Resnick and Wolff (1992a) and (1985b) for examples of what may be called "determinophobia" and "taxonomania." See also Chapter 2§2.

6
Demand-Side Theories

1 Origins and Sources

While demand-side Marxist theories have received sustenance from a range of sources, both Marxist and non-Marxist, key original arguments can be traced to Marx. Theorists of a rising rate of exploitation and under-consumption invariably cite his remark that "[t]he ultimate reason for all real crises always remains the poverty and restricted consumption of the masses..."[1] Well before Keynes, Marx had objected to Say's and Ricardo's denials that crisis could be caused by insufficient demand. Moreover, Marx's

> "penetrating critique of Say's law...profoundly influenced the first (1933) draft of *The General Theory* (Rotheim 1981), even if it played no obvious role in the published version. His [analyses] of the conditions for the realization of surplus value reappear in, and probably were the source of, Michel [*sic*] Kalecki's important theory of aggregate profits."[2]

However, it is also evident that Marx did not have an "adequate theory of effective demand...nor had he consistently accepted any version of underconsumptionism."[3] Rather, he criticised under-consumption theories severely, arguing that "[i]t is a pure tautology to say that crises are provoked by a lack of

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[1] (*Capital III*: 615; see also, *inter alia,* 351-53, 365-67, 375, 613-16), (*Capital II*: 391, n. 1), (*TSV II*: 468, 520, 534-35), and (*TSV III*: 55), and (*Grundrisse*: 422). See also Rosdolsky (1977: 487-90).

[2] (King 1995b: 180). See Chapter 5§1 n. 7 and §6 n. 83.

[3] Howard and King (1992: 19). See also Sherman (1991: *inter alia*, 196-97) and Sweezy (1942: 136-38, 176).

effective demand or effective consumption."[4] Similar incompatible statements may be presented on disproportionality.[5] They reinforce the methodological point that Marx must be read in context and with respect for the stage his exposition has reached. Partly this also involves knowing which limiting assumptions are in operation. Nowhere is the warning more germane than in Marx's discussion of crisis. He ranges from the abstract conditions that make crises possible, which are framed largely within the model of simple commodity production, to actual causes of particular crises.[6]

More rigorously formulated under-consumption theories go beyond Marx and do not rely on a selective and one-sided use of favourable quotations. The best examples are the works of Luxemburg, published in 1913 and 1921, and the responses to the Great Depression of Otto Bauer and Moszkowska.[7] Bauer's mathematical model was later used by Sweezy as the basis of his "logical argument" in support of under-consumption.[8] Sweezy's work became the exemplar of this line of thought within Marxism and will be the focus of discussion in §§2-3. Its main themes, which seek to explain how stagnation may come about, were sketched in a limited way in Chapter 5§5(iii).[9]

2 Sweezy: Impossibility of Sustained Expansion

In Sweezy's view, under-consumption could be used to explain not only long-run or secular stagnation but also cyclical crisis.[10] Interestingly, Sweezy enveloped within his under-consumption theory a short-run variant of the rising wage

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[4] (*Capital II*: 486; see also 156-57, 486-87). See also, e.g., Dobb (1937: 90, 118-21), Rosdolsky (1977: 489), Sherman (1991: 196-97), and Sweezy (1942: 149-51).

[5] (*Capital III*: 365-66) and (*TSV II*: 521, 352).

[6] Crotty (1987) and Kenway (1990a) give the best accounts. See also Chapter 5§6.

[7] Luxemburg (1913, 1921), Bauer, O. (1936), and Moszkowska (1935, 1929). See also Sweezy (1942: 178-79, 184-86) and Mandel (1990: 31, 1981: 44, 1975: 25-38). Howard and King (1992: 14-19) also offer a more complete bibliography.

[8] Sweezy (1942: 179). O. Bauer's model is reproduced as Appendix to Chapter 10, Sweezy (1942: 186-89). A full English translation by King became available in 1986 (Bauer, O. 1986). See also Howard and King (1992: 17, 111-12) and Mandel (1975: 35).

[9] Compared with the outline in Chapter 5§5(iii), Howard and King's (1992: 111-12) summary of the Bauer-Sweezy model is presented in a more "Keynesian" manner. The model's similarities with Harrod's 1939 growth model are also mentioned. A valid criticism of the following representation of the demand-side case is that it concentrates too much on Sweezy (and Baran) at the expense of the more rigorous European tradition that developed under the influence of Kalecki and Steindl. See Howard and King (1992: 123-24).

[10] Sweezy (1942: 180, 183). See also Sherman (1991: Chapter 9, esp. 204-07, 1976: 115-16) and Weisskopf 1978: 246, 258 n. 19).

hypothesis. He also pointed to the capacity of financial variables to increase the fragility of the system.[11] It will be recalled from Chapter 5§5(iii) that Sweezy thought the dominant tendency to stagnation stemmed from an underlying disequilibrium condition:

$$(S_{II}^* / S_I^*) > (D_{II}^* / D_I^*) \tag{6.1}$$

which was said to emerge whenever capitalists pressed accumulation too far, as they invariably did. The disequilibrium between Department I (investment goods) and Department II (consumption goods) would also correspond to a cleavage between realised profit and profit "produced":

$$\Pi > \Pi^r \Rightarrow P' > P^{r'},\ \Pi/C_a > \Pi^r/C_a \tag{6.2}$$

Both disequilibria would be eliminated by reductions in output and growth until "a sustainable proportionality between the two Departments is again established...with the economy operating at substantially less than its full potential."[12] The resulting difference between potential and actual profit rates was evident in a reduced capacity-use ratio (C_u/C_a) in the following:

$$P^{p'} > P^{a'} = (\Pi^a / Y^a)(Y^a/C_u)(C_u/C_a) \tag{6.3}$$

For Sweezy, this defined the long-run or underlying situation of twentieth-century capitalism: its "internal logic" and the nature of the inherent "*tendency* to overaccumulation" that is "always present."[13] **Figure 6.1** illustrates a hypothetical disequilibrium in the top left-hand corner and the new equilibrium in the top right-hand corner. The numbers in this figure will be explained below. However, at this point some care is needed to extract the necessary real conditions required for the outlook to be valid from elements of tautology in its formulation. Tautology arises because Sweezy defines the *normal* (ever-present) conditions of capitalism in its monopoly (mature) stage in exactly the above terms. Counteracting tendencies, alternative possibilities, and demonstratively different actual outcomes are posed as

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[11] Sweezy (1981a: 34-35). See also Howard and King (1992: 18); cf. Mandel, as cited in Chapter 5§6 n. 92.

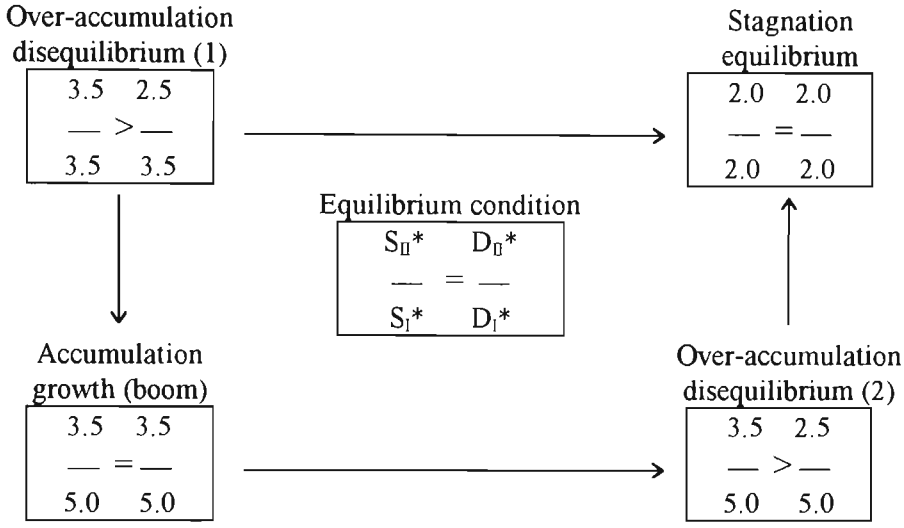
[12] Sweezy (1981a: 39).

[13] Sweezy (1981a: 36, 43, 34). This "production-realisation" inner logic is held to as doggedly by Sweezy as others held to their views of capitalism's "inner logic." See Chapter 5§7.

exceptions to the rule. As I pointed out in Chapter 2§4, this is an immunising strategy, akin to "heads I win; tails you lose." To put the argument into sharper relief, it is worth dwelling on the case Sweezy poses as the significant alternative possibility. It will be seen also how other long-run alternatives, namely both of the declining profit-rate tendencies discussed in Chapter 5, are implicitly denied by the conditions necessary for Sweezy's theory.

FIGURE 6.1

Underconsumption, Disequilibrium, and Stagnation



Figures in boxes represent annual percentage (proportionate) growth. See also inequality 6.1.

According to Sweezy, it would be possible for the disequilibrium condition at inequality (6.1) to be averted for some time if growth in output *and* demand in Department I were greater than in Department II. However, a "sustainable proportionality" between the growth of the departments could exist only if Department I acted as its own most effective customer. Workers engaged by Department I in this expansion would simultaneously bolster demand for the products of Department II. The tendency to under-consumption could remain latent. Figure 6.1 illustrates the alternative possibility with the growth percentages in the bottom left-hand corner. Sweezy explained capitalism's expansion during last century in a similar way. Its youthful stage ("modern industry") permitted equiproportionate growth because Department I grew "virtually from scratch" and there were sufficient supplies of labour to ensure that the process was not cut short

by capacity constraints, cyclical crises notwithstanding.[14] However, this could be only a "theoretical possibility" in the monopoly stage that characterised capitalism's maturity.[15]

Why? Three conditions were necessary to support the central contention of under-consumption theory, evident on the right-hand side of inequality (6.1), namely that "capitalism has an inherent *tendency* to expand the capacity to produce consumption goods more rapidly than the demand for consumption goods."[16] These were: (i) a rising profit share, which would reduce workers' consumption as a proportion of aggregate income; (ii) a growing proportion of the profit share being devoted to accumulation, so that capitalists would not compensate for (i) by their own consumption; and (iii) the output of consumption goods growing in the same proportion as output of capital goods, which ensures the left-hand side of inequality (6.1) remains constant.[17]

The first two conditions act on consumption demand (in relation to investment) and are not historically specific. Condition (i) necessarily denies the falling profit share approaches discussed in Chapter 5§4. One argument that may be used in support of it is Marx's view that the rate of surplus value (profit share) would rise over time, principally due to increases in relative surplus value.[18] Relative surplus value arises from productivity growth in wage goods industries, which implies that less labour time is needed in any turnover of variable capital to produce the equivalent of the wage-goods bundle. The remaining time, or the surplus labour that produces surplus value, would grow in inverse proportion. Sweezy advances this view in places[19] but also advocates a more sophisticated case, which will be left for §3. Condition (ii) is a corollary of the argument that individual capitalists will not act in the collective best interests of their class and are "chronic *over*accumulators."[20] Condition (iii) is specific to a "well-developed capitalist

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[14] The reverse is assumed in Bauer's model: "...[the] conclusion is reached on the assumption that national income in value terms is growing at a constant or declining rate" (Sweezy: 1942: 189).

[15] Sweezy (1981a: 34-39; 1942: 189). Similar themes can be found in Kalecki's approach. See, e.g., Foster (1987: 61-62) and §5.

[16] Sweezy (1942: 180).

[17] Sweezy (1942: 181-82).

[18] (*Capital III*: *inter alia*, 339-42, 347) and (*TSV III*: *inter alia*, 300). See Chapter 7§1, especially n. 9. See also (Dobb 1963a: 284; 1958: 40-41, n. *) and Sherman (1976: 114-15).

[19] Sweezy (1981a: 50, 53; 1942: 100-02, 181).

[20] Sweezy (1981a: 34).

economy." It rests on the proposition that "over long periods a given percentage increase in the stock of means of production will generally be accompanied by approximately the same percentage increase in output."[21] This implies that the output-capital ratio will be constant, disposing of the rising composition case of Chapter 5§3 into the bargain. In terms of Figure 6.1, the inevitable result would be that accumulation growth (bottom left-hand corner) would cause an over-accumulation disequilibrium (bottom right-hand corner), which would give way to a sustainable level of proportionate growth corresponding to "stagnation" (top right-hand corner).

Sweezy maintained that a period of stagnation would contain cyclical booms and crises. An upswing could be initiated by the cycle of inventory replenishment. It would be maintained if Department I fed off itself in exactly the manner of youthful capitalism. However, the expansion would be ended by over-accumulation. Capitalists, motivated principally by the desire to accumulate more capital, would act against their collective best interests. They would make increased profits, and have easy access to credit, but they would not apportion their spending between investment and personal consumption in a way that would maintain balance for the system as a whole. Instead, the "accumulation boom" would be destined to collapse because the fundamental disequilibrium (described again in the bottom right-hand corner of Figure 6.1) would intervene and/or growth would be choked by a short-run variant of the rising wage hypothesis or rising interest rates:

> "Sooner or later, however, an unsustainable disproportion between the growth of the two Departments emerges, and the accumulation boom begins to taper off. It is at this stage that additional contradictions develop, notably, rising wages and interest rates that at a certain stage reduce not only the rate of profit but also the total amount of profit. This disrupts the continuity of

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[21] Sweezy (1942: 182). This means there will be a constant incremental output-capital ratio (ICOR). Sweezy calls on empirical studies for support, including that by Gillman (1958). See Sweezy (1981a: 53-54; 1942: 182, n. *).

the accumulation process, precipitating the crisis, which in turn ushers in the recession phase of the cycle."[22]

3 Baran and Sweezy: Law of a Rising Surplus

Baran and Sweezy attempted to provide more rigorous foundations for demand-side Marxist economics.[23] Their efforts drew expansively on the work of "Kalecki and Steindl...as well as Marx, Veblen, Keynes and Hansen,"[24] and from a monopoly-pricing model "derived, quite unashamedly, from contemporary microeconomic theory."[25] Economic domination by monopoly capital explained why price, production, and income distribution variables *should* co-operate to give the substantive tendency to stagnation based on under-consumption.[26] A pivotal role was again attributed to excess capacity. Moreover, a reformulated law of the tendency of the surplus to rise was also presented, in which the economic surplus was defined as "the difference between total social output and the socially necessary costs of producing it."[27]

Chapter 5§5(i) compared an "actual" profit rate with a "potential" one. It was irrelevant there whether the "actual" referred to the "realised" or the "produced" rate. It is important now to compare the different realised and produced rates with the potential one. A caveat is needed first: some of the terms here are given subtle changes in meaning. The quintessential distinctions are shown in **Figure 6.2**, which depicts the relationships between potential, produced, and realised output and surplus as well as capacity use.[28] For rates of profit, it shows that:

$$P^{p'} = \Pi^{p}/C_a > P' = \Pi/C_a > P^{r'} = \Pi^{r}/C_a \qquad (6.4)$$

and, for the respective profit shares, that:

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[22] Sweezy (1981a: 35). See also Howard and King (1992: 11, 13-14, 18, 111), citing Sweezy (1942: 147-55). Dobb (1958: 46-51) sketches Department II over-production *possibilities* in a similar way to Sweezy (1981a).

[23] Baran (1957) and Baran and Sweezy (1966). See also Sweezy (1990).

[24] Foster (1987: 63)

[25] Howard and King (1992: 117).

[26] See, e.g., Sweezy (1981a: 42-43) and Foster (1987: 63).

[27] Baran and Sweezy (1966: 117; see also Chapter 3, 117-119).

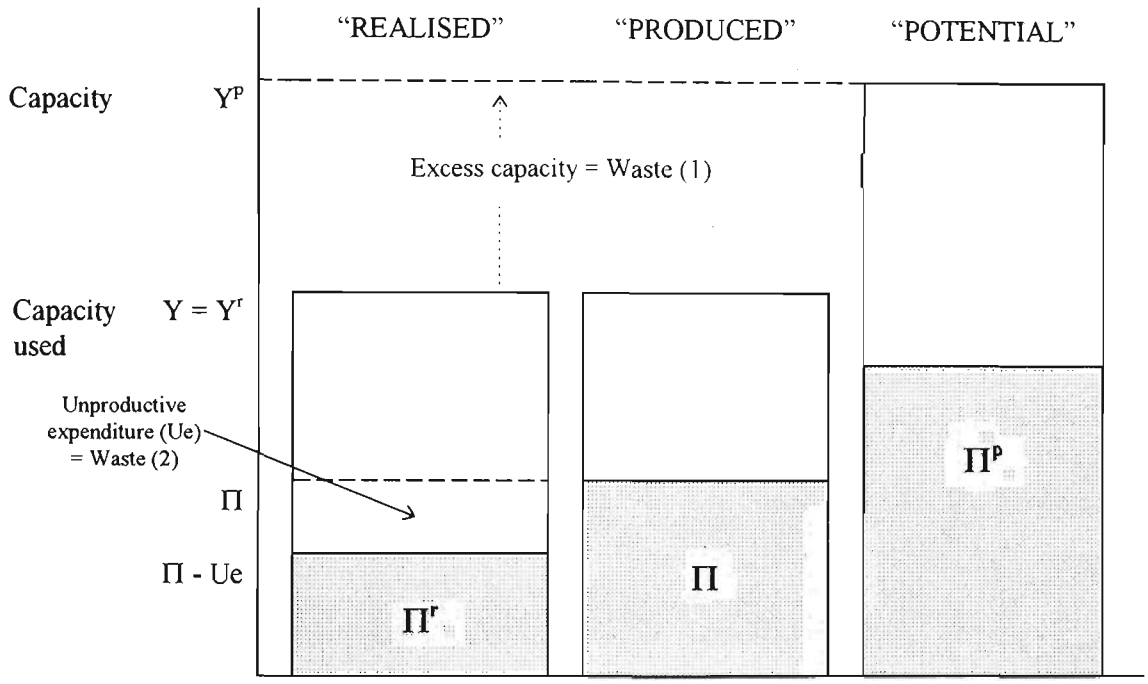
[28] The discussion in Chapter 3§§6(i) and 7, esp. Figures 3.5-3.7, is a useful backdrop. The assumption is that the economy is in a stable holding pattern and that there are no immediate realisation difficulties ($Y = Y^r$).

$$\Pi^p/Y^p = \Pi/Y > \Pi^r/Y^r \qquad (6.5)$$

In this structure the *economic surplus* is equivalent, by definition, to Π because production costs are defined to exclude activities deemed to be socially unproductive.

FIGURE 6.2

Three Measures of Economic Surplus



Relationships: Profit shares (Π^p/Y^p) = (Π/Y) > (Π^r/Y^r); Capacity use (C_u/C_a) = (Y_p/Y); Profit rates (Π^p/C_a) > (Π/C_a) = (C_u/C_a) (Π^p/C_a) = (Π^r/C_a). Assumption: all produced final output is sold ($Y = Y^r$).

These distinctions enabled Baran and Sweezy to hold tight to the theory of a rising profit share (and even profit rate), even if one were not manifest in the realised data. This is part of the answer they offered to critics of the under-consumption thesis.[29] The answer turned on how the potential surplus (or potential saving in Keynesian or Kaleckian terms) was absorbed. Neither investment growth nor capitalist consumption would be sufficient. As Sweezy had already explained, investment created new capacity and sharpened the disproportionality between the

[29] Howard and King (1992: 116). The productive-unproductive labour distinction is also used. See below and §4.

departments in a mature economy.[30] The resulting excess capacity would thus "absorb" (or waste) the difference between potential and produced surplus. However, of special importance in the post-war period were those expenditures deemed not to be socially necessary (wasteful by their very nature). These were *unproductive* consumption expenditures associated with the "sales effort" consistent with non-price competition under monopoly, government military spending, and the growth of the financial sector.[31] Without these wasteful surplus-absorbing expenditures, the tendency to stagnation would have been much worse. Indeed, without excess capacity and unproductive consumption, Baran and Sweezy argued, a rising rate of exploitation, crisis, and stagnation would have existed in the 1950s and '60s.[32] (In Figure 6.2, Y^r would decline, thus delivering this result, *ceteris paribus*.)

Criticisms of the thesis have ranged from inconsequential concerns about its Marxist pedigree to more substantial worries about Baran and Sweezy's unconvincing attempts to reconcile their use of price data with Marx's value schemata.[33] On another level, the definition of economic surplus and its estimation in the data used by Baran and Sweezy have both been seriously questioned. For example, the work's statistical appendix, which was compiled by their colleague Phillips, was attacked for not subtracting depreciation provisions from surplus as a cost of production.[34] Other critics have focussed on the absence of a theory of wages,[35] conflicting empirical evidence of trends in monopoly and competition, and the treatment of the role and possible extent of government spending.[36] These criticisms pose serious questions. However, the principal target of any challenge to the thesis must be the basic demand-side theory of under-consumption and its supposed consequence, stagnation. Without this core, all the attendant definitions

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[30] Sweezy (1981a: 42-43), based on Sweezy (1942).

[31] Foster (1987: 64) and Howard and King (1992: 117).

[32] Howard and King (1992: 80-81, 110-16).

[33] See Chapter 4§1 and Howard and King (1992: 120). Methodological problems also emerge, as noted in Chapter 2§4.

[34] Phillips (1966: 355-77), criticised by Mandel (1967a: 30-31).

[35] Since Sweezy (1981a: 35) reaffirmed his view that rising wages may contribute to short-run crises, he is less open to criticism on the grounds that his postwar work ignored this possibility completely. However, see §5 and Chapter 8§4.

[36] Howard and King (1992: 120-24) and Glyn (1990b: 282). See also Mandel (1967a; 1967b: esp., 30-31).

and estimations of surplus lose their explanatory zest or lapse as incidental embellishments.

The most demanding challenge to the theory has been posed by evidence that a consistently rising profit share has been impossible to sustain empirically over the crucial post-war years. The extent to which changes in the capacity use ratio (C_u/C_a) have been significant can also be challenged empirically. Thus a shift in emphasis from the rising surplus to a Kaleckian, political business cycle, model of over-investment has been noted in Sweezy's work,[37] although he remained committed formally to an under-consumption explanation.[38] It is also necessary methodologically to separate rigorously the law of a rising surplus in production (as defined) from under-consumption and stagnation. The realised income shares of workers and capitalists must be used because these, together with the appropriate spending propensities, are the key to determining the proportionality between the departments and the tendency to stagnation.

The rising surplus concept is different. It is formulated in terms of a definition of productive *versus* unproductive labour. The wastefulness and irrationality of twentieth century American capitalism, including the military budget, provided Baran and Sweezy with prime examples of unproductive expenditures and unproductive *labour*. The costs entailed in the "sales effort," in particular for advertising and promotion, are also included here. So, too, is a dimension of social critique, which contrasts unproductive waste and irrationality with a rational socialist allocation of labour.[39] Thus to calculate economic surplus according to the definition of productive labour means that unproductive workers' earnings are added to the realised profits of "productive" and "unproductive" capitalists. But this means that "economic surplus" as defined cannot be used directly to argue for under-consumption and stagnation. The variables, and the concepts behind them, have categorically distinct roles in the different parts of the composite theory. It is wrong, therefore, to use them out of context.

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[37] Howard and King (1992: 313-14). See also Foster (1987: 61-62).

[38] Sweezy (1981a: 39).

[39] Baran and Sweezy (1966: Chapters 3-7, 11). See also Howard and King (1992: 113-20).

4 The Productive *versus* Unproductive Labour Debate

It is now appropriate to deal with the productive-unproductive labour distinction.[40] I will do so extensively to avoid repetition in later chapters. While the monopoly-stagnation, under-consumption school is probably the "theoretical school within Marxist political economy which is most firmly wedded" to the distinction,[41] it is not alone. Theorists who support variants of the rising composition view typically employ species of it, and they do so emphatically.[42] Baran and Sweezy's approach seems by comparison to be less derivative than most. The discussion here builds on the arguments of Chapters 4§5 and 5§§6-7, especially concerning the care needed to use categories only in their appropriate contexts. It also follows directly from the final comments of the previous section. The threads of under-consumption and demand-side Marxism will be picked up again in §5. My view can be stated directly: the productive-unproductive labour distinction should be discarded completely. Like the labor theory of value, to which it is closely but not necessarily connected,[43] the distinction creates more problems than it solves.

(i) Definitions and problems

There is no agreement among Marxists on "[t]he precise demarcation between productive and unproductive labour," a subject that "remains highly controversial."[44] A "long and often confused debate" has examined the demarcation, which is "one of the most hotly disputed issues of Marxist economic theory."[45] It is all the more intractable because it is difficult to agree on what Marx actually meant.[46] His position was incomplete and, undeniably, contained directly

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[40] Henceforth "(un)productive distinction" or just "distinction" for convenience.

[41] M. Smith, (1995: 490).

[42] See e.g., Mandel (1981: 37), Moseley (1992, 1988, 1987), Shaikh (1987; 1978b: 238-39; 1978c: *passim*), and Yaffe (1973a, b). Laibman (1992: Chapter 4) is an exception.

[43] Laibman (1992) supports the labour theory of value while rejecting the (un)productive distinction. Moseley (e.g., 1987: 113, n. 4) supports the distinction but says that price, not value, magnitudes should be used to measure the relevant categories.

[44] Howard and King (1992: 122).

[45] Mandel (1978a: 40).

[46] On the issue in general, see, e.g., (*Capital I*: 283 ff., 644), (*Resultate*: 1038-49), (*Capital II*: 202-13, 225-27), (*Capital III*: Chapters 16, 17), and (*TSV I*: Chapter 4). See also Braverman (1974: Chapter 19), Dobb (1973: 60-61, 145), Gillman (1958: 86-90, esp. 89 n. 1), Gough (1972), Howard and King (1975: 141-

contradictory statements.[47] However, most would say that Marx denied a role for moral or value judgements, agreeing instead on the clearly circular notion that productive labour was identified with the creation of value and surplus value, while unproductive labour was an expense deducted from surplus value.[48]

Beyond that, opinions diverge markedly. For example, compare the following quotations on the central definitional problem of the status of material *versus* immaterial "production":

> "The distinction has nothing at all to do with the production of material goods as opposed to (immaterial) services, and Adam Smith is severely criticised for suggesting that it has (*TSV* I, 171-74)."[49]

> "The definition of productive labour...logically excludes 'non-material goods' from the sphere of value production."[50]

I do not intend to pursue the debate in its own language. It may have been relevant in the intellectual context of classical political economy whether cleaners or teachers were "productive" or "unproductive." Today it is simply arcane. However, it is worth pointing to six broad locations of contention as a gauge of its breadth: the treatment of the services sector and distinctions within it; the treatment of personal service providers and the self-employed; the distinction between production and circulation activities; distinctions within the production sphere itself; the treatment of, and distinctions within, the government (state) sector; and treatment of taxation on workers' incomes. Each location generates its own

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43), Laibman (1992: Chapter 4), Mandel (1978a: 38-52; 1975: 402-07), Moseley (1992, 1988, 1987), O'Hara (1995), M. Smith (1995), and Sweezy (1942: 126-34).

47 Mandel (1978a: 40, 42-44) and M. Smith (1995: 491).

48 Howard and King (1975: 171-2) and Mandel (1978a: 41-42). See M. Smith (1995: 490-91) for a dissenting view.

49 Howard and King (1975: 141), citing also (*TSV I*: 157). See also Dobb (1973: 60). Howard and King (1975: 141, 172 n. 14) cite Gough (1972) but "doubt the degree of coherence which Gough imputes to Marx's treatment of the problem."

50 Mandel (1978a: 43), citing (*Capital I*: 283 ff.). Mandel (1978a: 43 n. 48, 42) disagrees with Gough and prefers Marx's treatment in the second and third volumes of *Capital* over that in most of the first volume and the *Theories*, which he argues were written earlier. M. Smith (1995: 490-91) says there is a contradiction between the treatment of circulation costs in the second and third volumes and that the *Grundrisse* shares the approach of the third, which is preferable. He argues against those who opt for the *Capital II* interpretation.

conceptual conundrums, including whether (un)productive labour is just about (im)material production or not. Moreover, there is an adjunct issue of no small importance empirically: should capital be redefined along with labour demarcations? Moseley, for one, recasts matters in terms of productive and unproductive capital.[51]

It should be obvious by now that the debate is inherently esoteric and capable of producing an endless number of theoretical and empirical alternatives derived from hair-splitting definitions. However, this debility is relatively minor in contrast to the essential problems with the (un)productive labour distinction:

> (i) it is operationally irrelevant to theories of accumulation, capitalism's immanent tendencies, and crisis;
>
> (ii) where its concerns overlap important issues for social and economic theory, these issues can be better handled without using the distinction itself; and
>
> (iii) it sits awkwardly with other aspects of Marxist theory, especially notions of class, exploitation, and the unity of production, circulation, and distribution in the circuit of capital.

(ii) Operational irrelevance

It is of paramount importance to recognise that the (un)productive labour distinction directly affects the way the rate of profit and profit share are defined and calculated. This is the immediate consequence of the procedure or "convention,"[52] which follows from taking the distinction seriously, of shifting the wages bill of unproductive workers into the category of profit (or surplus value). The procedure is shared by all who employ the distinction, irrespective of their differences over definitions of who is or is not "productive." Different definitions,

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[51] See, e.g., Moseley (1992, 1988, 1987) and O'Hara (1995).

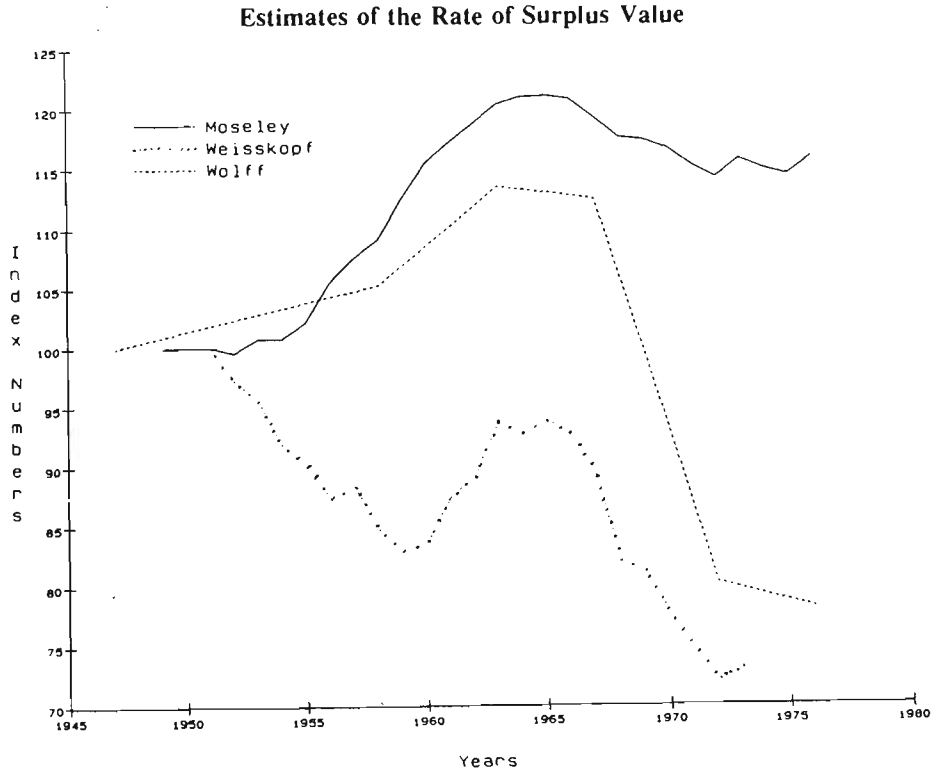
[52] M. Smith (1995: 489). The same principle applies to those who redefine capital advanced into productive and unproductive components.

however, will result in different estimates, sometimes savagely divergent ones. Recognising this surely alerts us to the possibility that the "shifting" procedure can be used as an instrumental convenience, a way of reinforcing other parts of a theory. No clearer illustration could be given of the staggering differences possible than Moseley's comparison of his empirical results with those of Weisskopf and Wolff. His chart showing the respective rates of surplus value presented by the three is reproduced here as **Figure 6.3.** Another of Moseley's charts, which presents estimates of the composition of capital, shows similar divergences.[53]

FIGURE 6.3

(Un)Productive Activities: Definitions and Divergences

Source: Moseley (1987: 109-10)



[53] Moseley (1987: 109-10), referring to Moseley (1985; see also 1986), Weisskopf (1979; see also 1985), and Wolff (1977a; see also 1992, 1987, 1986). I will not try to outline the differences, save to say that Moseley and Wolff employ different definitions of the distinction, especially concerning unproductive capital, while Weisskopf does not employ the distinction (Moseley 1986: 171; referring also to Glyn and Sutcliffe 1972 and Boddy and Crotty 1975). See also Moseley's (1987: 113 n. 4) comment on other differences between the approaches. Note that I am not saying that anyone's results have been distorted instrumentally, just that the distinction can be a methodological minefield.

Of particular concern is that the procedure can be a ready prop for theories built on a rising profit share. Even if aggregate profits are falling and wages are rising it is possible to engineer a trend rise if the structural trend in the workforce towards service or government occupations is sufficiently large. For example, an appropriate definition of (un)productive labour can shift a big enough bundle of wages from the denominator to the numerator of a profit-wage ratio (Π/W) so that an "apparent" (falling) trend may be dissipated to uncover the "real" (rising) trend of the rate of surplus value. I suspect that this outcome is the underlying reason the distinction itself has survived within demand-side and rising-composition schools of Marxism. While they may not agree on magnitudes, most members of both schools think Marx was right to say the rate of exploitation would rise. Baran, for instance, replied to critics of under-consumption and stagnation theory by drawing the distinction between realised profit and its potential.[54] Shaikh argued from a rising composition perspective against rising-wage "profit-squeeze" theorists because they had not stripped unproductive wages from their national-accounting wages data and added them to profit.[55] Gillman also presented data that included within surplus value selling, administrative, non-factory overhead, and business tax costs. His variable capital was just production workers' wages. On this basis he obtained generally rising rates of surplus value, whereas a falling rate of "net" surplus value was obtained if these costs were deducted from surplus value.[56]

Possible misuse is not, however, the strongest argument against the (un)productive distinction. Far more damage is done when it is understood that any rate of profit that incorporates in its profit numerator a component that has been shifted from wages will differ from that calculated on the profit or surplus value actually in the hands of actual capitalists. The central theoretical question is which profit determination is the effective or operational one in the accumulation process: e.g., for decision-making, sources of accumulation funds, making payments, paying interest, etc.? Without exception, the profit determination that has not been altered by the shifting procedure is the only relevant one.

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[54] See §3 and Howard and King (1992: 116).

[55] Shaikh (1978a: 44-45; 1978c: 237-39).

[56] Gillman (1958: 34, 35 Table A, 39 Chart 1, 41 Chart 2; cf. 96, 97 Table H, 98 Chart 5). See the criticism of his overall approach by Baran (1959), especially concerning capacity use. See also Howard and King (1992: 141-42, 147-48 n. 52).

The mere possibility that capitalism may be in crisis while the "rate of profit" continues to rise because of an increase in unproductive labour is an unacceptable contradiction. Consider, too, how wages, profits, and the profit share were instrumental categories in under-consumption theory. The propensities to invest profits or consume from wages or profits were defined by whether income was derived from property ownership or earned by labour. They had nothing to with how particular types of labour were classified. Reclassifying some wages as profit introduces a glaring distortion. These instances are enough to show that all varieties of the demarcation between productive and unproductive labour are, at best, irrelevant methodologically to the dynamics of accumulation and crisis. At worst, they can be downright misleading, and their illegitimate use in theories of over-accumulation and crisis represents a significant category error.

(iii) A causal connection?

It follows from this formal category distinction that the validity and/or usefulness of adopting any one or more of the (un)productive labour definitions must be assessed using altogether different criteria. Two possibilities should be considered. The first is that the real quantities and processes referred to by the distinction in some way occupy an underlying determinative, or causal, position in relation to the effective rate of profit. If this were so, the structural trends captured by suitable variables (e.g., the rise in computer consultancy expenses within production) may after all be relevant to theories of accumulation, immanent tendencies, and crisis. Definitional idiosyncrasies notwithstanding, I suspect that this general approach is the one most supporters of the distinction would arrive at if pressed to explain the difference between their own "Marxist" rate of profit and the one that means something to capitalists. Moseley takes this approach openly.[57] His views will be considered below for this reason.

The second possibility is that the productive-unproductive categories are designed to play a different role, one not directly related to accumulation and crisis. Cast in this way, each set of definitions, *prima facie*, offers its own insights

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[57] Moseley's (1992, 1987) approach is similar to that in Gillman's Chapter 7 (1958: 86-106, esp. 98-101; see also Howard and King 1992: 141-42).

at a broader level of composite social theory. For example, it is useful to distinguish between labour expended on "goods" and on "services" and to consider what this means for employment trends and the nature of society. Likewise, it is useful to expose the irrationality and waste of capitalist production. Other challenging questions follow from thinking about such issues: how necessary for capitalism are the activities deemed unproductive? do they help or hinder accumulation? how would they be handled under socialism? Each question, in turn, opens up its own worthwhile areas of debate. An obvious concern, considering the material view of production,[58] is the position of the environment. Another is the contradictory role of state expenditures.[59]

Moseley recognises that the conventional rate of profit, his term for the effective or operational rate of profit that I have used above, "is a more direct determinant of investment spending."[60] However, he adopts the position that the numerator (P) of the conventional rate should be increased by the flow of unproductive capital (U_f), mainly wages of non-productive workers and depreciation of non-production buildings and equipment, to obtain his definition of Marx's numerator (S). Moseley also says that the conventional denominator (K) should be decreased by unproductive stocks of buildings and equipment (U_s) to obtain his definition of Marx's denominator (C). He then divides S and C by the flow of productive workers' wages (V) to obtain a rate of surplus value and composition of capital ratio. The conventional rate of profit (CRP) is decomposed exclusively in terms of the distinction:

$$CRP = P/K = (S-U_f)/(C+U_s) \tag{6.6}$$

and, dividing through by V:

$$CRP = [(S/V)-(U_f/V)] / [(C/V)+(U_s/V)] \tag{6.7}$$

Moseley concludes from an analysis of the data that the causes of the decline in the conventional US rate of profit from the late 1940s to the early '80s "were an increase in the composition of capital and increases in both ratios of unproductive

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[58] Mandel (1978a: 43).

[59] See, e.g., Green and Sutcliffe (1987: Chapter 11), Miliband (1977: 90-106; 1969), and O'Connor (1973).

[60] Moseley (1987: 110). I follow his symbols below.

capital to variable capital."[61] This approach brings out explicitly changes in the type of labour performed by the working class, and Moseley does not claim that the "Marxist" rate of profit [S/(C+V)] is directly effective in accumulation and crisis. Instead, it situates the "Marxist" rate of profit in the role of an underlying cause of the direction of the effective conventional rate. This causal chain depends, in turn, on the definitions of all variables in terms of the (un)productive distinction.

Closer inspection shows the argument to be tautological. Any superficially plausible variable could function in a similar way to Moseley's unproductive capital. Indeed, any one of the many definitions of unproductive labour and capital would do. So long as its trend were upward it could be dubbed a "determining influence" on a declining rate of profit (and *vice versa*). The definition that accentuated the trend growth in unproductive labour and capital most sharply would be the one that exercised the greatest influence on the rate of profit, rate of surplus value, and composition of capital. This underlines the general principle that a technique of decomposing a ratio mathematically cannot by itself show causation. The same principle forbids interpreting statistical correlations as causes, unless the correlation is accompanied by a substantive explanation of the real causal links.

This is where variables derived from the (un)productive distinction run into severe problems. They exhibit much more complex causal patterns than variables such as wages, which themselves have deeper and more complex causes. Take the service industries and, within them, the example of transportation of private persons by taxis, buses, airlines, ferries, etc. This "industry" is held up by some as an example of unproductive service activity.[62] The question is: in what *real* sense can an increase or decrease in the social capital and/or labour devoted to personal transport *cause* a fall in the social average effective rate of profit in a way that is *different* from that of any other industry, whether productive or not? (This is the only way to pose the question that is not tautological. It is rigorously separate from definitions.) The short answer is that it cannot. Personal transport will function within any real profit-rate "equalisation" process or mechanism, through capital and labour mobility, no differently than manufacturing. Moreover, with due regard

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[61] Moseley (1987: 111).
[62] Mandel (1978a: 44).

to the "futile explanatory regress" entailed in chicken-egg questions,[63] quantities of labour and capital in either industry are *effects* of the changes in relative profit rates that prompted mobility. The interesting question arises from stepping outside the immediate "explanatory" circle to ask why a difference in relative profit rates opened up. The answer takes us to deeper and genuinely explanatory variables closer to technological change, productivity, and income distribution in the respective sectors. With suitable specification, the argument here may be applied to all private industries said to be "unproductive," such as retailing, hospitality services, and private education provision.

Alternatively, consider the case of "unproductive" jobs within productive industries for example supervisors (or, more precisely, that part of supervisors' activity not devoted to organising production[64]), managers, time-keepers, and sales staff.[65] At first blush, this seems to be a more promising place to look for causation. An increase in wages paid under such categories because the number of "unproductive" workers grew would obviously be a drain on profit, *ceteris paribus*. But this is only part of the story. Had the increase not occurred, other effects would have been manifest. An increase in supervision or in the sales effort may increase the rate of profit in production or realisation, once the *ceteris paribus* clause is lifted. In other words, the effect on the profit rate caused by the change to work organisation and labour allocation must be accounted for organically. Furthermore, the crux of the argument is the same as for an "unproductive" industry: in what way is the employment of a productive worker different from that of an unproductive worker regarding the profit rates (produced or realised) on which capitalists make their decisions? The wages of both are costs; the labour of each contributes to the outcome of collective labour. Obviously the concrete labours are different. However, so are the concrete labours of fitters, crane-chasers, production drivers, and machine operators, on the one hand, and tally clerks, purchasing officers, sales clerks, and promotional travellers, on the other.

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[63] Collier (1994: 21-22).

[64] Mandel (1978a: 45-46) and Moseley (1987: 113 n. 5). See Part (iv) below on managers and their class location.

[65] Mandel (1978: 45; citing *Resultate*, *Capital I:* Chapter 14) notes that there are definitional disagreements over how to classify such jobs but adds that "Marx takes a much less simplistic attitude than some of his latter-day disciples. His fundamental doctrine is that of the 'collective labourer'..." If this is so, why not go all the way?

Causally there is no fundamental difference that turns on any particular (un)productive distinction.

(iv) Unnecessary and problematic

Glyn takes the arguments a step further, convincingly questioning whether the distinction serves any useful purpose at all in the analysis of economic aggregates:

> "Some authors (Gillman, 195[8]) have sought to verify a rising rate of exploitation by reference to Marx's concept of unproductive labour (supervisory staff, bank employees, etc.). If these workers are regarded as being paid out of surplus value, and their relative importance in the labour force has been rising (which it has), then a rising rate of exploitation is consistent with a rising share of wages in national income. But to argue that the surplus value available to the capitalists for accumulation has declined because, given the growth of productivity of productive workers, there has been a growth in the proportion of unproductive workers, does not seem to add much to the simpler idea that the growth of productivity of all workers has been insufficiently fast relative to real wages."[66]

Is it not also true, however, that a finer analysis of productivity change may be painted over in the sweep of such a broad brush? In this context, an important proposition to test is the one advanced by Bowles, Gordon, and Weisskopf: namely, that an increase in supervision (including the number of time-keepers and related workers) can adversely affect productivity.[67] Assuming that we could isolate the increase in supervision from other factors, it would be possible to contrast output growth with the corresponding increase in costs. A key question to answer would be whether the increase causes an increase or decrease in the profit share.[68] Clearly it does not matter a jot here whether a formal (un)productive distinction governs the analysis or not.

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[66] Glyn (1990b: 280). See also Chapter 5§4.

[67] Bowles, Gordon, and Weisskopf (1984: 126-32).

[68] This should not be wrongly interpreted to imply that is easy to disaggregate the effects of multiple changes. However, I think Armstrong, Glyn, and Harrison go too far when they say that changes in work

It is also impossible to see any sense at all, from the perspective of productivity analysis, in combining the estimated effects of increased supervision with those of sales staff, say. On a social level, what possible real insight can be derived from aggregating both with the effects relevant to taxi-drivers, private school teachers, and the like? To get beneath the aggregates applicable to all workers it is much better to look at specific cases and to discuss their own peculiarities and their similarities with other concrete forms of labour. The same is true *within* a formal category of productive labour. Imagine the productivity changes related to the increase in the past decade in the number of production-line computer engineers and controllers. If we were to analyse their role in the labour process, it would be clear enough that these "productive" employees, production managers, and supervisors have more in common with each other than they do with "unproductive" sales staff or the "productive" delivery-truck drivers with whom the sales staff work closely.

Far more real insight is provided by explaining work organisation and labour processes, as well as complex causal interconnections, using common descriptions, classifications, and language. In this context, "common" means ordinary language and the language of financial- and cost-accounting statements. Practical distinctions such as direct and indirect labour, and associated concepts such as prime costs and factory overhead, are much more useful. Whether book-keepers are called "productive" or "unproductive" is an uninteresting, indeed irrelevant, question when compared with what they do; or, more precisely, with the practical records they keep.

Furthermore, the formal category distinction between productive and unproductive labour is problematic in the broader theoretical debate about the nature of the capitalist system. There are two reasons for this. First, though they are often used to this end, formal economic-accounting categories of productive and unproductive labour are not necessary to talk cogently about the irrationality and wastefulness of capitalism. This discussion can be approached directly from a human and social perspective. If we want to discuss or quantify capitalist waste,

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practices and intensity, "shaped partly by the nature of the new machinery and partly by struggle on the factory floor...are *inherently* unquantifiable" (1984: 169, emphasis added).

and even to contrast this with a proposed rational socialist alternative, is it not more sensible to use categories designed specifically for this task? Indeed, seriously muddled argumentation can arise if the distinction, which was originally conceived a means of calculating surplus value and profit, is used in this way. For example, on some definitions, workers in the private armaments industry would be regarded as "productive," since they produce surplus value, while doctors in government hospitals would be regarded as "unproductive," since they do not. Thus, not only does the nature of the distinction provide fertile ground for confusion and category error within economics, as we have seen in Parts (i)-(iii) above, but also it cannot be used without considerable definitional gymnastics in the social debate over the wasteful nature of capitalism. Indeed, were the categories to be redesigned entirely with social waste and irrationality in mind, it would be clearer that they should not have a role in the theory of profit and accumulation. But then it would also be questionable whether the formal distinction would be needed at all, since words in their ordinary meanings may provide clearer and more subtle descriptions of the problem being addressed.

Second, the (un)productive labour distinction is out of phase with a far more important distinction within Marxism: class. According to the class distinction, all workers are exploited, not merely the "productive" ones whose labour creates surplus value. This fundamental proposition is confused by the (un)productive distinction. The two main social classes are defined *broadly* in the first instance by their relationship to the means of production, not by their function:

> "By bourgeoisie is meant the class of modern capitalists, owners of the means of social production and employers of wage-labour. By proletariat, the class of modern wage-labourers who, having no means of production of their own, are reduced to selling their labour-power in order to live."[69]

These broad social relations of production sit comfortably and consistently in the circuit of capital, whose operational economic categories are easily construed in class terms: capitalists advance capital; workers sell labour power; labour produces

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[69] (*Manifesto*: 108, n. *, added by Engels 1888). See also Chapter 3§2.

a surplus appropriated by capital;[70] commodities are sold to realise that surplus; rates of profit, which determine capitalists' inclination and capacity to accumulate the surplus, are conceived as a return on owned capital. The circuit can be just as effectively applied to the machine-tools industry as it can be to rock-and-roll; and it is just as effective with services as with goods. Furthermore, the only business profit rate that functions within the circuit as a "seismograph"[71] of the fortunes of capital is that which treats profit strictly as property income, after all wages and salaries have been deducted.

I am far from saying here that the broad definition quoted above exhausts the debate over class. It surely does not resolve specific cases, such as high-level salaried executives, whom it would be a travesty to call working class.[72] But it does provide a better place to start from. It also makes it clear that the profits that are meaningful in the accumulation process are equal to property income pure and simple. From these profits alone can be derived meaningful profit rates and shares (and wage and salary shares) that have a meaningful role in theories of accumulation and crisis. If we also wish to explore class roles and definitions further, we can add to (and subtract from[73]) the base provided by ownership of the means of production. Not only is the starting point clear for this exercise, but so too is the criterion: class and it alone. The exercise could extend consistently to consider the implications of class for necessary and surplus labour and exploitation. It may also be given a quantitative dimension by estimating class shares in income. Having clarified the precise role of property income and shares, we could afford to be more fluid and tolerate differences and anomalies, which are, *prima facie*, unavoidable on such complex terrain.

However, it is far preferable to tolerate anomaly than outright contradiction. Unless the working class is redefined to exclude those whose labour is deemed to be unproductive, class shares in income *must* differ from any rate of exploitation derived from a reallocation of unproductive workers' wages to profits (irrespective of definitional esoterics). Of course, this is the rub. The whole (un)productive

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[70] See the discussion of exploitation in Chapter 4§5.

[71] The phrase is Mandel's (1990: 32).

[72] See, e.g., Miliband (1977: Chapter II).

[73] The retired worker who dabbles in shares is hardly bourgeois.

demarcation unnecessarily complicates the connections between the economic and class dimensions of Marxist theory. In a serious case of the tail wagging the dog, some Marxists are led to redefine the working class in the narrow limits set by their definitions of productive labour.[74] Others engage in unnecessarily laboured efforts to reassure their readers that, (un)productive demarcations notwithstanding, workers are workers are workers.[75]

It makes far more sense to drop the distinction and start with the considerably more reliable broad Marxist position on class. The circuit of capital and the economic categories that operate in it should be adapted accordingly in property-income terms. We can negotiate consistent theoretical mediations between class, exploitation, and operationally effective economic categories only when this has occurred.[76] In addition, this approach unites production, circulation, and distribution, allowing effective theories of accumulation and crisis to be constructed.[77] Research may also focus more clearly on the altogether more important issue of the nature of the labour process.[78] Laibman's assessment of the distinction is unequivocal and convincing: "...in the strong uses that most of its proponents (including, it must be said, Marx) claim for it, [it] is unsound and should be discarded as a residue of bourgeois classical economics."[79]

5 Kalecki: Centrality of Investment Demand

Sustaining an empirical argument for a secularly rising profit share has been troublesome for post-WWII demand-side theorists. However, even if such a case could be made, other difficulties would remain. In particular, under-consumption theory has to overcome one paramount problem in formulation that has long been stressed by its critics. Glyn explains:

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[74] See the discussion of positions in, e.g., Wright (1985).

[75] Mandel (1978a: 46-52). Cf. Mandel (1986).

[76] In light of Chapter 4, I think that *complete* consistency between the theories of class, exploitation, and operational categories also requires that the labour theory of value be dropped, too.

[77] See Chapter 5§§6-7.

[78] Braverman (1974), Glyn (1990b: 275-76), Howard and King (1992: 342-43), and Lazonick (1990).

[79] Laibman (1992: 71). For the connection to classical economics, see, e.g., (*TSV I*: Chapter 4).

> "As Tugan-Baranovsky (summarised by Sweezy, 1942) pointed out with the help of Marx's reproduction schemes, it is not possible to prove the *necessity* of a crisis of underconsumption from a rising rate of surplus value. As Marx explained, whether or not surplus value was realized depends entirely on capitalists' spending decisions (on investment and consumption)."[80]

Investment decisions, the key link in the profit-accumulation chain, are clearly crucial. Howard and King focus on the main point: "[i]n a capitalist economy there is no obvious reason why the ratio of capital to consumption may not rise indefinitely."[81] Investment may be self-sustaining. If so, where does this leave Sweezy's argument?

The Bauer-Sweezy model made certain assumptions about a mature, monopolised economy implying that production of consumption goods would outrun the demand for them. Self-sustaining investment was considered possible only in a young economy that had not built up production capacity in Department I. In a somewhat circular argument, Sweezy said that "when the maturing process is over and the sustainable growth rate of Department I comes to depend essentially on its being geared to the growth of Department II, then matters are very different."[82] This denied the long-run possibility to which Howard and King referred anything other than a "theoretical" status. Instead, stagnation is taken to be the norm: "[i]n the absence of new stimuli (war, opening of new territories, significant technological or product innovations) this stagnant condition will persist."[83] In the short run, an investment boom may occur but it will be short-lived.

Kalecki's approach shifted the emphasis from consumption to investment. He acknowledged the force of Tugan-Baranovsky's claims, repeating the latter's view that "at any level of consumption of workers and capitalists the national product may be sold provided investment is sufficiently large."[84] However, he changed the question. For him, it was necessary to demonstrate *why* investment spending

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[80] Glyn (1990b: 282). See also Armstrong, Glyn, and Harrison (1984: 175-77, 335-37).
[81] Howard and King (1992: 121; see also 1989: 168-71).
[82] Sweezy (1981a: 39).
[83] Sweezy (1981a: 39).
[84] Kalecki (1967: 147).

should be sufficient for expanded reproduction. What would have to exist for there *not* to be insufficient aggregate demand, given what was known about capitalists' normal spending decisions? He added that Tugan-Baranovsky's case rested on "an error that what *may* happen is actually happening, because he does not show at all why capitalists in the long-run are to invest to the extent which is necessary to contribute to the full utilization of productive equipment."[85] However, he also recognised that, to answer Tugan-Baranovsky completely, it would be "necessary to construct a theory of investment decisions...which I always considered to be the central problem of the political economy of capitalism"[86] and which "remains the central *pièce de résistance* of economics."[87] This, he acknowledged, he had also failed to do.

Kalecki's argument was different from under-consumptionism, which proposed that capitalists' unrestrained impulses to accumulate would eventually run up against the effects of insufficient consumer demand. Orders for capital goods would be cut in Department II, which would thus transmit reduced demand to Department I. Kalecki instead questioned whether capitalists would accumulate so strongly, arguing that an investment boom may be self-sustaining, but this would be only up to a point. In Dobb's words, Kalecki emphasised

> "...the dependence of investment-decisions on current profit, which was in turn dependent upon the investment undertaken (*plus* capitalist consumption) in the immediate past. Since investment had the result (after a certain time-lag) of expanding productive capacity, there would only be sufficient demand to keep this capacity occupied (and to enable profit on it to be realised) if investment continually expanded (thus keeping demand in step with growing productive capacity). Without the intervention of some special 'boost' factor, there was, accordingly, a chronic tendency for new investment to slacken for want of inducement, and once slackened to decline cumulatively towards zero..."[88]

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[85] Kalecki (1967: 147).
[86] Kalecki (1967: 148).
[87] Kalecki (1968: 165).
[88] Dobb (1973: 232; see also 221-23). See also Foster (1987: 61-62) and Sherman (1991: 70-71, 198, 250-51).

Kalecki had concluded from this "that long-run development is not inherent in the capitalist economy. Thus specific 'development factors' are required to sustain a long-run upward movement." The single most important "development factor" was innovation. Yet the "intensity of innovations in later stages of capitalist development" would decline, the result being "retardation of the increase in capital and output."[89] If the degree of monopoly also rose, thus effecting a shift in national income from wages to profits, growth would be retarded further. However, in the normal situation, in which the economy would be operating at less than full capacity, Kalecki held to the view that relative income shares had remained approximately constant.[90]

Some tension over the appropriate emphasis to give to consumption or investment is evident in the work of demand-side theorists. Foster, wrongly in my view, seems to merge Kalecki's approach with under-consumptionism, downplaying relevant differences of emphasis and the important matter of Kalecki's well known view on relative income shares.[91] However, Foster has also criticised the French "regulation school"[92] for neglecting the decisive role of investment.[93] While the regulationists have offered "occasional insights," he argues, "the entire emphasis of the theory, insofar as it focuses on the so-called 'Fordist' dynamic, is rather on consumption..." Instead, the problem should be traced to "the tendency of investment to stagnate (due to overexploitation, overcapacity, and the lack of external stimuli like new capital-absorbing technologies and markets)..." Kalecki's dictum is that the "'workers spend what they get; the capitalists get what they

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[89] Kalecki (1969: 161).

[90] See, e.g., Kalecki (1969: 28-41, Statistical Appendix; 1968: 168-69; 1954, Statistical Appendix). See also Dobb (1973: 223, 271). Kalecki's respect for empirical rigour has been noted: "There is also relevance in Kalecki's rigorous and empirical approach for contemporary Marxian economics -- an escape from dogmatism..." (Kriesler and McFarlane 1993: 229). King (1995c: 464) also notes the "Kaleckian preference for realism in theory construction," an attribute shared by Steindl.

[91] Foster (1987: 61-62).

[92] See, e.g., Aglietta (1982, 1979) and Lipietz (1987, 1986). Summaries of the regulation approach are given by Boyer (1990: 331-35), Howard and King (1992: 322-23), and Norton (1992: 182-83). It is proper to locate this school within the "realisation" thread of Figures 5.1 and 5.2. See the comments by Foster (1987: 64) and Duménil and Lévy (1993: 31) and the analysis by Brenner and Glick (1991: 78-82).

[93] See Foster (1987: 64-66). Part of Foster's difficulty with this school is that it supports a declining profit view of some post-WWII developments in much the same terms as Bowles, Gordon, and Weisskopf (Lipietz 1986: 13). See also Chapter 8§4.

spend'...Thus, the realization problem has to be seen mainly in relation to problems associated with investment out of profits rather than wage-based consumption."[94]

Steindl followed Kalecki in articulating a theory of stagnation under oligopoly. Lower rates of economic growth, he maintained, were symptomatic of capitalism's economic maturity.[95] On the one hand, the growth of oligopoly implied that capital could, potentially, at least, secure higher profit rates and profit shares in production through an increasing gross profit margin (or mark-up on cost price). On the other, "as Marx explained, producing surplus value does not necessarily mean realising it, and the realisation depends on the existence of a sufficient market." In terms of Kalecki's profit equation, he added "that surplus value can be realised only to the extent which there is a corresponding amount of investment and capitalists' consumption."[96] If the latter were maintained at a high level, which occurred during the postwar boom as a result of "military and civilian government expenditure and (in Europe) by the importation of US technology," then Steindl's "profit function" anticipated that the rate of profit and the profit share realised by capital would rise.[97] If investment and capitalists' consumption fell to a lower level, as occurred after 1970 in conjunction with a long-run reaction by capitalists against full employment, then the result would be excess capacity and a reduced level of realised profits.[98]

Indeed, excess capacity figures very prominently in Steindl's theory of stagnation. Under oligopoly, as compared with competitive capitalism, capitalists react to lower growth by seeking to maintain the higher prices and profit margins that corresponded to the preceding period of higher growth. This is to say that "the profit function becomes fairly rigid, and the weight of adjustment is thrown on utilisation, with adverse effects on investment and further growth... We might

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[94] Foster (1987: 65).

[95] See, e.g., Steindl (1979, 1976). A review of Steindl's views is provided by King (1995c: 464, 469 n. 1), including a comment on Steindl's relationship to Kalecki and the debt acknowledged by Sweezy to both Kalecki and Steindl. See also the brief summary by Foster (1987: 62-63) and the passage cited in §3.

[96] Steindl (1976: 245).

[97] King (1995c: 469).

[98] King (1995c: 469). The stress placed on the political reactions of capitalists and governments in explaining the relative stagnation of the 1970s is similar to Lipietz (1986), though Steindl did not "endorse the view that wage militancy, declining effort levels and the consequent profit squeeze were fundamental to the crises of the 1970s" (King 1995c: 469). Lipietz does concede this view of the onset of stagnation. King notes that Steindl may be criticised on theoretical and empirical grounds, since "both the rate of profit and the profit share began to fall before any significant fall in capacity utilisation" (1995c: 469).

define maturity as the state in which the economy and its profit function are adjusted to the high growth rates of earlier stages of capitalist development, while those high growth rates no longer obtain."[99] Thus the actual rate of profit is reduced through the effect of capacity use on the output-capital ratio (see §3 and Chapter 5§5(i) and equation (5.9A)).[100] From this, Steindl's profit function depicts profits as dependent on the level of capacity use.[101] Capitalists are torn between the desire to accumulate, and thereby to increase potential profit margins, and the reality that, in the face of inadequate effective demand, this will merely result in excess capacity. The result is that "by reducing its utilization rate rather than its prices...a chronic condition of secular stagnation emerges, since the degree of capacity utilization is itself the main determinant of investment demand."[102]

6 Principal Claims and Problems

It is now possible to round off the discussion of demand-side themes. The most general claim is that expressed by both Kalecki (and Steindl) and Sweezy: sustained investment growth is not possible and excess capacity and stagnation would result. However, two weighty empirical and theoretical problems would remain even if excess capacity and stagnation were proven empirically, which is an intuitively plausible assessment of the 1970s and 1980s. First, if a rising realised profit share (Π^r/Y^r), as depicted in Figure 6.2, does not materialise over time, or before crucial turning points in capitalist development such as the end of the long post-war boom in the early-mid 1970s, the under-consumption argument would collapse. The cyclical under-consumption case, which was outlined in Chapter 5§5(iii), would also founder for the same reason.

Second, the focus would then narrow logically to the question of why investment faltered. The rate of profit should figure centrally in any convincing answer. This would also include historical, social, political, and institutional factors, as well as

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[99] Steindl (1990b (1979): 116), cited by King (1995c: 468-69).

[100] Steindl writes 'the capital-output ratio in terms of its two components, the capital-capacity ratio and the degree of utilisation. The former is given by technology, while the latter is determined by the state of effective demand." (King 1995c: 468) See Chapter 10§6, where I explain that the capacity (output)-capital ratio is also governed by the level of growth.

[101] King (1995c: 468).

[102] Foster (1987: 63).

issues of competition, technological change, innovation, and external stimuli.[103] However, if it is found that either a long-run or short-run falling rate of profit *in production* is the key, reducing retained profits and circumscribing the incentive to invest,[104] the root problem could not properly be called one of realisation. Naturally, the focus would shift to other explanations: rising wages or lagging productivity; rising composition of capital.

The significance of these propositions is that, even with low capacity use, the conjunction of an influential falling rate of profit caused in production and the absence of a rising realised profit share would, *prima facie*, devastate the demand-side case. Note, however, that the argument can turn on the role of capacity use itself. For example, Foster suggests that "...the historical problem of investment...in the monopoly era cannot simply be seen as a reflex of movements in the profit rate" and, in the light of Steindl's view, that "the degree of capacity utilization is itself the main determinant of investment demand."[105] So we also need to examine the timing of the decline in capacity use and its relationship to investment demand. This relationship was also deemed to be significant in the cyclical underconsumption model. Note, too, if we allow for the effects of a short-run Kaleckian political business cycle or a long-run reaction against full employment, as suggested by Steindl, then a symbiotic decline of both investment and capacity use may be expected ahead of changes in the other key variables or, for example, as a preventative medicine taken at the first sign of a possible "profit squeeze" attributable to rising levels of employment. Chapters 9 and 10 will analyse the capacity use, income share, and output-capital ratios more carefully. It will be seen there that the variables interact in more complex ways than may appear at first the first impression. Important consequences will be suggested as a result, especially in Chapter 10§6.

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[103] See Kalecki (1968: 183).

[104] "Note, however, as the Kaleckians generally fail to do...if sufficient surplus value cannot be produced then capitalist investment plans will be frustrated." (Howard and King 1992: 104)

[105] Foster (1987: 65, 63). See also Sherman (1991: 128).

7
Rising Composition Theories

1 Origins and Sources

Marx thought the tendency of the rate of profit to fall because of a rising organic composition of capital was "in every respect the most important law of modern political economy."[1] Its formulation was "one of the greatest triumphs over the pons asinorum of all previous economics."[2] Despite later attempts to reinterpret as equivocation his qualification that the law would operate as a tendency, the textual evidence is simply overwhelming: Marx did think the profit rate would actually fall. "It seems probable that Marx, in common with other economists of the early and mid-nineteenth century, assumed that this was an actual trend," and that his task was to explain it.[3]

Chapter 5§3 outlined Marx's argument briefly. However, a more thorough examination reveals that his formulation of the "the most important law" comprised a complex hierarchy of integrated long-run propositions[4]:

(i) Accumulation and technological change generally had a labour-saving bias,[5] which would increase the ratio of means of production to wage labour

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[1] (*Grundrisse*: 748).

[2] Marx to Kugelmann. July 11, 1868. (*Correspondence*: 194).

[3] Dobb (1973: 157-58; cf. 1937: 109). See also (*Capital III*: 337, 339, 341, 346) and Meek (1967b: 216).

[4] (*Capital III*: 346). See also Shaikh (1987: 117), citing Mandel (1975: Chapter 4). This is not to deny short-run effects nor that Marx though the tendency could cause a crisis. See, e.g., (*Capital III*: 357-58), Howard and King (1976: 41), and Chapter 5§6.

[5] (*Capital I*: Chapter 25) and (*Capital III*: Chapter 13). Blaug (1968: 32-38), citing Robinson (1956), disputes this proposition. However, there are good reasons to say that "subsequent experience has entirely vindicated Marx's view" (Glyn 1990b: 280). See also Dobb (1958: 40) and Chapters 8§2 and 10§2, Chart 10.7.

(technical composition of capital). This would dominate other tendencies (the so-called counteracting influences).

(ii) Two fundamental counter-tendencies[6] would also be generated by accumulation, technological change, and the nature of productivity growth: (a) the *relative* value of means of production (constant capital) to wage goods (variable capital) would fall, so that the value composition of capital world rise by less than in its technical composition.[7] The reasons were slower agricultural productivity growth and the devaluation of constant capital by crises and the concentration and centralisation of capital;[8] and (b) "[t]he tendential fall in the rate of profit to fall is linked with a tendential rise in the rate of surplus-value."[9]

(iii) Other significant productivity effects would normally shape how the tendency and counter-tendencies would operate over the long run: (a) there would be an increase in total labour time in production: the value of output, surplus value, and variable capital would rise; (b) the mass of commodities would grow by more than their value and surplus value: unit prices and the mass of profit per unit would fall; (c) the reserve army of labour would also rise: labour supply would increase by more than employment; and (d) the real wage would rise.[10]

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[6] (*Capital III*: 161).

[7] (*Capital III*: 323-26, 356-58, 368-70), (*TSV II*: 415-16), and (*TSV III*: 312). See also Chapter 5§§2-3. Marx proposed valuation of all items at reproduction cost at the time of measurement (*TSV II*: 415-16). See Chapter 3§6(ii).

[8] (*Capital III*: 354-55, 358-68, 372-73), (*TSV II*: 18-19), (*TSV III*: 311), and (*Grundrisse*: 750-51). Agriculture provided most wage goods. See also Dobb (1973: 154-55) and Rosdolsky (1977: 379-80, 405-09). Meek (1967b: 210 ff.) suggests different productivity outcomes. See the discussion of Meek by Howard and King (1992: 139-40).

[9] Reasons for this were set out in Chapter 6§2. The argument turns on productivity growth in wage goods industries. See (*Capital III*: 347; see also 325-26, 332-33, 336, 339-42), (*TSV III*: 300, 367-68), and (*Grundrisse*: 747, 763). See also (Dobb 1973: 154; 1963a: 284; 1958: 40-41 and n. *), Mandel (1975: 594), and Rosdolsky (1977: 378-79, 401).

[10] (*Capital III*: 328-34, 335-38, 372) and (*Capital I*: 781-799). Note the possibility of erroneous interpretation if single-turnover and annual distinctions are forgotten. The case for (d) is made in Chapter 8§1.

It is possible to achieve this set of conditions, even with economies of scale, though in this case the task would obviously be more difficult.[11] However, the biggest problem in Marx's formulation is not about meeting *all* the conditions as he specified them: rather it is about meeting the *minimum* necessary condition of a falling annual output-capital ratio (diminishing returns to accumulation). It is not clear, either theoretically or empirically, why this should occur.[12]

Some rare passages in *Capital* do recognise that there are theoretical gaps, which are revealed when the one-year assumption is dropped and the effects of annual productivity growth are hinted at. Unfortunately, the crucial third volume of *Capital* consigns this recognition to an incidental role in the theoretical exposition.[13] However, the content of the "rare passages" is rich. For instance, in the important Chapter 4, "The Effect of Turnover on the Rate of Profit," we find:

> "We explained in detail in the second volume [*Capital II*: Chapter 16] how a reduction in the turnover time or in one of its two component sections, production time and circulation time, raises the mass of produced surplus-value produced. But since the rate of profit simply expresses the ratio of the mass of surplus-value produced to the total capital engaged in producing it, it is evident that any reduction of this kind raises the rate of profit as well...
>
> "The main means whereby production time is reduced is an increase in the productivity of labour, which is commonly known as industrial progress. If this does not also involve a major increase in the total capital investment, due to the installation of expensive machinery, etc., and therefore a fall in the rate of profit as reckoned on the total capital, then this profit rate must rise. And this is decidedly the case with many of the most recent advances in the metallurgical and chemical industries. The newly discovered methods of iron

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[11] Productivity growth from economies of scale, not just technological change, is implied by some of Marx's comments. See (*Capital III*: 198, 325-26, 332-33, 349, 354, 359, 364-75), (*Capital I*: 777, 776-81), Glyn (1990b: 279-80), and Fine (1975: 55-56).

[12] This was explained in Chapter 5§3.

[13] See, e.g., (*Capital III*: Chapter 4*, 142*, 242-43, 252, 334-35*, 424-25), (*Capital I*: 752-53), and (*TSV III*: 229, 390-91). An asterisk indicates that the citation is, or includes, an editorial insertion by Engels. Of course, the unfinished state of Marx's manuscripts should be noted. For example, Engels's Preface to *Capital III* remarked that Marx had left no more than a title for Chapter 4 and that the formula for the profit rate Marx had presented in Chapter 3 "needed a certain modification if it was to have general validity" (*Capital III*: Preface, 94).

> and steel preparation...shorten what were previously very protracted processes to a minimum."[14]

Engels unambiguously means the annual rate of profit: a subtle but significant shift in emphasis. He details its implications in calculations that take up the remainder of this inserted chapter. The second paragraph is also immensely important. Belied by its unassuming style, it contains two elements that could rightly be regarded as key grounds for any serious study of the development of capitalism. On the one hand, there is the rate of profit and all that it implies for the accumulation process. On the other, there is the technology and technological change extant in certain historical periods. The connections between the two find expression in the variables and ratios of the preferred decomposition of the rate of profit given in Chapter 5§2(ii), especially in the output-capital ratio.

Later Marxist economists have been much less certain than Marx was about the tendency. Support for it has been a minority position historically and is still one today.[15] There have been two basic theoretical lines of criticism, each with a long pedigree. First, Marx did not explain why a rising composition of capital would be dominant. The counter-tendencies may be more powerful in reality (or over very long periods). Second, there is no reason to expect that capitalists would continue to introduce labour-saving technical changes if these increased the value composition of capital to such an extent that it lowered their rates of profit. The first criticism will be discussed in §3, regarding the line of support for Marx's tendency identified with Grossmann, and in §4, regarding some of the arguments presented by Mandel and Shaikh. The second criticism will be examined in §5. This will also allow Shaikh to be revisited on this issue in §7 and for Laibman's significantly less dogmatic views in support of the tendency to be aired in §6. Three other sites of contention have already been dealt with: value *versus* price formulations, the (un)productive distinction, and the view that "the tendency to economic breakdown must be deduced from the inner nature of capitalist

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[14] Engels (*Capital III*: 163-64). He presents other examples of low-cost industrial progress and then looks at reduced circulation time. See Chapter 5§2(ii) n. 24.

[15] Shaikh (1992a: 30).

production, not from superficial appearances of commodity circulation or *exchange*."[16]

2 Problematic Formulations

With the exception of Dobb,[17] supporters and critics alike have inadequately specified the tendency *within* Marx's framework. Detailed analysis can become unnecessarily murky as a result, which is why I will try to identify problematic formulations at the outset. Chapter 5§2(i) explained that the annual rate of profit was a function of four ratios (equation 5.4M):

$$P' = ns'/(c_p'u' + 1) \tag{7.1}$$

but that the single-turnover rate, governed by the one-year assumption (n=1), was a function of three only (s', c_p', and u'). In equation (7.1), s' is the rate of surplus value (S/V = s/v), c_p' is an index of the physical composition of capital (c_p/v_p),[18] u' is an index of relative unit values of constant and variable capital (u_c/u_v), and n represents the number of turnovers of variable capital per year, the proportionate change in which is the same as the increase in physical labour productivity.

Alas, most participants in the debate over Marx's tendency have specified the productivity tug-of-war on the rate of profit in single-turnover (one-year assumption) form. Thus criticisms tend to be narrow in focus, arguing only that (i) reduced values of constant and variable capital will see the value composition of capital (c' = c/v) increase by a smaller proportion than the physical increase, and (ii) that the rate of exploitation may increase, or is likely to increase, by a larger proportion than will the value composition. Howard and King present the views of Croce, Tugan-Baranovsky, Bortkiewicz, Charasoff, Moszkowska, Shibata, and

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[16] Howard and King (1989: 317). See Chapters 4, 6§4, and 5§7, respectively.

[17] Dobb (1973: 156; 1937: 96 n.2, 108; see also 1963a: 288-91). See also Chapter 8§2 and Howard and King (1992: 138) and Robinson (1966: 7; 1959: 105). Howard and King (1975: 232 n. 25) also note (i) the stock basis of the composition of capital and (ii) that the rate of exploitation in Marx's profit rate formula should be regarded as the annual rate of exploitation.

[18] My reasons for not calling this the technical composition of capital, of which it may be thought of as a multiple, are explained in Chapter 5§2(i), especially n. 22 and n. 28. See also Chapter 3§3(i).

Robinson, which are all framed in this way.[19] Key presentations of Dickinson and Meek, while substantively more sympathetic to Marx, also contain this problem.[20] Sweezy's arguments against the tendency provide a particularly clear case of the limited formulation, as does Okishio's rejoinder to Sweezy and Robinson.[21] A random selection of modern examples is Brewer, Fine, Glyn and Sutcliffe, Mandel, Petri, Weeks, and Weisskopf.[22]

The error is straightforward: all productivity changes are extruded through the rate of exploitation (income shares) and the value composition, and the fundamental importance of the change in the output-capital ratio is ignored. This variable is explicit in the alternative approach given in Chapter 5§2(ii). Its effects are contained in Marx's annual framework, in which the turnover variable (n) is explicit, but are denied by the single-turnover form. Thus it is possible within equation (7.1) to obtain the seemingly perverse result of a constant or rising rate of profit without the operation of the traditional counter-tendencies. It is even possible to get this result in a model that includes a falling rate of exploitation and a rising value composition of capital. The outcome is determined by the relative magnitudes of the proportionate changes of the four variables (n^*, s'^*, u'^*, and $c_p'^*$), and it is easy to imagine any number of (reasonable) possibilities.[23]

The error weakens the various criticisms of Marx's tendency but, if it did no more than that, it would only warrant limited recognition. However, its unintended consequences are significant: an obverse tendency among critics to exaggerate the theoretical importance of the rate of exploitation and the declining relative unit costs of constant to variable capital. Exaggerated claims, especially about the rising rate of exploitation, themselves become strained and vulnerable, no more so than at an empirical level, where it is difficult to argue that income has shifted relatively towards capital. Supporters of Marx's tendency conveniently pick up on the

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[19] Howard and King (1992: Chapter 7). See also Rosdolsky (1977: 398-411; esp. 405, 409-10 n.28, n.30), who quotes Moszkowska (1935) and Robinson (1942). Groll and Orzech (1989a) provide a historical survey of the arguments and contributions concerning Marx's tendency.

[20] Dickinson (1957) and Meek (1967b: 203 n.3, 210-16). See also Shoul (1967: 156-57) and Gillman (1958: 44-45).

[21] Sweezy (1981a: 50; 1942: 68), Okishio (1990: 98), and Robinson (1942).

[22] Brewer (1995: 134-37), Fine (1975: 55-58, 61), Glyn and Sutcliffe (1972: 230), Mandel (1990: 27-28), Petri (1990: 322), Weeks (1982: 74-75), and Weisskopf (1978: 243). Oddly, Weisskopf also chose to define Marx's capital advanced (c+v) in flow terms (1978: 257-58 n.8).

[23] See Table 7.2 and the accompanying discussion in §3.

exaggerations in their replies. As they have not been confronted directly with Marx's annual framework, they also typically rejoin the debate with an obdurate theoretical restatement of Marx's case in equally problematic single-turnover terms. Examples are Mandel, Rosdolsky, and Yaffe.[24] Shaikh is less vulnerable but still skirts the central problem.[25]

The inadequate theoretical language in which the debate has been conducted has caused dissatisfied participants to depart from Marx's framework for alternative decompositions of the profit rate that capture the full productivity effects of technological change more effectively.[26] Alternative approaches are also better suited to empirical work and have grounded the various empirical challenges to Marx's tendency that have appeared in the last three decades.[27] Empirical work has also been produced to challenge the critics and reinforce the traditional view.[28] Alas, having been unable to grapple satisfactorily with each other at the theoretical level, the parties to the contest also seem unable to land punches empirically. Their different techniques of aggregation and estimation mean that the problem merely reappears in a different guise, in the form of arcane squabbles over statistical idiosyncrasies, conceptual faithfulness, and definitions (e.g., over productive and unproductive labour[29]). The debate is not irresolvable, but it does take work to avoid the various theoretical and definitional culs-de-sac into which it is easy to stray.

3 Grossmann's Model

Grossmann's work was heavily criticised by Marxists when it was first published.[30] In subsequent years few gave it much support, with the exception of Mattick and Rosdolsky, until Yaffe's 1973 contributions appeared. These were

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[24] Mandel (1990: 27-28; 1981: 31), Rosdolsky (1977: 398-411), and Yaffe (1973a). See also Norton (1992: 158-59).

[25] Shaikh (e.g., 1990c: 306-08; 1978b: 235; 1978c: 232-35). See §4.

[26] Starting, I think, with Dobb, e.g., (1958: 37-52). See, e.g., Glyn and Sutcliffe (1972: 54 n*), Weisskopf (1979, 1978), etc. See Chapter 5§2(ii).

[27] Weisskopf (1979) and others will be discussed in Chapter 8.

[28] See, e.g., Moseley (1991, 1988, 1987) and Shaikh (1992a, 1987, 1978b).

[29] See Chapter 6§4.

[30] Grossmann (1992) is an English translation of the original 1929 work. See King (1995a).

"faithful to the spirit of Grossmann's theory."[31] A fillip was also given by the interest stimulated in Rosdolsky when his major work, *The Making of Marx's 'Capital'*, was published in English in 1977.[32] Shaikh entered the discussion in 1978, endorsing the general approach of Grossmann, Mattick, and Yaffe.[33] It will be useful, then, to take a closer look at Grossmann's model of accumulation and breakdown. However, the examination is illustrative: not all Marxists who emphasise the role of a rising composition endorse it.[34] Supporters of Grossmann also stress that the model is an initial and abstract one.[35]

Steindl explained the rationale of Grossmann's model in the following way:

> "The starting point of his theory is an arithmetic example of Otto Bauer based on the reproduction schema of Marx which was intended by Bauer (in a polemic against Rosa Luxemburg) to demonstrate that realization under extended reproduction was perfectly possible. Bauer worked out his example only for four years but Grossmann extended it to 35 years in order to demonstrate that the accumulation process could not proceed without limit. Following Bauer, he made the following assumptions: 5 per cent growth of variable capital (determined exogenously by the growth of the population) while the constant capital was to grow by 10 per cent; surplus value was to be constant at 100 per cent."[36]

The result of the rising value composition of capital is that it will become impossible to sustain the supposed rate of accumulation and capitalist consumption. Systemic breakdown will arrive when capitalist consumption falls to zero. A version of the original model is given here as **Table 7.1**.[37]

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[31] Howard and King (1992: 143, see also 144; 1989: 332).

[32] Meek (1967b: 205 n.4) also explains that he leans heavily on Rosdolsky (1956).

[33] Shaikh (1978c: 236-37), citing Jacoby (1975).

[34] Mandel (1981: 38-39, 84-88; 1975: 31) is a critic of Grossmann, Mattick, and Yaffe but not of Rosdolsky. My presentation is drawn principally from Howard and King (1992: 132-33, 143-44; 1989: Chapter 16) and Steindl (1990a: 199-200). See also Sweezy (1942: 209-13) and Norton (1992: 157-58).

[35] Kuhn (1995: 186). See Grossmann on this, e.g., (1992: 130-31).

[36] Steindl (1990a: 199), referring to O. Bauer (1913). See Grossmann (1992: 67-85).

[37] Grossmann (1992: 68 Table 2.1, 75 Table 2.2). See also Howard and King (1989: 320-21, Table 16.1; see also 318, 334 n. 5) for a representation of Grossmann's model with his original figures, on which this table and Tables 7.2(i)-(iv) are based.

TABLE 7.1

Grossmann's Model of Accumulation and Breakdown

Year	Constant Capital	Variable Capital	Constant Capital	Variable Capital	Surplus Value	Addit'n to Constant Capital	Addit'n to Variable Capital	Capital-ists' Consum-ption	Total Value Added	Surplus Value Accum.	Annual Rate of Profit
	(Stock)	(Stock)	(Yr Flow)	(Yr Flow)	(Yr Flow)					%	
Sym.	c	v	D	V	S	ac	av	CC	Y (=L)		P'
Calc.			d.c	n.v	s'.n.v	c*.c	v*.v	S-ac-av	V+S	(ac+av)/ S	S/ (c+v)
Rates	Growth/ year (c*)	Growth/ year (v*)	Deprecn./ year (d)	T'overs/ year (n)	Rate of s.val. (s')				(Total Value= D+V+S)		
	10.00%	*5.00%*	*100.00%*	*1*	*100%*						
1	*200000*	*100000*	200000	100000	100000	20000	5000	75000	200000	25.0%	33.3%
2	220000	105000	220000	105000	105000	22000	5250	77750	210000	26.0%	32.3%
3	242000	110250	242000	110250	110250	24200	5513	80538	220500	27.0%	31.3%
4	266200	115763	266200	115763	115763	26620	5788	83354	231525	28.0%	30.3%
5	292820	121551	292820	121551	121551	29282	6078	86191	243101	29.1%	29.3%
6	322102	127628	322102	127628	127628	32210	6381	89037	255256	30.2%	28.4%
7	354312	134010	354312	134010	134010	35431	6700	91878	268019	31.4%	27.4%
8	389743	140710	389743	140710	140710	38974	7036	94700	281420	32.7%	26.5%
9	428718	147746	428718	147746	147746	42872	7387	97486	295491	34.0%	25.6%
10	471590	155133	471590	155133	155133	47159	7757	100217	310266	35.4%	24.8%
12	570623	171034	570623	171034	171034	57062	8552	105420	342068	38.3%	23.1%
14	690454	188565	690454	188565	188565	69045	9428	110091	377130	41.6%	21.5%
16	835450	207893	835450	207893	207893	83545	10395	113953	415786	45.2%	19.9%
18	1010894	229202	1010894	229202	229202	101089	11460	116652	458404	49.1%	18.5%
20	1223182	252695	1223182	252695	252695	122318	12635	117742	505390	53.4%	17.1%
22	1480050	278596	1480050	278596	278596	148005	13930	116661	557193	58.1%	15.8%
24	1790860	307152	1790860	307152	307152	179086	15358	112709	614305	63.3%	14.6%
26	2166941	338635	2166941	338635	338635	216694	16932	105010	677271	69.0%	13.5%
28	2621999	373346	2621999	373346	373346	262200	18667	92478	746691	75.2%	12.5%
30	3172619	411614	3172619	411614	411614	317262	20581	73771	823227	82.1%	11.5%
32	3838868	453804	3838868	453804	453804	383887	22690	47227	907608	89.6%	10.6%
33	4222755	476494	4222755	476494	476494	422276	23825	30394	952988	93.6%	10.1%
34	4645031	500319	4645031	500319	500319	464503	25016	10800	1000638	97.8%	9.7%
35	5109534	525335	5109534	525335	525335	510953	26267	-11885	1050670	102.3%	9.3%

Adapted from Grossmann (1992: 68, Table 2.1; 75, Table 2.2). See also Howard and King (1989: 320-21, Table 16.1), using figures from the German reprint of Grossmann (1992: 119, Table II). Figures in italics in Table 7.1 represent the assumptions and/or starting data of the model.

A primary target of critics was the model's assumptions about the rate of accumulation. Grossmann's assumed continuous ten-five rate was "a mere play with numbers," argued Helene Bauer.[38] The valid (Okishian) theoretical question was posed: why should capitalists continue to accumulate in such a self-destructive way? Grossmann was also criticised for ignoring demand-side factors, distinctions between the different departments, and the possibility of a falling reserve army of labour. His breakdown thesis was attacked with claims that Marx had a theory of

[38] H. Bauer (1929: 274), quoted by Howard and King (1989: 330; see also 329-31, 335 n.42). See also Mandel (1981: 84-88).

recurrent crises, not breakdown, and that Grossmann could not adequately explain the actual crises that had occurred without his hypothesised breakdown. Methodologically, it was also wrong to suggest such an underlying systemic logic that "was immune to challenge from historical experience or empirical research."[39]

Also obvious from Table 7.1 are Grossmann's other key assumptions. First, the traditional counter-tendencies are absent. A constant rate of surplus-value and a constant ratio of constant to variable capital both mean that no productivity growth is assumed to flow from accumulation. It was one of *Capital's* most formidable contributions to have emphasised the role of the productivity growth generated by technological change. It is not that Grossmann did not recognise this, but rather that he wrongly treated its effects as incidental to the fundamental role of a rising composition.[40] In reply, Kuhn alleges that critics "have failed to understand Grossmann's method, which, following Marx, moves "from the most abstract to more concrete levels of analysis." Moreover, they have ignore Grossmann repeated emphasis

> "...that his use of Bauer's reproduction scheme, reflecting his understanding of Marxist methodology, is an initial stage of analysis. The scheme captures the fundamental aspects of reality, and forms the basis for a more nuanced account of the totality of capitalist society, as simplifying assumptions are relaxed and the analysis becomes more concrete."[41]

Of course, any theoretical formulation (or exposition of it) will find it hard to avoid using something like a method of successive approximations or, in an Hegelian sense, sublation. However, for the theory to be valid, and not just the method, it must pass three basic tests. First, the posited "fundamental aspect" must genuinely be fundamental in reality. Second, the components of the theory must be specified appropriately in different contexts (e.g., in crisis theory). Third, the

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[39] King (1995a: 115). The criticism that the model was formulated in labour values, not prices of production, is part of the debate over the transformation and the labour theory.

[40] Howard and King (1989: 330) and Mandel (1981: 85).

[41] Kuhn (1995: 186-87). The list of critics of Grossmann he targets is long: Otto Bauer, Braunthal, Pannekoek, Varga, Behrens, Sweezy, Howard and King, Mandel, and others. See again Grossmann (1992: 67-85, 130-31).

theory must be formulated rigorously.[42] The issue here is not really Grossmann's method but rather his theory. The simple question is: did he get it right? I will focus on the third criterion here. Even if we accept Kuhn's argument that Grossmann introduced the traditional counter-tendencies at a more concrete level of analysis, which he did do,[43] it must be said that a second set of problematic assumptions still spoils the model.

These assumptions follow because Grossmann uses the unrealistic one-year assumption. On a methodological level, a uniform annual turnover of capital *can never* properly represent an abstract structural feature of reality because it can only ever depict a concrete specification (in this case one that will never exist).[44] Within Grossmann's model, however, the one year assumption erases a key effect of productivity change (a critical counter-tendency) and, *ipso facto*, gives more weight in theory to a rising composition than it deserves. Grossmann's later account of counter-tendencies, while it mentions the role of turnover, never really gets to the heart of the matter.[45] As a result, the problems caused by the model's prevailing assumptions have flow-on consequences at other levels, engendering "a fatalistic perspective with profoundly damaging implications for Marxism as a theory of conscious human action."[46]

To assess Grossmann's theory of accumulation and breakdown accurately, we should move directly to a model constructed within Marx's annual framework. All three counter-tendencies can then be observed (n*, s'*, and u'*). The magnitude of each counter-tendency can be derived from assumptions about productivity growth, which averts problems and contradictions flowing from arbitrary choices. **Table 7.2**, which is presented in four parts at the end of this section, offers a more complete Marxist production model of accumulation, tendency, and counter-tendency. Its key features are:

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[42] See Chapters 1-2, 3§1. See also the discussion of Grossmann on production and circulation in Chapter 5§7.

[43] See Grossmann (1992: Chapter 3) and Kuhn (1995: 187).

[44] The case here has been made in various places. See, e.g., Chapter 3§§1 and 3(ii). (The absence of circulation variables is another issue altogether.)

[45] Grossmann (1992: 140-42).

[46] King (1995a: 115).

(i) Value added net of depreciation is the focus of this model. It is thus unnecessary to specify depreciation or intermediate consumption of constant circulating capital.[47] Similarly, it is irrelevant whether a gross or net (i.e., less accumulated depreciation) measure of the constant capital stock is used.

(ii) Grossmann's "ten-five" accumulation rate is maintained throughout. The stocks of constant and variable capital advanced are revalued each year at reproduction cost: i.e., in inverse proportion to productivity growth in Departments I and II, respectively. The physical composition of capital ($c_p'^*=c_p^*/v_p^*$) thus grows at the ten-five rate but the value composition changes with relative productivity: i.e., the proportionate change in the ratio of unit costs of constant to variable capital ($u'^*=u_c^*/u_v^*$).[48]

(iii) Similarly, the inverse of productivity growth in Department II is set against the proportionate increase in real wages to calculate the rise in the rate of surplus value (s'^*).[49]

(iv) The proportionate growth in the number of turnovers of variable capital per year (n^*) is the weighted average of productivity growth in the two departments, calculated using aggregate physical and labour value data for value added $(Y_p/L)^*$.[50] Department II is defined as the non-capital goods industry: i.e., it includes capitalists' consumption. Current-year turnover data are calculated using each preceding year's figures for $(Y_p/L)^*$.

(v) The annual rate of profit (P') is shown separately from its operationally meaningless single-turnover counterpart (p').

(vi) The only independent variables are the rates of accumulation of constant and variable capital, productivity growth, and the real wage. These

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[47] More realistic data are given, e.g., in Tables 3.2-4.3.

[48] (*TSV II*: 415-16). See the explanations in §1 and Chapters 3§6(iii) and 5§2(i).

[49] See the explanation in Chapter 6§2 and the references given there at. n. 18.

[50] See the explanation in Chapter 5§2(i).

and all constant derived variables are presented separately above the table. Additional columns to the right of the table, though not shown here, can be calculated easily to demonstrate that this annual Marxist model is compatible with the preferred alternative of Chapter 5§2(ii).

Part (i) of Table 7.2 is Grossmann's "abstract" case in the new form. The irrealism of this model is exposed starkly. The proportions between constant and variable capital advanced are also unrealistic. Hence the more realistic data from Tables 3.3-4.3 are used in subsequent parts.[51] Part (ii) makes very modest "concretisations" to introduce the counter-tendencies: annual productivity growth is set at 2% in Department I and 1% in Department II, while real wages do not grow. Average aggregate productivity growth is 1.48% over the 36 years shown. Interestingly, the modest counter-tendencies and the new ("more realistic") data conspire to give Grossmann's basic result: capitalists' consumption falls below zero in year 37.[52] In this case, the rising capital composition is the dominant structural tendency and the rate of profit (P') falls from the outset. The strongest counter-tendency is n* (average 1.48%), compared with s'* (1%) and u'* (0.98%).

Part (iii) makes two additional modifications: productivity growth in Department I is set at 2.5% and Department II at 1.5%. Average aggregate productivity growth is 1.6% for the first 35 years and 2.12% over the full 100 years shown. The single-turnover rate of profit (p') declines from the start, but the meaningful annual rate (P') declines for 50-60 years and then rises. Capitalists' consumption never declines and is still rising strongly by year 100. Again, n* is the most powerful counter-tendency. Aggregate private business annual productivity growth during the boom years from the late-1950s to mid-1970s averaged 3% or more, while for 1949-60 it was greater than 2%, and from the mid-1970s it has been less than 2%.[53] Of course, all data here are illustrative and it would be wrong to prejudge the empirical results of Chapter 10. However, the data in Part (iii) are sufficiently realistic to challenge the coherence of Grossmann's breakdown thesis "at more

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[51] The caveats stated concerning the data of Tables 3.3-4.3 apply here, too.

[52] These productivity figures with Grossmann's original data postpone the "collapse" to well beyond the 100-year mark. Mandel (1981: 85) makes a similar point.

[53] See the charts and data tables presented in Chapter 10 and Appendix 3.

concrete levels of analysis." It is also right, *prima facie*, to dispute whether a rising composition can validly be presented in theory as having captured "the fundamental aspects of reality." This challenge, it must be said, is just as applicable to Marx as it is to Grossmann. It is worth noting why I have not also challenged the "ten-five" accumulation rate. Relatively high real rates of accumulation in Australia in the three decades after WWII averaged about six-tenths of Grossmann's 10%; however, the rate of labour force (and hours) growth was similarly smaller. Since it is the relative growth of capital to labour that is important for a rising technical composition, Grossmann's ostensible exaggeration may not be such a problem. Significantly, the output-capital ratios and capital-labour ratios that may be derived from Part (iii) of Table 7.2 are not necessarily unrealistic.[54]

Part (iv)of Table 7.2 presents an extreme case in which annual productivity and real wage growth is uniform at 5%. This annuls the effect of the traditional counter-tendencies. Hence, over 100 years, the single-turnover rate of profit (p') approaches zero. However, over the same time the annual rate of profit (P') rises and capitalists' consumption soars! The annual proportionate increase in turnover has, by itself, completely counteracted the effects of a rising composition. This case, together with that in Part (iii), is clearly perverse for both supporters and critics of Grossmann and/or Marx who persevere the one-year assumption.

[54] Additional columns of the source table for Table 7.2 were not presented here for reasons of space. They are available from the author on request. For comparison, see also the charts and data tables presented in Chapter 10 and Appendix 3.

TABLE 7.2

Tendency and Counter-Tendency

Part (i): Grossmann's "abstract" case

Assumptions and definitions	%/year
Growth rate of physical constant capital advanced (cp*)	10.00
Growth rate of physical variable capital advanced (vp*)	5.00
Productivity growth in Department I = net real output/unit labour (PI*)	0.00
Productivity growth in Department II = net real output/unit labour (PII*)	0.00
Growth rate of real wages (w*)	0.00

All productivity, output measures are for value added net of depreciation. Capital advanced (c) and (v) revalued each year at reproduction cost: i.e., in line with rate of growth in unit costs (see below and *TSV II*: 415-16).

Derived growth rate constants	
Growth rate of rate of surplus value (s'*), where s'* = PII*/w*	0.00
Growth rate of unit costs of constant capital (uc*), where uc* = 1/PI*	0.00
Growth rate of unit costs of variable capital (uv*), where uv* = 1/PII*	0.00
Growth rate of ratio of unit costs ratio (u'*), where u'* = uc*/uv*	0.00
Rate of growth of the physical composition of capital (cp'*), where cp'* = cp*/vp*	4.76
Rate of growth of the value composition of capital (c'*), where c'* = cp'*.u'*	4.76

Year	Constant Capital (value) (stock)	Variable Capital (value) (stock)	T'overs Var. Capital/ year	Variable Capital/ year (value) (flow)	Rate of Surplus Value	Surplus Value/ year (flow)	Capital-ists' Consum-ption	Aggreg. Output/ year (value) (added)	Aggreg. Output/ year (real) (added)	Annual Rate of Profit	T'over Rate of Profit	Value Comp. of Capital	Physical Comp. of Capital
Sym.	c	v	n	V	s'	S	cc	Y (= L)	Yp	P'	p'	c'	cp'
Calc.			growth calc. from Δ(Yp/Y)⇒ (Yp/L)*	n.v		s'.V	S-(c*.c)-(v*.v)	V + S	(c*.c/uc)+(v*.v/uv)+(cc/uv)+(V/uv)	S/	s'.v/	c/v	cp/vp
Rate * (%)	cp*.uc*	vp*.uv*			s'*							c'*	cp'*
1	*200000*	*100000*	*1.00*	100000	*100.0%*	100000	75000	200000	200000	33.3%	33.3%	200.0%	200.0%
2	220000	105000	1.00	105000	100.0%	105000	77750	210000	210000	32.3%	32.3%	209.5%	209.5%
3	242000	110250	1.00	110250	100.0%	110250	80538	220500	220500	31.3%	31.3%	219.5%	219.5%
4	266200	115763	1.00	115763	100.0%	115763	83354	231525	231525	30.3%	30.3%	230.0%	230.0%
5	292820	121551	1.00	121551	100.0%	121551	86191	243101	243101	29.3%	29.3%	240.9%	240.9%
6	322102	127628	1.00	127628	100.0%	127628	89037	255256	255256	28.4%	28.4%	252.4%	252.4%
8	389743	140710	1.00	140710	100.0%	140710	94700	281420	281420	26.5%	26.5%	277.0%	277.0%
10	471590	155133	1.00	155133	100.0%	155133	100217	310266	310266	24.8%	24.8%	304.0%	304.0%
12	570623	171034	1.00	171034	100.0%	171034	105420	342068	342068	23.1%	23.1%	333.6%	333.6%
14	690454	188565	1.00	188565	100.0%	188565	110091	377130	377130	21.5%	21.5%	366.2%	366.2%
16	835450	207893	1.00	207893	100.0%	207893	113953	415786	415786	19.9%	19.9%	401.9%	401.9%
18	1010894	229202	1.00	229202	100.0%	229202	116652	458404	458404	18.5%	18.5%	441.1%	441.1%
20	1223182	252695	1.00	252695	100.0%	252695	117742	505390	505390	17.1%	17.1%	484.1%	484.1%
22	1480050	278596	1.00	278596	100.0%	278596	116661	557193	557193	15.8%	15.8%	531.3%	531.3%
24	1790860	307152	1.00	307152	100.0%	307152	112709	614305	614305	14.6%	14.6%	583.1%	583.1%
26	2166941	338635	1.00	338635	100.0%	338635	105010	677271	677271	13.5%	13.5%	639.9%	639.9%
28	2621999	373346	1.00	373346	100.0%	373346	92478	746691	746691	12.5%	12.5%	702.3%	702.3%
30	3172619	411614	1.00	411614	100.0%	411614	73771	823227	823227	11.5%	11.5%	770.8%	770.8%
32	3838868	453804	1.00	453804	100.0%	453804	47227	907608	907608	10.6%	10.6%	845.9%	845.9%
34	4645031	500319	1.00	500319	100.0%	500319	10800	1000638	1000638	9.7%	9.7%	928.4%	928.4%
35	5109534	525335	1.00	525335	100.0%	525335	-11885	1050670	1050670	9.3%	9.3%	972.6%	972.6%
36	5620487	551602	1.00	551602	100.0%	551602	-38027	1103203	1103203	8.9%	8.9%	1018.9%	1018.9%

Figures in italics represent starting data. Columns calculating average (DI & DII) productivity growth (Yp/L)* and unit costs (uc) and (uv) (see aggregate value and real output columns (Y=L) and (Yp)). (p) means physical data.

TABLE 7.2

Tendency and Counter-Tendency

Part (ii): More realistic data

Assumptions and definitions	%/year
Growth rate of physical constant capital advanced (cp*)	10.00
Growth rate of physical variable capital advanced (vp*)	5.00
Productivity growth in Department I = net real output/unit labour (PI*)	2.00
Productivity growth in Department II = net real output/unit labour (PII*)	1.00
Growth rate of real wages (w*)	0.00

All productivity, output measures are for value added net of depreciation. Capital advanced (c) and (v) revalued each year at reproduction cost: i.e., in line with rate of growth in unit costs (see below and *TSV II*: 415-16).

Derived growth rate constants	
Growth rate of rate of surplus value (s'*), where s'* = PII*/w*	1.50
Growth rate of unit costs of constant capital (uc*), where uc* = 1/PI*	-1.96
Growth rate of unit costs of variable capital (uv*), where uv* = 1/PII*	-0.99
Growth rate of ratio of unit costs ratio (u'*), where u'* = uc*/uv*	-0.98
Rate of growth of the physical composition of capital (cp'*), where cp'* = cp*/vp*	4.76
Rate of growth of the value composition of capital (c'*), where c'* = cp'*.u'*	3.73

Year	Constant Capital (value) (stock)	Variable Capital (value) (stock)	T'overs Var. Capital/ year	Variable Capital/ year (value) (flow)	Rate of Surplus Value	Surplus Value/ year (flow)	Capital-ists' Consum-ption	Aggreg. Output/ year (value) (added)	Aggreg. Output/ year (real) (added)	Annual Rate of Profit	T'over Rate of Profit	Value Comp. of Capital	Physical Comp. of Capital
Sym.	c	v	n	V	s'	S	cc	Y (= L)	Yp	P'	p'	c'	cp'
Calc.			growth calc. from Δ(Yp/ Y)⇒ (Yp/L)*	n.v		s'.V	S-(c*.c)-(v*.v)	V + S	(c*.c/uc)+ (v*.v/uv) +(cc/uv) +(V/uv)	S/	s'.v/	c/v	cp/vp
Rate * (%)	cp*.uc*	vp*.uv*			s'*							c'*	cp'*
1	*21500*	*500*	*10.90*	5450	*60.6%*	3300	1125	8750	8750	15.0%	1.38%	4300%	4300%
2	23186	520	11.04	5736	61.2%	3508	1164	9245	9360	14.8%	1.34%	4461%	4505%
3	25005	540	11.17	6038	61.8%	3730	1202	9768	10015	14.6%	1.31%	4627%	4719%
4	26966	562	11.31	6357	62.4%	3966	1241	10322	10718	14.4%	1.27%	4800%	4944%
5	29081	584	11.46	6693	63.0%	4217	1280	10910	11474	14.2%	1.24%	4979%	5179%
6	31362	607	11.61	7047	63.6%	4485	1318	11532	12287	14.0%	1.21%	5165%	5426%
8	36474	656	11.91	7817	64.9%	5075	1395	12892	14101	13.7%	1.15%	5558%	5955%
10	42420	709	12.23	8676	66.2%	5745	1468	14421	16202	13.3%	1.09%	5981%	6536%
12	49335	767	12.57	9634	67.6%	6508	1536	16142	18640	13.0%	1.03%	6436%	7173%
14	57377	828	12.92	10704	68.9%	7377	1597	18081	21470	12.7%	0.98%	6926%	7872%
16	66731	895	13.29	11901	70.3%	8366	1648	20267	24763	12.4%	0.93%	7453%	8640%
18	77609	968	13.68	13239	71.7%	9494	1684	22732	28598	12.1%	0.88%	8020%	9483%
20	90260	1046	14.09	14736	73.2%	10780	1702	25516	33071	11.8%	0.84%	8630%	10407%
22	104974	1130	14.52	16414	74.6%	12248	1694	28662	38296	11.5%	0.79%	9287%	11422%
24	122086	1222	14.98	18294	76.1%	13925	1656	32219	44408	11.3%	0.75%	9994%	12536%
26	141988	1320	15.45	20402	77.7%	15843	1578	36245	51567	11.1%	0.72%	10754%	13758%
28	165134	1427	15.96	22768	79.2%	18035	1450	40803	59963	10.8%	0.68%	11573%	15099%
30	192053	1542	16.49	25425	80.8%	20545	1262	45970	69823	10.6%	0.64%	12453%	16572%
32	223361	1667	17.05	28410	82.4%	23418	999	51829	81417	10.4%	0.61%	13401%	18188%
34	259771	1801	17.63	31767	84.1%	26711	644	58478	95068	10.2%	0.58%	14420%	19961%
35	280146	1873	17.94	33599	84.9%	28534	426	62133	102781	10.1%	0.56%	14959%	20911%
36	302118	1947	18.26	35542	85.8%	30486	177	66028	111158	10.0%	0.55%	15518%	21907%
37	325813	2024	18.58	37603	86.6%	32577	-105	70181	120258	9.9%	0.53%	16097%	22950%

Figures in italics represent starting data. Columns calculating average (DI & DII) productivity growth (Yp/L)* and unit costs (uc) and (uv) (see aggregate value and real output columns (Y=L) and (Yp)). (p) means physical data.

TABLE 7.2

Tendency and Counter-Tendency

Part (iii): Breakdown averted

Assumptions and definitions	%/year
Growth rate of physical constant capital advanced (cp*)	10.00
Growth rate of physical variable capital advanced (vp*)	5.00
Productivity growth in Department I = net real output/unit labour (PI*)	2.50
Productivity growth in Department II = net real output/unit labour (PII*)	1.50
Growth rate of real wages (w*)	0.00

All productivity, output measures are for value added net of depreciation. Capital advanced (c) and (v) revalued each year at reproduction cost: i.e., in line with rate of growth in unit costs (see below and *TSV II*: 415-16).

Derived growth rate constants	
Growth rate of rate of surplus value (s'*), where s'* = PII*/w*	1.50
Growth rate of unit costs of constant capital (uc*), where uc* = 1/PI*	-2.44
Growth rate of unit costs of variable capital (uv*), where uv* = 1/PII*	-1.48
Growth rate of ratio of unit costs ratio (u'*), where u'* = uc*/uv*	-0.98
Rate of growth of the physical composition of capital (cp'*), where cp'* = cp*/vp*	4.76
Rate of growth of the value composition of capital (c'*), where c'* = cp'*.u'*	3.74

Year	Constant Capital (value) (stock)	Var. Capital (value) (stock)	T'over Var. Cap./ year	Variable Capital/ year (value) (flow)	Rate of Surplus Value	Surplus Value/ year (flow)	Capital-ists' Consum-ption	Aggreg. Output/ year (value) (added)	Aggreg. Output/ year (real) (added)	Annual Rate of Profit	T'over Rate of Profit	Value Comp. of Capital	Physical Comp. of Capital
Sym.	c	v	n	V	s'	S	cc	Y (= L)	Yp	P'	p'	c'	cp'
Calc.			growth calc. from Δ(Yp/Y)⇒	n.v		s'.V	S-(c*.c)-(v*.v)	V + S	(c*.c/uc)+(v*.v/uv)+(cc/uv)+(V/uv)	S/	s'.v/	c/v	cp/vp
Rate * (%)	cp*.uc*	vp*.uv*	(Yp/L)*		s'*							c'*	cp'*
1	*21500*	*500*	*10.90*	5450	*60.6%*	3300	1125	8750	8750	15.0%	1.38%	4300%	4300%
2	23073	517	11.09	5737	61.5%	3526	1192	9262	9424	15.0%	1.35%	4461%	4505%
3	24761	535	11.28	6038	62.4%	3767	1264	9805	10152	14.9%	1.32%	4628%	4719%
4	26573	554	11.48	6356	63.3%	4025	1340	10381	10938	14.8%	1.29%	4801%	4944%
5	28518	573	11.69	6692	64.3%	4300	1420	10992	11788	14.8%	1.27%	4980%	5179%
10	40594	678	12.77	8665	69.2%	5999	1905	14663	17194	14.5%	1.14%	5984%	6536%
15	57783	804	13.99	11245	74.6%	8387	2568	19632	25229	14.3%	1.02%	7190%	8247%
20	82252	952	15.36	14627	80.4%	11753	3480	26380	37240	14.1%	0.92%	8638%	10407%
25	117082	1128	16.91	19071	86.6%	16508	4743	35579	55300	14.0%	0.83%	10379%	13133%
30	166661	1336	18.65	24923	93.3%	23239	6506	48162	82609	13.8%	0.74%	12471%	16572%
35	237235	1583	20.62	32641	100.5%	32789	8986	65429	124117	13.7%	0.67%	14984%	20911%
40	337693	1876	22.84	42839	108.2%	46359	12496	89198	187525	13.7%	0.60%	18003%	26388%
45	480692	2222	25.35	56335	116.6%	65676	17495	122011	284830	13.6%	0.54%	21631%	33298%
50	684243	2633	28.19	74218	125.6%	93211	24655	167429	434794	13.6%	0.48%	25990%	42018%
55	973991	3119	31.40	97942	135.3%	132511	34956	230453	666823	13.6%	0.43%	31227%	53021%
60	1386433	3695	35.03	129443	145.8%	188665	49837	318108	1027114	13.6%	0.39%	37519%	66906%
65	1973526	4378	39.13	171305	157.0%	268977	71405	440282	1588402	13.6%	0.35%	45080%	84428%
70	2809228	5187	43.76	226975	169.2%	383931	102749	610906	2465422	13.6%	0.31%	54164%	106537%
75	3998813	6145	48.99	301049	182.2%	548582	148393	849631	3839476	13.7%	0.28%	65079%	134437%
80	5692135	7280	54.90	399655	196.3%	784549	214971	1184203	5997509	13.8%	0.25%	78193%	169643%
85	8102505	8624	61.57	530966	211.5%	1122876	312194	1653842	9394305	13.8%	0.22%	93950%	214069%
90	11533561	10217	69.09	705881	227.8%	1608151	454284	2314032	14751598	13.9%	0.20%	112882%	270128%
95	16417519	12105	77.57	938930	245.4%	2304404	662047	3243334	23216092	14.0%	0.18%	135629%	340868%
100	23369618	14341	87.13	1249485	264.4%	3303593	965914	4553078	36611609	14.1%	0.16%	162959%	430134%

Figures in italics represent starting data. Columns calculating average (DI & DII) productivity growth (Yp/L)* and unit costs (uc) and (uv) (see aggregate value and real output columns (Y=L) and (Yp)). (p) means physical data.

TABLE 7.2

Tendency and Counter-Tendency

Part (iv): Complete perversity

Assumptions and definitions	%/year
Growth rate of physical constant capital advanced (cp*)	10.00
Growth rate of physical variable capital advanced (vp*)	5.00
Productivity growth in Department I = net real output/unit labour (PI*)	5.00
Productivity growth in Department II = net real output/unit labour (PII*)	5.00
Growth rate of real wages (w*)	5.00

All productivity, output measures are for value added net of depreciation. Capital advanced (c) and (v) revalued each year at reproduction cost: i.e., in line with rate of growth in unit costs (see below and *TSV II*: 415-16).

Derived growth rate constants	
Growth rate of rate of surplus value (s'*), where s'* = PII*/w*	1.00
Growth rate of unit costs of constant capital (uc*), where uc* = 1/PI*	-4.76
Growth rate of unit costs of variable capital (uv*), where uv* = 1/PII*	-4.76
Growth rate of ratio of unit costs ratio (u'*), where u'* = uc*/uv*	0.00
Rate of growth of the physical composition of capital (cp'*), where cp'* = cp*/vp*	4.76
Rate of growth of the value composition of capital (c'*), where c'* = cp'*.u'*	4.76

Year	Constant Capital (value) (stock)	Var. Capital (value) (stock)	T'over Var. Cap./ year	Variable Capital/ year (value) (flow)	Rate of Surplus Value	Surplus Value/ year (flow)	Capital-ists' Consum-ption	Aggreg. Output/ year (value) (added)	Aggreg. Output/ year (real) (added)	Annual Rate of Profit	T'over Rate of Profit	Value Comp. of Capital	Physical Comp. of Capital
Sym.	c	v	n	V	s'	S	cc	Y (= L)	Yp	P'	p'	c'	cp'
Calc.			growth calc. from Δ(Yp/ Y)⇒	n.v		s'.V	S-(c*.c)-(v*.v)	V + S	(c*.c/uc)+ (v*.v/uv) +(cc/uv) +(V/uv)	S/	s'.v/	c/v	cp/vp
Rate * (%)	cp*.uc*	vp*.uv*	(Yp/L)*		s'*							c'*	cp'*
1	*21500*	*500*	*10.9*	5450	*60.6%*	3300	1125	8750	8750	15.0%	1.38%	4300%	4300%
2	22524	500	11.5	5723	60.6%	3465	1188	9188	9647	15.1%	1.31%	4505%	4505%
3	23596	500	12.0	6009	60.6%	3638	1254	9647	10636	15.1%	1.26%	4719%	4719%
4	24720	500	12.6	6309	60.6%	3820	1323	10130	11726	15.2%	1.20%	4944%	4944%
5	25897	500	13.3	6625	60.6%	4011	1397	10636	12928	15.2%	1.15%	5179%	5179%
10	32679	500	16.9	8455	60.6%	5120	1827	13575	21059	15.4%	0.91%	6536%	6536%
15	41237	500	21.6	10791	60.6%	6534	2385	17325	34302	15.7%	0.73%	8247%	8247%
20	52036	500	27.5	13772	60.6%	8339	3111	22112	55875	15.9%	0.58%	10407%	10407%
25	65663	500	35.2	17577	60.6%	10643	4052	28221	91014	16.1%	0.46%	13133%	13133%
30	82858	500	44.9	22434	60.6%	13584	5273	36017	148252	16.3%	0.36%	16572%	16572%
35	104557	500	57.3	28632	60.6%	17337	6856	45968	241487	16.5%	0.29%	20911%	20911%
40	131938	500	73.1	36542	60.6%	22126	8908	58668	393358	16.7%	0.23%	26388%	26388%
45	166490	500	93.3	46638	60.6%	28240	11566	74877	640738	16.9%	0.18%	33298%	33298%
50	210090	500	119.1	59523	60.6%	36042	15008	95565	1043695	17.1%	0.14%	42018%	42018%
55	265107	500	151.9	75968	60.6%	45999	19463	121968	1700069	17.3%	0.11%	53021%	53021%
60	334532	500	193.9	96957	60.6%	58708	25230	155665	2769233	17.5%	0.09%	66906%	66906%
65	422139	500	247.5	123744	60.6%	74928	32689	198672	4510788	17.7%	0.07%	84428%	84428%
70	532687	500	315.9	157933	60.6%	95629	42335	253562	7347599	17.9%	0.06%	106537%	106537%
75	672185	500	403.1	201567	60.6%	122050	54806	323616	11968464	18.1%	0.05%	134437%	134437%
80	848215	500	514.5	257256	60.6%	155770	70923	413025	19495367	18.4%	0.04%	169643%	169643%
85	1070343	500	656.7	328331	60.6%	198806	91747	527137	31755899	18.6%	0.03%	214069%	214069%
90	1350641	500	838.1	419043	60.6%	253732	118643	672775	51727013	18.8%	0.02%	270128%	270128%
95	1704342	500	1069.6	534816	60.6%	323834	153375	858650	84257854	19.0%	0.02%	340868%	340868%
100	2150670	500	1365.2	682576	60.6%	413303	198211	1095879	137247165	19.2%	0.01%	430134%	430134%

Figures in italics represent starting data. Columns calculating average (DI & DII) productivity growth (Yp/L)* and unit costs (uc) and (uv) (see aggregate value and real output columns (Y=L) and (Yp)). (p) means physical data.

4 Mandel and Shaikh

In opposition to Grossmann or, at least, to prevailing perceptions of him, Mandel demonised what he called "mono-causal" explanations of crisis.[55] He also warned against exaggerating the effects of a rising composition, complaining that Grossmann did "not really *prove* that *all* the countervailing forces gradually lose their capacity to neutralize the declining rate of profit."[56] Yaffe was admonished in similar terms for an "extreme...mechanical and one-sided" explanation of Marx's tendency.[57] Mandel's efforts to synthesise a multi-causal Marxist crisis theory have been ambitious. Gordon sympathetically described him as an important transitional figure who, with Kalecki, "connects with the concerns which have fuelled more recent explorations." Yet he also struck a common chord when he said that "much of Mandel's analysis is hard to pin down precisely."[58]

Rowthorn, too, praised Mandel's major work, *Late Capitalism*, as "one of the two most important works of Marxist political economy to have appeared in English during the past decade [1970s]...a work of truly creative Marxism."[59] But he peppered his review with qualifications: when it came to clearly explicating capitalism's tendencies and their manifestation in crisis, Mandel could be confusing, eclectic, unnecessarily abstruse, and unconvincing. He failed to produce a clear picture of how the various aspects of capitalism

> "...interconnect in either the long or the short term. His basic analysis is of the classical falling-rate-of-profit type and depends almost exclusively on movements in the rate of surplus-value and the organic composition of capital. Problems of realization and interdepartmental proportions are discussed, but they are never properly integrated with the basic theory...It is never clear, for example, whether Mandel considers capitalism has an

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[55] Mandel (1990: 31-34; 1981: 38-53; 1975: 38-43). See also n. 34.

[56] Mandel (1981: 85), citing Sternberg (1930) and Moszkowska (1935). Strangely, Mandel (1990: 31) couples himself and Grossmann as representatives of the non-monocausal interpretation of Marx, while in Mandel (1981: 86) Grossmann is pilloried as one "obsessed by his mono-causal explanation for the inevitability of collapse." Kuhn alleges other inconsistencies in Mandel's argument (1995: 187 n.8).

[57] Mandel (1981: 41-42).

[58] Gordon (1990: 135).

[59] Rowthorn (1980: 95).

> inherent tendency towards overproduction which periodically *expresses* itself in a falling rate of profit, or whether overproduction itself is *caused* by a falling rate of profit."[60]

This is fair criticism, which Mandel's later works did little to meet.[61] It can be explained, I think, primarily by Mandel's obvious desire to be faithful to Marx on most issues. Marx "did not leave us a completed, fully worked-out theory of crisis," Mandel is keen to explain.[62] However, despite the expansive historical style with which Mandel accomplishes the task, he can be syncretic when he endeavours to combine the various threads and tendencies that can be found in Marx's writings. A similar criticism can be directed at Rosdolsky, to whom Mandel dedicated *Late Capitalism*.[63]

Despite the caveats, the traditional declining rate of profit thesis is the unifying theme in Mandel's writing. With Shaikh this is even more overt, though it is reasonable to note that he, too, says that "one must not associate the idea of persistent economic crises with the idea of an off-the-cliff collapse," acknowledging that the patterns of crisis and recovery are "concretely...historically and conjuncturally determined."[64] The rising exploitation aspects of their positions are subordinate and rely partly on an interpretation of the confusing (un)productive distinction.[65] Mandel and Shaikh acknowledge how close they are theoretically.[66] Four core propositions encapsulate Mandel's and Shaikh's basic views of Marx's position.[67] These, as outlined by Shaikh, are presented below:

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[60] Rowthorn (1980: 97). See also Howard and King (1992: 142-43).

[61] See, especially, Mandel (1978b: Chapter 5).

[62] Mandel (1981: 38).

[63] Mandel (1975: 11).

[64] Shaikh (1992a: 30). Shaikh also owes much to Rosdolsky and, in Shaikh (1978b), commented uncritically on the contributions of Grossmann, Mattick, and Yaffe. See Shaikh (1990c: 308; 1978c: 236-37; 1978b: 239). See also Norton (1992: 159) and n. 33.

[65] Mandel (1990: 32-33; 1981: 37) and Shaikh (1990c: 308; 1987: 124-25 Appendix A; 1978c: 238-39; 1978b: 239; 1978a: 32-45). See Chapter 6§4 on the (un)productive distinction.

[66] See Shaikh's (1992a: 29) comments during a panel discussion at a Socialist Scholars Conference in New York. Mandel responded: "My remarks will complement what Anwar said because there are no differences between us" (1992: 33).

[67] Shaikh (1992a: 30-32).See Mandel (1990: 31-34; 1981: 86-87; 1975: 38-43, 207 ff.). I think the Mandel (1981) reference contains a typographical error in the second line of p. 87: rate of profit should replace rate of surplus-value. See also Shaikh (1987: 117-18).

(i) "The principal thing that drives the declining rate of profit...is the idea that the capital intensity of production, the amount of capital tied up per worker or tied up per unit output, rises. If that is true then it can be shown that it inevitably will lead to a profit rate which will fall. This falling rate of profit undermines the growth in the mass of profit."[68] Issues of capacity use are also acknowledged.

(ii) "The second argument...is the anticipation that productivity will rise faster than real wages, i.e., the rate of exploitation, the rate of surplus value, will rise."

(iii) "The next anticipation of the theory is that the mass of profit will rise at a slower rate, and at some point will switch over to an essentially stagnant tendency." The system then "changes behavior" and becomes "politically and economically unstable."[69] An obvious link to financial variables is provided here.

(iv) The reason that the mass of profit will come to stagnate is that it grows as a function of accumulation, but "the accumulation of capital, the growth factor in the mass of profit, itself depends on the rate of profit. So the growth factor is itself undermined by the falling rate of profit."

Thus, as if in answer to Rowthorn's frustrations, Shaikh squarely presents problems of realisation, over-production, and growth as functions of a rising composition of capital. Mandel, however, elsewhere maintained an important place for an underconsumption theme, derived from a rising rate of exploitation coupled with an increase in productive capacity in Department II. This, in turn, was due to the "increase in the production of machines and raw materials (production in

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[68] Ambiguity over whether capital advanced contains variable capital can be tolerated. See Chapter 5§2(ii), especially n. 25.

[69] This is similar to Sweezy, e.g., (1981a: 35). See also Dobb (1937: 217).

Department I), which lies at the root of the rise in the organic composition of capital."[70]

Shaikh is one of the few rising composition theorists who present empirical work to try to prove their claims.[71] Indeed, each proposition above is in a testable form. Mandel has been singularly unimpressive on this score. Rowthorn remarked on his "obstinate refusal to face facts" and his "perversity" in drawing unjustified conclusions from empirical studies "contrary to the explicit opinions of the authors" of those studies.[72] In *The Second Slump*, Mandel "no longer even tries to demonstrate statistically that the organic composition of capital rose during the nineteen sixties and seventies, and now merely asserts this position as an article of faith."[73] Howard and King also pointed out that, despite the importance of the ratio, "not one of the 57 statistical tales in Mandel's *Second Slump* has any bearing on the organic composition."[74]

Shaikh's treatment of Marx's rate-of-profit representation and the logic of a rising composition of capital is more sophisticated than Mandel's, in so far as it avoids the most obvious one-year assumption errors (though not usually explicitly nor especially clearly).[75] Since this is the main issue, I will concentrate on it. Shaikh's argument, presented with an air of formal rigour, starts by giving aggregate annual value added and the rate of profit in labour values[76]:

$$L = V + S \tag{7.2}$$

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[70] Mandel (1978b: 174; see also 174-75; 1990: 32-33). See also Mandel (1981: 43), citing Rosdolsky (1977: *inter alia*, 489-90, 496). See Chapters 5§5(ii) and 6§2.

[71] See, e.g., Shaikh (1992a, 1987), with a caveat on his use of the (un)productive distinction (see n. 65). See also R. Smith (1981).

[72] Rowthorn (1980: 105), referring to Mandel's (1975) use of studies by Glyn and Sutcliffe (1972), Nell (1972), and Nordhaus (1974).

[73] Rowthorn (1980: 10), referring to Mandel (1978b).

[74] Howard and King (1992: 318; see also 142-43, 317).

[75] Shaikh (1990c: 306-08; 1981: 288; 1978c: 232-35; 1978b: 239-40). See also Norton (1992: 160, 185 n.3, n.5) and n. 25. Shaikh cites Rosdolsky (1977: Chapters 16-17, 26 and Part V, Appendix), although Rosdolsky did not put the arguments mathematically and remained strictly in single-turnover space. Shaikh's formulations are similar to those of Okishio (1990: 98-99; citing Okishio 1972). These, too, are constrained by their single-turnover form and the assumption of a falling output-capital ratio in value terms. See Marx's discussion of similar themes, e.g., (*Grundrisse*: 333-53, 420-23), as noted by O'Hara (1995: 12-13, 28 n.9). See also Howard and King (1975: 204-05) and Meek (1967b: 205-09, 217-18). Cf. Mandel, e.g., (1981: 31-32).

[76] Shaikh's symbols will be used for most part. Problems with his use of labour values will be ignored because (i) the issue was covered in Chapter 4, and (ii) the substance of my criticism is independent of whether values or prices are used.

The stock of advanced constant and variable capital is represented by C. So, without fumbling turnover-annual and stock-flow distinctions, the rate of profit may be represented as:

$$P' = S/C = (L/C)(S/L) \tag{7.3}$$
$$= (L/C)(S/V)/(L/V) = (L/C)(S/V)/[(V+S)/V]$$
$$= (L/C)[(S/V)/(1+S/V)]$$

thus:

$$P' = (L/C)[s'/(1+s')] \tag{7.4}$$

He calls the inverse of (L/C) from equation (7.3) "the stock/flow materialized composition of capital."[77] Shaikh then makes two points: (i) the upper limit of (S/L)[78] from equation (7.3) is unity, which is approached as s' approaches infinity (see equation 7.4); hence (ii) any sustained rise in the materialised composition "can be shown to give rise to an actual falling rate of profit, *no matter how fast the rate of surplus value is rising*."[79] Unfortunately, Shaikh elides direct reference to the output-capital ratio (which is what his "materialised composition" is). Instead he draws theoretical conclusions about the value magnitudes of output and capital from a discussion of unit costs:

> "...Marx's argument is that for individual capitalists the principal purpose of mechanization is to lower unit production costs and thereby raise their profitability. But the gain of reduced units (flow) costs generally carries with it a corresponding requirement of the increased *capitalization* of production, i.e., a corresponding increase in the scale of investment required per unit of output (and hence in unit fixed costs)."[80]

Shaikh then argues that "[t]his familiar tradeoff between unit variable and unit fixed costs...turns out to be a sufficient condition" for the falling unit value of constant

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[77] Shaikh (1990c: 308).

[78] The profit share in values.

[79] Shaikh (1990c: 308, original emphasis). See also Mandel (1981: 31-32), citing (*Capital III*: 339-48).

[80] Shaikh (1990c: 306-07). See §§6-7 below on the conditions necessary for the first sentence to be true.

capital to be offset, "so that the net result is a secularly rising" materialised composition.[81]

Closer examination shows that Shaikh's reasoning is tautological or specious. The *premise* of lower unit output costs due to higher unit fixed input costs depends, as Shaikh puts it, on "a corresponding increase in the scale of investment per unit of output." That is, it is predicated on a falling output-capital ratio. The argument already contains at its outset the conclusion of a rising C/L (whether in labour values or prices). In other words, Shaikh has presupposed rather than explained why a falling output-capital ratio must be so in reality. The absence of this explanation is emphasised forcefully once it is understood that it is just as *possible* to obtain falling unit costs (in values or prices), without the "tradeoff," if the technological-productivity conditions are appropriate. Of course, this is to say that it is just as possible for the output-capital ratio to rise.

A charitable construction of Shaikh's argument is that it is designed to explain the empirical evidence contained in the particular studies he cites and his own data proposing that the output-capital ratio has indeed fallen.[82] But even if the data were flawless, the "charitable construction" still does not *explain* in theory why the outcome should be so. Shaikh makes no such effort, nor does he canvass alternative possibilities or positions on this ratio. It should be noted also that Glick has contested Shaikh's approach to aspects of capitalist competition, arguing that it "has not been shown to be consistent with existing evidence on capitalist rivalry from the industrial organization field and the management literature."[83]

The unconvincing treatment of the composition of capital (and output-capital ratio) by Shaikh exposes the vulnerability of the rest of his case. How real is it to construct a theoretical proposition on an argument that the rate of growth in the profit share should slow down as the rate of exploitation approaches infinity? Irrespective of near-infinity asymptosis, it is simply incorrect to suggest that a rising rate of exploitation cannot offset an actually rising value composition of capital. In the percentage ranges normally inhabited by these ratios, this happens

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[81] Shaikh (1990c: 307; see also 1987: 117), citing empirical data in Pratten (1971: 306-07) and Weston and Brigham (1982: 145-47).

[82] Shaikh (1992a: 30-31; 1987: 119). See also Chapter 8§4, Figure 8.3.

[83] Glick (1987: 127), citing Porter (1980) and Zeithaml and Fry (1984). See Chapter 8§4 for differing empirical perspectives on the output-capital ratio.

regularly. It has been happening in Australia consistently over the past decade.[84] It also taxes readers' credulity for Shaikh to ignore the significant falls that occurred in the profit share during many of the post-WWII years in the US and elsewhere.[85]

Furthermore, to argue for a rising profit share (S/L) *and* a falling (or stagnant) mass of profit (S) creates a *prima facie* logical contradiction (see equations (7.2) and (7.3) above). It is impossible to obtain both unless the value of output itself is falling by a greater proportion than the mass of profit.[86] This, *per contra*, implies that the crisis has already begun and capitalists have opted for a labour-shedding, not labour-saving, response.[87] A more promising explanation of the transition towards a crisis is Shaikh's fourth contention. Here we can talk of stagnant profits (produced or realised) and over-production, since the falling mass of profit is contingent on reduced aggregate demand (via investment), which itself is derived from a falling profit rate. However, it is not possible simultaneously to talk of a rising profit share if output is still growing. Of course, it is possible to slip the noose on the profit share by resorting to the attenuated (un)productive distinction. But this merely creates another imbroglio, as the profit share then cannot be used directly in the theory of accumulation and crisis.[88]

5 The Okishio Theorem

A major challenge to the rising composition thesis is the so-called Okishio theorem. Okishio formally stated a long-rehearsed critique of Marx's tendency: why would capitalists act irrationally and continue a pattern of accumulation if it reduced the rate of profit?[89] Marx himself had indicated that the struggle between capitals limited the range of choices before capitalists. It forced them to

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[84] See Chapter 10§5 and observe the recent years of Chart 10.9.

[85] See Chapter 6§4(iii), Figure 6.3 (Weisskopf), Armstrong, Glyn, and Harrison (1984: 247 Chart 11.4), Chapter 10§§2-4, and Chart 10.9 as a whole.

[86] Recall (ii)-(iii) of Shaikh's four substantive claims itemised above. The point is straightforward: (S/L)*<1 => L*>S*.

[87] See Chapter 10§§4(ii) and 6. Mandel (1978b: 175) says this in one place.

[88] See n. 65 and n. 71.

[89] Howard and King (1992: Chapter 7; citations: 145-47) outline contributions by Tugan-Baranovsky, Bortkiewicz, Charasoff, Moszkowska (1929), Shibata (1939), Robinson (1942), Samuelson (1957), and Heertje (1972). See also Howard and King (1989: 188-89). More recent support for Okishio's case can be found, *inter alia*, in Roemer (1979) and Bowles (1981).

accumulate on pain of ruin.[90] To survive meant to lower unit costs through technological change and scale economies that accompanied accumulation and the concentration of capital.[91] Yet he, too, added that "[n]o capitalist voluntarily applies a new method of production, no matter how much more productive it may be or how much it might raise the rate of surplus-value, if it reduces the rate of profit."[92]

Before proceeding, it is important to be clear about what Okishio did and did not say. His conclusions were:

> "(1) if the real wage remains constant and capitalists introduce new techniques which raise the rate of profit (calculated at the current prevailing prices and wage) then the new general rate of profit does not decrease, whatever the organic composition may be.
>
> "(2) if the real wage rises and the capitalists adapt to this situation with the introduction of new techniques, then the new general rate of profit is higher than the one which would be expected if such a new technique were not introduced."[93]

Okishio's conclusions also explain the process he modelled and the specific circumstances to which his arguments apply. These should be kept in mind in the following discussion.

Okishio is often criticised for the narrowness of his original assumptions. For example, his model contains no fixed capital. Symbiotically, the model is mired in the one-year assumption. The absence of fixed capital was debated early by Koniüs.[94] The implicit conflation of stocks and flows by the one-year assumption was the platform for Shaikh's argument that Okishio had merely shown that a declining profit rate was compatible with a rising "profit margin": i.e., $\Pi/(c+v)$ in

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[90] (*Capital III*: 353; see also 359-68). See Chapter 3§2(iii).

[91] (*Capital I*: 777, see also 776-81) and (*Capital III*: 325-26, 332-33, 349, 354, 359, 364-75). See also Glyn (1990b: 279-80) and Fine (1975: 55). Blaug's (1968: 231) contention that constant returns to scale are the "obvious assumption" in Marx's case is wrong.

[92] (*Capital III*: 373).

[93] Okishio (1990: 102), citing Okishio (1987, 1963, 1961). Okishio acknowledged Samuelson (1957) and Shibata (1939). See also Howard and King (1992: 138-40, 147 n. 46, 316).

[94] Koniüs (1967). See Howard and King (1992: 316).

flows terms. A rising profit margin target would result if capitalists targeted lower unit costs.[95] Proofs were soon offered to show that the Okishio theorem held with fixed capital[96] but not joint production more generally.[97] It was argued by restatement that profit-rate maximisation best accounted for capitalists' behaviour.[98] In reply to Shaikh, Nakatani also explained that Okishio himself had rephrased his argument in 1963 to account for fixed capital. Thus the argument should be read to say that, if "capitalists adopt a new method which has the highest transitional rate of profit," then, "if this method is actually adopted and new prices of production arise, the average rate of profit in the economy as a whole must rise corresponding to a given real wage."[99]

A more serious reformulation based on problems with Okishio's assumptions can be found in Howard and King's treatment of the reaction of Duménil, Glick, and Rangel, Lipietz, and Foley. Since real wages will be likely to rise, the Okishio theorem should be examined under "the more realistic postulate that real wages grow at the same rate as the labour productivity."[100] If these modifications are introduced, in conjunction with Marx's view that productivity growth will be stronger in Department I than in Department II, it is possible to explain Okishio's argument using equations (5.3A) and (5.4A) from Chapter 5§2(ii).[101] This will also separate the argument from its original limiting specifications and make it applicable to the economic aggregates discussed in Chapters 5-8, aggregates that will reappear in empirical form in Chapters 9-11. Then it will be possible to examine criticisms of the Okishio challenge.

With the rate of profit shown as:

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[95] Shaikh (1978b: 243). See §4 on the importance of the unit-costs approach for Shaikh. See also the replies to Shaikh by Nakatani (1980) and Steedman (1980).

[96] Alberro and Persky (1979) and Roemer (1979).

[97] Salvadori (1981). This is important to the Sraffian argument, since the Sraffians claim that fixed capital should be treated as a special case of joint production. Skott (1992) argues that the Okishio argument also will not hold under imperfect competition.

[98] Roemer (1979), Van Parijs (1980). See Howard and King (1992: 316-17) and Laibman (1992: 102-04, 121-24) for a brief assessment of some of these contributions to the debate.

[99] Nakatani (1980: 65, 66), citing Okishio (1963).

[100] Howard and King (1992: 317), referring to Duménil, Glick, and Rangel (1985), Lipietz (1986), and Foley (1986b).See also Laibman (1992: 98, 122; 1987: 38). See §1 and Chapter 8§§1 and 4 on the starting point of real wage rises.

[101] Demand-side influences, demonstrated by such ratios as those for capacity use that were used in Chapters 5-6, will be set aside here.

$$P' = (\Pi/Y)[(Y_p/C_p)(U_y/U_c)] \quad (7.5)$$

and the profit share (Π/Y) held constant (real wages and labour productivity rising *pari passu*), we can focus on the index representing the physical output-capital ratio (Y_p/C_p) and the index of relative changes in average unit costs (U_y/U_c). Now, if an enterprise introduces a technique that raises the rate of profit at prevailing relative costs, then the technique must have increased the physical output-capital ratio. If the technique came with a rising composition of capital, reflected in an increased the capital-labour ratio (C_p/L), then labour productivity (Y_p/L) must have increased by more, as:

$$P' = (\Pi/Y)\{[(Y_p/L)/(C_p/L)](U_y/U_c)\} \quad (7.6)$$

Clearly, with a greater proportionate increase in output (Y_p^*) to inputs (C_p^*, L^*), lower unit costs are also being achieved.[102] Scale economies, should they exist, are already accommodated in these variables.

Now, if all relevant capitalists adopt the same technique, then exactly the same physical effects will be generated in each enterprise: the aggregate physical output-capital ratio will rise. But now the direction of the rate of profit will also depend on relative aggregate price effects. If the technique becomes widespread, and its effects accord with Marx's presumption that productivity growth will be stronger in industries making means of production, then the relative unit costs ratio (U_y/U_c) will rise. This would then reinforce the increase in the profit rate.[103] It is reasonable to conclude that a profit-raising technique, once universalised, will raise the average rate of profit if Marx's conditions of a rising technical composition and relative devaluation of constant capital are given. This will be so unless the profit-share shifts sufficiently against capital. Of course, Marx thought the profit share would grow with accumulation and technical change. The consequences appear to be devastating for Marx's formulation of the tendency of the rate of profit to fall and its supporters.

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[102] Since $(Y_p/C_p)^* > (Y_p/L)^*$ here, the implication is that the proportionate change in "unit fixed" costs is less than that in "unit variable" costs. This is the obverse premise of the one Shaikh used to justify his declining profit-rate thesis. See §5.

[103] Note that the index of private business output to capital prices has increased steadily in Australia since WWII, which is in line with Marx's expectation. See Chapter 10§2, Chart 10.7.

6 Laibman's Reply to the Okishio Challenge

However, it pays to be circumspect. The argument above has established three conditions for the average rate of profit to rise: (i) an increasing output-capital ratio (which we knew already from §1 and Chapter 5§3); (ii) the innovating enterprise seeks and achieves a higher profit rate; and (iii) there is no change in relative income shares. Specifying the limitations in this way implies that alternative circumstances may yield a *declining* rate of profit. Ironically, such responses to the Okishio-based challenge call upon the same quotation from Marx that was used earlier. The full version is:

> "No capitalist voluntarily...reduces the rate of profit. But every new method of production of this kind makes commodities cheaper. At first, therefore, he can sell them above their price of production, perhaps above their value. He pockets the difference between their costs of production and the market price of the other commodities, which are produced at higher production costs...His production procedure is ahead of the social average. But competition makes the new procedure universal and subjects it to the general law. A fall in the profit rate then ensues -- firstly perhaps in this sphere of production, and subsequently equalized with the others -- a fall that is completely independent of the capitalists' will."[104]

The argument that may be derived from this passage recognises that the innovator will obtain a higher rate of profit in the transitional period before the new technique is adopted by other enterprises. However, it contradicts the conclusions generally drawn from the Okishio theorem by conceiving a perpetual process of temporary profit-rate elevation for the innovator within an inexorably downward spiral for capital as a whole. Of course, this is possible only on the condition that the output-capital ratio declines. However, three additional conditional specifications are necessary for this response to hold:

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[104] (*Capital III*: 373-74).

(i) unit costs for the innovator must actually fall: a rising technical composition of capital must not so overwhelm labour productivity gains that total costs rise;

(ii) the initial profit difference "pocketed" by the innovator exists solely because the profit share increases, which means that, initially, real wages are constant or rise by a smaller proportion than does labour productivity;[105] and,

(iii) once the technique has become universal, and real wages rise more strongly, residual profit-share gains (if any) and relative price/value adjustments will not be sufficient to offset the falling output-capital ratio.

The first condition can be demonstrated easily. The second explains how capitalism can couple individual rationality and collective irrationality. However, its ability to do so depends changes in relative income shares. The third merely restates Marx's basic propositions, as presented in §1. Similar results to these are presented in numerical examples by Laibman, which are sufficient to constitute a general proof of the possibility.[106] In this respect, it is worth remarking that the possibility depicted in Laibman's numerical examples does not refute the Okishio theorem. Indeed, they can even be regarded as a simple and appealing application of the theorem to conditions governed by a declining output-capital ratio. All Laibman proposes is that the proportionate gains to the profit share obtained by reducing the labour-requirement per unit of output (increasing labour productivity), which are the result of labour-saving technological change, will outweigh the proportionate fall in the output-capital ratio, if the real wage remains constant initially (or its rise is relatively small).[107] The social average rate of profit

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[105] The innovator's price does not fall to obtain a larger market share in this case: a difference with Shaikh (1990c, 1987) that will come up again below.

[106] Laibman (1992: Chapter 5; 1987: 37-40). Laibman (1992: Chapters 6-8) gives a more elaborate mathematical treatment of his views on accumulation and technological change. Foley (1986a: 45-47) also presents a detailed mathematical model to show that, with a constant wage share of value added, "there are viable techniques that lower costs at existing prices but which lead to lower general rates of profit when they are generally adopted." Foley's model contains some limiting assumptions, but these are no more restrictive than Okishio's. Laibman's approach is not limited at all.

[107] It is useful here to refer to equations (7.5) and (7.6) in §5.

falls only because the real wage rises to eliminate the dominant influence imparted by the profit-share. If the real wage were constant (or its increase were relatively small) as the new method became widespread, then the social average rate of profit would have risen because the dominant influence of the increase in the profit share would have remained.[108] I should add that I think that a similar dynamic process was suggested by Dobb, in which a falling reserve army and real wage increases promote cost-cutting innovations and a capital-deepening form of investment, which consequently create the conditions in which a rising composition of capital and a falling rate of profit may be realised.[109]

At this point, it might be asked in reply, perhaps echoing Samuelson, why will not capitalists simply revert to the old (pre-innovation) technology to obtain the higher (pre-innovation) profit rate again?[110] I would offer three reasons for the seemingly irreversible direction of change, each of which has a strong practical aspect. First, following Marx, we should recognise "that physical capital is substantially *illiquid* and, therefore, that investment is irreversible."[111] In the context of real capital accumulation, as opposed to the inherent factor flexibility supposed in some models, technological change brings with it rigidities that, more often than not, make reverting to earlier methods an impractical option. Included among these are that old equipment and buildings are actually scrapped physically, and long-term financial and other commitments related to the new equipment are entered into, such that scrapping this equipment, and thus substantially devaluing it, would have devastating financial consequences.[112] Second, the rise in real wages as the new technology becomes widespread could not be reversed without major industrial relations and social costs. Thus the new real wage combined with the old methods, including the old level of labour productivity, would involve a lower profit share than was the case when these methods operated originally. It is far

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[108] See Laibman (1987: 38).

[109] Dobb (1963a: 285-90; see also 1937: 113-118). See Chapter 8§2. The approach sketched in this paragraph also offers an intuitively appealing framework to help to assess the actual course of events in Australia since WWII, both when the rate of profit fell and, more recently, when it has tended to rise somewhat, in part due to restricted wage growth. See Chapter 10.

[110] Samuelson (1957). See Howard and King (1992: 140).

[111] Crotty (1993a: 5). See also Blaug (1968: 259-60) and note that "irreversibility is a necessary condition for Blaug's (neoclassical) demonstration that a falling rate of profit may occur with a constant real wage" (Howard and King 1975: 232 n. 30). Cf. Howard and King (1975: 207-09). See also Chapter 11§6.

[112] Crotty (1993a: 5).

from certain, then, that reverting to the old ways would deliver a higher rate of profit. Third, the new method entails lower costs. Hence a return to the pre-innovation (higher-cost) approach would make those who reverted susceptible to competitive pressures.

Laibman's approach is stronger than others in the rising composition tradition. He describes it as being in "continuity with Marx's falling-rate-of-profit approach, without making the latter into a fetish or ignoring the obvious difficulties with its earlier formulations."[113] He does not exclude other main causal explanations of crisis, and he explicitly recognises the central importance of the output-capital ratio in any explanation, noting that his discussion of the Okishio theorem had simply postulated its decline rather than explained it.[114] Like Rowthorn and Harris, Laibman notes that Marx "never backed up his assertion that the output[-capital] ratio would fall."[115] However, he offers some tentative arguments why it might trace such a trajectory:

> "For a given income distribution, however, the matter turns on the extent to which productivity increases can be obtained without mechanizing, and the rate at which diminishing returns to mechanization set in. The less the resources a society can devote to fundamental science, and the more *slowly* diminishing returns set in (owing perhaps to an engineering culture based on a long-established search for high innovator's profits), the more likely it is that the path of technical change will be biased, in the sense of showing a falling output[-capital] ratio."[116]

He also holds technological change to be an endogenous variable subject to multiple influences. It must, therefore, be situated in its social and historical context. Part of the explanation relates to the size of the profit share in particular historical periods. Laibman recognises that these propositions do not resolve the

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[113] Laibman (1992: 101-02; see also Part 3; 1987: 41).
[114] Laibman (1987: 38).
[115] Laibman (1992: 96; 1987: 37). See Rowthorn and Harris (1985: 349) and Chapter 5§3.
[116] Laibman (1992: 100; 1987: 40).

issue, but he is right to say that they point to fruitful areas of research.[117] He also argues against critics of the Okishio theorem who pick on its form rather than its content, try to replace an innovator's profit rate with another target, or say that capitalists cannot assess how things will turn out. The case is weakened, he says, unless it rests on the view that individual capitalists act in their own best interests.[118]

7 Shaikh's Reply to the Okishio Challenge

Shaikh's much-debated approach is different from Laibman's. At first, he seemed to concede that a higher transitional profit rate would lead to a higher eventual rate. However, he said that a higher profit margin should replace a higher transitional profit rate as the principle guiding the investment choice. This, he said, corresponded to the Marxist "competitive criterion" of cost-minimisation. He met the view that capitalists would target the transitional profit rate at existing prices, which he called the "optimality criterion," with the exaggerated and ultimately meaningless criticism that it was more in keeping with a neo-classical approach to competition.[119]

Subsequently, Shaikh's position shifted. He now says that "profit rate maximizing...[and] unit cost minimizing (profit margin maximizing)" are equivalent if capitalists anticipate and effect falling prices and if they target "*the highest projected rate of profit.*" The incentive for capitalists to reduce unit costs is that "the first ones to do so can lower prices and thereby expand their total profits through larger market shares."[120] Note that the highest projected profit rate referred to is clearly a lower one than at the outset. What he is saying is that capitalists are conditioned to expect a declining rate of profit, which they bring

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[117] Laibman (1992: 100, 1987: 39-40). Though I hasten to add, in this case, there is nothing *a priori* about his propositions. See Chapter 2§5.

[118] Laibman (1992: 96-97 n.5; 1987: 42 n.4). Mandel's (1981: 35-36) comments on Okishio are an example of the problems to which Laibman points. Shaikh also exemplifies some of them (see §7).

[119] Shaikh (1978b: 244-45; see also 1980: 75-83, 1990: 308). See also Norton (1992: 160). I get the impression that, for Shaikh, target-shifting is also driven by the dynamics of polemical battle. Also, his efforts to defend Marx and to argue against the "profit-squeeze" approach, in particular, often appear overstated and tenuous.

[120] Shaikh (1990c: 308, original emphasis; see also 1987: 115-17), following an argument in Nakatani (1979). Nakatani (1980: 68) concludes that "Shaikh is not correct to argue that Marx's law...holds without the assumption of a rising real wage rate." See also Norton (1992: 160).

about by their investment decisions. In so far as they do, however, they are behaving rationally: making the best of a bad lot by obtaining the greatest possible mass of profit.

Shaikh still has not canvassed the possibility identified by Laibman, in which the innovating capitalist does not (initially) reduce prices. Moreover, he has not addressed, let alone established, the fundamental condition needed for his argument to hold: that the output-capital ratio should fall over time. Another obvious condition should also be noted: for price reductions to increase the mass of profit, the revenue elasticity of the price-cutting capitalist must be greater than unity.

Mandel cited Shaikh's initial case supportively, but a close reading shows that they were not saying exactly the same thing.[121] Mandel's brief 1981 comment on Okishio emphasises that the investment decision is made under compulsion and may not allow for profit-rate maximisation. He seems to suggest that new techniques will be introduced only if they do not reduce the mass of profit. But he also turns to profit-rate maximisation, arguing that capitalists who intend to increase their individual rates of profit by further mechanising production techniques may unwittingly produce perverse results on average as an unintended consequence. The reason is that they lack knowledge of the eventual effects of their decisions. These effects will be known only later and will be determined in conjunction with decisions made by their class as a whole.

Mandel's arguments are not strong and are of the type Laibman criticised. It is reasonable to think that stupid (non-optimal) decisions about investment tend to be eliminated over time by demonstration, imitation, and competition, without ignoring the effects of poor decisions in the short-run (e.g., overinvestment in vacant office space in Melbourne in the 1980s). Crisis also has this Pavlovian effect and, rather more dramatically, it tends to eliminate bad decision-makers. Thus very little weight can be given to the possibility that, on average, consistently wrong choices would be generated endemically by hapless engineers and adopted by foolish capitalists. Mandel's stance is different from both of Shaikh's. Originally, Shaikh had capitalists target and achieve a profit margin increase. In his most

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[121] Mandel (1981: 35-36).

recent presentations, he has them knowledgeably target and effect a lower profit rate.

An important part of Shaikh's best-of-a-bad-lot argument is that it brings price competition and capitalists' survival motives into the open as objectives informing decisions on investment and technology. Product innovation as a competitive weapon may be added as well. Such considerations suggest that any analysis of the investment decision may be limited if it merely singles out, or over-emphasises, the profit-rate maximisation criterion. Here the stress falls on the word *voluntarily* in the quotation from Marx given above. It *is* possible to object that the Okishio-based challenge interprets the investment decision too narrowly and voluntaristically, as if real "choice" were determining the result rather than involuntary "compulsion" to cut costs (and possibly prices) in what may be a second-best environment shaped by falling output-capital ratios. Indeed, in a period characterised by significant over-capacity and heightened competition, it may be perfectly "rational" for innovating firms to target a lower rate of profit on investment in the short-run. Resulting lower prices and/or market-stealing product changes may help some firms to survive, eliminate competitors, and embark them on a healthier profit-rate trend over a longer time-span.

We should at least allow for the investment decision to be informed by multiple objectives and motives. The only restriction should be that it falls within the broad criterion that inter-capitalist competition generated by the need to survive forces individual capitalists to make and accumulate profits, constantly revolutionise production techniques, and develop new products (as explained in Chapter 3§2). In Marx's words, accumulation "is the law governing capitalist production" because it arises:

> "...from the constant revolutions in the methods of production themselves, from the devaluation of the existing capital which is always associated with this, and from the general competitive struggle and the need to improve

> production and extend its scale, merely as a means of self-preservation, and on pain of going under."[122]

8 The Output-Capital Ratio and Marx's Tendency

Apart from acknowledging the basic correctness of the Okishio theorem, in the case that investments achieve a higher transitional rate of profit, the discussion of the investment decision itself has ended as inconclusively as it did in Chapter 6. The investment decision, its rhythms, and the intimately related question of the intensity and character of competition between capitals, are vital areas for ongoing Marxist research.[123] However, it is also evident from the discussion in this chapter that the overall outcome for the rate of profit in any case *must* depend significantly on the direction of the output-capital ratio. This much is also stressed in recent empirical work on the profit rate that should be mentioned. Michl, for instance, notes:

> "It is worth reiterating that while no theoretical grounds exist for assuming a monotonic historical tendency for the capital-output ratio to rise, the hypothesis of capital-using technical change helps explain movements in the [US] rate of profit since 1948."[124]

Duménil, Glick, and Lévy make the same point, emphasising "that this variable plays a crucial role in the explanation of the movement of the profit rate" in the US over the 120 years from 1869 to 1989.[125] **Figure 7.1**, which reproduces Duménil, Glick, and Lévy's Figure 3.4, shows the behaviour of the economy-wide estimate of the net national product to the net stock of fixed capital over these years.[126] This estimate clearly reinforces the argument raised throughout this chapter that there

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[122] (*Capital III*: 353; see also 359-68). See also Crotty (1993a: 2, 6) and Crotty and Goldstein (1992: 226 n. 3) on the possibility of "invest-or-die" competition that results in a reduced rate of profit.

[123] See references in §1 and Chapters 3§§2(iii) and 3§3(i) to Crotty's work on this, e.g., Crotty (1993a). See also n. 122 and Chapter 11§6.

[124] Michl (1991: 274 n. 1; see esp. Figure 1), citing Duménil, Glick, and Rangel (1987c: see esp. 352 Figure 16). See also Michl (1992).

[125] Duménil, Glick, and Lévy (1992: 50).

[126] Duménil, Glick, and Lévy (1992: 51; see also 45-46, 49-54). A caveat is that data prior to 1929 are less reliable (1992: 46).

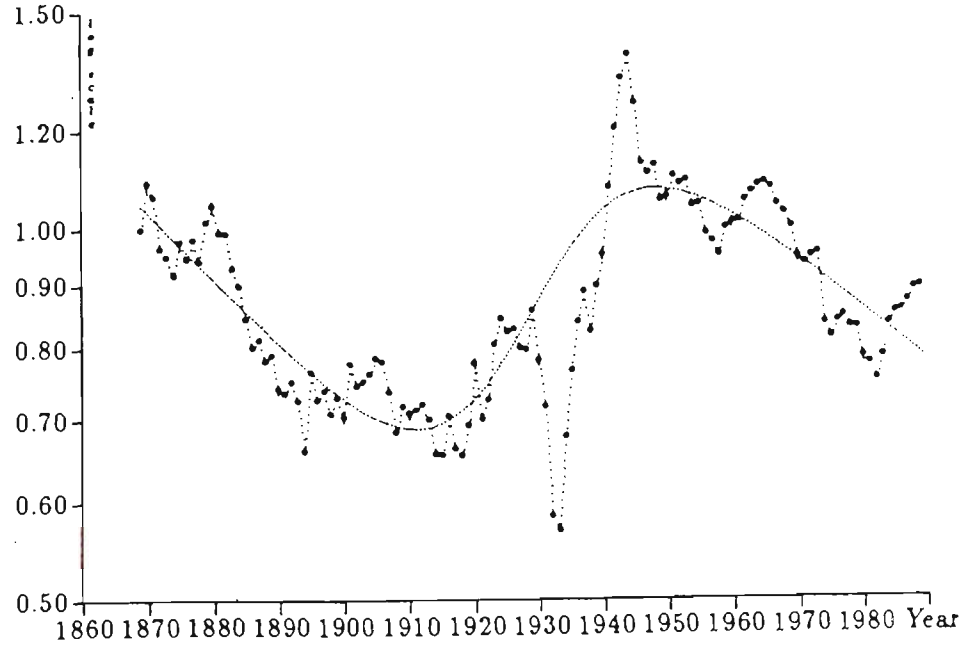
exists no supra-historical reason for the output-capital ratio to fall, but rather that the historical reasons for its rise in some periods and its fall in others are the proper objects of Marxist analysis.

I will take up this issue again in Chapter 10, especially in Chapter 10§6. However, it would be evasive not to say now that I think that the rising composition tendency cannot properly be given the status in theory, as the dominant tendency governing capitalist economic development, that Marx so clearly gave it. Meek was right to say that "Marx's argument as it stands in *Capital* requires a certain amount of modification and elaboration before anything like a 'law of the falling tendency of the rate of profit' can properly be based on it."[127] This is true even if we apply that argument in a more restricted way to particular historical periods of capitalist development in which the output-capital ratio actually falls. Specifically, the rising composition case would need to be elaborated and modified in terms of the Okishio theorem. Within the modern rising composition of capital tradition, Laibman is one who has given this issue the theoretical recognition it deserves.

FIGURE 7.1

The US Economy's Output-Capital Ratio: 1869-1989

Source: Duménil, Glick, and Lévy (1992: 51, Figure 3.4).



[127] Meek (1967b: 209).

8
Falling Profit Share Theories

1 Origins and Sources

Marx clearly left open the possibility that wage rises could squeeze the rate of profit and threaten the accumulation process. He used just this possibility to argue against under-consumption theories.[1] The reason for falling exploitation would be found in labour-market conditions: "the requirements of accumulating capital may exceed the growth in labour-power or in the number of workers; the demand for workers may outstrip the supply, and thus wages may rise."[2] It is important, though, to distinguish the possibility of rising exploitation from the separate issue of the long-run trend in the real wage. I think it is fair to say that Marx thought the real wage would rise over time.

This view of the trend in real wages may not be so contentious, but a short justification may give some useful background to the ensuing discussion. Interpreting Marx in this way follows from a rejection of the so-called thesis of absolute impoverishment and its correlate, which says that the value of labour power is only determined by physical subsistence needs. The most widely held position today is that Marx believed the working class would be only relatively, not absolutely, worse off as capitalism developed. He thought that the value of labour power was determined partly by subsistence needs and partly by social, historical,

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[1] See Chapter 6§1.

[2] (*Capital I*: 763; see also 769-71, 790 ff.). See also (*Capital II*: 156-57, 486-87), (*Capital III*: 367, 375, 347), Dobb (1958: 50-51; 1937: 121-26), Glyn and Sutcliffe (1972: Appendix B), and Sweezy (1942: Chapter 9). Some care should be taken with those quotations in Chapter 25 of (*Capital I*: §1, 762-72). Its heading is: "I. A Growing Demand for Labour-Power Accompanies Accumulation *if the Composition of Capital Remains the Same*" (emphasis added).

cultural, and moral factors.[3] Marx's theory of wages is a big area, and it is one into which I will not enter. However, Rowthorn summarises the some of the main concerns well:

> "...even though Marx himself never gave a simple and unambiguous definition of the value of labour-power, his various attempts all embody the idea that at any time there is a minimum standard of life which capital must provide for workers and their families, and unless it does so there will be very serious economic and political consequences. The existence of such a minimum, which has a tendency to rise through time, limits the freedom of action of capital and is one of the factors responsible for capitalism's long-term dynamism."[4]

Foley adds that Marx was "extremely reluctant to admit explicitly that rising labour productivity with a constant value of labour-power implies a rising real wage," but his argument on the tendency of the rate of profit to fall implicitly "acknowledges this by taking...the value of labour-power, and not the real wage, as constant."[5] Since advances in labour productivity mean that it takes less time to produce the existing wage goods bundle (real wages), which is to say that the value of this bundle falls, a constant value of labour power means precisely that a bigger bundle can be obtained: i.e., that real wages rise.

The position that workers would be only relatively worse off over time also makes it clear that Marx did not think that a temporary rise in the wage share would constitute a long-run tendency. Rather, it would be an "exceptional case."[6] Workers would not be able to keep hold of their momentary gains under capitalism because such gains acted in the short-run "as a harbinger of crisis."[7] The crisis would usher in rising unemployment and falling relative wage levels. Marx left no

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[3] See, e.g., Dobb (1958: 38-39; 1937: 124), Glyn (1990b: 280-81), Green (1991), Howard and King (1989: 5), Mandel (*inter alia*, 1990: 20-24; 1976: 63-73; 1971: Chapter 9), Mumy (1990), Nicolaus (1973: 47-50), Rosdolsky (1977: 282-312), Rowthorn (1980: Chapter 7), and Shaikh (1990c: 306). Concerning the historical, moral, and social dimensions, to the determination of the value of labour power, see (*Grundrisse: inter alia*, 286-88) and *Wages, Price, and Profit* (*SW II*: 71-72).

[4] Rowthorn (1980: 212).

[5] Foley (1986: 45, 47).

[6] (*Capital III*: 347). See also Sherman (1976: 114-15).

[7] (*Capital II*: 487).

doubt that he considered the "dice" to be "loaded" against workers in the long run. Demand for labour would be reduced compared with its supply due to the labour-saving nature of accumulation. Workers would be "set free" to swell the reserve army. Moreover, labour-saving technological change, accompanied by increasing work intensity and even longer hours per worker, would be stimulated the more there appeared to capitalists to be evidence of labour-market pressure for wages to rise.[8]

Marx was unequivocal that the trajectory of the rate of surplus value would be upward because "the means of production and the productivity of labour increase more rapidly than the productive population expresses itself, therefore...the working population always increases more rapidly than" is required by capitalism.[9] However, if the rate of surplus value did fall, increased labour productivity could offset its effect by increasing the *annual* rates of surplus value and profit.[10] Regardless of this, Marx thought that the tendency of the reserve army of labour to rise would be the dominant one and it would depress wage increases *relative* to those in surplus value.[11]

A short-run version of the rising-wage, falling-exploitation thesis was presented in Bauer's 1913 model of cyclical over-accumulation. He coupled it with a long-run model of a rising composition of capital, which later became the basis of Grossmann's "breakdown" schema. Bauer also set both "overaccumulation" and a rising composition of capital within under-consumption theory.[12] Howard and King summarise the main points of the short-run over-accumulation model:

> "Accumulation commences while there is substantial reserve army of the unemployed, relatively low real wages, and high rates of exploitation and profit. Although constant capital is accumulated more rapidly than variable capital, the demand for labour power expands. The reserve army shrinks, and real wages begin to rise. Soon they outstrip the growth in the productivity of

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[8] (*Capital I* : 791-93).

[9] (*Capital I*: 798). See also (*Capital III*: 347) and Shaikh (1990c: 306).

[10] (*Capital I*: 752-53). See also §2 and Chapter 7§2.

[11] This interpretation of Marx is acknowledged by Marxists who support the rising wage hypothesis (Glyn and Sutcliffe 1972: 231-32).

[12] See Chapter 6§2 and Howard and King (1992: 11-18; 1989: 115-22).

> labour, depressing the rate of exploitation and lowering the rate of profit. This chokes off investment and brings accumulation to a halt. Unemployment increases, real wages fall, the rate of exploitation recovers, and the rate of profit rises again, allowing the cycle to repeat itself."[13]

This type of approach was attractive to Marxists, who could use it to attribute crisis tendencies to capitalism while remaining ambivalent about, or rejecting, the rising composition of capital or underconsumption theses.[14] It could also be adapted to use in a longer-run sense as well.[15]

2 Dobb, etc.[16]

Dobb is the central transitional figure in this theoretical tradition and a major influence on the way in which other Marxist economists have formulated their ideas, whether this is acknowledged or not. The tendency of capitalism to exhaust the reserve army of labour, cyclically and over long periods of development, is at the centre of his work. He did not deny that crises and disrupted accumulation could possibly have demand-side causes, nor was a rising composition of capital excluded from consideration.[17] However, the most fundamental role of all was accorded by Dobb to the reserve army of labour and the impact of rising wages on profits at crucial times.[18] While ambiguities may arise from such an approach,[19] it has two important strengths: stress is laid on the interplay of tendencies, and the range of possibilities implies the theory is historically and empirically open. This

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[13] Howard and King (1992: 13), citing Bauer (1913: 104-08).

[14] Indeed, most Marxists reserve a place for the falling reserve army-rising wage view in their theories of crisis, even if they do not regard it as the principal determinant. See, e.g., Sweezy (1981a: 39; 1942: Chapter 9) and Mandel (1990: 32-33; 1978b: Chapter 5). See also Howard and King (1989: 120-21, n. 51).

[15] Weisskopf (1978: 245, 247).

[16] The section heading plays on Bhaskar's (1994) title *Plato, etc.*, from Whitehead's remark that western philosophy was a series of footnotes on Plato. Now is not the place elaborate on my obvious overstatement here, but I do think that echoes of Dobb (*inter alia*, 1937: Chapter 4; 1963a: 281-319; 1973: Chapters 6 and 9; and even 1958: 37-52) appear in the work of many Marxists, even those to whom his pro-Moscow political allegiances were anathema.

[17] Dobb (1958: 50-51).

[18] Dobb (1937: 121, 126). See also (1973: 157-58; 1963a: 300-05; and 1958: 37-52; esp., 51). See also Howard and King (1992: 13-14, 18) and Shaikh (1978b). Dobb (1939) enthusiastically reviewed Kalecki's ideas for the *Daily Worker* in 1939. See Kriesler and McFarlane (1993: 227).

[19] Howard and King describe it as being "somewhat eclectic" (1992: 12).

theme will be resumed in Chapter 10§6. For now, the focus will remain on Dobb's views as he presented them.

First, Dobb was, at best, lukewarm about the strict underconsumption viewpoint. His respectful but unenthusiastic reference to the underconsumptionist position of Varga, the chief economic theoretician of the Stalinist Communist International, is an example of this.[20] Sweezy also noted that Dobb relegated underconsumption to a position that was "distinctly secondary."[21] His 1958 sketch of long-run trends and possible causes of crisis does an admirable job of outlining the underconsumption case, adding the non-committal comment that "some think the 1929 crisis in the U.S.A. came in this way."[22]

Yet Dobb did place great store on the overall problem of effective demand. His emphasis, though, was decidedly Kaleckian.[23] Effective demand *is* an important component of Dobb's theory: it acts as a platform onto which other parts of the theory are built. It is there, in the background, as a counterpoint to explain the different conditions needed to sustain a period (long or short) of capitalist expansion. These conditions focus on investment demand and the necessary *continued* growth in Department I. A short-run expansion would need "a new crop of inventions or a technical revolution, opening the prospect of extensive replacement of plant and equipment by new within the space of a few years."[24] For a longer expansion to occur, the process of innovation would need to be cumulative. However, Dobb's explanatory emphasis shifts from the factors needed to sustain demand when he nominates the likely reasons such a boom will falter. An investment boom may be possible "if population is growing very fast and the industrial reserve army is inexhaustible." But this is unlikely,

> "at least in developed industrial countries where...capital accumulation tends to grow faster than the labour supply. If the stock of capital outruns the

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[20] Dobb (1937: 121, n. 1).
[21] Sweezy (1942: 179).
[22] Dobb (1958: 47).
[23] Dobb (1958: 47-50). The evident regard in which Kalecki was held by Dobb can be seen in various places in his 1937 and 1973 works. See, especially, Dobb (1963a: 291-300) and Chapter 6§5.
[24] Dobb (1958: 49).

> reserve army of labour, then the resulting competition for labour is likely to bid up wages, which will eat into the surplus left over for capital."[25]

Dobb also endeavoured to wrench the debate from the realm of speculation. The facts about the relevant tendencies were as clear as available statistics permitted them to be, he said. A number of contemporary studies demonstrated that productivity had grown, generally and in the wage-goods industries. Yet real wages had risen, largely due to the strength of the organised working class. From about 1870 the long-run trend in relative income shares in Britain had been reasonably constant. The profit share had not grown, but there was also "some pretty strong resistance-mechanism to any enlargement of labour's relative share in growing output..."[26] Dobb also relied on empirical evidence concerning the composition of capital. The quantity of fixed capital per worker had certainly risen, which supported the "chief ground of Marx's falling-profit-rate tendency." However, he warned that "since productivity per worker had risen by about the same amount, this does *not* necessarily mean that capital per worker in *value* terms has risen."[27] The available studies on the direction of the rate of profit did not enable him to state firm conclusions on this question.[28]

Nonetheless, problems for accumulation that might result from a rising composition of capital were not dismissed. But they were introduced in conjunction with long- and short-run trends in the reserve army and wages, as was noted briefly in Chapter 7§6. The impact on the rate of profit of a rising composition of capital may be counteracted by an increasing *annual* rate of exploitation if the reserve army is large, Dobb argued, but once the reserve army begins to dwindle with sustained accumulation this offsetting function is precluded. Capitalists may respond by stepping up labour-saving capital accumulation, and it is this response to rising real wages that may lead to Marx's falling profit rate thesis actually arising. The rate of profit would fall if productivity increases were too

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[25] Dobb (1958: 51).

[26] Dobb (1958: 42, 41). See also (1963a: 329-30, 381-82, 391). Dobb does not use an (un)productive distinction. The data he cites are for property and wage and salary income. There is an evident Kaleckian connection here, too. See Chapter 6§5 n. 90.

[27] Dobb (1958: 40)

[28] Studies cited by Dobb (1958) included Gillman (1958) and Fellner, for the US, and Phelps Brown and Weber, for Britain.

weak to compensate for the rise in the composition of capital and the increase in wages.[29] Notably, Dobb's approach is not weakened by the Okishio theorem, and he also mentioned the effect of turnover and annual variables on the rate of profit, accurately specifying the "annual rate of surplus value" as the relevant counteracting tendency of a rising composition of capital.[30]

Rising wages provide the grounds for a short-run "crisis" explanation, but the conditions governing the explanation make it suitable also as a medium- to long-run perspective on capitalism's problems. On an historical and empirical level this is understandable and defendable. *Prima facie*, modern capitalism does not have the same options for increasing the rate of exploitation as dramatically as it had available to it in the system's youth, no matter how hard it may continue to try. Workers' industrial and political organisations have grown since last century and have entrenched their role institutionally, though this has been offset since the 1970s by worldwide efforts to weaken the bargaining position of workers by "deregulating" labour markets and through various institutional schemes of "wage moderation."[31] The relative diminution of agricultural and semi-proletarian sectors of the population as metropolitan capitalism matured certainly has deprived it of the sources of additional labour supply that were available in earlier periods,[32] though this, too, has been moderated since 1945 by increased migration from the Third World, greater employment of women, relocation of production in an effort to "globalise" the reserve army, and the higher levels of unemployment since the 1970s.[33]

3 Rising Wage "Profit Squeeze"

Within modern Marxist economics a "full-employment profits-squeeze" approach emerged strongly in the 1970s with the presentation of an empirically

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[29] Dobb (1963a: 302-04; 1958: 51; 1937: 110-14, 123-26). See also Shaikh (1978b: 236) and Norton (1992: 159).

[30] Dobb (1937: 96 n. 2, 108). See also Dobb (1963a: 288-91) and Howard and King (1975: 232 n. 25).

[31] Glyn (1992: 74-75, 94-95).

[32] See, e.g., Dobb (1963a: *inter alia*, 381-83; 1937: 125-26) and Armstrong, Glyn, and Harrison (1984: 239-45).

[33] Glyn (1992: 78-79). See the discussion in Chapter 10§§5-6.

grounded explanation of the end of the long post-WWII boom.[34] The empirical dimension of the profit-squeeze approach will be examined in Chapter 10, so it is important now to outline its substantive theoretical points clearly. This is relatively easy since the authors express their arguments with one eye focused on empirical evidence. They also think that a range of possible factors, such as raw materials prices, financial variables, exchange rates, international competitive and protectionist mechanisms, and state policies, will influence the rate of profit. However, these "are treated as of secondary importance behind the prime contradiction, which is the over-accumulation of capital with respect to the supply of labor-power, as manifested in a falling profit share."[35]

While, as a matter of unexceptional arithmetic, productivity changes (Y_p/L) play their part in shaping the profit share (Π/Y), the emphasis here falls on the rate of real wage increases (w_r).[36] An alternative approach that stresses lagging productivity will be discussed in §§5-6. The main variables can be seen in the following abbreviation of the profit-rate decomposition given in Chapter 5§§2(ii) and 4 (5.1A, 5.2A, 5.8A):

$$P' = (\Pi/C_a) = (Y/C_a)(\Pi/Y) = (Y/C_a)[1 - w_r/(Y_p/L)] \qquad (8.1)$$

It should be noted, however, that "profit squeeze" theorists also stress that real wages *per se* are themselves determined essentially as a function of the accumulation process: they are "a symptom...not an independent element."[37] *Ipso facto*, workers cannot be blamed for rising unemployment and capitalist crisis.[38] This has been seen as a change in emphasis from earlier works, which spoke more

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[34] Glyn (1990b: 282). See, Armstrong, Glyn, and Harrison (1984), Green and Sutcliffe (1987: 299-305), Glyn and Harrison (1980), Glyn and Sutcliffe (1972). Boddy and Crotty (1975) and Rowthorn (1980: e.g., Chapter 4) also offer similar explanations. Rowthorn's (1980: Chapter 6) model of inflation is also accepted by the profit-squeeze school (Green and Sutcliffe 1987: 335-38). Inflation is an important issue that will not be covered for reasons of space. See also the summaries of the profit-squeeze approach by Weisskopf (1978: 244-45, 247-50) and Norton (1992: 174-76) and the assessments by Howard and King (1992: 318-22) and Sherman (1991: Chapter 11).

[35] Green and Sutcliffe (1987: 303). See also Armstrong, Glyn, and Harrison (1984: 255-57). While they refer to Marx, the "profit-squeeze" theorists eschew value categories in their explanation. Their empirical studies use annual price variables.

[36] Glyn and Harrison (1980: 177).

[37] Armstrong, Glyn, and Harrison (1984: 334; see also 177-79) and (*Capital I*: 770).

[38] Criticisms of reserve army-profit squeeze and lagging productivity theories on the basis of their supposed political dangers for working class activity are fatuous and could, with due respect for context, be redirected at Marx himself (e.g., see Foster 1987: 69; Mandel 1981: 41; Mattick 1980: 40 n. 3; Shaikh 1987: 117).

of the independent effects of working class militancy.[39] It has been argued that the shift has opened the profit-squeeze theorists to possible empirical criticism and tends to eclipse other reasonable explanations of over-accumulation, such as Kalecki's political business cycle.[40]

Overall, the profit-squeeze explanation of the fundamental processes at work in the 1960s and 1970s closely resembles Dobb's general thesis. This can be seen in the following summary:

> "Towards the end of the postwar boom, an imbalance between accumulation and the labour supply led to increasingly severe labour shortage. The excess demand for labour generated a faster scrapping of old equipment. Real wages were pulled up and older machines rendered unprofitable, allowing a faster transfer of workers to the new machines. This could in principle have occurred smoothly: as profitability slid down, accumulation could have declined gently to a sustainable rate. But the capitalist system has no mechanism guaranteeing a smooth transition in such circumstances."[41]

A diagram representing "overaccumulation" given by Armstrong, Glyn, and Harrison is reproduced here as **Figure 8.1**.[42] The diagram incorporates a diversity of influences on the rate of profit, but the accompanying discussion emphasises that the central boxes in the diagram indeed house the central theoretical issues: high rates of accumulation plus limited reserves of labour give tight labour markets; tight labour markets plus rapid real wage rises and faster scrapping (retirement) of old machines give a profit squeeze (i.e., a falling profit share); a falling profit share, possibly with falling output-capital ratios, delivers falling profit rates.

Scrapping, or retirement of older machines, evidently has an important linking function. It is the means by which wage increases are accorded a central position in the dynamics of the accumulation process. Significantly, an understanding of the accumulation-wage-scrapping nexus affords an answer to an anticipated a line of

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[39] See, e.g., Glyn and Sutcliffe (1972).

[40] Howard and King (1992: 321); cf. Armstrong, Glyn, and Harrison (1984: 239) and Glyn (1991: 151-52).

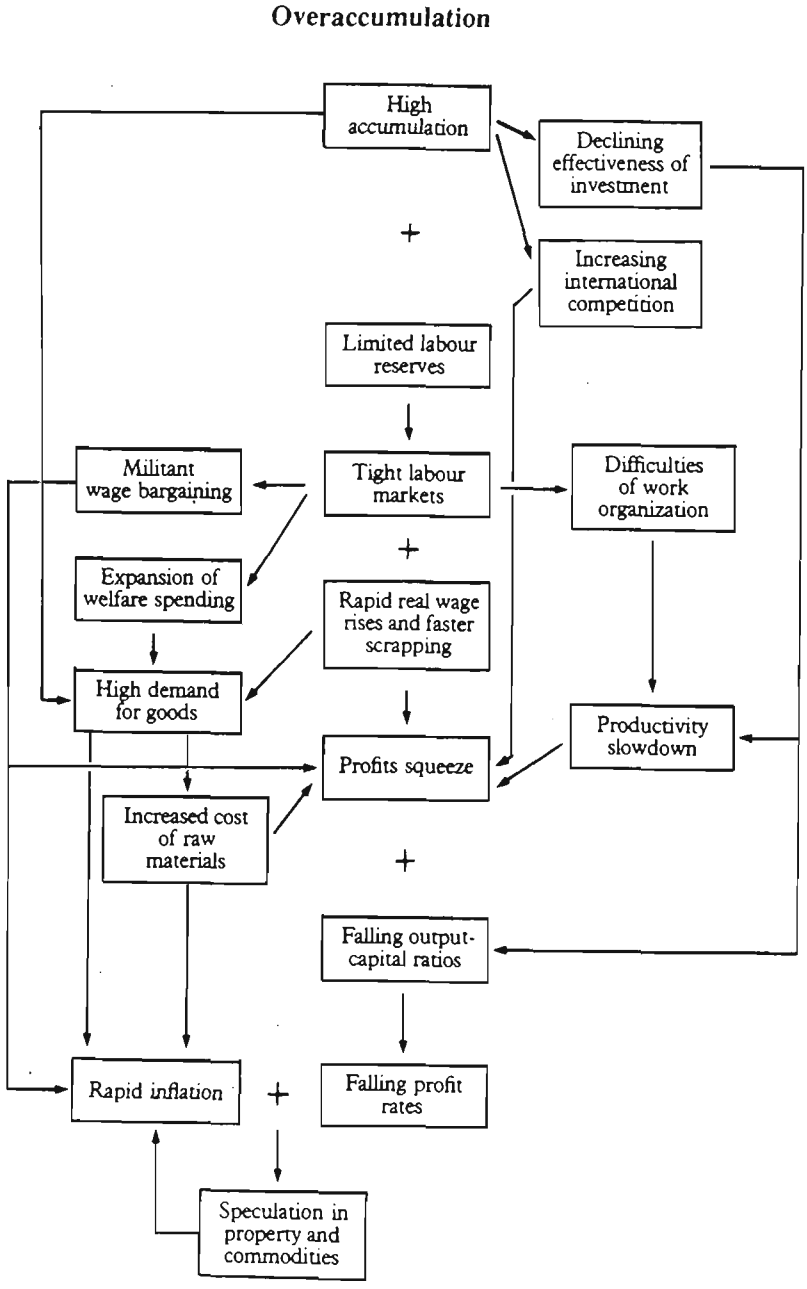
[41] Armstrong, Glyn, and Harrison (1984: 235). See also Green and Sutcliffe (1987: 303) and Glyn and Harrison (1980: 177-78).

[42] Armstrong, Glyn, and Harrison (1984: 267; see also 1991: 190 Figure 11.8).

FIGURE 8.1

Armstrong, Glyn, and Harrison: Profit Squeeze

Source: Armstrong, Glyn, and Harrison (1991: 190, Figure 11.8; 1984: 267).



criticism that recurs in appropriately different guises for all Marxist economic theories. Why should accumulation continue unsustainably in the face of labour shortages and wage pressures? If it is valid to doubt that capitalists would introduce techniques that raise the composition of capital and lower their average rate of profit, is it not equally valid to ask why they should over-accumulate

"capital with respect to the supply of labor-power"[43] to the same effect? Glyn sets the answer in context:

> "The development of such a crisis of 'overaccumulation' is an example of a more general category of problems. Each individual capitalist is attempting to maximise his [sic] profits through securing more labour; yet this leads to lower profits for the capitalist class as a whole as they bid up wages and find increasing problems in work organisation. So the rationality of the individual economic agents conflicts with what is rational for the system as a whole."[44]

How does this occur? Competition among capitals has two dimensions. First, it takes the form of competition for workers to operate new machinery. Strong accumulation and tight labour markets mean that wages are bid up. But those capitalists who are first to introduce new equipment will reap higher profits due to the gains they make in productivity. Of course, with a constant output-capital ratio, their rate of profit on produced items will increase only if the real wage rises by a proportionately smaller amount than labour productivity growth. Increased productivity gains can also allow the capitalists who are first to introduce new plant to compete by lowering their product prices. This can enable them to expand their market share and thus to increase the mass of profit they realise on sales. An increase in the mass of profit is necessary to compensate for the reduction of unit prices, especially if this reduction has been large enough so as to increase unit wage costs ($w/[Y/L]$) and, therefore, to cut profits per unit (Π/Y). In this instance, of course, the benefit for the rate of profit would be obtained through an increase in the price output (sales)-capital ratio (Y/C_a).[45] (The symbols here are a representation of equation (8.1) expressed in the prices relevant to the firm.)

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[43] Green and Sutcliffe (1987: 303). See above.

[44] Glyn (1990a: 107).

[45] Armstrong, Glyn, and Harrison (1984: 177-78). Of course, the latter effect will also depend on the relevant revenue elasticities, as noted also in Chapter 7§7. A slight difference in the presentation of this argument exists here, in so far as I have, for convenience, called the real wage (w) what they, more precisely, have called the product wage: i.e., "productivity multiplied by the share of labour in...output" (Armstrong, Glyn, and Harrison 1991: 176, 179, 351; 1984: 462). See Chapter 9§2(ii) and n. 44 there for more details. See also Dobb (1963a: 284 n. 1).

Second, competitive pressure is spread to other capitalists by the wage mechanism. Rising general wage costs force other capitalists to scrap older machines that have now been made unprofitable.[46] They are under competitive pressure to continue to accumulate and introduce new machines that will operate profitably at the new wage rates. In conditions of tight labour markets, this adds to the pressure for wages to increase and establishes a pattern of behaviour that is not within each individual capitalist's control. During the post-WWII boom, such a rise in wages was

> "...not basically damaging to production conditions. Given labour constraints, it was essential to the pace of accumulation and hence to the rate of growth of productivity. The growth in average productivity resulted from a combination of two processes: the rapid installation of new, high-productivity machinery and the fast scrapping of old, low-productivity machines. If wages had not risen, most of this scrapping would not have happened and productivity would have grown less quickly than it did."[47]

Scrapping was essential because it was the main source of the labour needed to run the new machines, provided by accumulation during the post-WWII boom, "by a factor of more than four" over the annual growth in the labour force. Without it, "capitalists...would have been forced to cut back accumulation sharply."[48]

Third, the "rational," if inexorable, process driving individual capitalists ceases to be rational for their class when *additional sources of labour are insufficient to meet the demands of rapid accumulation*. This occurs when the exhaustion of the reserve army of unemployed workers and underemployed workers on family farms registers its effect. Scrapping (i.e., accumulation) is accelerated in these circumstances to obtain labour released from the old machines. Competition for labour, not price reduction, becomes the dominant form of competition and hits a new level of intensity.[49] Despite the offsetting effects of inflation, the rate of real

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[46] Armstrong, Glyn, and Harrison (1984: 174-75).
[47] Armstrong, Glyn, and Harrison (1984: 175).
[48] Armstrong, Glyn, and Harrison (1984: 174-75).
[49] Armstrong, Glyn, and Harrison (1984: 178, 239-45).

wage rises reaches an unsustainable level, profits are squeezed, over-accumulation and overheating set in, crisis ensues, and accumulation is eventually wound back.

There are noteworthy similarities between the depiction here of the dynamics of competition and accumulation and Laibman's response to the Okishio-based challenge to the rising composition view, which was discussed in Chapter 7§6. It is also worth noting that, up to a point, Armstrong, Glyn, and Harrison countenance the effects of variables important to the main opposing Marxist explanations, and they also include some concerns that would be significant to a unique disproportionality approach to crisis (see Chapter 5§5(i)). Examples of such variables and concerns are contained in comments on decreasing productivity gains from mechanisation and a declining output-capital ratio, less productive work organisation, difficulty in increasing work intensity, international price competition and rising raw materials costs, and relative increases in prices of investment goods. Lower capacity use is also entertained in the US case.[50] However, the centrality of a high labour demand and rising real wage explanation is firmly maintained. Indeed, other variables are explained as manifestations of the central contradiction in much the same way as Dobb handled the possibility of a rising composition of capital in the lead-up to a crisis.[51]

There have been a number of other criticisms of this school on empirical grounds, and it has also been challenged over the relative weight that should be given to declining productivity growth.[52] While the wealth of concrete evidence and historical detail provided in profit-squeeze literature[53] should be emulated by other schools, another possible criticism is that some important theoretical questions remain unanswered. What is it about capitalism that precludes it from developing a smoothing mechanism that would allow capital accumulation gently to subside to a sustainable rate rather than to precipitate a crisis?[54] Perhaps this

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[50] Armstrong, Glyn, and Harrison (1984: 248-57). However, see also Glyn (1992: 86 n. 19, 90-91; 1991: 153-57). The difficulties of disentangling the causes of lagging labour productivity growth from those of a declining output-capital ratio are also noted, as is the contributory effect of a downward bias in official data for the output-capital in times of rapid scrapping (Armstrong, Glyn, and Harrison 1984: 253-54). See n. 67. See also Sherman (1991: 128, 216; 1976: 102-05, 115-16) on Marx's and Kalecki's view of rising costs of means of production as a cycle peaks.

[51] Armstrong, Glyn, and Harrison (1984: 257).

[52] Howard and King (1992: 321-22). See also Chapter 10§4(ii).

[53] See, e.g., Armstrong, Glyn, and Harrison (1984: Chapters 12-15).

[54] See above quotation from Armstrong, Glyn, and Harrison (1984: 235) and Glyn (1990a: 107).

criticism is a bit churlish. Glyn implicitly acknowledges the theoretical gap, adding that the answer "depends on the central question of capitalists' investment behaviour," the Kaleckian "' *pièce de résistance* of economics...'"[55] Of course, this is part of the same challenge facing all schools. The other part is to integrate a theory of investment with a theory of finance and credit.

4 Criticisms of Other Perspectives

The falling profit share current in Marxist thought now denies both the rising composition and underconsumption approaches: the openness (or ambiguities) that remained in Dobb's work have not been reproduced in later profit-squeeze literature.[56] This is not to say that Glyn, Sutcliffe, *et. al.*, reject out of hand the influence of variables that are central to alternative explanations. They do, however, argue against the central positions upon which alternative theories depend. These arguments are useful to consider here because they amplify and illuminate the logic and approach to empirical data of the profit-squeeze position itself. The arguments also show that profit-squeeze theorists can be just as dogged in defence of their (relatively understated) views as are other theorists (who prone to overstatement).

The substantive under-consumptionist case is abandoned, in part because the fundamental incompatibility of this and the profit-squeeze approach is recognised clearly. In particular, it is argued that "there has been a tendency for real wages to grow in line with labour productivity in the advanced countries, that is, for the profit share to be roughly constant over time or to decline."[57] Moreover, a redefinition of variables in terms of productive and unproductive labour really does not resolve the matter. There is an unavoidable contradiction between the rising-wage and under-consumption approaches that cannot be reconciled by juggling definitions of the rate of exploitation.[58] The relationship in theory of wages to realisation provides an especially clear example of the rejection by profit-squeeze

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[55] Glyn (1990b: 282-83), citing Kalecki (1968: 165).
[56] See, e.g., Glyn (1990b: 279-83).
[57] Glyn (1990b: 280; see also 282).
[58] See Chapter 6§4.

theorists of the possibility of an under-consumption explanation. Demand-side influences are not denied but, following in the direction set by Dobb, are treated with a Kaleckian tilt:

> "Regardless of their importance in sustaining accumulation by providing a growing market for consumer goods, wages must be regarded as a basically passive element in the process of realization. The development of wages is largely a product of accumulation itself.
>
> "A capitalist boom requires potential profits to be realized. Workers' spending as a whole provides the demand which realizes the profits of capitalists producing consumer goods. But the pay of their employees is an expense which reduces profits, not a source of demand which realizes them. Only the spending of workers employed elsewhere realizes profits in the consumer goods industries. These workers will only be employed if there is demand for the products they make -- for export, from the government or from the employers themselves. So the realization of all the potential profits ultimately depends on sufficient spending by the employers (on investment or consumption), the government or by those purchasing exports."[59]

Glyn uses two major lines of argument against the rising composition thesis, each of which returns the focus to the profit-squeeze view itself.[60] First, Glyn argues that "Marxists who have attempted to provide empirical evidence in support of the Law" of the tendency of the rate of profit to fall "have typically confused the mass of constant capital with its value: the capital-output ratio, which is the price correlate of the value of capital per worker, has not shown an upward trend."[61] **Figure 8.2** reproduces evidence on the two ratios Glyn mentions, in the form of a chart calculated as a weighted average of the ratios in advanced capitalist countries

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[59] Armstrong, Glyn, and Harrison (1991: 124; see also 1984: 177). This can also be derived from the simple Kaleckian profit equation. If workers consume all their income (C_w = W) and, thus, profits are equal to investment plus capitalists' consumption (_ = I + C_c), then changing the level of wages has no effect on profits. That is, wages are "basically a passive element in the in the process of realization," as stated in this passage.

[60] Glyn (1990a: 107-08; 1990b: 281-82).

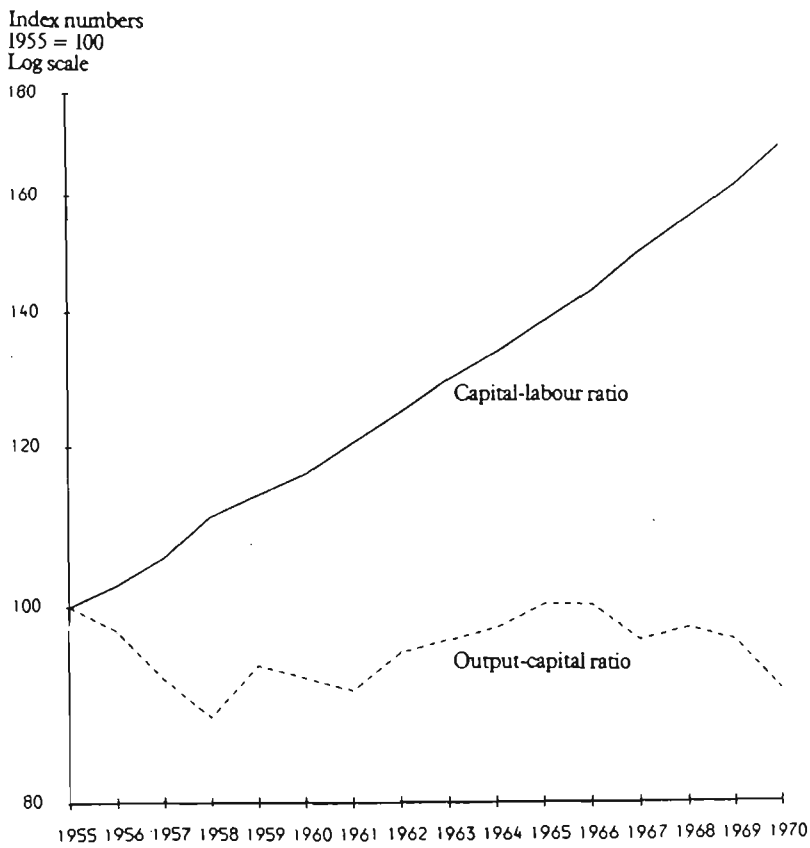
[61] Glyn (1990b: 281). See also Dobb (1958: 40).

for the years 1955-70.[62] The first point made in this passage concerns the propensity of rising composition theorists to ignore changes in the unit value of constant capital. This is certainly true of some theoretical arguments, but not all rising composition theorists commit the error in their empirical work. Shaikh, for instance, presents current-dollar, not constant-dollar (physical), capital-output ratio data that do show an upward trend. **Figure 8.3** reproduces one of Shaikh's charts.[63] Figure 8.2 also illustrates Glyn's second point, which concerns the data themselves, by presenting the evidence calculated by himself and his colleagues of a reasonably constant output-capital ratio in the period being considered. (It is useful to refer again to the significant Figure 7.1 in the previous chapter, which also presents an output-capital ratio in current-dollar form.[64])

FIGURE 8.2

Armstrong, Glyn, and Harrison: Output-Capital Ratio Trend

Source: Armstrong, Glyn, and Harrison (1984: 173, Chart 8.4).



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[62] Armstrong, Glyn, and Harrison (1984: 173 Chart 8.4; see also 254 Table 11.7). For data on later years see (1991: 248 Table 14.9, 351), citing Glyn, Hughes, Lipietz, and Singh (1990), and Glyn (1991: Tables 8.2-8.3; see also 153-57).

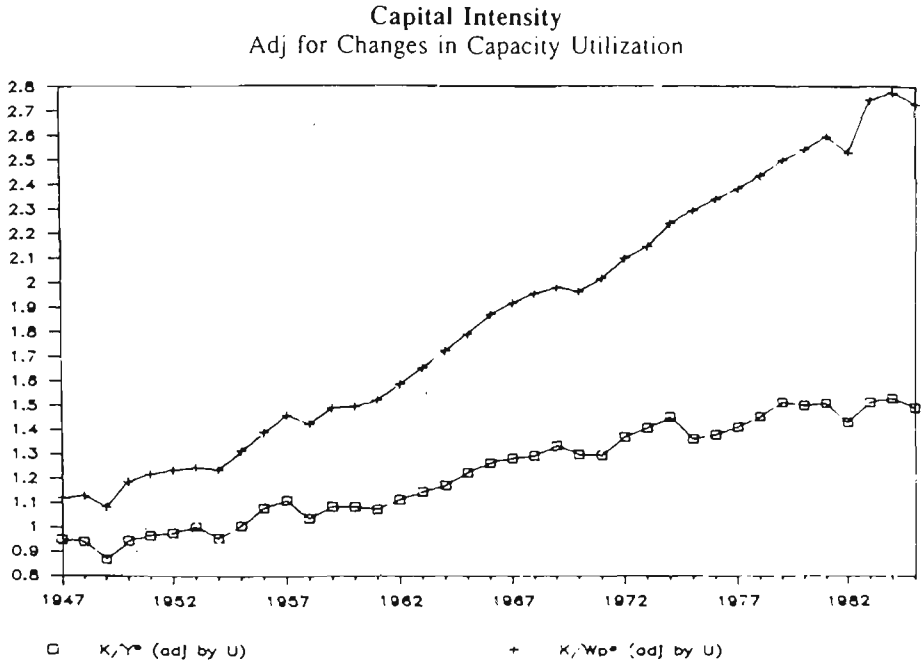
[63] Shaikh (1987: 119; see also 120, 124; 1992: 30-31). See also R. Smith (1981).

[64] Duménil, Glick, and Lévy (1992: 51 Figure 3.4). See also the discussion in Chapter 7§8.

FIGURE 8.3

Shaikh: Capital-Output Ratio Trend

Source: Shaikh (1987: 119, Figure 1).



Yet it is important to point out that it is also acknowledged by profit squeeze theorists that, "[d]uring the periods when the profit share declined, a definite fall in the [current-dollar] output-capital ratio occurred."[65] The fall, evident from about the mid-1960s, was about 5-10 per cent on average, with some groups of countries registering declines of 10-20 per cent. For the advanced countries as a whole, the effect of the falling output-capital ratio on the rate of profit in the early 1970s has been quantified by Glyn as being about two-thirds that of the profit squeeze.[66] The following reasons are given for the fall: depressed labour productivity, a relative increase in the prices of investment goods, decreased capacity use, and a statistical bias created by faster rates of scrapping.[67] What is perhaps not so obvious is that contributory factors such as labour productivity and capacity use tend to be redescribed in ways that make the rise in wages their essential "backdrop."[68]

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[65] Armstrong, Glyn, and Harrison (1984: 253). See also Green and Sutcliffe (1987: 302).

[66] Glyn (1991: 157).

[67] Armstrong, Glyn, and Harrison (1991: 181-82, 248, 250; 1984: 253-54). See also Glyn (1992: 86 n. 19, 90-91; 1991: 153-57). No data are presented to quantify the statistical bias mentioned. See also Chapter 10§2 n. 23 and Appendix 1, in which I argue that this concern is irrelevant if a gross measure of the capital stock is used.

[68] Armstrong, Glyn, and Harrison (1984: 257). See also §3.

Moreover, Glyn's 1991 data suggest that the *real* output-capital ratio contributed less to the fall in the rate of profit in the early 1970s than did the inability of capitalists to pass on the increased relative cost of capital goods "in sufficiently accelerated inflation" of output prices.[69] That is, the current-dollar output-capital ratio was more effective than the constant-dollar (real) output-capital ratio for the same reasons that increased wages translated into a profit squeeze.

Glyn's second major argument against the rising composition thesis employs the Okishio theorem: new profit-increasing techniques for the innovating capitalist will only produce a fall in the average rate of profit if there is an accompanying increase in real wages. There is some degree of theoretical agreement on his point.[70] Glyn states:

> "All this is not to say that the value of constant capital may not rise in some periods, and that it may not be associated with a falling profit rate (both were true of many countries in the early 1970's [*sic*]), but only that there *must* also be rising [real] wages (as was also the case). It has been argued by Shaikh [1978b]...that oligopolists might not maximise the profit rate; but even if this were so it could not establish any necessity for the profit rate to fall."[71]

Certainly *if* innovating capitalists actually achieve a higher transitional rate of profit, then real wages must also rise for the rate of profit to fall (on the reasonable assumption that labour productivity is growing with investment).

However, I think that it is important to be careful when juxtaposing Okishio's argument and empirical data. While it is reasonable to infer, from what we know about capitalists' motives for introducing cost-cutting technological change and about the behaviour of real wages, that the result Glyn outlines is likely to be shown in the data, it would overstate the case to infer the *necessity* of rising real wages for a decline in the actual rate of profit. Indeed, any such inference offers itself up for slaughter on an ultra-Popperian refutation criterion if it can be

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[69] Glyn (1991: 157) . However, cf. the early 1970s data given for the US and Japan in his Tables 8.5-8.6. I will take up this empirical question for Australia in Chapter 10§2 and, especially, in Chart 10.8.

[70] See Chapter 7§§6 and 8 and Laibman (1992: Chapter 5; 1987).

[71] Glyn (1990b: 282, emphasis added).

demonstrated that the profit rate fell but real wages did not rise. The Australian data for the years 1985-1988, for example, show exactly such a counter-instance. The real wage rate and the wage share fell by 1.74% and 0.96%, respectively, while the (gross) rate of profit also fell, by 1.45%. The reason was that, despite an increase in the (gross) profit share of 1.23%, the output-capital ratio fell by 2.65%.[72] (See equation (8.1) in §3.)

I make these points for two reasons. First, the Okishio theorem's insistence on real wage rises for a declining rate of profit does not *a priori* expunge explanations that stress the role of a falling output-capital ratio, nor does it necessarily privilege rising wage explanations.[73] Both Laibman and, I think, Dobb have suggested logically consistent cases in which the two explanations may be combined.[74] Neither case violates the Okishio arguments, though in Dobb's explanation the emphasis is on wages, while in Laibman's it is on the composition of capital. Second, we should be somewhat cautious and leave open the possibility that the core Okishio assumption of an increased transitional rate of profit might not actually be achieved nor even be targeted. At some times objectives other than strict profit-rate maximisation may predominate, as I suggested in Chapter 7§7.[75] While this does not by itself "establish any necessity for the profit rate to fall,"[76] it might well lead to this result in conditions governed by a declining output-capital ratio.

5 Challenges to Capitalist Control

An alternative explanation of a falling profit share focuses on empirical evidence concerning US productivity growth as the main cause of the end of the post-WWII

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[72] The figures here are from a model I will introduce in Chapter 9 and use in Chapter s 10-11 to analyse the Australian data, as presented in Appendix 3 and explained in Appendices 1-2. See Table 9.1 and, for example, Charts 10.8, 10.9, and A1.1.

[73] I am not saying that Glyn has used the Okishio theorem in the rather blunt way I have outlined here. However, such an inference can be drawn from Glyn (1990b), especially from the remark immediately following the passage quoted above: "Discussion of the Law of the Tendency of the Rate of Profit to Fall has emphasized the importance of the course of real wages for the development of capitalism. The two main schools of Marxist crisis theory [underconsumption and rising wage profit squeeze] have indeed placed real wages at the centre, but in very different ways." (1990b: 282)

[74] See §2 and Chapter 7§6.

[75] See Chapter 7§7 n. 122 on Crotty (1993a) and Crotty and Goldstein (1992). See also Chapter 11§6.

[76] Glyn (1990b: 282).

boom. More precisely, it says that insufficient productivity growth was the principal conduit through which changes in the balance of social forces were transmitted to the pre-eminent variable of the corporate profit rate in that country.[77] Here the emphasis shifts from the numerator (real wages) to the denominator (Y/L) in the decomposition of the profit share given in equation (8.1):

$$\Pi/Y = [1 - w_r/(Y_p/L)] \tag{8.2}$$

However, the economists principally responsible for developing this position, Bowles, Gordon, and Weisskopf,[78] argue that labour productivity is far from being a purely technical variable. In fact, they have been criticised for downplaying aspects of technological change and competition that do not fit within their own institutional account of relations of power and domination.[79] Productivity problems are situated mainly in the production (P) phase of the circuit of capital. However, it will be seen that other problems, with quite diffuse locations, are also suggested. Value analysis is eschewed and price variables are used explicitly.[80]

The authors are more explicit than those from other perspectives in subordinating economic concerns to broader social relationships. Economic variables are located within a general approach to crisis based on "challenges to capitalist control" and a "social structures of accumulation" model of institutional, class, and power relationships. The social structures model "erects a bridge between this general approach and more concrete analysis of specific crises."[81] On the genealogy of the model, Bowles, Gordon, and Weisskopf remark:

> "The concept of the social structure of accumulation was introduced by David M. Gordon (1978), and further developed and applied in Gordon (1980); and Gordon, Richard Edwards and Michael Reich (1982). This perspective is very closely related to a framework developed more or less independently in France known as the 'regulation approach'; this approach

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[77] Bowles, Gordon, and Weisskopf (1984: 27-33, 96-97, Chapter 6). See also the summary by Howard and King (1992: 324-26).

[78] Bowles, Gordon, and Weisskopf (*inter alia*, 1987, 1984).

[79] Devine (1987: 24), Norton (1992: 182).

[80] Given the criticism of the labour theory of value by Bowles and Gintis (1981), this is hardly surprising.

[81] Bowles, Gordon, and Weisskopf (1987: 44).

> builds upon the concept of a 'regime of accumulation' or, alternatively, a 'system of regulation.' See, for example, Michel Aglietta (1979) and Alain Lipietz (1986)."[82]

Lipietz has also noted that he agrees with Bowles, Gordon, and Weisskopf's view that "the present crisis occurred because the capitalist class is 'too weak' rather than 'too strong.'"[83] Howard and King also note the "family likeness" between the two approaches to productivity slowdown, while Norton suggests some contrasts.[84] For a number of reasons, the regulation school defies easy classification. Despite Lipietz's view of the current crisis, regulationists certainly "derive many of their insights from the 'realization crisis' strand of Marxian political economy." However, Foster has also criticised the regulation school for exaggerating the role of consumption at the expense of "a clear understanding of the historical problem of investment," as well as for providing a "supply-side interpretation of the present crisis."[85]

Power and conflict figure prominently in Bowles, Gordon, and Weisskopf's consideration of influences on the rate of profit. Weisskopf, for example, distinguishes between theories by contrasting those for which "profitability changes are attributable to overall economic-structural changes" (rising composition and under-consumption/realisation) and those that focus on "distributional changes that may be linked to the balance of class power."[86] In particular, they hone in on issues of workplace authority, international strategic relations, and influences on state policy. Their analysis of the pre-eminent relation between capital and labour relies heavily on expanding the traditional reserve army hypothesis. This is accomplished by introducing a formal model of the cost of losing a job.[87] They summarise their position on profit outcomes in the following way:

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[82] Bowles, Gordon, and Weisskopf (1987: 56). See also Gordon (1990: 136-39; 1988b).

[83] Lipietz (1986: 13).

[84] Howard and King (1992: 324) and Norton (1992: 182-83)

[85] Foster (1987: 64-66). A detailed critical assessment of the regulation school's underconsumptionist leanings is given by Brenner and Glick (1991). See also Chapter 6§5. Unfortunately, space limitations do not permit further consideration of this school, and I acknowledge that this omission is a weakness in this work.

[86] Weisskopf (1988: 68). Devine (1987: 24) calls this the "'social conflict' school" within radical economics.

[87] See, e.g., Bowles, Gordon, and Weisskopf (1987: 49, 57 n. 8; 1984: 84-91), citing Schor and Bowles (1982). See also Gordon (1990: 136) and Schor (1987). Schor (1987: 176) proposes that the following

> "It may be illuminating, then, to consider profits as the spoils of a three-front war fought by capital in its dealings with workers, foreign buyers and sellers, and the state (or indirectly with the citizenry). Capital's ability to fight effectively on these three fronts will be further affected by the intensity of inter-capitalist competition, determining how tightly and cohesively its troops are organised for battle. The military analogies are deliberate; they are intended to stress the *essentially political nature of the profit rate and the strategic nature of the social interactions involved in its determination.*"[88]

Six key economic variables "channel" the determining social interactions: the real wage rate, the intensity of labour, the terms of trade, input-output coefficients of production ("the amount of output which can be produced with one unit of any given factor input"), the rate of capacity use, and the tax rate on profits.[89] In one way or another the six variables appear also in the rising wage profit-squeeze approach (see Figure 8.1). All but the terms of trade and the tax rate on profits have been incorporated in principle within the preceding decompositions of the profit rate.[90] The tax rate on profits can be introduced easily, allowing a comparison between pre- and post-tax profit rates. (See the accounting model of Figure 3.7(ii) and the decomposition of the profit rate in Chapters 9§§3-4.) Similarly, all income variables in the model may be given in terms-of-trade adjusted form, which permits corresponding adjusted and unadjusted profit rates to be compared. The latter contrast may offer evidence of one variety of a pure disproportionality version of economic disturbance, as noted in Chapter 5§5(i), which may be especially relevant to primary "commodity" exporters such as Australia.[91]

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variables be considered in relation to a worker's total annual income: loss of annual earnings in current job, time spent unemployed, annual social welfare replacement of lost income, and annual earnings in next job. An empirical criticism of the social wage aspects of the cost-of-job-loss model is given by Shaikh and Tonak (1987), citing Tonak (1987). A methodological criticism that the model resembles orthodox neo-classical microeconomics in some respects has also been raised (King 1990a: 76).

[88] Bowles, Gordon, and Weisskopf (1987: 46, emphasis added; see also 1984: 95-97).

[89] Bowles, Gordon, and Weisskopf (1987: 46; see also 1986: 138 equation 3, 137-39, Appendix A) and (1984: Appendix C).

[90] Some of which, at any rate, were influenced by Weisskopf, e.g., (1978).

[91] A collapse of raw materials ("commodities") prices following an economic slump in Japan, for example, would be likely to affect Australia's exchange rates, given the close short-run relationship said to exist

6 Bowles, Gordon, and Weisskopf and Other Schools

It is interesting that Bowles, Gordon, and Weisskopf's model, as well as their discussion of the diverse range of possible of influences on its variables, leaves considerable room for alternative views and flexible explanations. For example, they do not deny the theoretical possibility of demand-side causes of crisis. The profit rate can be too high at times and, if wages are "relatively low and capitalists do not spend enough out of their relatively high profits on investment, there may not be enough effective demand to absorb the products of capitalist production."[92] The Great Depression was one such instance, they argue. This line of argument is another that intersects with the views of the regulation school. Though this assessment of the depression has almost folkloric status it has been criticised strongly in a number of recent contributions.[93] Regardless of their views about the Great Depression, Bowles, Gordon, and Weisskopf decisively reject demand-side explanations of the end of the long post-WWII boom. They cite US data to show that the rate of profit fell earlier than consumption or output. Furthermore, income did not shift towards capital before the onset of stagnation and monopoly did not appear to grow.[94] It is hardly surprising that a number of demand-side theorists have challenged these evaluations.[95]

Bowles, Gordon, and Weisskopf also contest the rising composition of capital view on empirical grounds. However, they appear less open theoretically to this perspective than they are to demand-side views. To start with, Weisskopf's empirical work on the end of the long boom had declared firmly against the rising composition approach. It had concluded that "[t]he long-term fall in the rate of

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between the two (Fraser 1995c: 29-30; Hughes 1994: 364-65; Blundell-Wignell, *et. al.* 1993). Higher interest costs and debt repayments for the more than 50% of Australia's high level of private foreign debt that is denominated in foreign currencies may then transmit the effect to the rest of the economy through a profit squeeze. International effects on the Australian business cycle are discussed by Hughes (1994) and Gruen and Shuetrim (1994).

[92] Bowles, Gordon, and Weisskopf (1987: 47).

[93] Bowles, Gordon, and Weisskopf (1984: xvi). Criticisms of this view of the Great Depression include those by Duménil and Lévy (1993), Brenner and Glick (1991), Glick (1987), and Duménil, Glick, and Rangel (1987a). Cf. Devine (1988) and Kanth (1987).

[94] Bowles, Gordon, and Weisskopf (1987: 53-54; 1984: xvi-xviii).

[95] Foster (1987: 66), citing Foster (1984: 68-70) and Syzmanski (1984). In large measure, these ripostes rely on the inappropriate (un)productive distinction, which Bowles, Gordon, and Weisskopf do not use.

profit from 1949 to 1975 was almost entirely attributable to a rise in the true share of wages," or a declining profit share.[96] Moreover:

> "A rise in the strength of labour *vis a vis* capital -- as reflected in a suitably adjusted wage share of income -- accounted fully for the long-term decline [in the rate of profit]...Changes in the organic composition of capital [reflected in the potential output-capital ratio] had relatively little effect on the rate of profit..."[97]

A summary of Weisskopf's key 1979 data is reproduced here as **Figure 8.4**.

FIGURE 8.4

Weisskopf's Key 1979 Data

Sources: Howard and King (1992, 320, Table 16.1, corrected here) and Weisskopf (1979: 351, Table 2).

Variable	Full period	First cycle 1949.4-1954.2	Second cycle 1954.2-1958.2	Third cycle 1958.2-1960.4	Fourth cycle 1960.4-1970.4	Fifth cycle 1970.4-1975.1
Profit rate (r)	12.1	13.7	12.0	11.4	13.1	9.4
Profit share (P/Y)	19.2	21.6	19.7	19.1	19.9	15.5
Ratio of actual to potential output (Y/Z)	83.6	85.0	83.3	79.8	84.7	82.3
Capacity output-to-capital ratio	75.5	74.7	73.0	75.0	78.0	73.2

More recently, Bowles, Gordon, and Weisskopf, referring to later data, have noted that "the ratio of capital to output increased fairly steadily in the period of crisis and that, in this nominal respect, this focus on capitalist 'over-investment' is potentially fruitful."[98] Interestingly, Glick cites "evidence in Weisskopf 1985" to support his view that "little evidence can be found that the decline in profitability [following 1966] was caused by either rising real wages or falling productivity."[99]

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[96] Weisskopf (1979: 370). See also Howard and King (1992: 319-20).

[97] Weisskopf (1979: 372).

[98] Bowles, Gordon, and Weisskopf (1987: 53).

[99] Glick (1987: 134). See also my concluding remarks below.

Their objection to this focus is that, if the power relations behind the social structures of accumulation approach are fully brought to account, "there is no further explanatory power to be gained by adding a term to account for movements in the capital intensity of production."[100] Of course, it is always possible to dismiss capital intensity tautologically but without gaining theoretical enlightenment one way or the other. Since the capital-labour flow ratio (capital intensity in Bowles, Gordon, and Weisskopf's terms[101]) can be decomposed as:

$$(C_a/L) = (Y/L)/(Y/C_a) \tag{8.3}$$

any analysis that explicitly includes the two ratios on the right-hand side (labour productivity and the output-capital ratio) implicitly includes capital intensity. Thus any one of the three terms may be given formal leave of absence in a profit rate decomposition or regression model without necessarily losing explanatory power. Similarly, it is possible to include functionally meaningless terms in a decomposition (e.g., peanut consumption, (un)productive labour[102]) if they cancel out at a higher level. Explanatory power in an econometric sense, for example, is no substitute for a thoroughgoing explanation of the real economic and social forces at work.

Bowles, Gordon, and Weisskopf's argument against rising-composition explanations, therefore, must depend on the empirical and theoretical force of their own explanation, including their justification for emphasising some variables over others. It must also depend on their ability to counter criticisms that they have neglected significant factors highlighted by other authors, such as the pace, motivation, and character of technological change, which may not so easily nor directly resolve into power relations and social conflicts.[103] In a formal mathematical sense, Bowles, Gordon, and Weisskopf's 1986 profit rate equation, on which their argument here is based, contains a term for the output-capital ratio,

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[100] Bowles, Gordon, and Weisskopf (1987: 53), referring to an unpublished appendix to Bowles, Gordon, and Weisskopf (1986).

[101] Bowles, Gordon, and Weisskopf (1986: 159; 1984: 290).

[102] See Chapter 6§4(iii).

[103] Devine (1987: 24). See also Shaikh (1987: 122-23).

but it assumes capital intensity (the "machine-labour ratio") to be constant.[104] This assumption has the formal effect of making any changes in the output-capital ratio depend on changes in labour productivity, or, more precisely, on the determinants of labour productivity.[105] The latter are expressed in variables that seem to be easier to discuss in terms of power relationships, which just emphasises the point that the authors' objections to the theories emphasising the output-capital ratio depend on the substantive force and reasonableness of their own claims and assumptions.[106]

What, then, is the relationship of this current to the more traditional "reserve army profit-squeeze" theorists? I have noted above how Weisskopf's original study attributed the declining rate of profit in the US from 1949 to 1975 overwhelmingly to a falling profit share. The average cost of job loss also fell in this time, especially during 1966-72. This is clearly related to the reserve army hypothesis, as corresponding data also show significant reductions in the average duration of unemployment.[107] However, Weisskopf added a twist to his explanation of a rising wage share, which he said was:

> "...largely defensive in nature. The working class did not succeed in making real wage gains commensurate with the growth of true productivity; it merely succeeded in defending itself somewhat more successfully against a long-term deterioration in the terms of trade than did the capitalist class."[108]

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[104] The term Q/Z_d in their equation 3 is defined as the ratio of gross output (including intermediate consumption) to the gross capital stock, with Q representing capacity use (Bowles, Gordon, and Weisskopf 1986: 138-39, 165 n. 62). At any rate, it should be remembered that rising composition views have an essential affinity with the output-capital ratio, as has been explained in Chapters 5-7 and in §4.

[105] z_d ("machines used per unit of domestic output") = z (the "machine-labour ratio") x l_d (labour productivity as "the amount of labour -- actual work performed -- to produce a unit of output"), where $l_d = h_d$ (labour productivity as the number of hours of labor power hired per unit of output) x l^* (the labour extraction coefficient). With z held constant, changes in z_d turn on the labour productivity and extraction variables. See Bowles, Gordon, and Weisskopf (1986: 138-39, 159, 165 n. 62).

[106] It is regrettable that the arguments in the unpublished appendix to Bowles, Gordon, and Weisskopf (1986) concerning capital intensity were not published in some form.

[107] Schor (1987: 177-78). See n. 87.

[108] Weisskopf (1979: 370).

Meanwhile, productivity growth had slowed.[109] Thus, while there are some common general features between the two approaches, and while the participants also have engaged in co-operative research efforts,[110] Bowles, Gordon, and Weisskopf point out three ways in which they believe their views expand "upon the traditional formulation":

> "First, we stress that power relationships may affect more components of the rate of profit than the profit share...[see above]. Second, we place greater stress on the centrality of power relationships in the determination of the basic conditions of profitability, an emphasis which has been somewhat more implicit in traditional profit-squeeze accounts. Third, we recognize that attempts to restore capitalist power -- for example, through restrictive monetary and fiscal policy -- may replenish the reserve army of labour but fail to restore the profit rate as a result of their negative effects on capacity utilization."[111]

Three important points must be made before this chapter ends. First, the economic dimension of the "challenges to capitalist control" approach relies on results that are mainly derived empirically. This means that it is not so strongly tied to a dominant superintending explanation as are the other approaches discussed in Chapters 5-8. It also means that the approach tends to have a limiting US bias. Second, within any focus on productivity lies the monumental task of *explaining*, other than in a purely formal or statistical-mathematical way, the nexus between labour productivity, the output-capital ratio, and capital intensity.

Third, what are we to make of Weisskopf's more recent empirical work, which *prima facie* sits uneasily with his almost exclusive 1979 emphasis on the declining profit share? Data attached to articles by Weisskopf in 1988 and 1992,[112]

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[109] See, e.g., Bowles, Gordon, and Weisskopf (1984: Chapter 6), Schor (1987: 178 Table 2). See also Naples (1987) for a more general discussion.

[110] Weisskopf (1988: 73 n. 1)

[111] Bowles, Gordon, and Weisskopf (1987: 56-57 n. 5).

[112] "These data were compiled together with Andrew Glyn as part of a larger joint project with Wendy Carlin on profitability and macroeconomic performance in the major capitalist economies" (1988: 73 n. 1; see also 1992 35 n. 3). Weisskopf (1992: 14) says that "the present accounting analysis enables one to isolate more accurately the locus of distributional conflict...than did my earlier work along the same lines. Weisskopf (1979) characterized distributional conflict simply in terms of a struggle over pre-tax factor

summarised here in **Figure 8.5**, propose that the distributional struggle between capital and labour over after tax-real wages contributed 3.9% of the 9.2% fall in the after-tax US net rate of profit between the mid-1960s and mid-1970s, while 5.3% of the fall was caused by a deteriorating general economic environment. The total of the respective periodic contributions in Figure 8.5 similarly focuses on the general economic environmment. It worked to pull the profit rate down by 6.4% between 1955 and 1985, while the outcome of the distributional conflict actually worked to increase it by 1.8%. The result was a 4.6% decline in the after-tax net rate.[113]

FIGURE 8.5

Components of US Manufacturing Profitability Change

Source: Weisskopf (1992: 28, Table 2.1; 1988: 79, Table 1).

Country	Sub-period	Dr	Dre	Drc
UNITED KINGDOM	1955–64	− 3.9	− 3.1 (−)	−0.8
	1964–73	− 4.4	− 0.2	−4.2 (−)
	1973–82	− 3.8	− 3.7 (−)	−0.1
	1982–85	+ 2.4	+ 1.1	+1.3 (+)
FRANCE	1955–70	+ 2.7	+ 0.6	+2.1 (+)
	1970–76	− 7.5	− 3.2	−4.3 (−)
	1976–82	− 4.5	− 4.4 (−)	−0.1
	1982–85	+ 7.3	+ 2.7	+4.6 (+)
SWEDEN	1955–58	+ 2.3	+ 1.7 (+)	+0.6
	1958–64	− 2.3	+ 0.8	−3.1 (−)
	1964–79	− 7.3	− 6.5 (−)	−0.8
	1979–85	+ 6.2	+ 3.9 (+)	+2.3
WEST GERMANY	1955–61	− 8.9	− 3.5	−5.4 (−)
	1961–70	− 5.5	− 3.3 (−)	−2.2
	1970–82	− 8.7	− 7.6 (−)	−1.1
	1982–85	+ 3.9	+ 2.6 (+)	+1.3
ITALY	1955–73	− 1.0	+ 3.1	−4.1 (−)
	1973–76	− 5.0	− 5.5 (−)	+0.5
	1976–82	+ 3.3	− 1.0	+4.3 (+)
	1982–85	+ 0.7	− 0.4	+1.1 (+)
JAPAN	1955–61	+20.5	+13.7 (+)	+6.8
	1961–70	− 5.3	+ 0.3	−5.6 (−)
	1970–82	−30.1	−22.9 (−)	−7.2
	1982–85	+ 1.1	+ 1.1 (+)	+0.0
CANADA	1955–64	− 2.6	− 3.0 (−)	+0.4
	1964–76	− 4.4	− 1.2	−3.2 (−)
	1976–82	− 1.9	− 2.3 (−)	+0.4
	1982–85	+ 3.7	+ 0.9	+2.8 (+)
UNITED STATES	1955–64	+ 4.7	+ 0.5	+4.2 (+)
	1964–76	− 9.2	− 5.3 (−)	−3.9
	1976–82	− 3.6	− 3.3 (−)	−0.3
	1982–85	+ 3.5	+ 1.7	+1.8 (+)

Note: Dr measures the overall percentage-point change in the after-tax rate of profit in the manufacturing sector; Dre and Drc are the components attributable to environmental and distributional factors, respectively. The sign in parentheses indicates the predominant component in the overall change, as well as its direction.

shares in income: the present analysis improves upon this effort both in taking account of the after-tax distribution of income and in defining the distributional objectives of capitalists and workers in terms of the rate of profit and the growth of real wages." See also n. 98.

[113] I assume the project collaborators to have used the labour method of accounting for self-employment income. See Weisskopf (1992: 19, 35 n. 3; 1988: 69, 73 n. 1) and the discussion in Appendix 1 of this work.

Now, it is clear that part of the story here is definitional. Weisskopf's variable for "changes in the outcome of distributional conflict between the capitalist class and the working class" (Drc) is defined as the success the former has in increasing the rate of profit compared with the latter's success in lifting the "*rate of change* of the after-tax real wage rate."[114] Other influences on the change (Dr) in the rate of profit, which Weisskopf designates as "changes in the overall economic environment"[115] (Dre), are listed as changes in the following variables: (i) the output-capital ratio; (ii) the rate of average labour productivity growth relative to "the previous period's...real wage growth"; and (iii) relative unit prices of capital goods, wage goods, and aggregate output; and tax rates on labour and capital income.[116] It is clear that item (ii) is the same as a pre-tax profit share, a point that is also unmistakable from the accompanying mathematics.[117] Notwithstanding this, however, what is most notable is Weisskopf's conclusion that "Dre" has been influenced most by the output-capital ratio.[118]

That the results of this recent work are intriguing is shown in the conclusions Moseley and Wolff draw from it:

> "...Weisskopf's [1992] results show that in Canada, France and the USA the decline in the rate of profit was due almost entirely to general environmental factors, while in the other countries distributional conflict played a significant, although usually minor, role.
>
> "Weisskopf further analyses the sources of the deterioration of the general economic environment...and concludes that the most important factor was a decline in the output-capital ratio, thus lending support to the falling rate of profit variant of Marxian crisis theory which emphasizes a rising composition

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114 Weisskopf (1992: 14, 19; see also 27-29, 23 Figure 2.3; 1988: 68-69; see also 72, 78 Figure 5). See also Chapter 8§6 and Moseley and Wolff (1992: 3-4).

115 Weisskopf (1992: 14; 1988: 68).

116 Weisskopf (1992: 30, 36 n. 9).

117 The mathematical procedure is outlined in the Appendix to Weisskopf (1992: 38-41). My simplification is: $Dre = (1/2)\{ (Y_c/K_c)_n [1 - [w_0(1+g_0)^n/(Y/L)_n]]\} - (1/2)r_0$, where g_0 is the rate of growth in real wages at the earlier year shown in the comparison, r_0 is the gross profit rate for that year, and n represents the more recent year shown in the comparison. $Dr = r_n - r_0$, and $Drc = Dr - Dre$. See Weisskopf's equations (2.19)-(2.23).

118 Weisskopf (1992: 32). Cf. Weisskopf (1979: 372), as quoted in Part (i) of this section. See also Chapter 8§6.

> of capital...Using two different measures of the power of labour [to analyse the distributional conflict], Weisskopf finds that these measures are negatively and significantly related to the rate of growth of real wages, a result that is consistent with the 'profit squeeze' variant of Marxian crisis theory."[119]

The status of Weisskopf's 1979 work,[120] not to mention the empirical work he has done with Bowles and Gordon, suggests that further explanation is needed either to reconcile or to account for the *prima facie* differences between the studies.[121]

* * *

The remaining three chapters go directly to an empirical evaluation of the capacity of the various Marxist theories to explain the Australian data. Chapter 9 will outline a price model based on national-accounting aggregates so that this task may be accomplished. Chapter 10 will focus on the production phase of the circuit of capital, targeting explanations of changes in the rate of profit. Chapter 11 will build on this work, introduce financial variables, explore the path from realised profits to their actual accumulation, and discuss relevant Marxist explanations of this process.

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[119] Moseley and Wolff (1992: 3-4).

[120] See Howard and King (1989: Chapter 16, *passim*).

[121] I do not know if Weisskopf has made further remarks in other contributions, especially on the role of the output-capital ratio.

Part IV
DATA AND EVALUATION

9

Price Model of Profit and Accumulation

1 Overview

This chapter will present a model of profit and accumulation that can be used to house available Australian national accounting data. Prime objectives are to be faithful to Marx's general approach and to envelop the theoretical propositions of subsequent Marxists. A firm, straightforward bond between theory and empirical data is necessary, as was argued in Chapters 1-2. The model here shows that it is possible to achieve this bond. It is also possible to be reasonably confident about its results, despite the compromises that are always needed in empirical work. Data are not gathered by the statisticians with Marxists in mind. None of the compromises, however, should damage the integrity of the exercise. All are open to view in Chapters 9-11. Clear cross-references will be made to Appendices 1-2 and to the head panel of the data tables provided in Appendix 3. Readers thus will not have to excavate volumes of detail in the main work itself. It should be noted also that I have opted for strict decomposition in the model, which means that the data decompose exactly in an accounting sense.[1]

Chapter 3 argued that profit-making and accumulation were defining activities of the capitalist economic system. Chapters 3-8 also emphasised the central importance to Marxist economics of the rate of profit and the rate of accumulation, which depict these activities quantitatively. Significant conclusions about capitalist economic growth, and specific conclusions about economic crises, can be drawn from changes in these ratios. Marx's expanded circuit of capital is a summary representation of the accumulation process. It can be adapted readily into the

[1] An alternative approach is to use regression models in which approximation is possible for some data series.

familiar accounting statements of real capitalist firms. It may also be used relatively easily and coherently with the various national-accounting data series.[2]

The model itself has two distinct parts, each with a specific role regarding the work as a whole. The first part takes the rate of profit apart to suggest the various social, historical, and technological forces that determine it quantitatively. This is the analytical device designed to test the claims of the contending alternative Marxist theories. The second part of the model focuses on the relationship between the rate of profit and the rate of accumulation. This part of the model is clearly crucial to evaluate the general validity of the shared view in Marxist economics that the profit-accumulation link is decisive. The roles of interest, tax, dividend payments, and depreciation provisions are also identified. These contribute to the availability of retained profit or "internal" funds for accumulation as opposed to "external" sources such as borrowing. Accordingly, the model helps to draw attention to financial variables and changing competitive-investment behaviour, an additional dimension of the accumulation process canvassed in Chapter 3.

One central feature of the model demands clear recognition. It has been formulated not only to try to meet the objectives already described but also to embody my own views on contentious subjects. Thus the model is designed to be presented in average prices. In Chapter 4 I argued that the transformation problem is intractable and that a quantitative labour theory of value is unnecessary and misleading. Similarly, for the reasons outlined in Chapter 6§4, no distinction is made between productive and unproductive labour (or capital) within private businesses and private corporate trading enterprises. Chapters 5-8 favoured an alternative decomposition of the rate of profit and, with Chapter 3§5, rejected using Marx's concept of the turnover of variable capital, again because it is potentially misleading and always unnecessary.

Can the model then rightly be called a Marxist one? In what sense can it be used to evaluate the theories formulated in more traditional terms? In Chapter 3, I presented a careful reconstruction of Marx's analysis of capitalism: accumulation, profit-making, competition, class conflict, social forces and relations of production, social-economic determination (emergence), and a view that capitalism generated

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[2] See Figures 3.5-3.6.

immanently destructive tendencies. The circuit of capital and the basic models of Chapter 3 captured these characteristics in simplified form. No other theoretical tradition can lay claim to the totality of this analysis: neither its "economics" alone nor, especially, the *Weltanschauung* from which it springs. Yet none of it was made contingent on the value form. I will not try to diminish the stress Marx laid on his labour-value construction (though the weight of the productive-unproductive labour distinction is much more debatable). However, the other aspects of Marx's economic analysis I have described are more important. They go directly towards his main purpose: "...uncovering the forces determining the rate of accumulation of capital and the barriers to its self-expansion..."[3] A model developed in this shadow can legitimately be called a Marxist one, even though names are unimportant in the end.[4]

My answer to the second question is a realist-materialist one that goes to the heart of this whole undertaking. Models such as Marx's, and those in its shadow, must not be taken to be mere operations in thought. Because they seek to present in theory structures and processes that really exist they can be made to be commensurable, comparable, and testable. As was argued in Chapters 1-2, only those theories of profit and accumulation whose effects will manifest themselves empirically can lay claim to validity. Irrespective of whether theories are formulated in values or prices, the tendencies they propose must emerge in prices in some way. Unless they did, they could not have any of the effects on capitalist development and crises they are supposed to have. Hence, the theories must be testable in appropriate price data. This case was also made in Chapter 5§2(ii).

The complete model is summarised in symbols in **Figure 9.1.** As each successive level of the figure introduces new symbols, these are accompanied by the name of the corresponding variable. Figure 9.1's profit layers are explained in §2, its accumulation layers in §4. To emphasise that this is a price model based on national-accounting aggregates, some symbols used in the following model have been changed from those used in Chapters 3-8. The specific changes will be clear,

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[3] King (1982: 158).

[4] Phrases such as "in the Marxist tradition," or "generally Marxist," etc., are widespread but seem to me to be unnecessarily qualified. Steedman (1977: 28, 207) suggests "materialism," and it is reasonable to think that there can be other materialist models of capitalism as well as Marx's. The answer will no doubt also depend on how one views Marx's corpus, from philosophy to sociology, social policy, and politics.

FIGURE 9.1

A Price Model of Profit and Accumulation

P_6	$(GP_c/K_c) =$	$\{[(K_u/K)(P_y/P_k)(Y/L)/(K_u/L)]\ [1- w/(Y/L)]\}$	LINK TO LEVELS P_0 AND A_1
P_5	$(GP/Y) =$	$[1 - (W/Y)] = [1 - (W/L)/(Y/L)] = [1 - w/(Y/L)]$	W/L = Wage share w = Real wage rate
P_4	$(GP_c/K_c) =$	$[(K_u/K)(P_y/P_k)(Y/L)/(K_u/L)](GP/Y)$	L = Labour (stock or flow) Y/L = Labour productivity K_u/L = Capital used/labour
P_3	$(GP_c/K_c) =$	$(P_y/P_k)(Y/K)(GP/Y)$	
P_2	$(GP_c/K_c) =$	$(K_u/K)(P_y/P_k)(Y/K_u)(GP/Y)$ or $(Y_c/K_c)(GP_c/Y_c)$	Y and Y_c = Value added K_u/K = Capacity use P_y/P_k = Relative prices Output-capital ratio(s) and Gross profit share(s)
P_1	$(NP_c/K_c) =$	$(\mathbf{GP_c/K_c}) - (D_c/K_c)$	GP_c/K_c = Gross profit rate D_c/K_c = Depreciation (flow) to capital
P_0		(NP_c/K_c)	Net-gross profit rate, where NP_c = Net profit flow K_c = Gross fixed cap. stock
A_1	$(RP_c/K_c) =$	$(NP_c/K_c)\ [1 - (IN_c/NP_c) - (T_c/NP_c) - (DI_c/NP_c)$	RP_c/K_c = Retained profit-capital (IN_c) Interest, (T_c) Tax, and (DI_c) Dividend flows to net profit
A_2	$(RP_c/K_c) =$	$(NP_c/K_c)(RP_c/NP_c)$	RP_c/NP_c = Retained-Net profit
A_3	$(NPIT_c/K_c) =$	$(NP_c/K_c) - (IN_c/K_c) - (T_c/K_c)$	Net-gross rate after interest and tax (In_c) Interest and (T_c) Tax to capital
A_4	$(RP_c/K_c) =$	$(NPIT_c/K_c) - (DI_c/K_c)$	(DI_c) Dividends to capital
A_5	$(IF_c/K_c) =$	$(RP_c/K_c) + (D_c/K_c)$	IF_c/K_c = Internal finance to capital D_c/K_c = Depreciation (flow) to capital
A_6	$(I_c/K_c) =$	$(IF_c/K_c) + (EF_c/K_c)$	I_c/K_c = Investment to capital EF_c/K_c = External finance to capital
A_7	**(I/K)** =	$(P_i/P_k)\ (I_c/K_c)$	P_i/P_k = Relative capital prices
A_8	**(A/K)** =	(I/K) - (R/K)	A/K = Accumulation to capital R/K = Retirement to capital

The subscript (c) stands for current dollars. The absence of a subscript means a constant dollar measure.

as will be the connections between these variables and those used in previous chapters. Key variables and ratios for the alternative theories will be highlighted in §5.

production (general government and public trading enterprises). However, as an example of the sort of compromises imposed by data availability, the data for the accumulation part can be obtained only for the private corporate trading enterprise category, while the profit part is available only for the private business sector as a whole. This is unfortunate because a well known problem concerning treatment of self-employment income arises for the private business sector. This issue is discussed separately in Appendix 1.

2 Profit Rate Determinants

(i) Definitions and constituents of the profit rate

This part of §2 will explore the problematic, sometimes contentious, and almost always inconclusive issues of empirical profit rate definition. It will also explain why I have opted for essentially gross measures of the rate of profit. Appendix 1 continues this discussion in a more technical way, dovetailing with the equally problematic argument over how to treat self-employment income.

As can be seen from Figure 9.1 above, one possible form of the rate of profit is used here as the pivot of both parts of the model. This rate is defined in current prices "net-gross" (NP_c/K_c), the annual flow of realised profit after deduction of annual depreciation expenses as a proportion of the stock of fixed capital at replacement cost before deduction of accumulated depreciation provisions. The rate of profit, however, may be defined in more than one way. The most common definitions are the net rate (NP_c/NK_c) in which the denominator is measured after deduction of accumulated depreciation, and the gross rate (GP_c/K_c), which ignores depreciation altogether.[5]

A net-gross measure follows the numerical examples in *Capital III*,[6] but its role here has more to do with its capacity to link the gross profit rate to the process of capital accumulation. The gross rate thus emerges early in the model depicted by

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[5] Current-price or current-dollar magnitudes always have the subscript (c). Constant prices have no subscript.

[6] See Engels's calculations of the *annual* rate of profit (*Capital III*: 165-66). See also Mandel's (1967a: 30-31) criticism of Baran and Sweezy (and Phillips) on the treatment of depreciation, which was mentioned in Chapter 6§3.

Figure 9.1. This rate is then subjected to the most important of the decompositions in the model (see Part (ii) of this section below). In contrast, most modern Marxist economists use a net rate of profit.[7] Some, however, adopt a gross-gross measure.[8] Pollin in one case has proposed a gross-to-net calculation.[9] Almost all limit the denominator to fixed capital in their empirical models, with Moseley being an exception.[10] Duménil and Lévy offer a range of numerators and denominators, while Duménil, Glick, and Lévy give net data series and graphs.[11] It is also important to note that, in limiting the denominator to fixed capital alone, I have followed neither the precedent of *Capital* nor the ideal accounting approach I have proposed elsewhere in this work, especially in Chapter 3.

My reasons for choosing the net-gross measure as the "pivot," or starting ratio, and then focussing on the gross rate for detailed analysis, are reasonably pragmatic and are not based on any fundamental convictions. A persuasive reason is that the denominator, the gross capital stock, is normally presented as the "best" measure of the quantity of available means of production. Hence the growth of this stock is considered to provide a "better" measure of (capital stock) accumulation and, perhaps more significantly, a "better" accounting of productivity trends related to the capital stock than is the alternative net measure. The logic of this is that "...depreciation is largely irrelevant to the capacity of an item of fixed capital to produce a year's output." The declining net (depreciated or second-hand) value of an item of fixed capital therefore "in no way reflects a decline in the capacity to produce output during the course of one year."[12] Moreover, because straight-line depreciation is used in the national accounts, the net measure of the capital stock can give a skewed account of productivity when the trend rate of investment increases or decreases.[13]

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[7] See, e.g., Armstrong, Glyn, and Harrison (1984: 457-61) and Bowles, Gordon, and Weisskopf (1984: 295).

[8] See, e.g., Shaikh (1987: 124-25).

[9] Pollin (1987b: 230-31; 1986: 143).

[10] Moseley (1987: 112).

[11] Duménil and Lévy (1993a: 30, 55), Duménil, Glick, and Lévy (1992). Duménil and Lévy (1993b) also present net series in most places, but see n.12 and n. 27 below.

[12] Jackson (1989: 125). The same point is made by Duménil and Lévy, who assume "productive power is measured by the gross (and not net) stock of capital" (1993b: 260).

[13] See Appendix 1.

However, there are no absolutes here, and the words "best" and "better" are used advisedly. It is reasonable to think that older items in the capital stock are less efficient than brand spanking new items (though by nowhere near as much as their accumulated depreciation provisions would imply). This is why, for example, "Denison (1967)...recommends the use of a capital variable comprising 75 per cent of" the gross and 25 per cent of the net capital stock "so as to make the implied capital service flows more closely match...productive efficiency..."[14]

Choosing to focus on the gross and net-gross rates also allows the actual process of capitalist profit-making and accumulation to be tracked and described reasonably simply and accurately using a set of accounting terms and ratios that are consistent with those used for productivity analysis. To follow the process it is worthwhile, first, to comment briefly on the nature of the differences between net and gross profit and, second, to compare more closely the alternative measures of the capital stock denominator of the profit rate ratio. Net profit is the profit available to capital to reinvest or to extract for personal consumption.[15] It is obtained after depreciation provisions have been deducted from revenues. These provisions allocate to production the costs of fixed capital used up over the lives of fixed capital assets. In this way they maintain the value[16] of an enterprise's (or an economy's) capital. However, annual depreciation provisions may be looked at from another perspective as the bedrock internal source of funds (or saving) available to an enterprise (or an economy) to undertake annual fixed capital investment spending. The other internal source, or course, is that part of net profit not taken for consumption or other uses but retained in the enterprise.[17]

Thus both gross and net profit give good, but different, indications of the ability of an enterprise (or an economy) to generate its own investment funds. As proportions of the gross stock of fixed capital, the net-gross and gross rates of profit (or accounting returns) thus also give a fair approximation of the capacity of

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[14] Moore and Brown (1988: 64). Castles, however, uses simple "arithmetic averages of gross and net capital stock...to derive estimates of productive capital stock for both non-dwelling construction and equipment" (1992: 29).

[15] Issues of interest and tax will be ignored for the moment, but see §4 below.

[16] Value is used in its common meaning in this chapter. The term labour value, which has been used elsewhere, designates the alternative Marxist meaning.

[17] Tax, interest, dividends, external funding sources, and the relationship between investment, retirement of capital stock items, and accumulation will be discussed in §§3-4 below.

internal-financing sources to generate a corresponding proportionate rate of capital stock growth: i.e., accumulation. The specific reason for this is that the fixed capital stock is valued in the national accounts at replacement cost, which is defined as the new purchase price of fixed capital. This, in turn, means that profit, investment, and the capital stock and its accumulation may be related simply and directly (as in Figure 9.1).[18] It follows that both rates of profit will be informative ratios regarding the investment and accumulation process.[19]

However, capitalists are also interested in the various rates of return on the capital they have tied up in an entity at any point in time: e.g., the ratio of net profit to the accumulated sum of money capital that *they* have "advanced." Here it is important to recognise that sum of money capital advanced to buy fixed capital is not equal to the national-accounting measure of the gross stock.[20] Indeed, once it is determined that, (i) the gross stock of fixed capital is simply the flow of annual investment expenditures accumulated over the average life in years of the items in the stock,[21] and (ii) gross fixed capital expenditures comprise internally generated depreciation provisions plus new capital advanced (reinvested profits and new external funds), then (iii) the accumulated amount of capital advanced will be equal to the gross fixed capital stock less accumulated depreciation. This amount, of course, is the net capital stock.[22] Consequently the net profit rate conceptually is the best measure of the accounting rate of return on owners' capital tied up in means of production in an economy at any time. It is also equivalent by definition

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18 Appendix 1 explains some of the complications that arise with a net measure of the fixed capital stock.

19 Both ratios thus appear in various studies (e.g., Jackson 1989: 142-4, 156-62, 166-72; EPAC 1988: 2 (Table 1), 23) and, in different ways, in the cost-accounting literature, where the net-gross rate is presented as one estimation of the "accounting rate of return" and the numerator and denominator of the gross rate are the ingredients of the discounted cash flow calculations used to assess the viability of capital investments (see, e.g., Hawkins and Pearce 1971; Hill 1979; Horngren and Foster 1987: 649-55, 661-62, Chapter 20). See also Duménil and Lévy (1993b: 260).

20 For simplicity, raw material and financial assets are ignored in this paragraph, but see the comments later in this section.

21 In fact, this is how capital stock estimates are constructed under the perpetual inventory method. See, e.g., Moore and Brown (1988: 60-63), Jackson (1989: 118, 122, 136), (ABS 5216.0: 169-70), and (ABS 5221.0: 57 (Note 2)).

22 Doughney (1991a: 5; 1991b: 39-44) is clearly guilty of double-counting in casting the gross stock in this role. The same problem may be inferred from Jackson (1989: 142). The gross stock would represent owners' funds "tied up" only in an enterprise that "sets aside" its depreciation provisions as financial assets to be used to replace capital stock items exactly on retirement. A similar case is discussed by Hill for an investment financed by a bond (1979: 30-35). While individual firms may operate in this way, to generalise it in national-accounting terms to the whole economy represents a fallacy of composition. Thank you to Andrew Glyn for pointing out this error.

to the internal rate of return on an investment project *if* the notion of economic depreciation is used.[23] This is significant, since it is reasonable to think that many firms use internal rate of return or similar discounted cash flow methods to inform their investment decision-making.

Alas, from here onwards the issue becomes murky(ier). First, the national accounts use straight-line depreciation. This means that both net and gross profit rates generally will be greater than the internal rate of return, and there is no guarantee that the net rate will be the closer of the two. Indeed, Hill suggests that both rates be calculated and generally that the lower of the two be used. The gross rate may also be preferable because it avoids the intrinsic complications associated with arbitrary depreciation rules:

> "Such a measure is immediately attractive from a practical point of view because it by-passes completely all the problems involved in the proper measurement of depreciation...In national accounting summary aggregates such as GDP or GNP have long since displaced the corresponding net measures, mainly for this reason. Moreover, at a macro-economic level there is no doubt that gross measures of profit or capital are more readily available, more firmly based statistically and more easily interpreted."[24]

For what it is worth, the gross rate has been consistently lower than the net rate in Australia over the period of this study (see the tables in Appendix 3).[25]

To accommodate the different ways of defining profit rates, the private business table in Appendix 3 includes a range of ratios calculated from both gross and net variables. Figure 9.1 is also rephrased in "net" terms in Part (i)(b) of Table 9.1 (see §6 below). While Chapter 10 will present decompositions of the gross rates, comprehensive decompositions of the net rate of profit are presented for comparison in the tables in Appendix 1. The private business table in Appendix 3

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23 Hill (1979: 10, 26-30, 60), Armstrong, Glyn, and Harrison (1984: 459-60).

24 Hill (1979: 57; see also 60); cf. Armstrong, Glyn, and Harrison (1984: 459-60).

25 This conclusion is modified depending on the method chosen to deal with changes in self-employment income, with the net rate being the lower in a number of years when the Labour Method is used. Note, however, that the net rate is higher in all but a few years for Private Corporate Trading Enterprises, which are unaffected by adjustments for self employment.

also includes net versions of key ratios. Nonetheless, there is one point I wish to stress: all profit rates move in very similar ways. Since the analysis of the *direction and causes of change* in the rates of profit and accumulation is at the heart of this study, the absolute quantitative differences among the three measures are therefore less significant. We could even operate on index numbers without really bothering to know the size of the rate the index represented. This also means that the range of influential empirical studies referred to in this work can be compared in broad terms, even though they might opt for alternative measures of the rate of profit.[26] It is also sensible to concede that the best choice of a particular representation of the profit rate may depend on the purposes to which it will be put.[27] In this light, the relevant choices and competing claims would have to be informed at least by the literature surveying discounted cash flow (internal rate of return and net present value) capital-budgeting models and their relationship to national-accounting aggregates.[28]

So far we have discussed the concern of capitalists for the realised rate of return on the worth of the fixed capital assets tied up in a business. Yet business assets also comprise inventories of raw materials, semi-finished and finished products, and money and other financial assets.[29] Obviously, this model can be criticised for using only fixed capital in its rate of profit denominator. Again, this is a pragmatic choice; a compromise designed for simplicity. It is also worth noting again that stocks of financial assets held for the payment of wages or raw materials bills (financial working capital) are negligible compared with fixed capital and will not affect changes in the rate of profit in any meaningful way.[30] Moreover, financial assets held by an enterprise for speculation or cross-ownership may be thought of as offering a zero-sum return for the capitalist class as a whole, provided that the

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[26] Andrew Glyn has pointed out that one caveat should be expressed here: the "net" decomposition increases the relative influence on changes in the rate of profit of the profit share, while the "gross" decomposition does the same for the output-capital ratio. See part (ii) of this section and §6 below for the definitions of these variables. The issue is discussed further in Appendix 1.

[27] "...the notion of a single profit rate, 'the' profit rate, appropriate to the treatment of any issue, is misguided. Different definitions must be used depending on the specific investigation." (Duménil and Lévy 1993b: 28) See also Duménil and Lévy (1993a: 55) and Hill (1979: 8).

[28] See, e.g., Duménil and Lévy (1993b: 22, 254-58, 260-61) and Hill (1979).

[29] See Figure 3.7.

[30] See the argument in Chapters 3§5 n. 110 and 5§2(ii) n. 25.

speculative relationship with the rest of the world is also considered to be a zero-sum game.

Inventories cannot be dismissed so lightly. Leaving them out completely does have significant quantitative effects, as they comprise about one-quarter of the total capital advanced. Duménil and Lévy say that "the inclusion of inventories improves the significance level" of their model of profitability and economic stability.[31] However, Armstrong, Glyn, and Harrison argue that inventories should be ignored:

> "Data on the value of stocks held are rather sketchy. This is why they have not been included in the profit rate estimation. However, what data are available suggest that the ratio of stocks to net fixed capital varies little either over time or across countries, being about one-third of the value of fixed capital, for both manufacturing and total business."[32]

Whether this is exactly so in Australia can be tested. Unpublished data series are available for private business stock levels. These may be used to evaluate the influence of change in the ratio of inventories to fixed capital over time, should such a change be evident.[33]

Other measurement issues are entailed by the rejection of the historical cost method in the national accounts data.[34] Two accounting problems arise in measuring capital stock assets and depreciation provisions. If it is accepted that some sort of revaluation should occur, should it be to maintain the level of a business's financial or its physical capital. The former is accommodated by revaluing the capital stock in line only with changes in the value of the measuring unit (dollars). The latter revalues it in line with physical operating capacity. Revaluation at replacement cost captures changes in physical capacity and, by calibrating such changes in a constant base-year's dollars, it also accommodates

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31 Duménil and Lévy (1993a: 55).

32 Armstrong, Glyn, and Harrison (1991: 347; 1984: 460-61).

33 If $r_{INV.}=[NP_C/(K_C+INV.)]$ then $r_{INV.}=\mu(NP_C/K_C)=\mu r$. The relative influences on $r_{INV.}$* of μ* and r* can then be tested. Clearly, μ* shows the effect of inventory changes.

34 See Chapter 3§6(ii).

changes in the value of the measuring unit.[35] It also corresponds in principle to reproduction cost.[36] Replacement cost is the valuation method used in the Australian National Accounts, the United Nations' *A System of National Accounts*, and the OECD's *Flows and Stocks of Fixed Capital.*[37] Despite the improvements in capital stock statistics in recent decades, it is a salutary reminder to note that valuation methods are not beyond debate, and many assumptions are made in data-gathering.[38]

(ii) Influences on changes in the rate of profit

The following decomposition follows the course set by Figure 9.1.[39] It starts with the net-gross rate (NP_c/K_c) but then moves on to expose key influences on changes in the gross rate of profit (GP_c/K_c). The first level of this decomposition (P_1) explicitly recognises the relationship between annual depreciation expenses (D_c) and the gross fixed capital stock (K_c) in a the depreciation-capital ratio (D_c/K_c). In a system that uses straight line depreciation the inverse of this ratio is the average life in years of fixed capital assets. I merely note here that estimates of depreciation expenses are sensitive to the methodologies adopted, and these can affect measures of both annual depreciation and accumulated depreciation.[40] In particular, depreciation methodologies will mainly govern the trend in the relationship between the net and the gross profit rates.[41]

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35 The (gross) dollar value in a year of a machine that will produce as much of "y" as the one bought in year "x" for "$z." If constant year x dollars are used to value the machine, changes in the value of the dollar are thus eliminated.

36 This is significant in Marxist terms, as was explained in Chapter 3§6(ii).

37 See (ABS 5216.0: 168-79; 5221.0: 57-58), (OECD 1991: 5), Bailey (1981), Jackson (1989: Chapter 4), Moore and Brown (1988), Walters and Dippelsman (1985). On the accounting debates and standards, see Henderson and Peirson (1988: Chapters 2, 8, & 15) and Kam (1986). Armstrong, Glyn, and Harrison (1984: 457-63) discuss related issues concerning OECD statistics but unfortunately do not comment directly on replacement cost valuation.

38 For example, problems concerning the impact of technological change on replacement cost valuation are discussed by (ABS 5216.0: 169, 273-75), Apsden (1990), Castles (1992), and Moore and Brown (1988: 59-60, 64-65).

39 See Armstrong, Glyn, and Harrison (1991: e.g., 248 Table 14.9; 1984), Glyn (1991), Gordon (1990), Green and Sutcliffe (1987: 301-05), King (1990a: 168), Laibman (1987), and Weisskopf (1979, 1978) for similar decompositions. Dobb (1958) outlined the method in non-mathematical terms. Non-Marxist examples of a similar approach are Hill (1979) and Jackson (1989: 156-62).

40 See (ABS 5216.0: 168-70, 175-76), Bailey (1981), Moore and Brown (1988), and Walters and Dippelsman (1985). See also Armstrong, Glyn, and Harrison (1984: 459-61). Since

41 See the first part of Table 9.1 Part (i)(b) in §6 below.

At the next level (P_2), two alternative paths open up. Both decompose the gross profit rate. The first introduces the current price output-capital ratio (Y_c/K_c) and gross profit share (GP_c/Y_c). The respective magnitudes and directions of the proportionate growth in these ratios will determine the proportionate change in the gross profit rate. Output (Y_c) is aggregate value added at current prices. Alternatively, since any current-dollar magnitude can be represented as a constant-dollar magnitude multiplied by a price index, the constituents of the gross profit rate may be given as ($GP_c = P_y.GP$) and ($K_c = P_k.K$). P_y is an index of all prices in a given year. It is assumed that this is the appropriate index to use for gross profits. Similarly, P_k is the price index applicable to the fixed capital stock revalued at replacement cost. It is also possible at this level to introduce a variable for capacity use (K_u/K): the proportion of the capital stock in active service, as it were.[42] The gross profit rate thus can be decomposed to capture capacity use, relative price changes (P_y/P_k), and a constant dollar representation of the output-capital used ratio (Y/K_u). Changes in (Y/K_u) capture underlying real (or physical) changes as opposed to those caused only by changes in relative prices. Changes in (Y/K_u) also are not distorted by variations in the amount of plant and equipment laying idle. Because P_y is used to deflate both its numerator and denominator, the gross profit share will be the same in current-and constant-dollars.

The first path may be resumed to decompose the current-dollar output-capital ratio (Y_c/K_c). This is shown at level P_3 of Figure 9.1, with the only new term being the constant-dollar output-capital ratio (Y/K), a transitional ratio that is affected by variations in the amount of plant and equipment laying idle. At level P_4, both paths reveal the same variables. The output-capital used ratio may be decomposed further to show the product or productivity of wage labour (Y/L). Changes in this ratio will record real (or physical) productivity changes because the numerator is given in constant dollars. The second ratio (K_u/L) is the capital used-labour ratio and, again, it will show real (or physical) developments in a way that is undistorted by mere price changes. The relationship between the three ratios gives vital insight

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42 See Chapter 5§5(ii) n. 46 concerning Weisskopf's formally different definition of this variable. However, there are no important differences either in principle or empirically, since both draw on statistical methods (linked-peaks) that compare actual to potential output. My definition is the same as Gordon's (1990: 130). See also Chapter 10§§2 and 6.

into the effects and nature of capital accumulation. It says that real output per unit of capital used will rise only if the proportionate increase in output per labour unit is greater than the proportionate increase in the amount of capital actually used by each labour unit. So far I have been coy about defining the labour constituent of the capital used-labour ratio. It can have a stock (intensive) or a flow (extensive) form, the latter being used in Chapters 5 and 7. The flow form will also be used in the data series and throughout Chapters 10 and 11. Significant issues arise here, not least for the theoretical interpretation of the role of the output-capital ratio.[43]

The gross profit share may be rephrased easily in terms of the wage share (W/Y), as in the approach of Chapter 5§4, where W is aggregate gross wages and other payments received by wage and salary earners. Note that constant-dollar representations are given at level P_5, since wage labour productivity will emerge here, too. Dividing the numerator and denominator of the wage share by aggregate labour units (L) gives (W/L) and (Y/L). The former is a constant-dollar representation of what I will call the real (or product[44]) wage (w). Hence the profit share will rise if the proportionate growth in wage-labour productivity is greater than that in the real wage.

The purpose of these steps has been to isolate significant influences on the direction of the rate of profit and to capture them in separate quantifiable ratios. Though any decomposition has a veneer of tautology, the economic variables designated here are important and represent real processes in their own right. While it is true that each is interconnected with the others (to a greater or lesser degree), it is equally true that each has its own influential dynamic. Changes in the variables thus have a causal-determinative effect on the profit rate. This may be seen in the most basis decomposition of GP_c/K_c at level P_5:

$$[(K_u/K)\,(P_y/P_k)\,(Y/L) / (K_u/L)]\,[1 - w/(Y/L)]^{45} \qquad (9.1)$$

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43 These foreshadow one of the conclusions I will offer in Chapter 10§6. However, the issue is best dealt with after empirical findings are discussed. Some points were rehearsed in Chapters 3§3(i), 5§2(i) n. 22, 5§2(ii) n. 28, and 7§2.

44 Armstrong, Glyn, and Harrison's (1984: 462) term is product wage. It is distinguished from real wages, which are determined in relation to consumer prices. "...[P]roductivity has to be adjusted for the change of consumer prices (which deflate real wages) relative to...value-added prices (which deflate...output and productivity). Such changes in relative prices reflect a host of factors..." (Glyn 1992: 75 n. 6). See also Chapter 8 n. 45.

45 It is easy to rephrase this in net terms, with Ks becoming Nks and Ys becoming NYs (= $P_y.[Y_c - D_c]$).

What this says is that, *ceteris paribus*, the rate of profit as defined will rise if capacity use increases, the price of aggregate output rises by more or falls by less than that of capital goods, wage-labour productivity grows, the capital-wage labour ratio (capital intensity) falls, and real wages fall. These are the most basic ratios, and the behaviour of key indicators such as the output-capital ratio and profit share, as well as the rate of profit itself, will be determined by their actual direction and the strength of the proportionate changes in them.

3 Problems of Profit and Accumulation

It is a relatively easy accounting task to model the quantitative connections between profit (and its rates) and accumulation or investment (and their rates). With the help of some other variables, the manifold complexities of economic growth (and its rate) may be linked in a similar way. It is a just as easy to set up statistical-regression models to the same effect. But neither method by itself really explains *the* relationship between the key variables. To assume any more than that would be to assume implicitly a solution to the central problem of the political economy of capitalism, the Kaleckian *pièce de résistance* of economics, the theory of investment decisions.[46] Cause and effect are unclear from the accounting numbers.

What we do know confidently includes the following points: (i) realised profits retained in a business, plus depreciation provisions, are a fundamental source of finance for investment and accumulation (internal finance);[47] (ii) investment decisions will draw on expectations of future profits as well as experience of past profits;[48] (iii) other important considerations will inform the investment decision, such as the level of demand, capacity use, and the competitive struggle over costs, prices, and product innovation;[49] and (iv) financial and capital markets will provide additional finance for investment and accumulation (external finance) to

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46 See Kalecki (1967: 148; 1968: 165).

47 Kalecki (1969: 96-97).

48 Green and Sutcliffe (1987: 101-07), Kalecki (1968: 171-72).

49 See Crotty (1993a), Chapter 3§§2-3, and Chapter 6§5 regarding Kalecki.

accommodate the constraint of (i) and the (dis)incentives of (ii)-(iii).[50] The relative importance of internal to external finance can be quantified empirically. An assessment may then be offered of the significance for investment and accumulation of determinants of the profit rate compared with influences on the demand for and availability of external funds (interest rates, stock market conditions, exchange rates, property prices and the strength or weakness of firms' balance sheets, debt-equity ratios, cash flows, etc.).

Far more difficult, conceptually and from the numerical data, is the task of attributing weights in the investment-decision to the (dis)incentives of (ii)-(iii).[51] It is possible that a rising rate of profit may accompany a reduction in external finance and a falling rate of accumulation. This would be a rational explanation of the data were the prevailing conditions in a given period to dictate to capitalists that their survival instincts were best served by paying off debts and reducing their levels of gearing. In contrast, it is imaginable that, between a falling rate of profit floor and a ceiling of external finance that rises above it, the rate of accumulation may increase.[52] That capitalists may be driven rationally in this direction can be inferred from Marx's comments that a falling rate of profit caused by accumulation "gives rise to" and "provokes the competitive struggle between capitals..."[53] Simple answers cannot be read directly from the data. Additional empirical evidence of a qualitative type is likely to be needed to make sense of the concrete developments: e.g., surveying answers by corporate decision-makers to questions such as "why did(n't) you make that decision to invest? What methods did you use to assess the viability of the project?" This should not be taken as an implicit denial that econometric evidence can be helpful, but just a denial that such evidence by itself is sufficient.

Incidentally, I think that care should be taken in this context not to misinterpret some comments made by Marx. For example, he said that "the same reasons that

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50 In flow-of-funds terms, and setting aside the role of government, the aggregate *ex post* source of such finance must be the saving from all sources of workers, the recipients of property income (dividends, net interest, etc.), and the rest of the world. See (ABS 5216.0: 153-59). Jackson (1989: 339-43) and Juttner (1987: 7-11, 59-78) give comprehensive accounts based the Australian flow-of-funds system, as does Pollin (1986) for the US. See also Chapters 5§6 and 11§§4 and 6.

51 See Crotty (1993a, b).

52 See Chapter 11§§5-6.

53 (*Capital III*: 365).

produce a tendential fall in the general rate of profit also bring about an accelerated accumulation of capital"[54] and that "[a] fall in the profit rate, and accelerated accumulation, are simply different expressions of the same process."[55] However, he is not talking about the proportionate growth of the capital stock in these passages. Rather he means the growth in the amount of profit accumulated each year. Marx's comments on this subject merely flow from the possibility of a falling *rate* of profit being accompanied by a rising *mass* of profit.[56] Duménil and Lévy err when they make the general claim that "Marx did not associate the tendency for the rate of profit to fall with a decreasing *rate of accumulation*, but rather with an increasing *rate*."[57] Doubtless this will occur at some times. However, they seem to have missed the conclusion of the very paragraph whose opening sentence they quote. In the last sentence, Marx is consistent and talks of "an acceleration of accumulation as far as its mass is concerned, even though the rate of this accumulation falls together with the rate of profit."[58]

We also know from Chapter 3 that profit-making and accumulating are inconceivable without each other: they are the activities *sine qua non* of capitalism. However, their internal relationship[59] also has practical consequences at this level. We can readily accept that the mass of realised profit is a constraint determining the extent of accumulation. Yet the particulars of the investment decision, such as the dollar amounts, type of machinery, work methods, and social-class interactions involved, may indeed determine the amount of profits that will be made in the future. *Ipso facto*, past investment decisions have helped to determine the key constraint governing the decision. Profit and accumulation are intertwined in theory precisely because they feed off each other in reality, at both the microeconomic and, significantly, the macroeconomic levels. The outcome will depend on the social and technical production and realisation conditions in which

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54 (*Capital III*: 331).

55 (*Capital III*: 349; see also 365, 375, 523).

56 (*Capital III*: 330-32).

57 Duménil and Lévy (1993a: 55, emphasis added), citing (*Capital III*: 349).

58 (*Capital III*: 349).

59 See the discussion of the strict meaning of internal relations in Chapter 1§6 and the definition there in n.102 (Bhaskar 1993: 399).

the investment decision is made.[60] The decision's particulars will also help to mould both these conditions and, consequently, the aggregate profit ratios from levels $P_{1\text{-}6}$ of Figure 9.1. In turn, these will deliver the profit available for accumulation in the future.

Figure 9.1 models an accounting connection between the rate of profit and the rate of accumulation. Like the part of the model dealing with the influences on the rate of profit, this will not be a statistical one.[61] Its aim is to provide a framework that will permit an empirical evaluation of the relative importance of internal to external finance, the difference between retained and realised profits, and the impact of taxation, dividends, and interest payments on the funds available for investment and accumulation. This is the sort of anchor needed for a sensible discussion of whether the rate of profit (and its determinants) or the various influences on the demand for and availability of external funds will have the greatest impact on accumulation. It can help to make some sense of the production-circulation concerns raised initially in Chapter 5§7. But it is not an *explanation* of the determinants of investment. That is a much grander project. This model should be regarded just as a useful resource to buttress such an explanation.

4 Rates of Profit and Accumulation

This part of the broader model will also pivot on the annual net-gross rate of profit (NP_c/K_c). It will conclude with the rate of accumulation (A/K), defined as the constant-dollar mass of profit accumulated in a given year (A) to the constant-dollar gross stock of fixed capital. The constant-dollar form grants a clearer view of the real growth in the capital stock by stripping out price changes, which themselves may be ascertained separately. Two paths may be taken to the destination. The first recognises that profit exists before interest and tax, as well as dividend payments, have been deducted. That is:

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60 Kalecki (1968: 183).

61 For an example of a statistical approach, in this case one that specifically models rates of profit and their relationship to capitalist stability, see Duménil and Lévy (1993a, b).

$$RP_c = NP_c - IN_c - T_c - DI_c \quad (9.2)$$

where RP_c, IN_c, T_c, and DI_c represent the current-dollar amounts of retained profit, interest, tax, and dividend payments respectively. Thus it is possible to express the relationships at levels A_1 and A_2. An important ratio to emerge is the retained-net profit ratio (RP_c/NP_c). The retained profit-capital ratio (RP_c/K_c) is a form of the profit rate that may be compared with other forms.

Another form of the profit rate is the net-gross rate after interest and tax ($NPIT_c/K_c$). It is shown along the other path of Figure 9.1 at level A_3. The interest-capital (IN_c/K_c) and tax-capital (T_c/K_c) ratios are introduced. The dividends-capital ratio is introduced at level A_4 along this path. The definitions of interest and tax follow the accrual principle of attaching an expense (liability) to the accounting period in which it was incurred. They correspond to the national-accounting categories of tax and interest "payable." After businesses have deducted "external" obligations, they face the dividends *versus* retained profit choice, which is clearly an important one for investment.

The different paths join at level A_5. If the depreciation-capital (D_c/K_c) ratio is added to the retained rate of profit, the result is the proportion of internal investment funds to capital (IF_c/K_c). Actual investment spending, defined as spending on fixed capital items valued at replacement cost, is neither automatic nor equal to the amount of internal finance available. At level A_6 it is also shown to depend on external sources of funds (EF_c). It should be recognised here that a compromise has been made and "external" finance is derived as a residual. Clearly, businesses also accumulate stocks of raw materials and finished and semi-finished goods, which correspond to the national-accounting entity "increase in stocks." They also increase or decrease their net financial assets. These are lumped in with "external" finance to maintain focus on accumulation of fixed capital. It is important not to be too deterministic about the current-dollar ratio of annual investment spending to the stock of fixed capital, which is shown at level A_6 as the sum of internal and external finance divided by fixed capital. It merely means that retained profit, depreciation provisions, and *net* "external" sources, such as borrowing and equity, will contribute to investment. Furthermore, it should not be read to imply that internal finance will always be less than investment spending,

though in Australia this is the probable outcome. The net-borrower status of the private business sector has also been reflected in Australia's status as a net borrower from the rest of the world. Save for four of the post-WWII years to which this study applies, Australia has had a current account deficit.[62]

It is possible that the current-price investment-capital ratio (I_c/K_c) may be distorted if the price behaviour of new items differed systematically from that of the older items in the stock. Hence a relative price ratio index (P_i/P_k) is introduced to reveal a constant-dollar (real) representation of the rate of investment to capital (I/K) at level A_7. The flow of new investment spending over a year will clearly affect the proportionate rate of change in the gross stock of fixed capital, the rate of accumulation (A/K). However, another process is occurring at the other end: retirement or scrapping. Physically worn out or technically obsolete stock is retired during the year, and this flow reduces the rate of accumulation. Accordingly, retirement at replacement cost (R) in constant dollars is also introduced at level A_8, in the form of a retirement-capital ratio (R/K).

Changes in the principal ratios from levels $A_{1\text{-}8}$ may be quantified and compared. Their contribution to the changes in successive and final variables may also be assessed. One important accounting matter to note in this respect is that the perpetual inventory method that is used in the national accounts estimates the size of the capital stock, investment, accumulation, and retirement in constant prices.[63] This ensures that constant-prices series of accumulation consistently represent the relationships, so that:

$$A = \Delta K = K_t - K_{(t-1)} = I - R \tag{9.3}$$

Hence division by any year's value of K will also deliver consistent results in this part of the model. The only problem is whether to choose year-end, year-start (previous year-end), or some average. Different methods are used in the literature,

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62 See (ABS 5304.0) and Foster and Stewart (1991: 5 Table 1.1).

63 (ABS 5216.0: 168-70).

so I have calculated rates for both year-end and year-start capital stocks, eschewing the average measure.[64]

5 Test Criteria

The model of Figure 9.1 is capable of confronting Marxist economic theories with ascertainable empirical data. It can help to determine whether "Marxist economics" has anything meaningful to offer. However, it is necessary be clear about criteria. If we were to follow the interrogative approach of previous chapters and ask what *must be so* for Marxist profit and accumulation theories to be viable, I think the following minimum necessary conditions arise:

(i) A close relationship between profit and accumulation and their rates must be evident in the data *and* be explained convincingly by a Marxist theory of the capitalist system.[65]

(ii) Periodic and/or long-run problems for the rate of profit realised by capital must be evident in the data *and* be determined by one or more of capitalism's immanent tendencies.[66]

(iii) The behaviour of the profit rate and the tendencies evident in the data must be inherent to the "normal" working of the system: "...effects of [a]...chronic malady internal to capitalist society."[67]

(iv) Problems for profit and accumulation must lead to structural problems for the capitalist system: crisis, constrained growth, stagnation, increased unemployment, class and social conflict, and so on. These results may be ameliorated, but not overcome, for example, by government intervention.

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64 See the Australian Private Corporate Trading Enterprises table that appears in Appendix 3 (C4-6, C28-30; cf. C49-51).

65 For example, as proposed in Chapter 3.

66 See Chapters 1§§5-6 and 5§§6-7.

67 Dobb (1937: 79).

Terms such as explained, determined, and system (of internal relations) have meanings that were detailed in Chapters 1-3. In case there is any residual misunderstanding, they must be understood in the context of the scientific realist method that I have endeavoured to apply.[68] For example, this means that statistical correlations are, *by themselves*, insufficient for a genuine explanation of determination within the capitalist system.[69]

The first condition is common to all Marxist theories. It will be investigated in Chapter 10§1 and again throughout Chapter 11. Together with the second condition, it implies that profit rate data are fundamental over the long run and that external finance and other financial variables are secondary. The discussion of crisis in Chapter 5§6 needs to be kept firmly in mind. The second and third conditions are the main focus of this work. The fourth cannot be discussed in detail here. However, high levels of structural unemployment and associated social problems, together with repeated and severe crises, have been characteristic features of capitalism in the past and are so today. Marxist theories are designed to explain them. Equation 9.1 above, and levels $P_{4\text{-}6}$ of Figure 9.1, provide the principal means for assessing the competing Marxist theories of tendency. A brief discussion is needed to point to the key variables for each theory. Connections with the details given in Chapters 5-8 will be transparent.

Rising composition arguments depend crucially on a falling output-capital used ratio (Y/K_u). This means that the capital used-labour (K_u/L) ratio, a multiple of Marx's technical composition of capital, must rise proportionately by more than does labour productivity (Y/L). A rising relative price ratio (P_y/P_k) and profit share (GP/Y) would be the expected counter-tendencies in stronger versions of rising composition theories. For demand-side theories, the focus will be on the capacity use ratio (K_u/K) as evidence of stagnation. This ratio captures any proposed cleavage between a "potential" rate of profit and the realised one given here. Demand-side theorists with a Kaleckian leaning would not stress the role of the

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68 See the Bibliography entries for Bhaskar and Collier.

69 The same is true of mathematical models in general. "Uncritical enthusiasm for mathematical formulation tends often to conceal the ephemeral substantive content of the argument behind the formidable font of algebraic signs." (Leontief 1971: 2).

profit share (GP/Y), perhaps expecting it to be constant in the long-run. However, for the under-consumption view to be correct the profit share should rise over the long run or, at least, in periods leading to significant turning points from growth to stagnation, such as the end of the long postwar boom in the early- to mid-1970s.[70] For theories that emphasise a falling profit share, attention is directed to the constant-dollar (real) wage rate (w) and labour productivity (Y/L), which determine the wage share. It is tautological that the profit share will fall if the proportionate growth of wages is greater than that of wage-labour productivity. Thus, to test views that emphasise the rising wage and those that emphasise lagging productivity, each part of the wage share ratio must be examined separately. It is also important to note that the trends suggested are intended to operate in periods leading to significant turning points such as the end of the long boom.

It may have been noticed that the definitions of the profit rate given in §2(i) and discussed briefly in the paragraph above was that of a "realised" rate. It is possible that the rate of profit expected to be realised on output produced will be greater than that actually realised. This possibility corresponds to insufficient demand and a build-up of unsold output. Superficially it may be thought to be evidence of demand-side causes. However, as I explained in Chapter 5§1, all currents within Marxist economics accommodate this possibility, both as an effect of longer-run tendencies and as a short-run cause-effect in the transmission of crisis. The familiar corollary here is the Keynesian macroeconomic adjustment process, which is signalled by an increase in stocks. It is important to note that this is a continuous adjustment process. It is not segmented into convenient annual or even quarterly chunks. Therefore the national-accounting data for "increases in stocks" are not necessarily good indicators at this level. As production winds down, the differences between "produced" and "realised" profits narrow. Better indicators also emerge, such as changes in the capacity use ratio (the ratio of actual to potential output).

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[70] The words "leading to" are essential. Once a crisis exists bankruptcies occur and profits typically collapse. This leads to an acute collapse of the profit share whatever the underlying tendency of this ratio (see Chapter 10§4).

6 Evaluation Methods and Data Series

To undertake the process outlined in §5 requires clear knowledge of the direction of the principal ratios and variables of Figure 9.1. However, it also requires a clear idea of the weight that should be attributed to each. This task is relatively easy when the variables are connected by addition or subtraction. For example, at level P_1 of Figure 9.1, $\Delta(GP_c/K_c)$ and $\Delta(D_c/K_c)$ can be given as percentages of $\Delta(NP_c/K_c)$, since the first less the second gives the third term. Other methods are needed when the operation is either multiplication or division. For example, to obtain the percentage contribution to the change in the rate of profit of the changes in the profit share and the current-dollar output-capital ratio, two steps are needed. First, changes in each ratio can be expressed as proportionate changes (*) across any two chosen years or averages of years, since:

$$(GP_c/K_c) = (GP/Y)(Y_c/K_c) \Rightarrow \tag{9.4}$$

$$(GP_c/K_c)^* = (GP/Y)^* (Y_c/K_c)^* \tag{9.5}$$

Second, the proportionate changes may be expressed logarithmically:

$$\log(GP_c/K_c)^* = \log(GP/Y)^* + \log(Y_c/K_c)^* \tag{9.6}$$

which permits percentage contributions to be obtained in the same way as for addition or subtraction.[71] Alternative statistical procedures are possible, but this approach is *simple*. It is accurate when using data for discrete years and also gives a good approximation for the proportionate change from the (arithmetic) average of the data for a group of years to the average for another group of years.[72] When averaging of data leads to problems, this will be pointed out clearly.

It is then a simple matter to reformulate the model in Figure 9.1 so that it accounts successively for the contributions of changes in key ratios and variables to

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[71] See Jackson (1989: 170-72).

[72] While $x_1.y_1 = z_1$, the arithmetic average form of $[(x_1+...+x_n)/n].\ [(y_1+...+y_n)/n] \neq (z_1+...+z_n)/n$. The approximate precision of the method for each set of averaged data can be seen by how closely the per cent contributions add to 100% in Table 9.1. An alternative, equivalent in principle to that used by Armstrong, Glyn, and Harrison (1991: 248 Table 14.9), Glyn (1991), and Weisskopf (1979: 363), for example, would be to use exponential growth estimates of the annual percentage change in each variable in equation (9.4) *within* a group of years. Thus, since $(GP_c/K_c)^* = (1+r_g)$ and $\ln(1+r_g) \approx r_g$, equation (9.6) could be re-expressed in the form of constant (average) annual percentage growth estimate as $r_g \approx a+b$, where $a=[(GP/Y)^*-1]$ and $b=[(Y_c/K_c)^*-1]$.

changes in the rate of profit and the rate of accumulation. **Table 9.1** presents the model in this form. Part (i)(a) shows "period ratio changes" contributing to the average Australian private business rate of profit for the years 1967 to 1989. Part (i)(b) presents this in "net" form.[73] Part (ii) shows the contributions to the rate of accumulation of Australian private corporate trading enterprises from the average 1970-75 to the average 1980-85. The parts of this table illustrate the sort of data that will be presented in Chapters 10-11. Given that it is possible to estimate the quantitative strength of the various tendencies depicted by the data, it can be seen that it is possible to begin to evaluate the viability of Marxist theories of profit and accumulation. Of course, the scope of the evaluation will be limited by being restricted to Australian data sources. International data, especially in the convenient form of charts, are used merely for comparison and not for detailed analysis.

All original charts and data tables in Chapters 10-11 are drawn from the two major tables presented in Appendix 3, unless otherwise specified. These are: (i) Australian Private Corporate Trading Enterprises: Aggregates and Ratios: 1948-49 to 1993-94; and (ii) Australian Private Business: Aggregates and Ratios: 1948-49 to 1993-94. All source data are from the Australian Bureau of Statistics, either the various national accounts or labour force series. Detailed data references, uses of data, and perceived problems are explained in Appendix 2. Cross-references between Appendices 2 and 3 and the tables and charts used in Chapters 10-11 are designed to assure readers about the veracity and accessibility of sources and that data manipulations are completely transparent. Only the "raw" form of the two data tables are presented in Appendix 3.[74]

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[73] The first sub-section of Part (i)(b) of Table 9.1 estimates the relative influence of the choice between "net" and "gross" decompositions. When asset lives decrease on average the level of annual depreciation provisions will increase and the distance between the gross and net measures of the fixed capital stock will widen (as accumulated depreciation also grows). Relative to gross measures, these effects will sharpen the decline of the net profit share while moderating that of the net output-capital ratio, resulting in the effects described in n.26 above. NB. See the more thorough discussion in Appendix 1, which also presents data from tables such as these applied to alternative ways of dealing with changes in self-employment income.

[74] The following forms are also available from the author: (i) ordinary six-year and select period averages (e.g., 1950-55 and 1960-74), which are slightly smoothed by overlapping the first and last years; (ii) annual percentage changes; and (ii) average percentage change during the six-year and select periods. The latter are given in two forms: an ordinary average of the annual percentage changes and a compound percentage growth rate.

TABLE 9.1

Contributions to Changes in Key Variables

Part (i): Rate of profit (a)

RATIO	ADJUSTED DATA* ("GROSS" DECOMPOSITION)					
	Symbol	From 1965-70	To 1990-94	Change	%Change	%Contrib-ution (approx.)
NET-GROSS ROP	NPc/Kc	18.99	11.70	-7.29	-38.40	100.00
Self-Employment Adj.	SE	94.62	101.81	7.18	7.59	-15.10
Adj. Net-Gross ROP	NPc'/Kc	20.06	11.50	-8.56	-42.69	114.89
ADJ.NET-GROSS ROP	NPc'/Kc	20.06	11.50	-8.56	-42.69	100.00
Adj. Gross Profit Rate	GPc'/Kc	25.31	16.66	-8.65	-34.16	100.96
Depreciation/Capital	Dc/Kc	5.25	5.16	-0.08	-1.56	-0.96
ADJ. GROSS PROFIT RATE	GPc'/Kc	25.31	16.66	-8.65	-34.16	100.00
Capacity Use	Ku/K	96.27	96.16	-0.11	-0.12	0.28
Relative Prices	Py/Pk	92.31	100.98	8.67	9.40	-21.49
Adj. Output/Capital Used	Y'/Ku	60.23	40.25	-19.98	-33.17	96.43
Adj. Gross Profit Share	GP'/Y'	47.28	42.62	-4.67	-9.87	24.86
ADJ. OUTPUT/CAP. USED	Y'/Ku	60.23	40.25	-19.98	-33.17	100.00
Adj. Wage Labour Product	Y'/L	18.02	25.46	7.44	41.28	-85.73
Capital Used/Labour	Ku/L	30.32	63.30	32.98	108.77	182.61
ADJ. WAGE SHARE	W/Y'	52.72	57.38	4.67	8.85	100.00
Wage Rate	w	9.50	14.61	5.11	53.81	507.43
Adj. Wage Labour Product	Y'/L	18.02	25.46	7.44	41.28	-407.29
ADJ. OUTPUT/CAP.(c)	Yc'/Kc	53.52	39.10	-14.42	-26.95	100.00
Relative Prices	Py/Pk	92.31	100.98	8.67	9.40	-28.61
Adj. Output/Capital	Y'/K	57.98	38.72	-19.26	-33.22	128.61
ADJ. OUTPUT/CAPITAL	Y'/K	57.98	38.72	-19.26	-33.22	100.00
Capacity Use	Ku/K	96.27	96.16	-0.11	-0.12	0.29
Adj. Output/Capital Used	Y'/Ku	60.23	40.25	-19.98	-33.17	99.83
ADJ. OUTPUT/CAP. USED	Y'/Ku	60.23	40.25	-19.98	-33.17	100.00
Adj. Wage Labour Product	Y'/L	18.02	25.46	7.44	41.28	-85.73
Capital Used/Labour	Ku/L	30.32	63.30	32.98	108.77	182.61

SUMMARY

RATIO	ADJUSTED DATA* ("GROSS" DECOMPOSITION)					
	Symbol	From 1965-70	To 1990-94	Change	% Change	% Contrib-ution (approx.)
ADJ. GROSS PROFIT RATE	GPc'/Kc	25.31	16.66	-8.65	-34.16	100.00
Adj. Gross Profit Share	GP'/Y'	47.28	42.62	-4.67	-9.87	24.86
Adj. Output/Capital(c)	Yc'/Kc	53.52	39.10	-14.42	-26.95	75.11

"Adjusted" for changes in the level of self-employment (see Appendix 1). See also Appendix 2, which explains why certain constraints govern the use of the calculations behind this table: e.g., (i) capacity use data are only available from 1959 and (ii) labour (hence productivity and capital intensity) series break at 1966, changing from persons to labour hours. Note 72 of this chapter explains why totals of contributions for averages of years do not add exactly to 100, such as in this example.

TABLE 9.1

Contributions to Changes in Key Variables

Part (i): Rate of profit (b)

RATIO	ADJUSTED DATA* ("NET" DECOMPOSITION)					
	Symbol	From 1965-70	To 1990-94	Change	%Change	%Contrib-ution (approx.)
NET PROFIT RATE	NPc/NKc	29.25	18.97	-10.28	-35.15	100.00
Self-Employment Adj.	SE (Net)	94.67	101.76	7.08	7.48	-16.66
Adj. Net Profit Rate	NPc'/NKc	30.90	18.64	-12.26	-39.67	116.66
ADJ. GROSS PROFIT RATE	GPc'/Kc	25.31	16.66	-8.65	-34.16	100.00
Adj. Net Profit Rate	NPc'/NKc	30.90	18.64	-12.26	-39.67	120.89
Ratio of Profit Rates	GROP/NROP	81.91	89.39	7.47	9.12	-20.89
ADJ. NET PROFIT RATE	NPc'/NKc	30.90	18.64	-12.26	-39.67	100.00
Capacity Use	Ku/K	96.27	96.16	-0.11	-0.12	0.23
Net Relative Prices	Pny/Pnk	93.50	101.35	7.85	8.40	-15.95
Adj. Net Output/Cap. Used	NY'/NKu	82.59	56.44	-26.16	-31.67	75.36
Adj. Net Profit Share	NP'/NY'	41.55	33.86	-7.69	-18.50	40.47
ADJ. NET OUT./CAP. USED	NY'/NKu	82.59	56.44	-26.16	-31.67	100.00
Adj. Net Wage Labour Prod.	NY'/L	16.25	22.10	5.85	35.97	-80.69
Net Capital Used/Labour	NKu/L	19.99	39.16	19.17	95.86	176.53
ADJ. NET WAGE SHARE	W/NY'	58.45	66.14	7.69	13.15	100.00
Wage Rate	w	9.50	14.61	5.11	53.81	348.50
Adj. Net Wage Labour Prod.	NY'/L	16.25	22.10	5.85	35.97	-248.72
ADJ. NET OUT./CAP.(c)	NYc'/NKc	74.33	55.02	-19.31	-25.98	100.00
Net Relative Prices	Pny/Pnk	93.50	101.35	7.85	8.40	-26.79
Adj. Net Output/Capital	NY'/NK	79.50	54.29	-25.22	-31.72	126.79
ADJ. NET OUT./CAPITAL	NY'/NK	79.50	54.29	-25.22	-31.72	100.00
Capacity Use	Ku/K	96.27	96.16	-0.11	-0.12	0.30
Adj. Net Output/Cap. Used	NY'/NKu	82.59	56.44	-26.16	-31.67	99.82
ADJ. NET OUT./CAP. USED	NY'/NKu	82.59	56.44	-26.16	-31.67	100.00
Adj. Net Wage Labour Prod.	NY'/L	16.25	22.10	5.85	35.97	-80.69
Net Capital Used/Labour	NKu/L	19.99	39.16	19.17	95.86	176.53

SUMMARY

RATIO	ADJUSTED DATA* ("NET" DECOMPOSITION)					
	Symbol	From 1965-70	To 1990-94	Change	%Change	%Contrib-ution (approx.)
ADJ. NET PROFIT RATE	NPc'/NKc	30.90	18.64	-12.26	-39.67	100.00
Adj. Net Profit Share	NP'/NY'	41.55	33.86	-7.69	-18.50	40.47
Adj. Net Output/Cap. (c)	NYc'/NKc	74.33	55.02	-19.31	-25.98	59.54

"Adjusted" for changes in the level of self-employment (see Appendix 1). See also Appendix 2, which explains why certain constraints govern the use of the calculations behind this table: e.g., (i) capacity use data are only available from 1959 and (ii) labour (hence productivity and capital intensity) series break at 1966, changing from persons to labour hours. Note 72 of this chapter explains why totals of contributions for averages of years do not add exactly to 100, such as in this example.

TABLE 9.1

Contributions to Changes in Key Variables

Part (ii): Rate of accumulation

RATIO	DATA					
	Symbol	From 1965-70	To 1990-94	Change	%Change	%Contrib-ution (approx.)
ACCUMULATION'/CAPITAL	A'/K	7.52	3.41	-4.11	-54.62	100.00
Investment'/Capital	I'/K	9.89	6.68	-3.21	-32.43	78.13
Retirement'/Capital	R'/K	2.37	3.27	0.90	37.84	21.87
INVESTMENT'/CAPITAL	I'/K	9.89	6.68	-3.21	-32.43	100.00
Relative Prices (1)	Pi/Pk	101.90	100.07	-1.84	-1.80	-4.64
Investment/Capital(c)	Ic/Kc	10.08	6.68	-3.39	-33.67	104.72
INVESTMENT/CAPITAL(c)	Ic/Kc	10.08	6.68	-3.39	-33.67	100.00
Internal Finance/Capital	IFc/Kc	8.37	4.32	-4.06	-48.46	119.59
"External" Finance/Capital	EFc/Kc	1.70	2.37	0.66	39.01	-19.59
INTERNAL FIN./CAPITAL	IFc/Kc	8.37	4.32	-4.06	-48.46	100.00
Retained Profits/Capital	RPc/Kc	3.47	-0.59	-4.07	-117.00	100.17
Depreciation/Capital	Dc/Kc	4.90	4.91	0.01	0.14	-0.17
RETAINED PROFITS/CAPITAL	RPc/Kc	3.47	-0.59	-4.07	-117.00	100.00
Net-gross rate of profit BIT	NPc/Kc	13.16	9.42	-3.74	-28.45	92.10
Interest/Capital	INc/Kc	2.00	5.19	3.19	159.44	78.48
Tax/Capital	Tc/Kc	4.52	2.79	-1.73	-38.31	-42.60
Dividends/Capital	DIc/Kc	3.16	2.03	-1.14	-35.95	-27.98
NET-GROSS RATE OF PROFIT BIT	NPc/Kc	13.16	9.42	-3.74	-28.45	100.00
Gross Profit Rate BIT	GPc/Kc	18.06	14.32	-3.74	-20.69	99.82
Depreciation/Capital	Dc/Kc	4.90	4.91	0.01	0.14	0.18
GROSS PROFIT RATE BIT	GPc/Kc	18.06	14.32	-3.74	-20.69	100.00
Relative Prices (2)	Py/Pk	92.93	100.64	7.72	8.30	-34.40
Capacity Use	Ku/K	96.27	96.16	-0.11	-0.12	0.50
Gross Profit/Cap. Used	GP/Ku	20.19	14.80	-5.39	-26.69	133.93

The prime (') notation in this part of the table has a different meaning than in the private business section (Part (i)(a),(b)). Here it means the variable as a proportion of the year-end capital stock (see C28-30 of the Private Corporate Trading Enterprises table in Appendix 3) as opposed to the respective rates calculated with the year-opening stock (see C49-51 of the Private Corporate Trading Enterprises table in Appendix 3). Note 72 of this chapter explains why totals of contributions for averages of years do not add exactly to 100, such as in this example.

Alas, neither of the basic tables is perfect, which is why the two data sets have been used. Regrettably, it is not possible to isolate labour, wages, and value-added data for private corporate trading enterprises, which makes it unsuitable for detailed profit rate analysis. However, it is the best set of data for detailed profit-accumulation analysis, since information on interest, dividends, and tax are provided for the corporate sector. Wage and value added data can be obtained for

private businesses as a whole, but the path to accumulation is precluded because the relevant information for unincorporated enterprises is merged in the national accounts with the "household sector." This explains why the private business table is the vehicle for the profit rate decomposition (levels $P_{1\text{-}6}$ of Figure 9.1) and the corporate table provides the link to accumulation (levels $A_{1\text{-}8}$ of Figure 9.1). However, the private business table includes unincorporated enterprises (containing the self-employed), and this brings its own class of problems, the main one being how to treat the income of the self-employed. Six ways of dealing with these problems are presented, giving five distinct segments within the private business table.[75] The table also presents a set of net ratios to compare with the gross ones mainly used for analysis in subsequent chapters.

It should be emphasised that the data and their uses give us *estimations* of the real situation. The estimations are not perfect. They stand to be improved as the national accountants improve their series. No doubt the methods used here could benefit from critical comment and suggested remedies. Despite such caveats, I think the course set here is reasonable. The available data must be used to confront the theories. To resile because some of the data and methods are not perfect seems to suggest an appalling alternative: to be content to remain empirically ignorant and to insulate theories or turn them into dogma.

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[75] See Appendix 1 for a detailed discussion. The problem of how to treat the *incorporated* self-employed in both data tables is trickier still. It remains unresolved in this work.

10

Profit Rate Influences: 1949-1994

1 Profit, Accumulation, and Growth Rates

The path to be taken by this chapter is mapped by the "test criteria" of Chapter 9§5 and the model set out in Figure 9.1. First, it will be necessary in §1 to look at the rate of profit and to establish briefly the sort of relationship between it and investment, accumulation, and economic growth that is central to Marxist economics. In the terms of the realist method sketched in Chapter 1§4 this is the supposed pattern of events the various Marxist theories seek to explain. Second, the Australian data will be used to reflect on the reality of the explanations offered by the theories, their coherence having already been discussed critically in Part III. This will start in §2 with an examination the most basic profit rate determinants shown at level P_5 of Figure 9.1, which, together with profit shares and output-capital ratios ($P_{2\text{-}4}$), bring to light the central tendencies and counter-tendencies.[1] A more rigorous test of the theories will then be undertaken in §3, in conjunction with brief analyses in §§4-5 of the end of the long boom in the mid-1970s and Australia's two subsequent crises, in the early 'eighties and 'nineties.

In addition to evaluating the reality of the competing perspectives, this chapter will accomplish two other tasks. It will give the reader an overview of the some of the underlying forces and trends at work in Australian political economy over the past five decades. This will help to set the foundation for the detailed exploration of the conduit from profit to accumulation in Chapter 11. The evaluation also permits some suggestions to be made in §6 that aim to add something to existing

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[1] See equations (5.4M), (5.4A), and (5.7A) in Chapter 5.

Marxist economic explanations and to indicate future avenues of research. If these suggestions are at all potentially meaningful it is due to the realist approach described in Chapter 1§4, an iterative process of evidentiary confrontation that by its nature draws out new lines of enquiry.

(i) Overview of trends

Reliable and consistent Australian national-accounting data are available in their present format from the financial year 1948-49.[2] Since then the average rate of profit has fallen noticeably. Superficially the main theme of all Marxist theories is present: problems for the capitalist economy are signalled by problems for the rate of profit. The Australian economy clearly has been troubled from the 1970s, with sustained unemployment and comparatively severe periodic crises in 1974-75, 1982-83, and 1991-93. **Chart 10.1** shows the declining rate of profit (before interest and tax) for private businesses. **Chart 10.2** shows the same for the corporate sector.[3]

Some of the absolute quantitative differences between the private business and corporate rates are due to the troublesome national-accounting treatment of all self-employment income as profit.[4] What is more significant, however, is that the corporate profit rate has generally declined less dramatically than the private business rate as a whole. Obviously, the unincorporated sector has fared worse over the years. Additional insights into the corporate sector will be given in Chapter 11, where the corporate rate after interest and tax and the retained profit-capital rate will be introduced.[5]

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2 (ABS 5204.0 1995: 78).

3 Chapter 9§2(i) and Appendix 1 discuss the differences between the three profit rate measures shown in Charts 10.1 and 10.2. In particular, they explain the sharper decline and steeper recent rise of the net rate.

4 See Appendix 1, which explains how the private business data used in this chart correct for the trend in self-employment using a method that does not reallocate part of self-employment income from "profits" to "wages." The unincorporated sector contributed a relatively bigger share of output during the 1950s and 1960s. Moreover, its income was inflated by terms of trade gains made by the rural sector in the immediate post-war years. Recall that for all of these data the absolute magnitudes are less important than their relative proportionate changes.

5 Chapter 11 will look at these profit rates more closely.

CHART 10.1

The Falling Private Business Profit Rate

Source: Appendix 3, C29-31. %

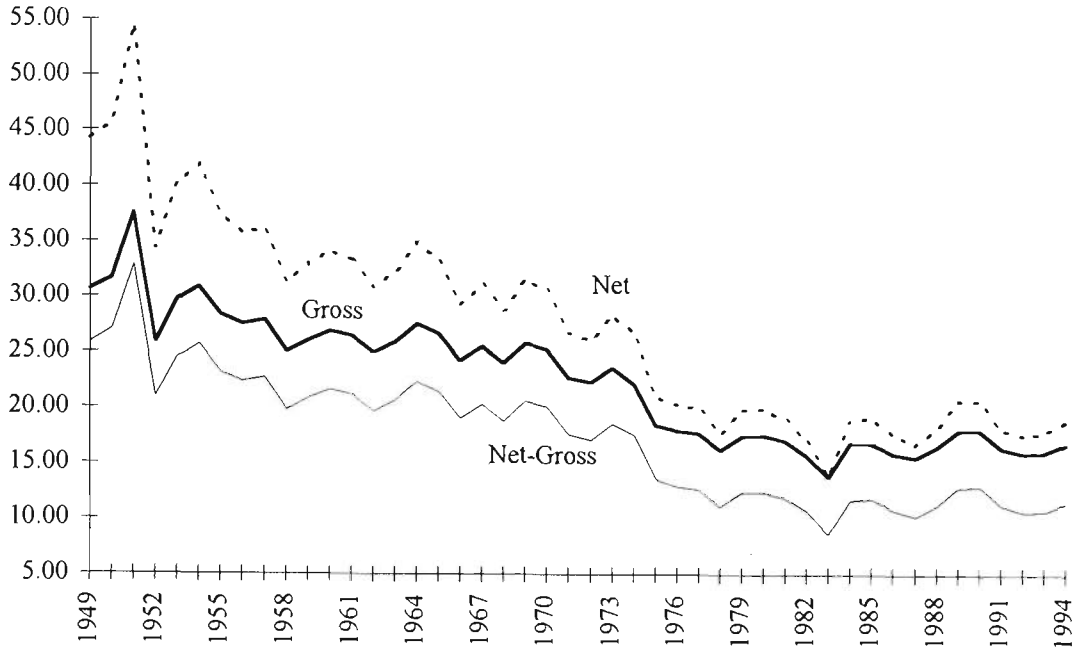
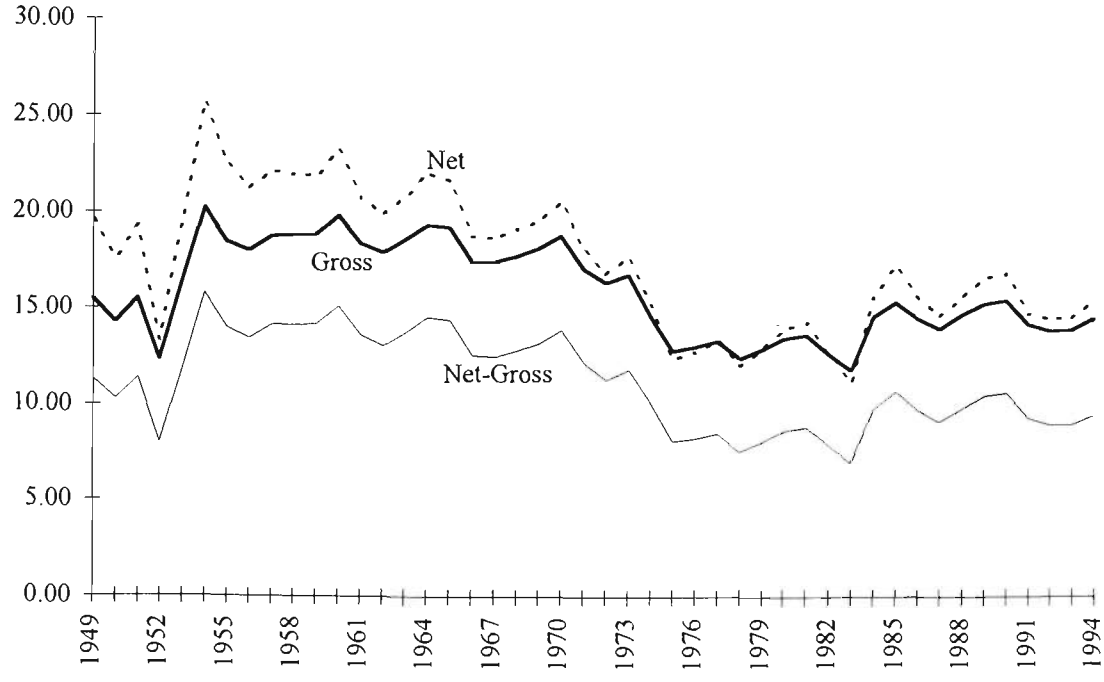


CHART 10.2

The Falling Corporate Profit Rate

Source: Appendix 3, C11-13. %

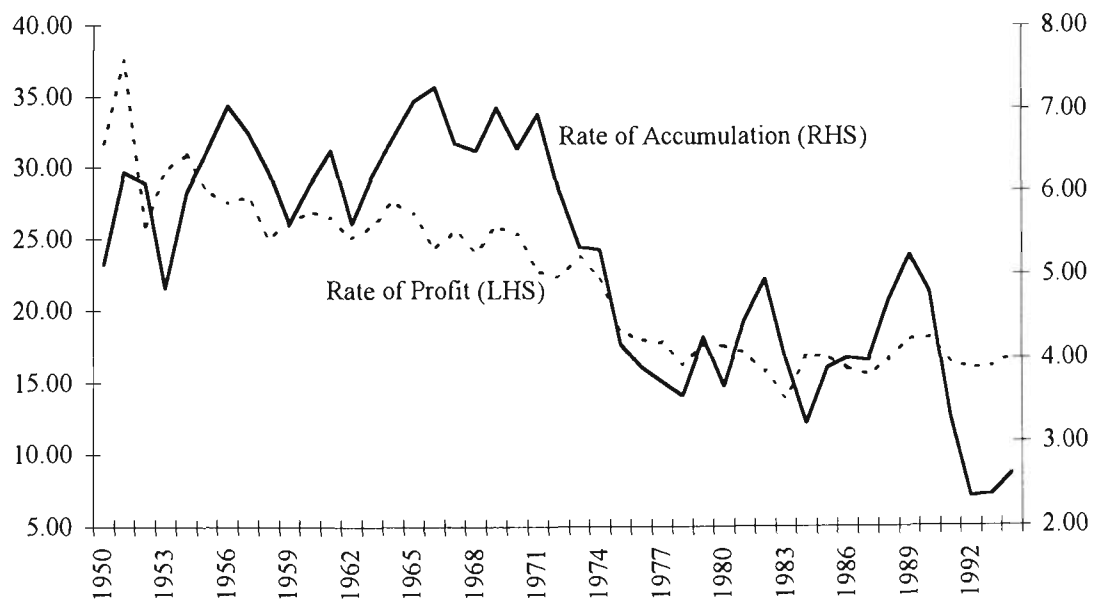


Within Marxist economics a lot rests on the relationship between accumulation, which is rightly regarded as no less than "the centrepiece of Marx's *Capital*...the driving force in the historic mission of capitalism,"[6] and profit. It is hardly surprising then that Marxists have made this the centrepiece of their analyses of the economic decline of capitalist countries since the 1970s. So, even at this early stage, it is important to establish that there is, in fact, at least a *prima facie* relationship between the rates of profit accumulation. Without it the explanatory force attributed to the determinants of the profit rate would not exist, and the following analysis would lose much of its meaning. **Charts 10.3** and **10.4** are therefore presented to demonstrate the broad relationships involved for Australian private businesses and the corporate sector. Similar relationships can be found in the international data, though the trends are not replicated exactly in each country. Also evident are the similarities in the Australian and international profit-rate movements.[7]

CHART 10.3

Private Business Rates of Profit and Accumulation

Source: Appendix 3. Gross profit rate before interest and tax, adjusted for self-employment income (C29). Accumulation (constant dollar), Δ in the gross fixed capital stock(t)/ gross fixed capital stock(t-1) (C51). %



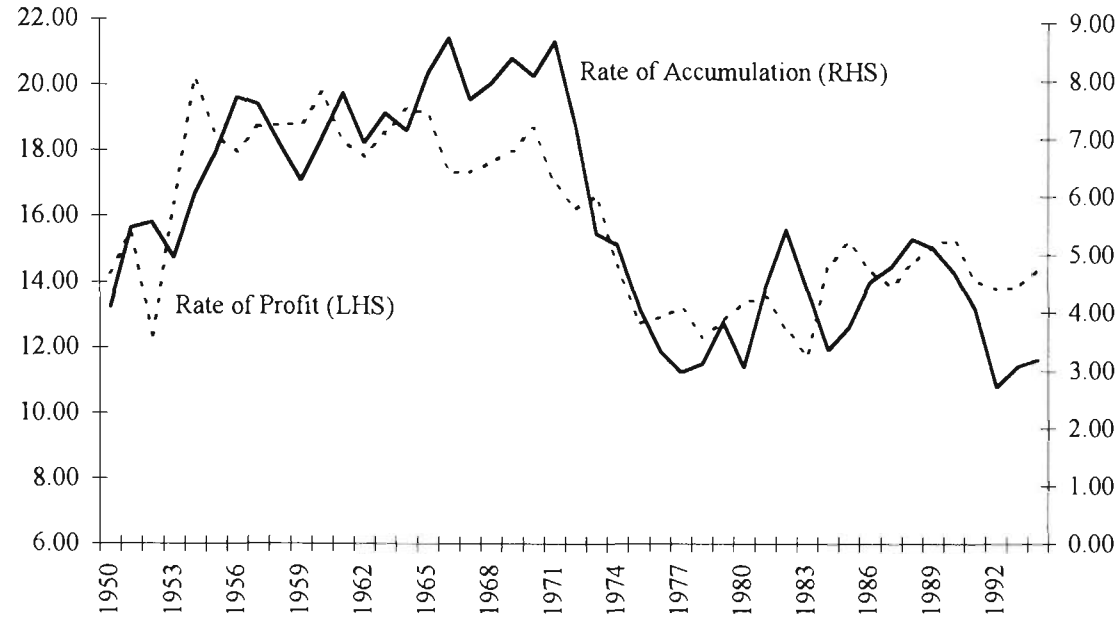
[6] Dillard (1984: 429-30). See also Chapter 9§3.

[7] See the charts presented by Glyn (1992: 87-88). See also the charts presented by, e.g., Armstrong, Glyn, and Harrison (1984: 342-43), Bowles, Gordon, and Weisskopf (1987: 45), and Duménil and Lévy (1993: 33), which illustrate the same point.

CHART 10.4

Corporate Rates of Profit and Accumulation

Source: Appendix 3. Gross profit rate before interest and tax, adjusted for self-employment income (C31). Accumulation (constant dollar), Δ in the gross fixed capital stock(t)/ gross fixed capital stock(t-1) (C51). %



Taking the relationships a step further, **Chart 10.5** illustrates the similar trajectories of the rate of accumulation and the rate of output growth for Australian private businesses. (No separate output data are available for corporate trading enterprises.) Undoubtedly the relationship needs to be viewed cautiously. The significant role of public sector output is absent here explicitly, though not in its effects on the private sector. Nonetheless, private business output clearly dominates the Australian economy. Never has its proportion of GDP fallen below 70% in the years since WWII.[8] It is also worth noting that the Australian public sector is relatively small by comparable international standards, according to a range of measures.[9] As with the profit-accumulation link, the nexus between accumulation and growth cannot be interpreted simplistically. However, it is also true that any society's level of output is a function of the stock of its plant,

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[8] Calculated by the author. Private business output at factor cost (including imputed bank service charge but excluding private financial enterprises gross operating surplus and imputed gross operating surplus of dwellings owned by persons) as a proportion of GDP at factor cost (including imputed bank service charge but excluding and imputed gross operating surplus of dwellings owned by persons). The proportion quoted is understated to the extent of private financial gross operating surplus.

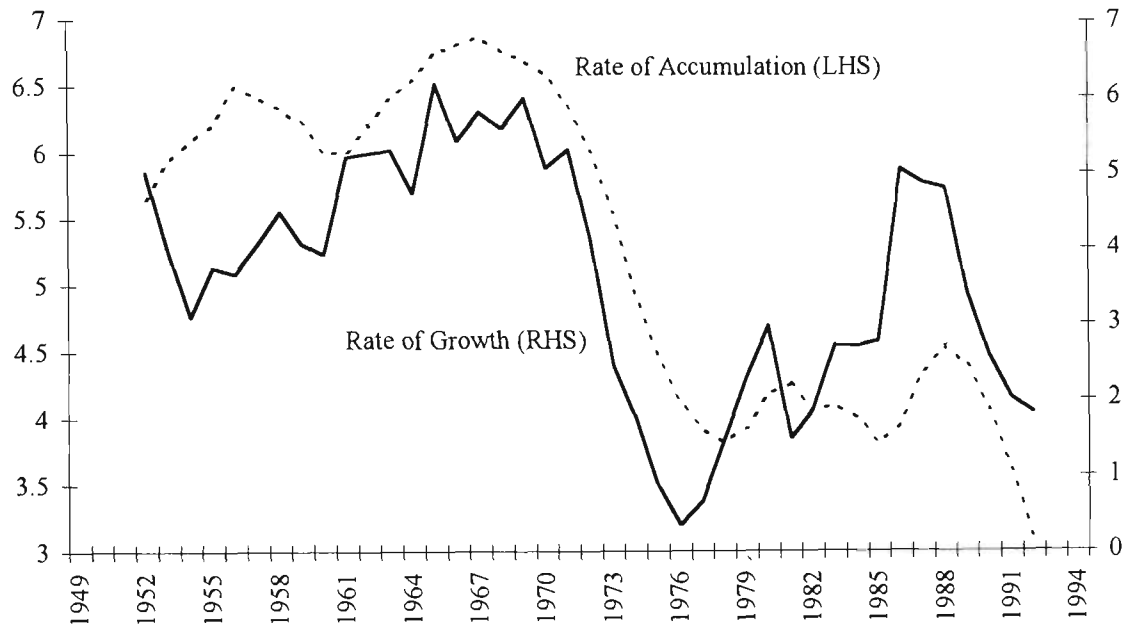
[9] See, e.g., Foster and Stewart (1991: Table 6.8 Outlays of General Government) and Hayward (1993).

equipment, factories, and raw materials, and that the rate of accumulation of that stock must act as a mighty determinant of output growth.[10]

CHART 10.5

Private Business Rates of Accumulation and Growth

Source: Appendix 3. Accumulation (constant dollar), Δ in the gross fixed capital stock(t)/ gross fixed capital stock(t-1) (C51). Growth (constant dollar), Δ in value added, adjusted for self-employment income(t)/ value added, adjusted for self-employment income(t-1) (C26). 5-year moving average centred on year shown. %



(ii) Three post-WWII phases

Charts 10.1-10.5 suggest that there have been three phases in the fortunes of profit, accumulation, and growth from 1949 to the present. The demarcation between each is a major recession. The exception is that the severe early-1990s recession will not be used to designate the start of a new phase.[11] The choice of opening and closing dates is arbitrary, depending on when each crisis started and how long it lasted. However, if all measures of profit, accumulation, and growth are used to distil the average trends, the following analytically useful phases are evident:

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[10] The nature of that "function" is expressed in variables such as the output-capital, capital-labour, and labour productivity ratios. These will be explored below, especially in §§2 and 6.

[11] It is still too soon to extract significant conclusions from 1992-93 and 1993-94 data, which are the latest available at the time of writing.

1948-49 to 1973-74. This phase included the post-WWII boom, which peaked in the mid 1960s, and the years of the 1960s and early 1970s during which the boom was exhausted. It takes us up to the 1974-75 crisis. Smaller recessions occurred in this period, notably the "credit squeeze" of the early 1960s. Conservative coalitions governed nationally until the Labor Party was elected December 1972. Wage determinations were formalised largely through a centralised system of legal awards made by conciliation and arbitration commissions. One of the first acts of the newly elected Whitlam Labor government was to cut tariffs by 25%.

1973-74 to 1981-82. Opening with the 1974-75 crisis, this period of relative stagnation and increased unemployment was characterised by a declining and low rate of profit and significantly lower rates of accumulation. It ended before the 1982-83 crisis. The Whitlam government was dismissed in November 1975 and replaced by the conservative Fraser coalition government for the remainder of the period. Compared with the period to follow, the political economy of this period maintained an institutional holding pattern, though efforts were made by the conservative government to restrict wage increases, clamp down on union militancy, and cut government spending. Centralised wage-fixation continued, including a formal wage freeze from 1982, and other economic-regulatory mechanisms remained largely in place.

1981-82 to 1993-94. Opening with the 1982-83 crisis, this takes us to the present. The rate of profit tended to stabilise at its lower level and then to move upwards, though the rise has not been dramatic and investment behaviour has not always followed it. Significantly, this period encompasses two important (and not necessarily contradictory) phases in Australian post-WWII political economy that followed the election of the Hawke and Keating Labor governments from 1983: (i) *deregulation* of the financial sector, the exchange rate, aspects of international trade and finance, and public enterprises, together with some labour market

decentralisation[12]; and (ii) corporatist *regulation* of incomes-policy and some other labour market outcomes due to the series of Accords between successive Labor Federal governments and the union movement. The period contains by far the highest average post-WWII levels of unemployment.

I will use average data for each phase in the analysis that follows as a convenient means to compare and evaluate the changes that have occurred since WWII. However, the evaluation will also use six-year averages and annual data, as these are better suited to examining transitions from one phase to another than are the data for the broad phases themselves. Note also that the periods 1959-60 to 1973-74 and 1966-67 to 1973-74 will be used as surrogates for the first phase as a whole where capacity use and labour hours data, respectively, are involved. The reason for this is that series for capacity use commence in 1959-60 and for labour hours worked in 1966-67. Labour series for persons employed are the only available measure in this category before then.

To conclude this overview, **Chart 10.6** illustrates the respective private business rates of profit, accumulation, and growth for each of the phases. The pattern is similar for net variables and all techniques of accounting for self-employment income discussed in Appendix 1.[13] It is also evident from Charts 10.3-10.5 and the tables in Appendix 3 that the rate of accumulation in the corporate sector was stronger than for private businesses as a whole, which means that unincorporated enterprises must have accumulated fixed capital at a far weaker rate during this time.[14]

The charts presented in this section clearly demonstrate the type of relationship between the rates of growth, accumulation, and profit anticipated in all variants of Marxist economics. However, it must be stressed that only a very broad relationship is implied. Indeed, differences between profit and accumulation

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[12] I prefer this term to deregulation. Indeed, tighter regulations govern decentralised decision-making (e.g., Federally-based enterprise bargaining within the award framework) and weakened centralised award coverage (e.g., attempts by conservative State governments to shift workers from awards to individual contracts). These include formal decisions to limit wage growth in line with productivity, enforce "no extra claims" provisions in the Federal system, and pass draconian anti-worker and anti-union laws in some States. See, e.g., Legal Aid Commission of Victoria (1994), Nichols (1987).

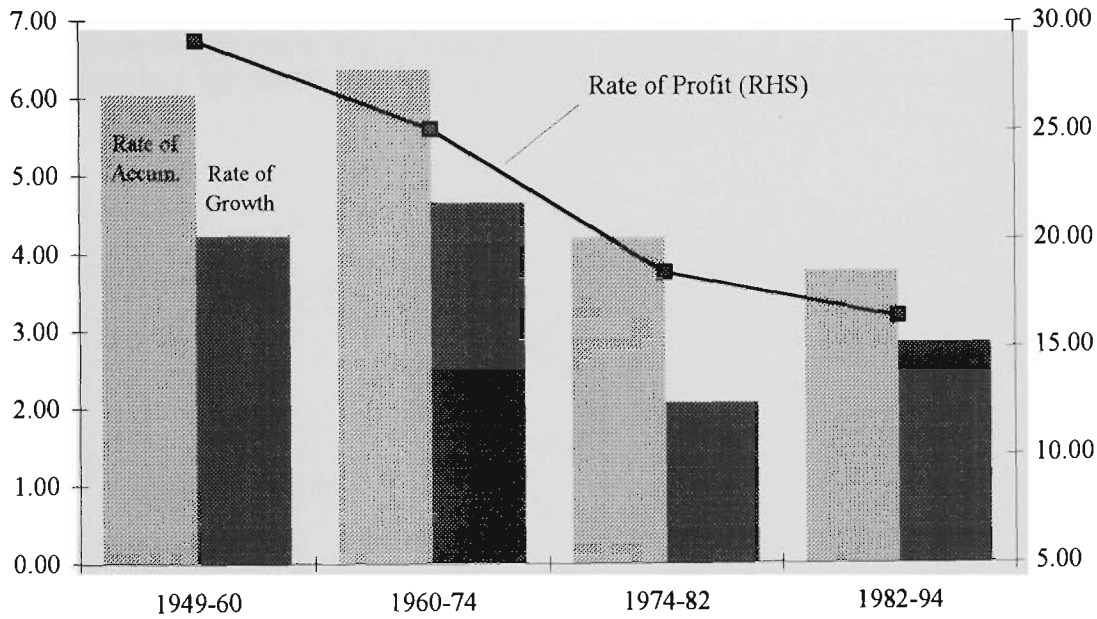
[13] See the private business table in Appendix 3.

[14] Compare the respective accumulation columns (C51) of both the private business and corporate tables.

behaviour at various times, especially in the third period, will be discussed in detail in Chapter 11.[15]

CHART 10.6

Phases of Profit, Accumulation, and Growth for Private Businesses
Source: Appendix 3. Gross profit rate before interest and tax, adjusted for self-employment income (C29). Accumulation (constant dollar), Δ in the gross fixed capital stock(t)/ gross fixed capital stock(t-1) (C51). Growth (constant dollar), Δ in value added, adjusted for self-employment income(t)/ value added, adjusted for self-employment income(t-1) (C26). %



2 Constituents of the Private Business Profit Rate

All of the constituent ratios of the most basic gross profit rate decomposition, shown at level P_5 of Figure 9.1, are presented in **Chart 10.7**. This decomposition was summarised in Chapter 9§2(ii) by equation (9.1):

$$[(K_u/K)\,(P_y/P_k)\,(Y/L) / (K_u/L)]\,[1 - w/(Y/L)] \qquad (10.1)$$

Inferences about the relative influence of each ratio can be drawn by observing its long-run trend, departures from this trend at various times, and the extent of the

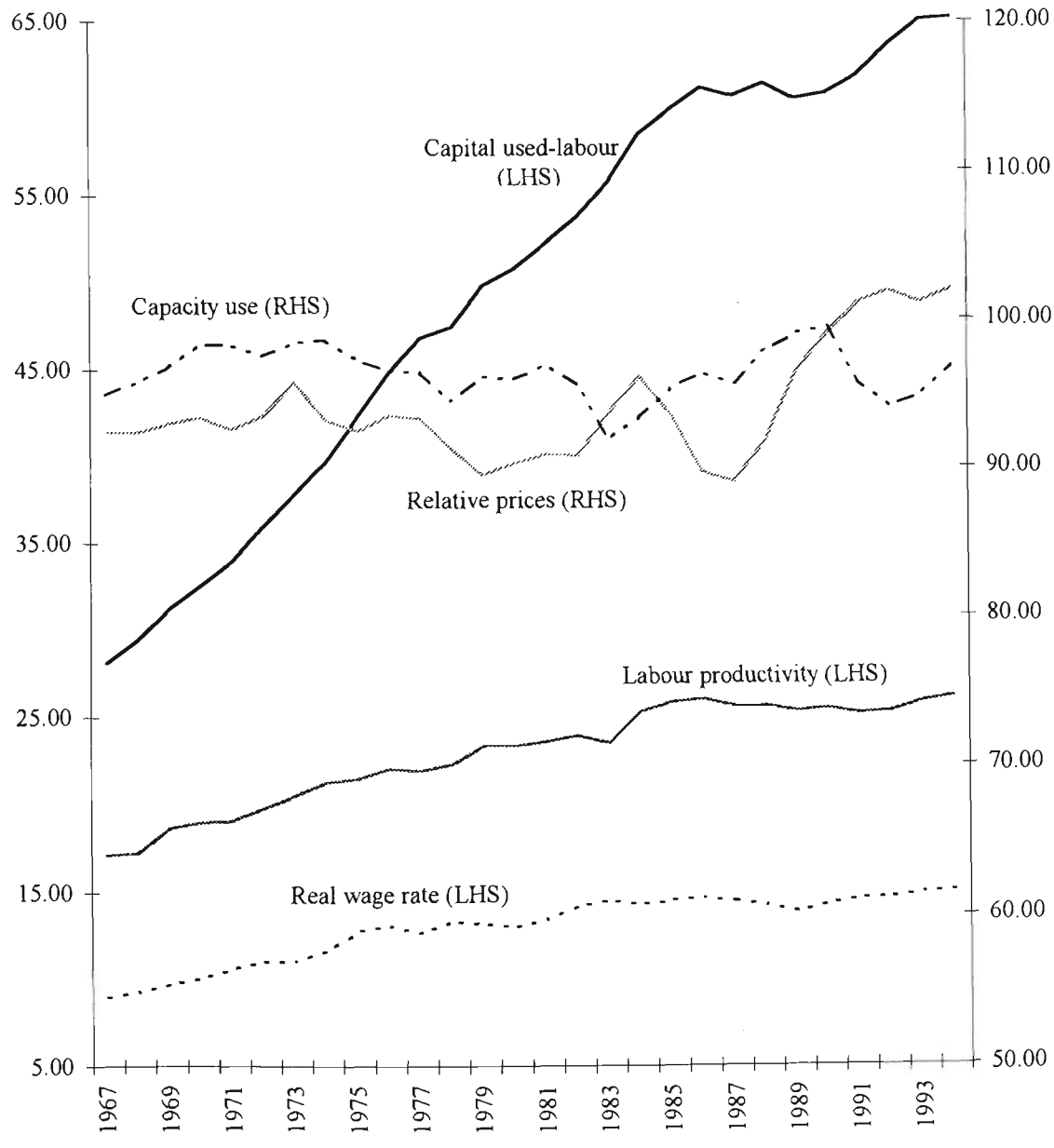
15 Glyn (1992: 86-89) points to similar differences internationally.

proportionate change indicated by the figures on the vertical axis. These observations, however, will not yet allow sweeping judgements to be made. Not until the interaction of the variables is considered as this section proceeds can a preliminary assessment of the theories be attempted. Remember also from Chapter 9 that this analysis can be made only for the private business sector as a whole, as value added data for corporate trading enterprises are not estimated.

CHART 10.7

Underlying Profit Rate Determinants

Source: Appendix 3. All relevant variables adjusted for self-employment income (C36, 41, 44, 46, 48). %



It is clear from the chart that an increase in capital intensity, or the *capital used-labour ratio* (K_u/L), the stock of capital used to the annual flow of employee labour hours, is the most pronounced trend shown. The significance of this ratio is that it may be thought of as being a multiple of the (stock) technical composition of capital.[16] While *wage labour productivity* (Y/L) has increased over the years, its rise is demonstrably weaker that in the capital used-labour ratio.[17] Note that labour here means the labour of employees (i.e., wage and salary earners). The labour hours of employers and the self-employed, which are used in some series, are not included. Similarly, the *real wage rate* (w), or hourly pre-tax real wages, salaries, and supplements, has tended to rise, though not consistently. I have argued elsewhere that this trend is consistent with the views of Marx and subsequent Marxists.[18] What is not clear from the chart is the crucial interplay of real wages and labour productivity. *Relative prices* (P_y/P_k) of output and the fixed capital stock show the long-run trend anticipated by Marxist theories. Investment goods have cheapened over the longer run compared with the average prices of all goods and services produced, though the extent to which this has occurred is not great.[19] *Capacity use* (K_u/K) does not exhibit a pronounced long-run trend, in contrast to its clear cyclical movements, though a decline through the 1970s to the mid-1980s is evident.[20]

To determine the effect of these fundamental ratios on the profit rate we need not just to scan their general trends but to look quite closely at their *proportionate changes* over the years. In particular, the proportionate changes in both capital intensity and the real wage rate must be set against those in labour productivity to determine the behaviour of the various forms of the output-capital ratio and the profit share (see Chapter 9§2(ii)). The latter ratios, in turn, will take us to the cusp of understanding the decline in the profit rate (levels $P_{2\text{-}5}$ of Figure 9.1) and gives

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16 See Chapter 3§3(i), Table 3.1, and Figure 3.2 and accompanying notes for the appropriate definitions. See also §6 below.

17 See also the private business table in Appendix 3 for evidence of similar trends in the period before 1966-67 for productivity and the capital used-labour ratio (C45-48).

18 See Chapter 8§1.

19 See also the corporate table in Appendix 3, (C46) of which shows a similar trend.

20 Note that the ABS regards its capacity use ratio "as a rather crude proxy." See the discussion in Appendix 2, but note that the other series shown there in Figure A2.1 behave in similar ways.

us a clearer idea of hows the theories have performed. **Table 10.1** presents overlapping six-year average annual percentage changes for capital intensity, labour productivity,[21] and the real wage rate, while **Charts 10.8** and **10.9** describe the impact of these changes on the output-capital ratio(s) and the gross profit share (with its mirror image, the pre-tax wage share).[22]

TABLE 10.1

Private Business Average Annual % Change in Wages, Labour Productivity, and Capital Intensity

YEARS	WAGE RATE (w) %	WAGE LABOUR PRODUCTIVITY (Y/L) %	CAPITAL USED-LABOUR RATIO (K_u/L) %
1949 to 1955	3.24	2.38	n.a.
1955 to 1960	1.87	2.23	n.a.
1960 to 1965	2.21	2.03	3.33
1965 to 1970	4.02	3.99	5.16
1970 to 1975	4.31	2.76	5.31
1975 to 1980	0.44	1.73	3.63
1980 to 1985	2.10	2.00	3.50
1985 to 1990	-0.77	-0.44	0.17
1990 to 1994	1.19	0.78	1.91

Source: Exponential growth averages derived from Appendix 3 (rounded). Adjusted for self-employment (C44, 46, 48). Averages overlapped for first and last years. Such exponential growth averages are additive. See Chapter 9 n.71.

The falls in both the *output-capital used ratio* (Y/K_u) and the current-price output-capital ratio have been manifestly steep and sustained until the most recent of the phases discussed in §1(ii) (1982-94). Both level off as this phase continues. The behaviour of the output-capital used ratio conforms to data of Table 10.1: i.e., the capital used-labour ratio was its major influence, growing proportionately by

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21 Notable from Chart 10.7 and Table 10.1 are: (i) that the different phases produced different, but successively slower, rates of growth in both real wages *and* labor productivity and (ii) the striking extent of the productivity slowdown after the 1974-75 recession. See also §§4-5.

22 To compare data derived using other methods of treating self-employment income, see the private business table in Appendix 3. Similar comparisons can be made for all subsequent tables. I will repeat the point below when a material difference to the results arises from using different treatments (and/or net variables). See also Appendix 1.

more than did labour productivity across all the periods. Note that the current-price output-capital ratio decomposes to yield capacity use and relative prices:

$$(Y_c/K_c) = (K_u/K)\,(P_y/P_k)\,(Y/K_u) \qquad 10.2$$

where

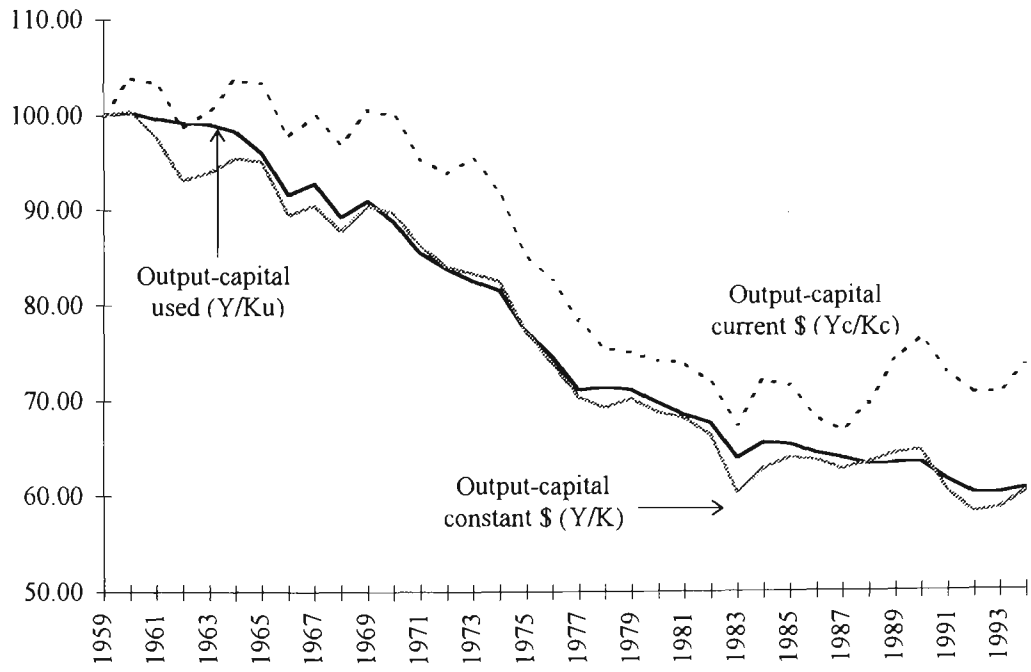
$$(Y/K_u) = (Y/L) / (K_u/L) \qquad 10.3$$

Chart 10.8 first shows that the dominant influence on the current-price form of the ratio has been the decline in its constant-price counterpart. Only in the 1980s did relative price changes affect the direction of the current-price measure. Second, it shows that the main influence on the constant-price output-capital ratio was the constant-price output-capital used ratio, with capacity use not substantially affecting the downward trend.[23]

CHART 10.8

Falling Private Business Output-Capital Ratios

Source: Appendix 3. Adjusted for self-employment income (C37, 42). The current-dollar ratio is derived as multiplicand of the constant-dollar Y/K and Py/Pk (C37xC36). Index numbers



23 Cf. Armstrong, Glyn, and Harrison (1991: 181-82, 248, 250; 1984: 253-54). The effect of the rate of scrapping on the rate of depreciation, which they consider relevant to their *net* measure of the output-capital ratio, is irrelevant to the *gross* measure of this ratio that I have used consistently.

CHART 10.9

The Falling Private Business Gross Profit Share

Source: Appendix 3. Adjusted for self-employment income (C35, 40). Current or constant dollars. %

The fall in the *gross profit share* (GP/Y) shown by Chart 10.9 during the first two of the phases (1949-74 and 1974-82) is notable but, *prima facie* at least, less significant than that of the output-capital used ratio. The behaviour of the profit share changes in the third phase, increasing on average for the phase as a whole. This is entirely consistent with the constrained real wage growth during this time. Recall from level P_5 of Figure 9.1 that the profit share will fall if the real wage rate rises proportionately by more than labour productivity (see Table 10.1):

$$(GP/Y) = [1 - w/(Y/L)] \qquad 10.4$$

where the terms subtracted terms within the square brackets are equal to the wage share (W/L). Note that this is a case where the choice of gross variables and my preferred method of adjusting for self-employment income does make a difference. A net profit share calculated with the labour method of dealing with self-

employment would decline and increase more steeply, while the corresponding net output-capital ratios would decline somewhat less steeply.[24]

The ratios summarised in the foregoing tables and charts suggest that the rising composition (falling output-capital) and falling profit share views are the strongest of the Marxist explanations. A falling profit share undermines the underconsumption position, but no premature inferences should yet be drawn from the capacity use ratio about demand-side views in general. Further analysis is needed of all views, and these conclusions are clearly provisional. To understand more about the relative influence of key ratios we need to take a another step and examine more precisely how the proportionate changes in the output-capital ratio(s) and the profit share have interacted to determine the trajectory of the gross profit rate.

The current-dollar output-capital ratio (Y_c/K_c) is a convenient form of this ratio to use to analyse changes in the gross profit rate. It captures all influences on the rate of profit other than the distributional struggle between capital and labour, which is captured in the gross profit share ($GP/Y = GP_c/Y_c$).[25] Of course, this is not to make the false generalisation that *the* struggle between capital and labour is captured in the profit share. Other aspects of this struggle arise at the point of production, and these will affect labour productivity and hence the output-capital used ratio. However, it should be remembered that the output-capital used ratio, demand-side influences embodied in capacity use, and the relative price counter-tendency are buried within Y_c/K_c when this short-hand approach is used (see equation 10.2).

Table 10.2 juxtaposes the overlapping six-year average annual percentage changes in the gross profit rate, current-price output-capital ratio, and gross profit share. It also gives the corresponding percentage increases in capacity use, relative prices, and the fundamental output-capital used ratio so that we can avoid the problem highlighted immediately above. Average percentage changes in variables in decompositions such as equations 10.1-10.4 are approximately additive if

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[24] See Appendix 1, especially Chart A1.1. Between 1967 and 1994, the profit share fell by 10.61% and the output-capital used ratio fell by 34.61% using adjusted gross variables, compared with 40.71% and 30.17%, respectively, using net labour method variables.

[25] Figure 9.1 level P_2.

exponential growth averages are used, as they are in this table. Hence the table complements Table 10.1, in which the average annual percentage real wage rate growth less that in labour productivity is approximately equal to that in the wage share and the average percentage change in labour productivity less that in the capital used-labour ratio is approximately equal to that in the output-capital used ratio.[26] Table 10.2 illustrates that, with the exceptions of 1960-65 and 1985-90,[27] the declining current-price output-capital ratio had larger proportionate changes than the (usually) declining profit share and thereby generally had the most influence on the gross profit rate. (Again, this conclusion is contingent on measurement choices.[28])

TABLE 10.2

Private Business Average Annual % Changes for Key Ratios

YEARS	GROSS PROFIT RATE		GROSS PROFIT SHARE		OUTPUT-CAPITAL RATIO		OUTPUT-CAPITAL USED RATIO		CAPAC-ITY USE RATIO		RELAT-IVE PRICES
	(GP_c/K_c) %		(GP/Y) %		(Y_c/K_c)* %		(Y/K_u) %		(K_u/K) %		(P_y/P_k)* %
1949 to 1955	-1.80	=	-0.82	+	-0.98	=	n.a.		n.a.		0.57
1955 to 1960	-1.53	=	0.39	+	-1.92	=	n.a.		n.a.		0.23
1960 to 1965	0.37	=	0.37	+	0.00	=	-0.73	+	-0.23	+	0.96
1965 to 1970	-0.42	=	-0.13	+	-0.29	=	-1.28	+	0.47	+	0.52
1970 to 1975	-4.43	=	-1.92	+	-2.51	=	-2.42	+	-0.11	+	0.02
1975 to 1980	-1.20	=	1.74	+	-2.94	=	-1.84	+	-0.29	+	-0.81
1980 to 1985	-1.06	=	-0.15	+	-0.91	=	-1.45	+	-0.53	+	1.07
1985 to 1990	2.25	=	0.43	+	1.82	=	-0.61	+	0.91	+	1.52
1990 to 1994	-1.65	=	-0.52	+	-1.13	=	-1.12	+	-0.61	+	0.60

Source: Exponential growth averages derived from Appendix 3 (*rounded). Adjusted for self-employment (C29, 35, 36, 41, 43). Averages overlapped for first and last years. Such exponential growth averages are additive. See Chapter 9 n.71.

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[26] See Chapter 9 n. 72. These approximations are less accurate for earlier years due to inconsistencies between series averages containing capacity use and labour hours and other series averages. This is caused by the starting date for capacity use and a change in measuring unit in the labour series during the 1960s from persons to hours. See the private business table in Appendix 3 and the explanation in Appendix 2.

[27] Parallels and contrasts between the Australian experience in the 1980s and the changing fortunes of the rate of profit and its main constituent ratios internationally are interesting: "The profit-rate recovery depended on the output-capital ratio as well as the profit share; in the 1980s the downward trend in output-capital ratios was halted as the prices of capital goods grew more slowly than output prices. By 1987 the profit rate in Europe was at its 1973 level in both business and manufacturing, though still somewhat below its 1960 peak; in Japan the business profit rate was around two-thirds, and the manufacturing rate less than one half of 1973 rates. US rates were around one fifth to one third below 1973 rates." Glyn (1992: 86 n. 1; citing Armstrong, Glyn, and Harrison 1991: Chapter 14).

[28] See Appendix 1 and n. 24 above.

3 Evaluating Competing Explanations

More precisely targeted techniques are now required to show which of the competing explanations of tendency and counter-tendency better explain the Australian profit-rate data. This is possible because the quantitative contribution of the change in each key constituent ratio to any change in the rate of profit may be estimated as a percentage and ranked. The method was explained in Chapter 9§6 and summarised in the model of Table 9.1. I will focus again on the change in the private business gross profit rate (GP_c/K_c) and analyse it in terms of capacity use, relative prices, the output-capital used ratio, and the gross profit share.

The only data I will present in tables in this section are those derived from my preferred but distinctive ("adjusted") method of dealing with self-employment income. Readers are reminded that most Marxists have used net data and the labour method of treating the self-employment problem.[29] Appendix 1 and Chapter 9§2(i) explain my choices, and the former presents a table comparing every item of the "gross-adjusted" data used in this chapter with "net labour" data (Table A1.3). It also contains tables that compare how both gross and net data perform for changes in the profit rate from the 1960s to the 1990s and 1960-65 to 1970-75 under six alternative treatments of self-employment (Tables A1.1 and A1.2). While my preferred approach is certainly debatable, it is also fair to add that no other contemporary Marxist work has canvassed possible alternatives and their implications as comprehensively as this one has.

Percentage contributions of the key ratios to changes in the gross profit rate are shown in **Table 10.3**. These percentage contributions should be read as saying, for example, "the gross profit share contributed 30.45% of the 10.79% fall in the gross profit rate between 1964 and 1994." As I explained in §2, the current-price output-capital ratio decomposes to yield the more informative capacity use, relative price, and output-capital used ratios. Hence the percentage contributions of the latter ratios will add to give the percentage contribution of the former. Similarly, the sum of the percentage contributions to the change in the gross profit rate of the current-

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[29] See, e.g., Armstrong, Glyn, and Harrison (1984: 461) and Weisskopf (1992: 35; 1988: 73)

price output-capital ratio and the gross profit share will be 100 per cent.[30] The dominant contribution in the direction of the profit rate change is underlined. A negative contribution means that the variable is acting to counteract the profit rate change, in whatever direction that may be.[31]

TABLE 10.3

Contributions (%) to Changes in the Private Business Gross Profit Rate

YEARS		ACTUAL CHANGE IN GROSS PROFIT RATE	CAPACITY USE	RELATIVE PRICES	OUTPUT-CAPITAL USED RATIO	GROSS PROFIT SHARE
FROM	TO	$\Delta(GP_c/K_c)$ %	(K_u/K) % contribution	(P_y/P_k) % contribution	(Y/K_u) % contribution	(GP/Y) % contribution
(i) Long-run						
1960-65	1985-90	-9.63	-5.91	-9.70	96.09	19.67
1965-70	1985-90	-8.49	-2.43	-2.45	88.00	16.99
1960-65	1990-94	-9.79	-3.39	-26.77	103.55	26.74
1965-70	1990-94	-8.65	0.28	-21.49	96.43	24.86
1960-74	1982-94	-8.63	0.70	-10.63	88.06	22.05
(ii) Phase to phase						
1960-74	1974-82	-7.16	-0.88	-0.40	70.37	31.82
1974-82	1982-94	-1.47	7.34	-51.31	157.30	-16.18
1960-65	1975-80	-8.87	-3.73	-6.70	75.61	34.68
1975-80	1985-90	-0.76	-26.01	-37.46	285.27	-118.90
(iii) Peak years						
Long-run						
1964	1994	-10.79	-4.85	-23.04	97.44	30.45
1964	1990	-9.56	-11.77	-19.84	103.28	28.33
Successive						
1964	1973	-3.94	-26.28	-33.43	114.09	45.62
1973	1980	-6.12	8.60	19.85	56.24	15.30
1980	1990	0.50	126.20	329.53	-339.86	-15.87
Phase						
1964	1980	-10.05	-3.25	1.76	75.89	25.60
1980	1994	-0.74	-21.77	-284.90	325.03	81.64

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

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30 The method is precise for single-year data but is only approximate for data averaged for a number of years. See Chapter 9§6 n. 72, which explains that the level of precision for averaged data can be seen by how closely the per cent contributions add to 100%.

31 This convention for underlined figures and those with negative signs will be maintained throughout.

Long-run contributions to profit rate changes are given in the first segment of Table 10.3. Only averaged data are given in this part to try to eliminate single-year idiosyncrasies. The earliest date for capacity use data is 1959, which explains why 1960-65 is the earliest period shown in the table.[32] Readers are reminded also that the statistical method used in this table is different from that used in Tables 10.1-10.2, which examined the forces acting on the profit rate on average *within* a period. This segment of the table models the forces acting to change the average profit rate *from* one period *to* another.[33] Long-run evaluation bears out the results of the intuitive approach of earlier sections, with the main variables of the rising composition and falling profit share approaches dominating the view offered. The relative price counter-tendency operates, but it has little effect in the longer run. Explanations pivoting on capacity use problems obtain little obvious support from the results.

If it is correct to discern three different phases in the long-run profit and accumulation data, then it will be useful to compare them successively so that some of the changing patterns may be identified. One such comparison (1960-74 to 1982-94) was given in the long-run segment of Table 10.3. The successive phase results are given in the second segment of the table. Since my choice of years may be open to challenge, six-year average data characteristic of the better years of each phase are also contrasted. The effect on the data of allocating the relevant recession to the beginning of each phase is thereby negated. Similar results to those in the long-run data are evident, with the output-capital used ratio and the gross profit share being the most influential ratios. Also notable is that the gross profit share plays a greater role in the transition from the first to the second phase (1960-74 to 1974-82).[34]

Another way to allay possible concerns over my choice of years and, consequently, the distorting effects of recessions and other events, is to evaluate the changes between peak years of cycles. Peaks may be nominated using either rate of profit or capacity use series. Most peaks are about one year out of phase

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[32] Similar results, however, may be gleaned from the contributions of the current-price output-capital ratio and the gross profit share for changes that begin with 1949-55 and 1955-60 data.

[33] See Chapter 9 n. 72.

[34] This role is registered much more strongly by the labour method of dealing with self-employment income, especially if net variables are used as well. See Table A1.3 in Appendix 1.

between the two series. Hence, I have used both series and some interpretive licence.[35] The third segment of Table 10.3 offers an evaluation for the years selected (1964, 1973, 1980, and 1990). The table allows us to evaluate the long-run changes between peaks, changes between successive peaks, and changes between the peaks of the three phases. Again, similar results are achieved.

Rising composition and profit squeeze perspectives have emerged as the dominant explanations so far. This correlates generally with the most well known Marxist empirical studies internationally, but the specific emphasis given here to the output-capital ratio(s) over the profit share is distinctive. In particular, Weisskopf's 1979 and Bowles, Gordon and Weisskopf's 1980s studies of the US data, Armstrong, Glyn, and Harrison's 1984 and 1991 analyses of profit rate changes in advanced capitalist countries, together with Glyn's 1991 and 1992 studies, reverse the emphasis and focus on the profit share.[36] Weisskopf's 1988 and 1992 contributions, which were discussed in Chapter 8§6, are an exception.[37] While contrasts between countries should not be ignored, I think that the substantive analytical differences can be explained by the use of net variables and the labour method of accounting for self employment being in the international studies. Indeed, if these choices are applied to the Australian data, precisely the same inversion occurs and the declining profit share becomes the weightier tendency influencing the profit rate (see tables in Appendix 1 and the accompanying explanation).

Another feature of the most influential Marxist empirical studies internationally is that they all have endeavoured to explain the end of the long post-WWII economic boom. The data I have assembled in Table 10.3 have been rather more wide-ranging. Furthermore, the Marxist theories being examined here each claim a privileged ability to explain crucial changes, transitions, or turning points in the

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[35] See the private business table in Appendix 3 (C22, C31, C41).

[36] See, e.g., the data given by Howard and King (1992: 320, Table 16.1), Weisskopf (1979: 351, Table 2), and Armstrong, Glyn, and Harrison (1984: 246 Table 11.5, 254 Table 11.7, 257 Table 11.8). Note that there are some differences between the latter data and those in Armstrong, Glyn, and Harrison (1991: 181 Table 11.6) and Glyn (1991: 143 Table 8.1).

[37] Relevant data here are Weisskopf (1992: 28 Table 2.1; 1988: 79 Table 1). I will not go beyond the limited discussion in Chapter 8§6, except to make two points: (i) the target of Weisskopf's recent work is manufacturing industry, as opposed to private business generally; and (ii) he has used different variables and methods than in the past with which make his calculations. These differences no doubt have influenced the results. (ii) I have used

economic fortunes of capital. The 1960s-1970s transition is surely the most significant of our half of the 20th century, so the ability of the theories to explain it is another important, though more specific, test for them. Therefore the next section will explore the end of the boom in Australia, while §5 will use a similar approach to target the early 1980s and 1990s crises. Along the way the relative performance of rising wage and lagging productivity variants of theories that emphasise the declining profit share will be analysed.

4 Explaining the End of the Long Boom

(i) Overall causes

The descent of the Australian economy from the boom of the 1960s into the relative stagnation of the following decade may be evaluated in various ways. I will use the peak profit years, 1964 and 1973, and the high profit and capacity use year, 1970, as markers in my evaluation. Six-year overlapping averages are also used to assess the substantial decline in the rate of profit that occurred. **Table 10.4** shows the per cent contribution of the four key variables to the decline in the gross rate of profit over the period.

Immediately reiterated are the dominant parts played by the output-capital used ratio and the profit share, to the virtual exclusion of the other variables (relative price changes had some effect in the short run). Also transparent is that these data stress the profit share and the distributional struggle more than did the those in Table 10.3. In fact, all the measurement techniques detailed in Appendix 1 agree that the declining profit share had a bigger impact during this transitional period than it did for the post-WWII years as a whole, *a fortiori* if net labour measurement is used (see tables). In particular, the short-run influence of the profit share is emphasised for some of the years nearing the recession. Yet it is also true that the declining output-capital used ratio exerted a sustained downwards force on the profit rate over the whole transition period as a whole, even if net labour variables are used.

TABLE 10.4

1960s to 1970s Contributions (%) to Changes in the Private Business Gross Profit Rate

YEARS		ACTUAL CHANGE IN GROSS PROFIT RATE	CAPACITY USE	RELATIVE PRICES	OUTPUT-CAPITAL USED RATIO	GROSS PROFIT SHARE
FROM	TO	$\Delta(GP_c/K_c)$ %	(K_u/K) % contribution	(P_y/P_k) % contribution	(Y/K_u) % contribution	(GP/Y) % contribution
(i) Marker years						
1964	1974	-5.40	-19.51	-11.29	86.44	44.36
1970	1972	-2.93	6.43	-0.33	46.91	46.99
1970	1973	-1.63	-0.76	-35.56	110.00	27.32
1970	1974	-3.10	-1.94	1.87	65.91	34.16
1970	1975	-6.81	3.59	3.44	44.49	48.47
1973	1974	-1.46	-3.18	42.06	19.80	41.32
1973	1975	-5.17	4.77	14.27	26.76	54.20
(ii) Period averages						
1960-65	1970-75	-3.99	-21.83	-26.68	104.69	47.30
1965-70	1970-75	-2.84	-15.80	-10.86	80.15	48.39

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

Some of the data applicable to the 1974-75 recession itself need to be interpreted carefully so that effect is not turned into cause. Not only do profits collapse in recessions, as orders are cut and bankruptcies ensue, but surviving firms may tend to hoard rather than shed labour in relation to their level of output. These effects of the recession will usually see the profit share and capacity use drop sharply (see Charts 10.7 and 10.9). The opposite normally happens in the early stage of recovery. Productivity also experiences such effects, accentuating the trend in the profit share, as Armstrong, Glyn, and Harrison note in the context of the international data:

> "Falls in capacity utilization held back productivity, especially in 1974-5 and again in the early 1980s. The underutilization of capacity (visible in the fall in the output-capital ratio) also involved underutilization of labour. Much

> overhead labour, such as sales and office staff, is not reduced when output falls, and production workers are not automatically dismissed. The labour force will only be trimmed appropriately when the decline in output is expected to persist, when costs of dismissals, such as redundancy payments, are thought worthwhile and when the opposition of the workforce can be overcome. Many companies opt to cut back only slowly via so-called natural wastage (not replacing workers who retire or leave). In the meantime, productivity is depressed."[38]

While such effects of a recession exaggerate the fall in the profit share, the actual increases in the real wage *rate* that occurred just as the economy was moving into recession were clearly independent causes of its decline. The data show that real (product) wages for the year ending June 30, 1975 grew by 9.78% over those for the previous year. Australia, too, had its version of the "coincidence of the European 'wage explosion' with the onset of the crisis."[39]

It is reasonable to conclude overall that a falling profit share, especially as this became pronounced in the early-mid 1970s, contributed significantly to the end of the long boom in Australia. Marxist theories espousing this view of the transition from the sustained growth of the 1950s and 1960s to the relative stagnation of the 1970s and beyond obviously are partly corroborated by the Australian data. However, the common rejection by profit-squeeze theorists of the contribution of the rising composition of capital is clearly not supported by the evidence. This applies forcefully in the longer run, but it is also true for the transition from boom to stagnation. Indeed, it is reasonable to conclude that a declining ratio of output to capital used was at least as significant as the profit share if the time-scale is stretched just a few years back towards the late 1960s, at the start, and into the mid-late 1970s recovery from the recession, at the other end.[40]

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[38] Armstrong, Glyn, and Harrison (1984: 346-47). See the discussion in §5. See also equation (10.4) in §2 and the discussion in Chapter 11§6. It has been argued that the 1991-93 recession contained a strong element of labour-shedding in contrast to previous crises (RBA 1992).

[39] Bowles, Gordon, and Weisskopf (1984: xvii).

[40] This statement does not just rely on my data choices, as is demonstrated by the comparing, e.g., the 1960-65 to 1970-75 contributions to the change in the net and gross profit rates under all methods of treating self-employment income (Tables A1.1-1.2) and the net, labour, gross, and adjusted combinations for 1960-65 to 1970-75 and 1965-70 to 1970-75 (Table A1.3).

In light of the above reflections on the profit (*ipso facto* wage) share, it is impossible to concede any place for the underconsumption variant of demand-side Marxism. The first-order condition this perspective *must* meet is a rising rate of exploitation leading to the turning point from boom to stagnation. Chart 10.9 shows that this just did not happen. It is also notable that capacity use rose on average until the recession hit, which is why it contributed little to the falls in the gross profit rate analysed in Table 10.4 (see also Chart 10.7). It can be shown that the decline that did occur in the corporate sector's investment performance from the very high levels preceding the transition was mainly due to the decline in the availability of internal finance, and that this decline was due to the declining profit rate over the transitional period.[41] As I have demonstrated above that the decline in the rate of profit stemmed from causes contrary to demand-side expectations and explanations, unreconstructed versions of this variant of Marxist theory fail to offer a credible explanation of the actual course of events in Australia in the 1960s and 1970s (see Chapter 6§6).

(ii) Why did the profit share fall: rising wages or lagging productivity?

The fall in the profit share was significant, so an appropriate question to answer is which of the two Marxist explanations of overseas falls in profit shares best fits the Australian circumstances. It is not much help here to analyse per cent contributions to the fall in the share. These numbers will only demonstrate what we already know: the proportionate change in the wage rate was greater that in labour productivity (see Table 10.1). By themselves they do not say which variable changed most to influence the result. Another problem is that data for these variables fluctuate from year to year, and a limited selection of years can give a skewed perspective. For these it will be useful to smooth the data and to set them in a longer-run context.

Chart 10.10 portrays average annual percentage changes in the real wage rate and labour productivity using a five-year moving average centred on the year shown. The chart gives an average of adjusted and labour method data for labour

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[41] See the discussion in Chapter 11§§2-4.

productivity, percentage changes in which are reasonably close at any rate. By definition the wage rate is the same according to both methods. When the wage rate line is higher than that for labour productivity, the profit share will fall, and *vice versa*. Insight is obtained by observing the trends in the transition period compared with other periods.

CHART 10.10

Behind the Movements in the Private Business Profit Share

Source: Appendix 3. 5-year moving average annual %Δ in the hourly real wage rate (C44) and labour productivity (average of adjusted and labour methods C46, 138). % (smoothed)

Labour productivity growth does not really exhibit the sort of decline in attributed to the US economy in the period before the 1974-75 recession by Bowles, Gordon, and Weisskopf. Instead it tends to increase somewhat beforehand and taper off afterwards.[42] In contrast, real wage growth increases from its previous trend in the decisive years. The growing cleavage between the two trends caused by the increasing proportionate growth in wages up to the mid-1970s is thus the best explanation of the fall in the profit share in Australia towards the end

[42] Note that 5-year moving averages are used in this chart. Annual % changes and 3-year moving averages confirm that productivity growth remained high right up to the recession.

of the post-WWII boom. The position associated with Armstrong, Glyn, Harrison, Sutcliffe, *et. al.*, is the stronger one in the Australian case.

However, the rising wage position hangs on the theory of a falling reserve army of labour: i.e., low (or declining) unemployment and a tightening in other sources of labour (traditional agriculture, women employed in the home, etc.). Behind this is overaccumulation: increased intensity in the demand for labour consistent with high and sustained levels of capital accumulation (see Chapter 8§3). Australian Bureau of Statistics labour force data do show a conjunction of sustained low unemployment and increasing participation rates in the key years and add weight to the argument that labour demand peaked in Australia in the period during which wages grew the most.[43] This should not be seen as an automatic process. It can partly be put down to "the lagged effect of sustained high employment" and elevated working class aspiration and organisation, as Howard and King's critical remarks on Armstrong, Glyn, and Harrison suggest was the case in Britain.[44] In Australia, this had a direct reflection in the increased industrial militancy of the late 1960s and early 1970s, the O'Shea strikes of 1969 and the major pay campaigns of 1969-74 being prime examples.[45] It was also partly reflected in the politics of the period, including the election and some of the policies of the Whitlam Labor government.

It should be obvious that the profit-squeeze was significant. However, a word of warning over interpretation is also necessary. Official government and neoclassical versions stressed the so-called "real wage overhang" as *the cause* of Australia's economic woes and, in particular, of increased and sustained unemployment.[46] Such assessments persist today.[47] The "overhang," an increase in real unit labour costs above a given datum, corresponds to an increase in the wage share. This rise undoubtedly occurred, but it was only *part of* the cause of the decline in the rate of profit and the end of the boom: the falling output-capital ratio (rising composition

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43 See, e.g., Foster and Stewart's Table 4.3, which summarises the labour force data (1991: 151).

44 Howard and King (1992: 321), referring to Armstrong, Glyn, and Harrison (1984) and its perceived differences of emphasis with Glyn and Sutcliffe (1972).

45 R. Martin (1980: 17, 21-24, 112-15).

46 See, e.g., Corden (1979). See also the critical discussion in King (1990a: 168-69, Chapter 10). See also and Perry (1987) and Chapman (1990: 34-37).

47 See, e.g., Grenville (1990: 1, 3-4, 6).

of capital) must not be ignored. Furthermore, other factors must also be taken into account to put the profit-squeeze into context:

> "... Marx sometimes argued that relative shares are indeterminate, since there is no floor to profits in the way that a minimum real wage is set by the physical subsistence requirements of workers and their families. The rate of exploitation then becomes a function of the class struggle over wages, work intensity and the standard working day. In Marx's own words, 'the matter resolves itself into a question of the respective powers of the combatants'[48]...
>
> "In the 1970s this neo-institutionalist strand in Marx's thought was used to explain the world-wide 'profit-squeeze', in which the property share was reduced by aggressive bargaining on the part of organised labour in a 'hard' product market environment where international competition made it impossible for corporations to raise prices fully to compensate for higher wage levels (Glyn and Sutcliffe 1972). Riach and Richards (1979) identify several factors specific to Australia which made it very difficult for employers to pass on the big wage increases of 1974 in their entirety. These included the tariff cuts of the previous year, a 20 per cent appreciation of the dollar beginning in 1972, and the Whitlam [Labor] government's Trade Practices Act and the Prices Justification Tribunal."[49]

It is also relevant to point out that the orthodox "real wage overhang" position is indissolubly connected to the broader (neo-)classical analysis of unemployment and labour market theory. In particular, the main "solution" it generated was to reduce wages and to implement other measures to restore the profit share (e.g., restructuring workplaces to lift productivity).[50] This policy focus has been dominant in Australia since the end of the long boom, first under the Fraser Liberal government and then, through successive corporatist Accords with the trade union

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48 *Wages, Price, and Profit* (*SW*: 73).

49 King (1990a: 179-80).

50 See the post-Keynesian criticism of the "real wage overhang" argument by Riach and Richards (1979). See also King (1990a: 200), who also cites the criticisms by Aspromourgos (1987) and Stegman (1980). See the Marxist criticisms of orthodox approaches to unemployment by Cherry (1987), Glyn (1992: esp. 92-95), Green (1987), and Green and Sutcliffe (1987: Chapter 18).

movement, under the Hawke and Keating Labor governments of the 1980s and 1990s. The problematic nature of this approach is demonstrated by noting that the increase in the profit share during the 1980s and 1990s (see §5) has been accompanied by an upward trend in unemployment (see Figure 10.5 and note that, from 1991 to 1995, the successive June unemployment figures were 9.4%, 11.1%, 11.0%, 9.9%, and 8.3%[51]).

5 The 1980s and 1990s

(i) The phase as a whole

From the mid 1970s capital set about resuscitating the profit share and the profit rate. This effort intensified following the period of stagnant growth in the late 1970s, a period that was characterised by comparatively low levels of capacity use. The wages and industry-restructuring policies of the 1980s and 1990s have had some success for businesses but not for the working class, whose pay packets suffered relatively and who found themselves structurally unemployed and deskilled in increasing numbers. The private business profit share has increased, though it must be said that its growth has not been spectacular (see Chart 10.9 and Table 10.2). Its average for the years 1985-90 was 2.26% higher than that for 1975-80, a growth of 5.40%.[52] Some success has also been registered by in slowing down the decline in the output-capital ratio (see Chart 10.8 and Table 10.2). For example, the output-capital used ratio declined by 5.66% from the 1975-80 average to that for 1985-90, compared with 12.53% from 1965-70 to 1975-80 (an 11.86% fall compared with a 20.81% fall).[53]

Why has the profit share risen in the 1980s and 1990s, despite it being pulled down sharply by two severe crises during this time (1982-83 and 1991-93)? **Charts 10.11** and **10.12** complement Chart 10.10 by showing both the annual

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51 (ABS 6203.0).

52 The years chosen do not contain recessions. Figures here use my adjusted data, which also give a slight profit rate fall. Net labour method data give a 2.47% increase, or a growth of 18.25%, and a slight increase in the profit rate. See Appendix 3. Again, these discrepancies underscore the message of Appendix 1 that care should be exercised in drawing conclusions from data entirely generated by one method of accounting for changes in self-employment and the exclusive choice of net or gross variables.

53 Adjusted data are used here (see also Table 10.2). Net labour data are reasonably close.

CHART 10.11

Private Business Real Wage Rates and Labour Productivity: 1979-94

Source: Appendix 3. Hourly real wage rate (C44) and labour productivity (average of adjusted and labour methods C46, 138). % (smoothed)

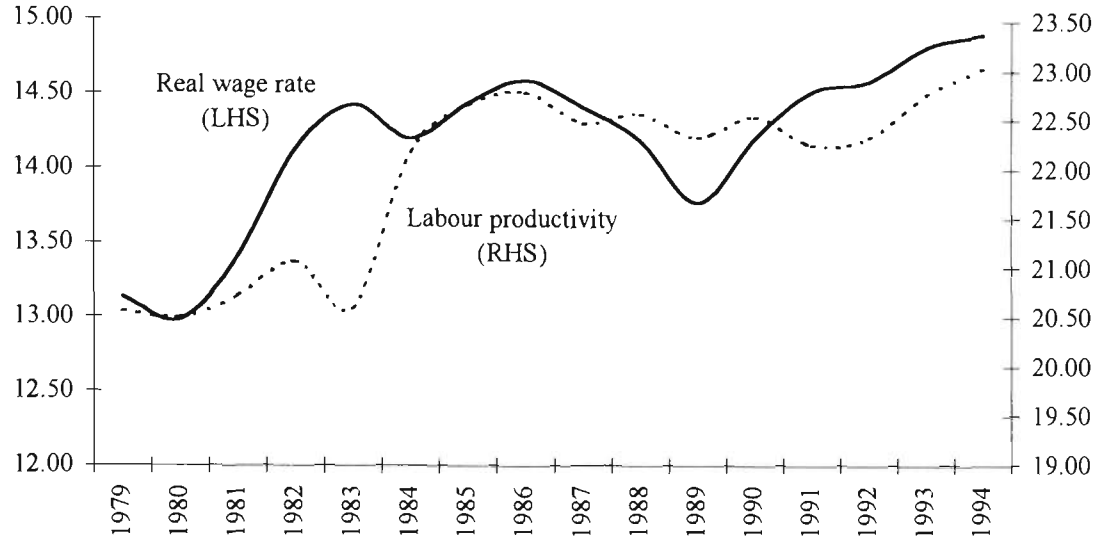
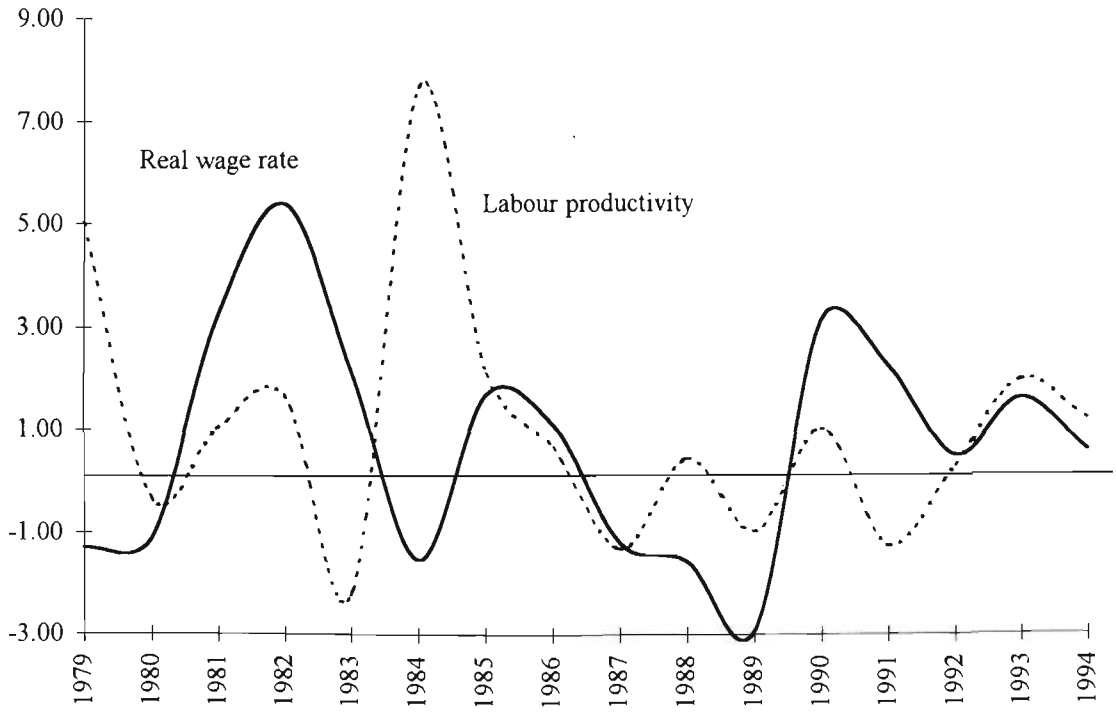


CHART 10.12

Annual Growth in Private Business Real Wage Rates and Labour Productivity: 1979-94

Source: Appendix 3. %Δ in the hourly real wage rate (C44) and labour productivity (average of %Δ of adjusted and labour methods C46, 138). % (smoothed)



percentage changes in, and the actual data for, labor productivity and the real wage rate from 1979. Since labour productivity growth can be seen to be weak, especially from the mid 1980s to about 1992, the reason for the overall increase in the profit share has to be the slightly weaker growth in real wages that is also evident. However, unlike the period before the 1970s slump, the dominant role of one variable is not so obvious. Cyclical patterns, in contrast, are a stronger feature of both charts.

The productivity slowdown in Australia since the 1970s is strikingly illustrated by contrasting the data for the successive phases that have been used throughout this chapter (1949-74, 1974-82, and 1982-94). Between 1949 and 1960, the average annual percentage growth in private business labour productivity was 2.15%; for 1960-74 it was 3.14%; for 1974-82 it was 1.71%; and for 1982-94 it trailed at 0.81%.[54] A similar trend has been identified internationally. An explanation for it is given by Glyn in his assessment of 1980s trends in advanced capitalist countries:

> "A slowing down of the pace of investment not only represents slower growing demand, but also hampers productivity growth. On average, the much slower productivity growth of the ... [1973-79] period was no more than maintained, and in Europe generally productivity growth declined."[55]

Chart 10.6 in §1(ii) gave data on the rates of accumulation prevailing in each of the phases for which average labour productivity growth rates were given immediately above. These reduced rates of accumulation and investment have contributed to the Australian productivity slowdown in a similar fashion to other comparable countries.

Another interesting question to answer is why has the decline in the output-capital used ratio been less dramatic in the 1980s and 1990s? The *prima facie*

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54 Adjusted data are used here (see also Table 10.1). Net labour method figures are also reasonably close in this case.

55 Glyn (1992: 90). His Table 10 gives the following figures for average annual % growth in business labour productivity for the periods 1960-73, 1973-79, and 1979-90: USA (2.2%, 0.0%, 0.5%); Japan (8.6%, 2.9%, 3.0%); and Europe (4.2%, 2.3%, 2.2%). Dwyer presents similar Australian and international data (1995: 3-4), as does EPAC (1989: 12). See also Lowe (1995: 100-03).

reasons for the change in the output-capital used ratio (Y/K_u) are that the capital used-labour ratio (K_u/L) falls or that its proportionate growth rate is less than that in labour productivity (Y/L). The performance of labour productivity during this time means that we can exclude the explanation that strong labour productivity growth has outstripped the hitherto "normal" trend increase in the capital used-labour ratio. Hence the probable cause lies with the behaviour of the latter ratio. **Chart 10.13** shows the annual percentage changes in both ratios from 1974.

CHART 10.13

Annual Growth in the Private Business Capital Used-Labour Ratio (Capital Intensity) and Labour Productivity: 1979-94
Source: Appendix 3. %Δ in adjusted ratios (C46, 48). % (smoothed)

A trend decline in the rate of growth of K_u/L can be observed, and it is especially noticeable through the later 1980s. This trend is even clearer from the longer view provided by Chart 10.7. Moreover, Chart 10.13 shows that the gap between the proportionate growth of K_u/L and Y/L not only narrowed, but the growth rate of K_u/L actually became negative in 1987 and 1989 (i.e., the ratio itself falls). Cyclical patterns are also apparent from the chart. It is difficult to say whether the rise in the rate of growth of K_u/L in the early 1990s, followed by a decline in 1994, will

repeat the patterns following the previous crises.[56] (The behaviour of the output-capital used ratio will be explored further in §6.)

(ii) Patterns in Australia's recessions

Similar patterns to those contributing to the end of the postwar boom can be detected in Australia's two subsequent acute crises. As from 1974 to 1975, the onset of the later recessions was marked by a drop in aggregate *annual* output: from 1982 to 1983 and from 1990 to 1991 and 1992. In the first two cases, the *annual* rate of profit had started a cyclical descent from an earlier cyclical peak: 1973 and 1979-80, respectively (see Appendix 3). The behaviour of the profit rate in 1990 is not so clear from these data, an issue that will be discussed further in Chapter 11.

TABLE 10.5

1980s and 1990s Contributions (%) to Changes in the Private Business Gross Profit Rate

YEARS		ACTUAL CHANGE IN GROSS PROFIT RATE	CAPACITY USE	RELATIVE PRICES	OUTPUT-CAPITAL USED RATIO	GROSS PROFIT SHARE
FROM	TO	$\Delta(GP_c/K_c)$ %	(K_u/K) % contribution	(P_y/P_k) % contribution	(Y/K_u) % contribution	(GP/Y) % contribution
(i) 1980s						
1979	1981	-0.49	-30.30	-56.03	136.01	50.32
1979	1982	-1.80	5.05	-13.81	47.58	61.19
1980	1981	-0.50	-35.62	-24.11	63.57	96.16
1980	1982	-1.82	3.34	-5.67	29.04	73.29
(ii) 1990s						
1988	1990	1.47	19.09	88.87	44.49	-11.54
1988	1991	-0.12	306.18	-1377.86	375.29	796.40
1989	1990	0.05	147.62	1029.32	80.03	-1156.97
1989	1991	-1.54	37.88	-52.87	30.49	84.50
1990	1991	-1.59	40.94	-22.76	31.87	49.96

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

[56] Lowe (1995: 103-06) makes a similarly reserved comment concerning productivity growth in the 1990s, but doubts if it will be as depressed as it was during the 1980s.

Table 10.5 gives a number of percentage contributions to the changes in the gross rate of profit for key years so that we may try to detect the relative influence of each key ratio.[57] Note that the contribution of the gross profit share to the decline in the profit rate for any change that includes the years 1982 and 1991 will be somewhat exaggerated, since the recessions actually began during those years. Once a profit collapse starts to occur in a crisis, and the contrast becomes one between peaks and toughs, the comparison must be regarded cautiously.[58] This is why annual data such as these are not so well suited to intricate analysis of recessions. I will look at other aspects of the 1980s and 1990s in Chapter 11 but, with caveats duly noted, the data do licence some conclusions.

As in the 1970s recession, the output-capital used ratio was less influential than the gross profit share in the pinch before each crisis. The profit share was the dominant influence on the fall in the profit rate from 1980-81, for example, and it was also the strongest negative influence for 1989-90, though the actual change in the profit rate was quite small in this instance.[59] An important difference from 1974-75 was that the profit share only fell in the year or so before the 1982-83 and 1991-93 crises. Before 1974-75 it had been falling on average over a longer period.

These remarks do not, however, warrant us to prematurely anoint the profit share, or even the short-run fall in the rate of profit (before interest and tax) in the year before each crisis, as *the* cause of each crisis. Such an argument would be difficult to sustain for the 1991-93 slump, at least.[60] What is reasonable to say is that the *short-run* falls in the profit share contributed. Yet so also did the *long-run* downward paths of both the output-capital used ratio and the profit share, in that their declines have severely cramped the profit rate's short-run margin of safety. Moreover, only when all these factors are considered in their interaction with, for example, crucial financial variables, government interest rate and fiscal decisions,

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57 The same caveats concerning measurement choices outlined for Tables 10.1-10.4 apply here. See Appendix 1 and cf. the data in Table A1.3.

58 See the comments in §4 and the passage from Armstrong, Glyn, and Harrison (1991, 1984) quoted there.

59 My adjusted data have the gross profit rate rise by 0.05%, while the net labour data have it fall by 0.34%. See Table A1.3 in Appendix 1.

60 See Table 10.5 (1989-90). See n. 59. While official sources point to the contribution of wages growth in the 1982-83 recession, they do not for 1991-93. See, e.g., RBA (1992: 9-10), EPAC (1992a; 1992c: 3), and Lowe (1995: 105). Cf. Corden (1992: 349).

and international economic developments, can a full assessment be made of *crisis actuality*.[61]

It is reasonable to say, on the other hand, that the conjunction of a falling profit share and a rising level of capacity use before the 1982-83 and 1991-93 crises does weigh heavily against the cyclical underconsumption explanation in Australia. Charts 10.10-10.12 show that a jump in wages growth as the economy peaked was the reason the profit share fell in the year before each of the 1982-83 and 1991-93 crises.[62] Also worrying for demand-side views in general is that the rates of investment and accumulation remained relatively strong until the crises were under way.[63]

6 Some Theoretical Proposals

The importance of the long-run decline in the output-capital ratio has been proposed in this chapter. Yet the underlying technical and social reasons for its decline are not an easy matter to explain. Neither Marx nor anyone else has given an adequate explanation of why it would fall. Okishio *per contra* gave reasons for expecting it would not fall if innovating capitalists sought and achieved a higher rate of profit on their investments. Laibman and Shaikh examined cases in which the social average output-capital ratio were assumed to decline. The former explained the process whereby an innovating capitalist may still achieve a higher profit rate, while the latter argued that a lower but individually advantageous profit rate would be the innovator's target.[64]

In the face of these diverse possibilities, I think that *some* understanding of the behaviour of the output-capital ratio can be sought by turning the question around: why is it that the there are periods (or years) in which the output-capital ratio

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[61] See the corresponding remarks in §4 and the discussion of crisis in Chapter 5§6.

[62] As I pointed out in §4 (King 1990: 179-80), for an increase in wages to translate to an increase in the wage share there *must* also be other factors operating that prevented capitalists from compensating by raising prices. See also the discussion in Chapter 8§3.

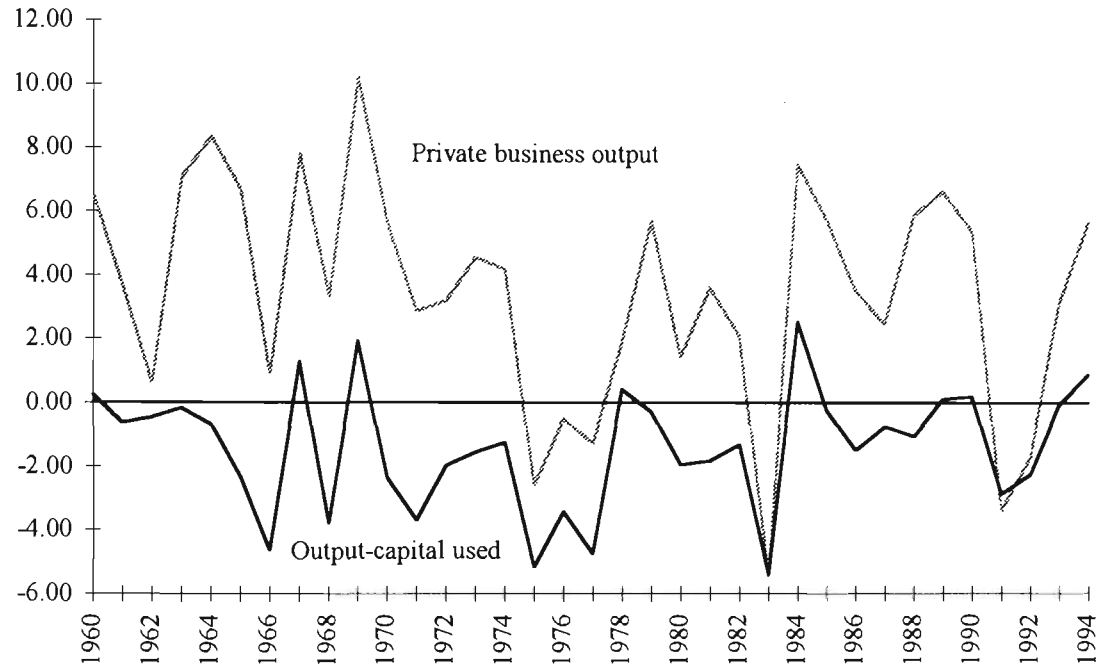
[63] See the private business (C49, 51) and corporate (C28, 29, 49, 51) tables in Appendix 3. See also King (1995c: 469), who formulates his critical remarks of Steindl's view of the 1970s crisis in a similar way to the argument in this paragraph.

[64] See Chapters 5§3, 7§§5-7, and 8§4.

remains constant or can rise? The fact that it can do so was clear from the previous section, and a review of Chart 10.8 shows that the 1960s also contained a number of years in which it remained constant or rose. I will focus on the output-capital used ratio in the following discussion, as this is the most basic form of the ratio (see §2). The discussion will be relatively complex, but some useful arguments will arise.

CHART 10.14

Annual % Change in Private Business Output and Output-Capital Used
Source: Appendix 3. Adjusted for self-employment income (C26, 43). %



Part of the answer to why the output-capital used ratio has increased at times can be found in the observation that it responds quite closely to the level of output growth. **Chart 10.14** shows that this is true cyclically and also when a relatively high level of growth is sustained for a number of years. Now, it is vital to understand that the output-capital used ratio (Y/K_u) has already been adjusted for capacity use. This means that its denominator, and not just its numerator, grows with the rate of output growth. The reason is that buildings, plant, and equipment are used more as actual output approaches its potential.[65] Indeed, were nothing

[65] This follows from the linked peaks method of estimation (ABS 1343.0). See Appendix 2, Chapter 9§2(ii), and §2 above.

else happening it would be fair to assume that output and capital used would be affected in equal measure. In this case the output-capital used ratio would be unaffected by economic growth, merely continuing along the trend established by the underlying social and technical determinants of "capital productivity." However, the fact that the output-capital used ratio falls least, stabilises, or even rises when growth is strongest, and *vice versa*, means precisely that other things *are* happening and that it is also governed by the economic cycle and longer-run growth developments.[66]

To understand why, we need to examine quite closely how the rate of economic growth affects the constituents of the output-capital used ratio: labour productivity (Y/L) and the capital used-labour ratio (K_u/L) (see equation 10.3). It will also be useful for the reader to review Charts 10.7, 10.10, and 10.13. First, let us look at labour productivity growth, which rose before each crisis, more strongly before 1974-75 and less strongly before 1991-92. This rise is not surprising, as it would be expected that each hour of labour time would be used more intensively to meet the rising demands of production. Supervisors' exhortations to lift the work effort may or may not be resisted, depending on the prevailing set of class relationships and industry circumstances. However, it is normal for idle time to be reduced, inventories to be turned over more quickly, and machinery to be used more intensively and with less "down-time." Some machines also perform more efficiently at higher levels of output and with longer production runs. Programmed machine operating cycle times may be shortened as well, sometimes optimally and sometimes beyond their optimal (long-run) limit. Entire production lines, and the workers on them, can be subjected to speed-up.[67] Such causes of increases in output per labour hour are different from the increases in the hourly intensity of labour associated with a decline in labour-hoarding (dishoarding), which are usually felt in the early-mid phases of an upswing. However, both effects help to

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66 Another way of saying this is that the social and technical production conditions are themselves shaped by the level of economic activity. I take this to be contrary to the expression of the problem by Steindl, who writes "the capital-output ratio in terms of its two components, the capital-capacity ratio and the degree of utilisation," but who also says that "[t]he former is given by technology, while the latter is determined by the state of effective demand" (King 1995b: 469; citing Steindl 1990b: 111). In my view the former is not merely given by technology.

67 See (*Capital III*: 339-40).

explain why labour productivity tends to move "pro-cyclically: it rises when employment and output are increasing, and falls when they decline."[68]

Yet we also know from the preceding analysis that labour productivity was not the most significant influence on the output-capital used ratio. The capital used-labour ratio was more influential overall. The second task then is to understand how this ratio behaves cyclically, especially in the lead-up to crisis. One fact about this ratio must be registered at the outset: from 1967 onwards it is measured as the stock of fixed capital used to the *annual flow of labour hours* (henceforth K_u/L_f). This implies that there could be two conceptually separate causes of its change. It will help simplify the explanation to try to disambiguate these possible causes, even if this means separating analytically processes that are not so easy to separate in reality.

First, a change in K_u/L_f could be due to a sympathetic change in the stock version of the ratio, or units of capital per worker at any point of time in the working day (henceforth K_u/L_s). This is to say that the sort of slower growth in K_u/L_f that could help to explain the behaviour of the output-capital used ratio in periods of strong growth may be due to a relative decrease in capital intensity, a moderation in the upwards trend in the technical composition of capital. An increase in normal-shift employment would give this result if its aim were to extract more production from the operating capital stock: i.e., to use it relatively more *intensively*.[69] Second, the sort of change in K_u/L_f we are endeavouring to explain could be due to an increase in the *extensive* use of the existing capital stock, with K_u/L_s unchanged.[70] One example of extensive use will not affect the output-capital *used* ratio: an increase in the number of workers employed on normal shifts specifically to reactivate idle plant. However, the amount of output-capital used would be affected if businesses were to extend normal working time, either by increasing the overtime or part-time

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[68] King (1990a: 25-26), citing Bosworth and Westaway (1987) and Mangan (1981) for evidence on labour-hoarding in Australia. See also Chapman (1990: 35) and the comments in §4 and n. 38. Dishoarding may increase the K_u/L ratio if idle plant is reactivated and the existing stock of workers is distributed across the larger stock of machines now in use. However, there will be no change in K_u/L in the case that, rather than there having been idle plant, the entire plant had been under-used and dishoarding increases the intensity with which it is used. In both cases, of course, the ratio K/L will not change.

[69] See n. 68.

[70] Though the context is different, in that Marx was discussing an intensification of the exploitation of labour due to lengthening the working day, it is interesting to consider the manner in which he entertained a similar possibility (*Capital III*: 340). See also Meek (1967b: 205 and n. 5, 207, 217).

hours worked by existing workers or, alternatively, by hiring additional workers to create extra shifts. By way of analogy, attention here is drawn away from the realm of relative to the realm of absolute surplus (value).

Regrettably, apart from statistics on overtime, which are clearly pro-cyclical,[71] it is difficult to extract reliable data on these developments. Nonetheless, it is worth speculating further about the extensive dimension of capital stock use. As most work happens in a normal day-time ordinary working shift of eight hours, there is no reason in principle that, with an elastic supply of labour (an heroic assumption that, deservedly, will be dumped shortly), the K_u/L_f ratio may not fall consistently. Within limits, new shifts and overtime may be extended across the remaining two-thirds of the day, increasing both employment and the number of labour hours worked annually. The corollary is that there is also no reason the output-capital used ratio may not fall, or may even rise consistently, irrespective of the particular changes in capital's technical composition or in hourly labour productivity.

Of course, the reality dimension of our collective imagination is being (ab)used extensively here, too. But credulity is no less extended by arguments that postulate a boundless potential for the rise in the labour-value composition of capital *pari passu* with a reduced role for the rate of exploitation the nearer it gets to infinity.[72] A little thought shows that both extensions of the imagination depend the aforementioned heroic assumption of an infinitely elastic supply of labour. In reality, broader population, international, technical, social, and historical conditions, which include the level of militancy and organisation of the working class, create a band within which the supply of labour is constrained to operate.[73] It is true that dishoarding of labour can provide a high elasticity of labour power in the early-mid phases of an upswing, but other factors assert their importance after then.

Incidentally, the arguments here about intensive and extensive use of the capital stock may be related to the one I advanced in Chapters 5§2(i) and 7§§1-2. There I

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71 (ABS 6330.0, 6354.0), Foster and Stewart (1991: 170-71).

72 Shaikh (1990c: 308). See also Chapter 7§4.

73 See, e.g., (*Capital III*: 324-25, 343-44) and Dobb (1937: 110-114, 121-26) for discussions of such themes.

maintained that to ignore Marx's *use*[74] of the turnover variable (n) can lead to problems in the interpretation and application of his theory. Even an increase in the single-turnover composition of capital (C_a/I) may not translate to an increase in the annual capital-aggregate value ratio (C_a/L), since $L = n.I$. The number of turnovers may increase so that a given variable capital may support a greater value of annual output (i.e., labour hours of "input"). Such a growing quantity of labour employed may be applied to production in a way that increases its labour intensity (i.e., reducing the technical composition from its trend). Taken too far, however, this may have deleterious consequences for the growth in labour productivity. On the other hand, a given variable capital may support an extensive increase in labour time. This would not necessarily affect labour productivity, nor would it necessarily change the trend in the (stock) technical composition, which can keep its labour-saving bias. To underscore the theoretical point, it is wrong to suppose a monotonic relationship between Marx's technical composition, value composition (a single-turnover stock-flow ratio), and the ratio of the value of capital to the *annual* flow of labour hours.[75]

The speculation about the output-capital used ratio should now be reconstructed within more sensible limits. The original question was why should it not be possible over longer periods for this ratio to rise or, at least, for it to be stabilised? An answer may be found by posing another question: why is it that the economy *has not* sustained the sorts of high levels of output and growth it actually does at some times? Throughout the postwar years crises and periods of lower growth have always intervened, causing the output-capital used ratio to decline more steeply. Chart 10.14 shows this clearly for the years 1974-78, 1982-83, 1991-93, and the years after the 1960s slump. This is why the downward course depicted by Chart 10.8 is "stepped" rather than being a steady gradient. The contradictions of capitalism, which manifest in crises whenever growth is pressed too far, thus

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[74] Emphasis is on "use." I think it is right to ignore the variable itself. See Chapter 3§5.

[75] Note that the technical composition of capital is best considered as a stock-stock ratio at a point of time. It translates to the value composition by: (i) estimating the number of labour hours needed to reproduce the physical embodiments of the capital advanced in an appropriate way for the turnover (e.g., start, finish, average, weighted average, etc.); (ii) multiplying the stock of persons (measured so as to correspond to the approach to capital in (i)) by an appropriate average of hours worked per person in the turnover times the real wage per hour; and, (iii) dividing (i) by (ii). However, see Chapters 2§3 n. 68, 3§3(i) n. 85, 5§2(i)-(ii) n. 22 and n. 28, and 9§2(ii) n. 43.

operate as a constraint that sets a periodic upper bound for the output-capital used ratio. Perhaps this solves the non-technological part of the riddle: it may be possible to bring about a rising or stable output-capital used ratio within existing social and technical boundaries, but not without simultaneously engendering over-accumulation.

Three theoretical points can be made about this perspective. First, the output-capital used ratio has less independent causal force than it would have in traditional rising composition explanations. Yet there is also no doubting that, having been constrained by over-accumulation, the ratio exerts a powerful negative influence on the profit rate. This then creates a considerably narrower margin within which growth can be pressed without it leading to over-accumulation. Effect can feed back as cause in a process of iterative decline. Second, there are good theoretical and practical reasons for thinking that, even if other crisis causes and triggers do not intervene beforehand, problems with labour supply will emerge eventually. Far from being infinitely elastic, the band within which labour supply operates is constrained, and labour is not perfectly mobile. The reconstitution of the reserve army has alleviated the problem to some degree, as has the more recent trend towards longer working hours for those with jobs,[76] and these have certainly helped capital to rehabilitate the profit share during the 1980s and 1990s. However, the increasing needs of modern industries for appropriately trained workers, together with the impediments presented by remaining labour market regulations and working class organisation, can weaken the effectiveness of unemployment as a weapon when the demand for labour increases rapidly.[77] On this account, the likely fall in the profit share as accumulation and growth are pressed hard against constraints in the labour market will contribute to the crisis through a profit-squeeze[78] and lead to reduced rates of accumulation and growth. This, in turn, can reinforce the capacity of the output-capital used ratio to act,

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76 See, e.g., Norris and Wooden (1996) and Painter (1996a,b).

77 See King (1990a: 199-200, 211). See also Glyn (1992: 94-95), especially concerning the emphasis of the OECD and the IMF on labour market deregulation and training. Cf. Mandel's (1981: 47; 1975: 271-72) criticism of Janossy concerning skills. Discussion of the extent to which "wage-pressures" build up at higher levels of unemployment has been a recurrent theme in recent official statements and studies on unemployment, wages, and the Australian labour market. See, e.g., Fraser (1995b: 7; 1995d: 22-24; 1994a: 14-16; 1994b: 18, 20; 1994c: 22-24).

78 Note also that an extensive increase in capital stock use usually brings with it an automatic increase in money wages in the form of shift penalties and overtime rates.

mutatis mutandis, as a principal long-run cause of the profit rate's fall (as it was between 1949-83) or constraint on its rise (as between 1983-94).[79]

Third, to recognise that the output-capital used ratio is partly determined by the rate of economic growth concedes a greater role to demand-side influences than if we concentrate on the capacity use ratio alone. In particular, it emphasises that a complete assessment of effective demand must integrate the role of government fiscal and interest rate policy, the terms of trade, exports, and other influences on economic growth. It also reveals the greater truth there is in the Kaleckian view that capitalists are, up to a point, controllers of their own fate through their decisions to invest (and consume).[80] Decisions not to invest during a downturn or in a period of stagnation would, *ceteris paribus*, have a deleterious effect on future profitability through the output-capital used ratio as well as capacity use. None of these arguments, however, reopens the debate on the end of the long boom or the two subsequent acute crises in Australia. Demand-side explanations say that falls in demand and growth that ensue from over-accumulation must be due to problems of realisation, which are caused by a prior fall in effective demand. Such a possibility cannot be ruled out *a priori*, but the Australian postwar evidence considered here suggests that events have not unfolded in this way. This, of course, is the acid test.[81]

* * *

Even though this chapter has covered many issues and has proposed a number of conclusions based on the Australian data, the analysis it presents of Marxist theories of profit, accumulation, and crisis is still seriously incomplete. The path from production of profit to its accumulation has yet to be travelled. We need to enquire more rigorously into the *prima facie* relationships between the rates of profit and accumulation that were established in §1, especially in Charts 10.3-10.5.

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[79] While the measurement choices discussed in Appendix 1 and Chapter 9§2(i) may well imply different choices of adjectives in this sentence (principal), the choice of nouns (cause, constraint) is soundly based and independent of measurement possibilities.

[80] The political business cycle framework of Kalecki and Lerner's model of functional finance, for example, *are* useful here, and not just as an antidote to market-liberal "solutions." Space does not permit further exploration of these themes.

[81] See the concluding remarks to Chapter 6.

The financial variables presented in Figure 9.1 and Chapter 3§3, as well as their influence, must still be encountered. Chapter 11, the final chapter, will examine these important dimensions of Marxist economics and give a more comprehensive account of Australian economic development since WWII.

11

From Profit to Accumulation

1 Overview of Significant Trends

Chapter 10 gave reason to think that we could get behind the production and realisation of profit and understand their determining forces. However, we are only part way towards explaining the centrepiece of *Capital*, namely the accumulation of profit as capital.[1] The task of this chapter then is to map the pathway from produced and realised profit to accumulation.

An overview of this pathway is depicted in the charts accompanying this section. These charts are based on the accumulation levels of Figure 9.1, with all data here being drawn from the table Australian Private Corporate Trading Enterprises: Aggregates and Ratios (see Appendix 3). It was explained in Chapter 9§6 that relevant data exist only for the corporate sector. While this creates a problem of direct compatibility with the private business profit rate data used in Chapter 10, it eliminates another problem, namely the need to account for changes in self-employment income.[2] At any rate, it is reasonable to assume that the corporate and business data are comparable if not directly compatible, since, *inter alia*, companies are the main institutional component of the private business sector.[3]

Chart 11.1, which is based on levels $A_{3\text{-}4}$ of Figure 9.1, introduces the net-gross corporate profit rate (NP_c/K_c), which Chapter 9§2(ii) explained was a component of the gross profit rate used for analysis in Chapter 10. The other component of the gross rate is the depreciation-capital ratio (D_c/K_c), but since this is a stable source of investment funding it will not attract much attention below. It is far more

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[1] See Chapter 10§1, esp. n. 6.

[2] However, note Chapter 9 n. 75.

[3] See Chapter 10§1, esp. n. 8

important to focus on the more variable net-gross rate. Chart 11.1 also introduces key deductions from the net-gross rate of profit that must be made before accumulation is possible. These are the proportions to the gross stock of fixed capital of interest (IN_c/K_c), tax (T_c/K_c), and dividends (DI_c/K_c). The result of the deductions is to introduce the net(-gross) rate of profit after interest and tax ($NPIT_c/K_c$) and the ratio of retained profit to the gross capital stock (RP_c/K_c).

CHART 11.1

From "Realised" to "Retained" Corporate Profit Rates
Source: Appendix 3, C13, C21, C37, C52-54. Current price. %

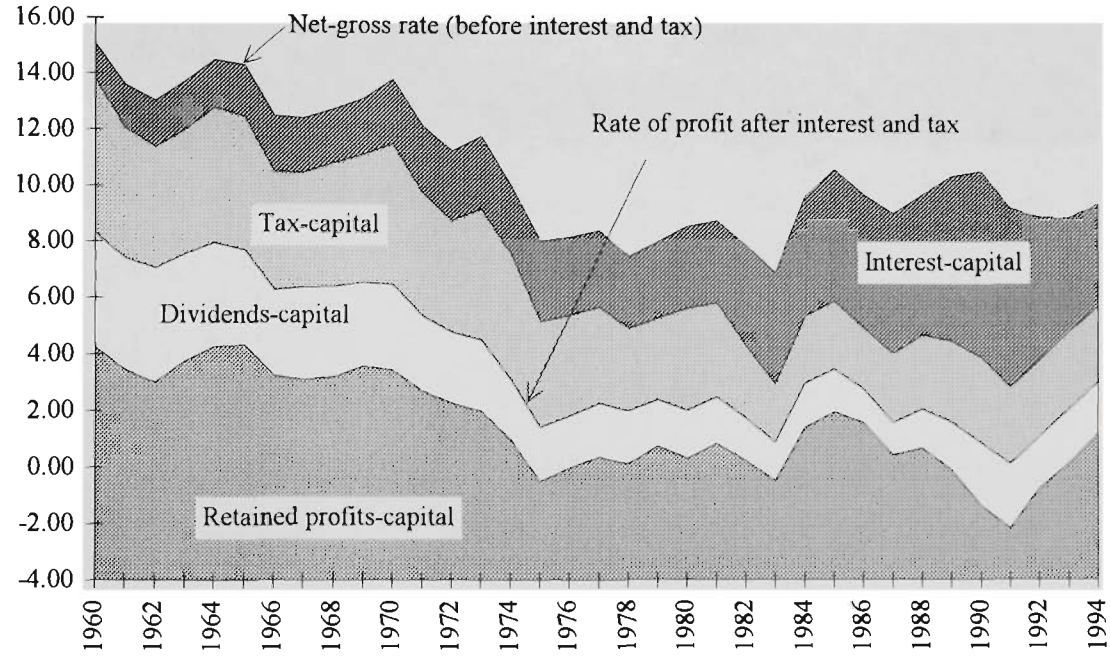


Chart 11.2, drawn from levels $A_{5\text{-}6}$ of Figure 9.1, represents the proportion to the fixed capital stock of retained profit and depreciation provisions (D_c/K_c) as capital's internal finance sources (IF_c/K_c). When added to the various external finance sources (EF_c/K_c), as defined in Chapter 9§4, the current-dollar ratio of investment to capital is obtained (I_c/K_c). Chart 11.3 depicts level A_8 of Figure 9.1 by translating the current-dollar rate of investment into constant-dollar or real terms (I/K). In addition, by deducting the rate of retirement or scrapping (R/K), it exposes the rate of accumulation (A/K). The shares in net realised profit of retained profit (RP_c/NP_c), interest payments (IN_c/NP_c), tax (T_c/NP_c), and

CHART 11.2

Sources of Corporate Investment Finance

Source: Appendix 3, C32-34, C37-38. Current price. %

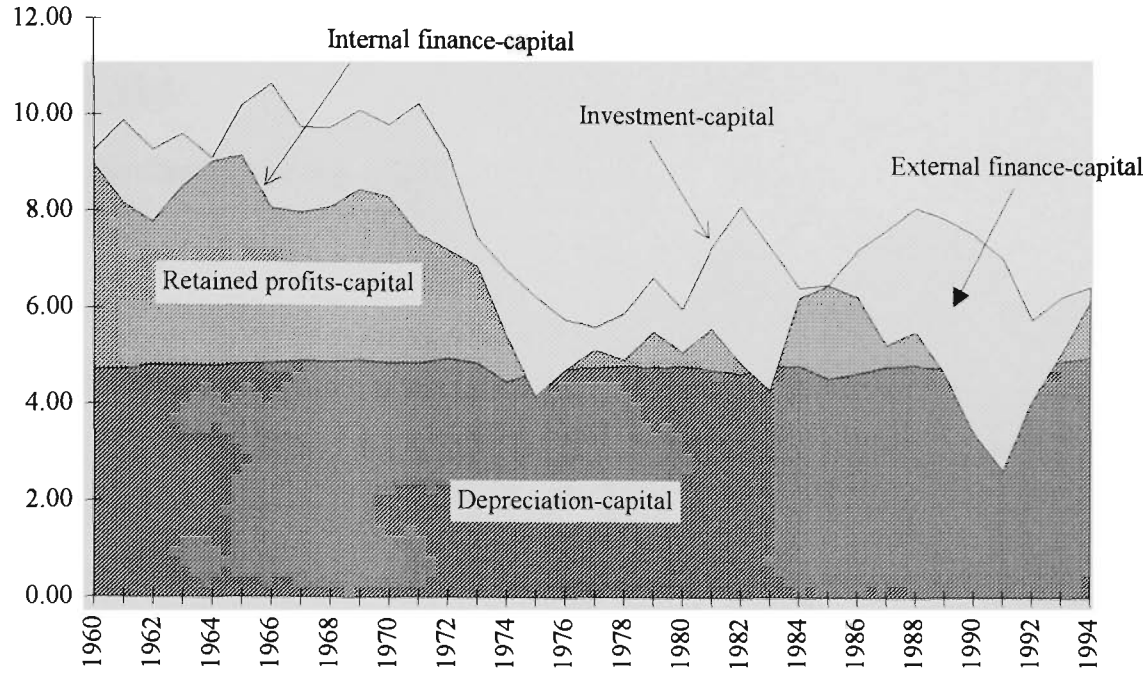
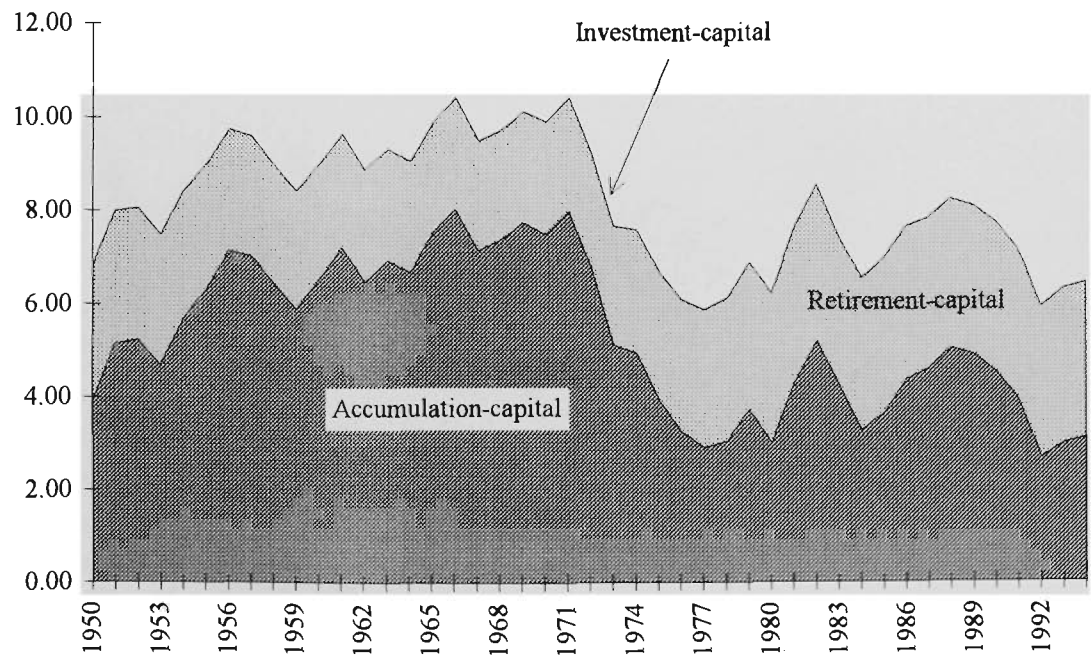


CHART 11.3

Rates of Corporate Investment, Accumulation, and Retirement (Scrapping)

Source: Appendix 3, C28-30. Constant price. %



dividends (DI_c/NP_c), as shown at level A_1 of Figure 9.1, are presented in Chart 11.4 to illustrate the processes described in Chart 11.1 from a somewhat different angle. Similarly, the raw shares in current-dollar investment spending of internal (IF_c/I_c) and external finance (EF_c/I_c) are shown in Chart 11.5.

CHART 11.4

Claims on Corporate Net Profit

Source: Appendix 3, C41-44. Constant price. %

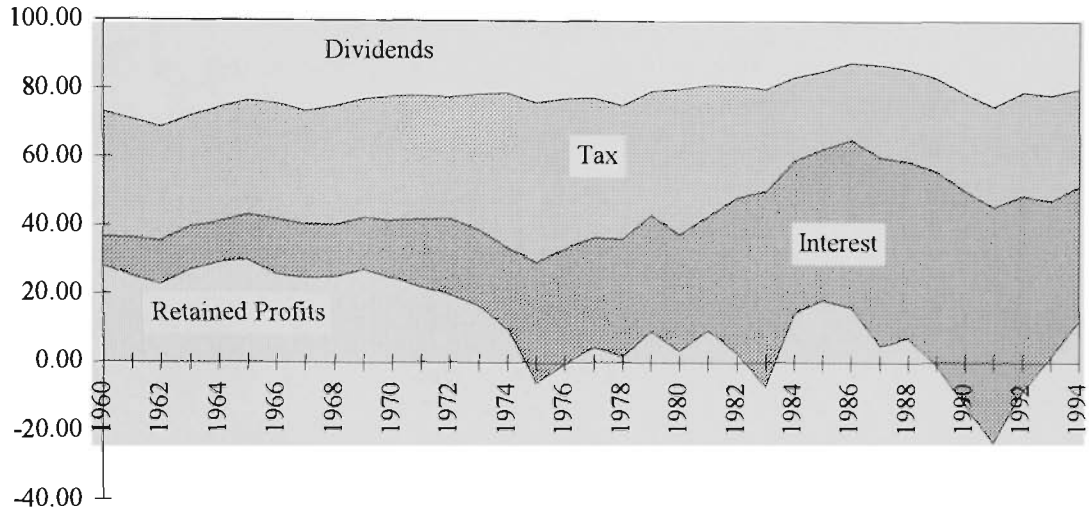
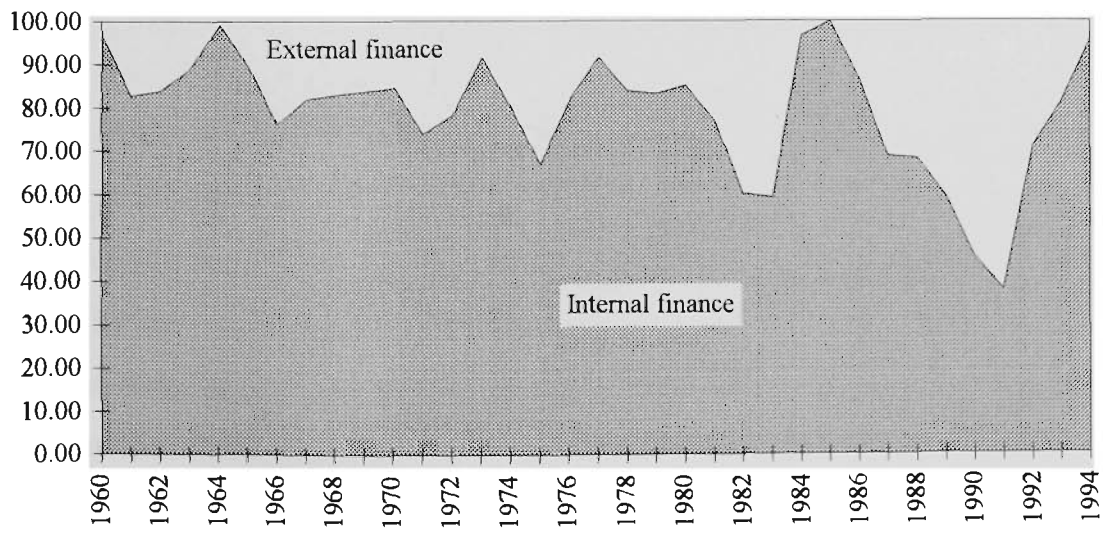


CHART 11.5

Internal and External Finance of Corporate Investment

Source: Appendix 3, C35-36. Current price. %



The following significant trends are suggested by the charts:

(i) Investment and accumulation rely predominantly on *internal finance* sources: i.e., retained profit and depreciation provisions. However, with the fall in various measures of the profit rate, greater call has been made on external finance sources.[4]

(ii) The *retained profit-capital ratio* and the *rate of profit after interest and tax* have fallen by more than the net-gross (*ipso facto* gross) rate of profit itself. In the post-1974-75 phases, this is quite pronounced. The fall in retained profit relative to realised profits has especially significant consequences.

(iii) An increase in interest payments, shown in the rise in the *interest-capital ratio* and in the share of interest payments in net profits, is clearly responsible for (ii). Corporate tax reductions and, less significantly, smaller relative dividend payments have not counteracted this trend. Corporate tax reductions are partly an automatic response to rising interest payments, as taxable profits are assessed after interest has been deducted.[5]

(iv) One reason for the increasing weight of interest payments was evidently the growing use by companies of *external finance* for investment. (The role of increasing interest rates will be discussed in subsequent sections.)

These propositions will be established more rigorously in §§2-3. In particular, §2 will address the question whether the net-gross rate of profit (*ipso facto* gross) or the interest-capital ratio has been the greater influence on the retained profit-capital ratio. In terms of the circuit of capital, the former is located in production, circulation-distribution, and circulation-realisation, while the latter is clearly located in the financial part of circulation. The profit-accumulation link, with

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4 "Internally generated funds are the main source of investment capital but banks provide the lion's share (around two-thirds) of the external borrowing of businesses." (Fraser 1993: 12)

5 Macfarlane (1990: 30).

particular emphasis on the 1980s, will be looked at in §3, while §4 will discuss Marxist explanations of the observed trends. Patterns during crises and the issue of financial fragility will be examined in §5. In addition to Figure 9.1 and the discussion in Chapter 9§§3-6, a useful frame of reference for this chapter as a whole is provided by the circuit of capital form of Figure 3.5 and the financial statements of Figures 3.6 and 3.7, together with the accompanying discussion in Chapter 3§§3(iii) and 7.

2 The Retained Profit-Capital Ratio

Six-year overlapping and phase averages are given in **Table 11.1** for the key ratios that make up the following identity for the retained profit-capital ratio:

$$(RP_c/K_c) = (NP_c/K_c) - (IN_c/K_c) - (T_c/K_c) - (DI_c/K_c) \qquad (11.1)$$

Table 11.2 follows up by showing which of these changing constituents was most influential in the change that occurred in the retained profit-capital ratio. Though a little ponderous, this table does try to resolve the issue in a way that is not selective. Hence successive and longer-run comparisons are given for six-year overlapping averages, phases, and peak years. Note that where changes in the retained profit-capital ratio are small, the per cent contributions can seem to be ridiculously large. This fact about percentages should not detract from the main point, namely which variables exercise the greatest influence. (To put the garish percentages in perspective, some of the actual changes are also shown in square brackets in Table 11.2.)

The results confirm the intuitive assessment of Charts 11.1-11.5. Overall, the net-gross (*ipso facto* gross) rate of profit's decline has been the dominant long-run factor pulling down the retained profit-capital ratio. This is so at least until the third phase, which begins to record increases in profit rates. However, the increasing ratio of interest payments to capital also has been very significant, especially after the end of the long boom.[6] In fact, in the average changes from 1975-80 to 1980-85, 1980-85 to 1985-90, and 1974-82 to 1982-94, and in the

[6] See the discussion of the US data by Pollin (1987b: 137-38).

TABLE 11.1

Key Ratios Contributing to the Corporate Retained Profit-Capital Ratio

YEARS		RETAINED PROFIT-CAPITAL RATIO	NET-GROSS PROFIT RATE	INTEREST-CAPITAL RATIO	TAX-CAPITAL RATIO	DIVIDENDS CAPITAL RATIO
FROM	TO	(RP_c/K_c) %	(NP_c/K_c) %	(IN_c/K_c) %	(T_c/K_c) %	(DI_c/K_c) %
(i) Period averages						
1949	1955	n.a.	11.81	n.a.	n.a.	n.a.
1955	1960	n.a.	14.17	n.a.	n.a.	n.a.
1960	1965	3.83	14.05	1.62	4.75	3.84
1965	1970	3.47	13.16	2.00	4.52	3.16
1970	1975	1.81	11.19	2.51	4.40	2.47
1975	1980	0.17	8.13	2.76	3.39	1.81
1980	1985	0.71	8.76	3.74	2.76	1.55
1985	1990	0.55	10.03	5.33	2.61	1.53
1990	1994	-0.59	9.42	5.19	2.79	2.03
(ii) Phase averages						
1949	1960	n.a.	11.80	n.a.	n.a.	n.a.
1960	1974	3.16	11.94	1.99	4.56	3.23
1974	1982	0.34	8.39	2.83	3.42	1.79
1982	1994	0.22	9.33	4.86	2.59	1.66

Source: Appendix 3, C37, C13, C52-54. Ordinary averages overlapped for first and last years.

peak-to-peak analysis from 1980 to 1990 and 1964 to 1990, it was the most important *downward* influence on the retained profit-capital ratio shown in the table (but see below). Two preliminary generalisations can be made concerning the profit-accumulation nexus: first, traditional Marxist theories of the profit rate maintain much of their force; but, second, Marxists who ignore the role of financial variables do so at a cost.[7] This view will be developed and reinforced in §§4-6.

Using the final segments of the top panel of the Australian Private Corporate Trading Enterprises: Aggregates and Ratios (Period Ratio Changes) table (Table 9.1 Part (ii)), it is also possible to show that the main reason for the fall in the corporate net-gross (*ipso facto* gross) profit rate for most part was the behaviour of the constant-dollar gross profit share and the output-capital used ratio. Together these ratios comprise the gross profit-capital used ratio (GP/K_u), a useful proxy for

[7] Crotty (1987: 81).

TABLE 11.2

Contributions (%) to Change in the Corporate Retained Profit-Capital Ratio

YEARS		ACTUAL CHANGE RETAINED PROFIT-CAPITAL RATIO	NET-GROSS PROFIT RATE	INTEREST-CAPITAL RATIO	TAX-CAPITAL RATIO	DIVIDENDS CAPITAL RATIO
FROM	TO	$\Delta(RP_c/K_c)$ %	(NP_c/K_c) % contribution	(IN_c/K_c) % contribution	(T_c/K_c) % contribution	(DI_c/K_c) % contribution
(i) Period averages						
Successive						
1960-65	1965-70	-0.36	246.64	104.99	-64.37	-187.26
1965-70	1970-75	-1.66	118.43	30.77	-7.39	-41.81
1970-75	1975-80	-1.64	186.83	15.14	-61.78	-40.20
1975-80	1980-85	0.54	116.31	-180.87	116.75	47.81
1980-85	1985-90	-0.17	-758.77	959.05	-85.34	-14.95
		[-0.17]	[1.27]	[1.61]	[-0.14]	[-0.03]
1985-90	1990-94	-1.14	54.31	13.59	15.41	43.87
Long						
1960-65	1980-85	-3.12	169.42	67.78	-63.96	-73.23
1960-65	1985-90	-3.29	122.07	113.25	-65.05	-70.26
1960-65	1990-94	-4.42	104.64	80.63	-44.36	-40.91
(ii) Phase averages						
Successive						
1960-74	1974-82	-2.82	161.55	30.08	-40.49	-51.14
1974-82	1982-94	-0.13	-738.26	1603.67	-660.18	-105.23
		[-0.13]	[0.93]	[2.03]	[-0.84]	[-0.13]
Long						
1960-74	1982-94	-2.94	122.89	97.70	-67.12	-53.47
(ii) Peak to peak						
Successive						
1964	1973	-2.27	119.02	39.92	-7.00	-51.94
1973	1980	-1.68	191.65	18.85	-61.09	-49.41
1980	1990	-1.65	-120.33	226.57	-37.70	31.46
Long						
1964	1980	-3.95	149.88	30.97	-29.98	-50.86
1964	1990	-5.60	70.14	88.69	-32.26	-26.57

Source: Appendix 3, C37, C13, C52-54. Averages overlapped for first and last years. Phase and period averages are approximate, as explained in Chapter 9 n. 72. See Table 9.1 Part (ii).

the gross profit rate that is shown in the final line of the top panel of Table 9.1 Part (ii).[8] The gross profit-capital used ratio accounted for 147.79% of the 2.6% fall in the net-gross profit rate between the peaks of 1964 and 1973, 58.3% of the 3.21%

[8] It is not possible to separate the effects of the profit share and the output-capital used ratio for corporate data (see Appendix 2).

fall between 1973 and 1980, 98.32% of the 5.92% fall between 1964 and 1980, and 153.27% of the 3.93% fall between 1964 and 1990. In so far as this parallels the results of earlier sections for private businesses as a whole, and given the weight of the corporate sector among private businesses, it is reasonable to infer that similar explanations of changes in the profit rates may be applied here, too. An example may be provided to demonstrate how this reinforces the conclusion of the preceding paragraph.

On the assumption that the change in the corporate gross rate of profit can be decomposed to yield the same per cent contributions as for the private business rate, the realised profits-capital ratio, as shown in equation (11.1), may be decomposed further as follows, since:

$$(NP_c/K_c) = (GP_c/K_c) - (D_c/K_c) = [(K_u/K)(P_y/P_k)(GP/Y)(Y/K_u)] - (D_c/K_c)^9 \qquad (11.2)$$

therefore:

$$(RP_c/K_c) = [(K_u/K)(P_y/P_k)(GP/Y)(Y/K_u)] - (D_c/K_c) - (IN_c/K_c) - (T_c/K_c) - (DI_c/K_c) \qquad (11.3)$$

Now, consider the 1964 to 1990 comparison. The actual contributions to the change in the retained profit-capital ratio may be shown as the additive relationship beneath equation (11.3) as reproduced below:

(RP_c/K_c)	=	$[(K_u/K)$	(P_y/P_k)	(GP/Y)	$(Y/K_u)]$ -	(D_c/K_c) -	(IN_c/K_c) -	(T_c/K_c) -	$DI_c/K_c)$
(-5.60)	=	(+0.46)	(+0.78)	(-1.11)	(-4.06)	(0.00)	(-4.97)	(+1.81)	(+1.49)[10]

This shows that the increase in the interest-capital ratio was the greatest single downward influence on the retained profit-capital ratio over these years. Taken together, however, the profit share and the output-capital used ratio (which make up the gross profit-capital used ratio) were slightly stronger (-5.17%). If we look instead at period averages for 1960-65 to 1985-90, the following approximations are obtained:

(RP_c/K_c)	=	$[(K_u/K)$	(P_y/P_k)	(GP/Y)	$(Y/K_u)]$ -	(D_c/K_c) -	(IN_c/K_c) -	(T_c/K_c) -	DI_c/K_c
(-3.29)	=	(+0.24)	(+0.39)	(-0.79)	(-3.86)	(0.00)	(-3.73)	(+2.14)	(+2.31)[11]

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[9] See levels $P_{1\text{-}2}$ of Figure 9.1.

[10] See Tables 10.3 and 11.2.

In this case the influence of interest payments, which were especially powerful in the peak year of 1990, have been reduced somewhat. While the interest-capital ratio is still a key contributor to the decline in the retained profit-capital ratio, the major role is taken by the output-capital used ratio. In fact, except for comparisons that include the years of the later 1980s and early 1990s, production variables are dominant.

3 Retained Profit, Investment, and Accumulation

Internal finance, which is equal to retained profit plus depreciation provisions, or gross profit retained, has been the principal source of funds for investment and accumulation. This is as anticipated in Marxist theory and is embodied in the circuit of capital approach. It was shown in Charts 11.1-11.5 and has been noted elsewhere. Jackson, commenting on years to the mid-1980s, perhaps overstates its direct causal force, but his remarks are a good antidote to any tendency to downplay the link:

> "Thus the causal linkage [from gross profit to capital expenditure]...is quite well supported by the empirical evidence on financing and capital expenditure by private corporate trading enterprises. A similar causal linkage can be seen in the data for companies in the United Kingdom; there is sociological evidence on the importance which company chief executives in the UK and West Germany attach to profits as a source of finance for capital expenditure (this appears to be outstandingly the top-ranking function of profits in their view); and nearly all textbooks on, and case studies of, business policy seem to proceed on the implicit assumption that the main source of financing for capital expenditure will be the company's retained gross profit. Thus it seems that the causal linkage here proposed for

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[11] See Tables 10.3 and 11.2. My gross adjusted data are used for the private business contributions applied here (see Appendix 1). The depreciation contribution is rounded to 0 for convenience.

Australian private corporate trading enterprises exists in other market economies."[12]

It is also clear from Charts 11.1-11.5 that companies responded to the concerted squeeze on their retained profit after the end of the long boom in two ways: first, rates of accumulation and investment were reduced; second, reliance on sources of external finance for investment and accumulation grew. **Table 11.3** demonstrates this and reinforces the argument of the preceding paragraph. It also contains an estimation of real interest rates. **Chart 11.6** makes the same points even more forcefully. Part (i) juxtaposes the retained profit-capital ratio with the rate of investment, using actual data. Given the relatively stable rates of depreciation involved, the cleavage after the mid-1970s can be accounted for entirely by increasing external finance. The point I wish to make here is that this allowed investment, even though it was relatively lower than in previous years, to be *pushed above the level of its profit constraint*. This is true at least until the 1990s (see §6 below).

TABLE 11.3

Key Ratios Linking Corporate Profit and Investment

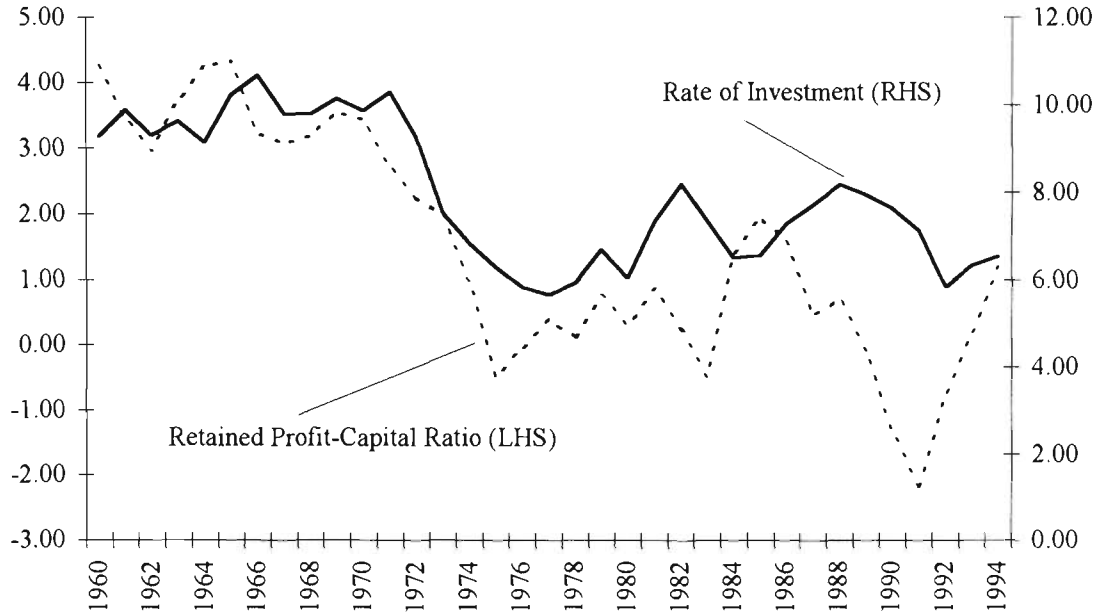
YEARS (AVERAGE)	RATE OF INVEST-MENT (I/K) %	RATE OF ACCUM-ULATION (A/K) %	RETAINED PROFIT-CAPITAL RATIO (RP_c/K_c) %	INTERNAL FINANCE-CAPITAL RATIO (IF_c/K_c) %	EXTERNAL FINANCE-CAPITAL RATIO (EF_c/K_c) %	REAL INTEREST RATE % p.a.
1960-65	9.27	6.86	3.83	8.62	0.95	2.45
1965-70	9.89	7.52	3.47	8.37	1.70	2.17
1970-75	8.54	6.01	1.81	6.62	1.72	-3.38
1975-80	6.26	3.27	0.17	4.96	1.11	-0.55
1980-85	7.18	3.90	0.71	5.47	1.53	5.18
1985-90	7.72	4.47	0.55	5.31	2.24	5.92
1990-94	6.68	3.41	-0.59	4.32	2.37	5.98

Source: Appendix 3, C28-29, 33-34, 37. Six year overlapping ordinary averages. Real interest rates estimated as nominal long-term interest rates (Foster and Stewart 1991: Table 6.11; RBA 1995: Table F2) less the annual averages growth rate of the GDP implicit price deflator (Foster and Stewart 1991: Table 5.6b; RBA 1994: Table G3).

12 Jackson (1989: 352; see also 343-55).

CHART 11.6

The Corporate Rate of Investment and Retained Profit-Capital Ratio
Source: Appendix 3, C32, 37. Current price. %



Now, I have already established in §§1-2 that a significant part of the decline in retained profit was directly attributable to increased interest payments. No doubt part of the steep rise in interest payments (in relation to both fixed capital and net profits) was due to the increase in real interest rates shown in Table 11.3. But this is only part of the story. The rise in the corporate debt component of external finance is the other. Falling retained profit and increased resort to external finance for investment fed off each other.

This phenomenon in Australia has been chronicled in various places, usually in terms of increased debt-equity ratios, declining measures of interest cover, and increased debt servicing costs.[13] An example, in the form of an Economic Planning Advisory Council chart reproduced by the Australian Bankers' Association (1990a), is given in **Figure 11.1.** Although Macfarlane noted in a Reserve Bank study that the estimation of debt-equity ratios can be problematic,[14] he concluded that there had been a shift from equity to debt and that a rapid increase in credit in

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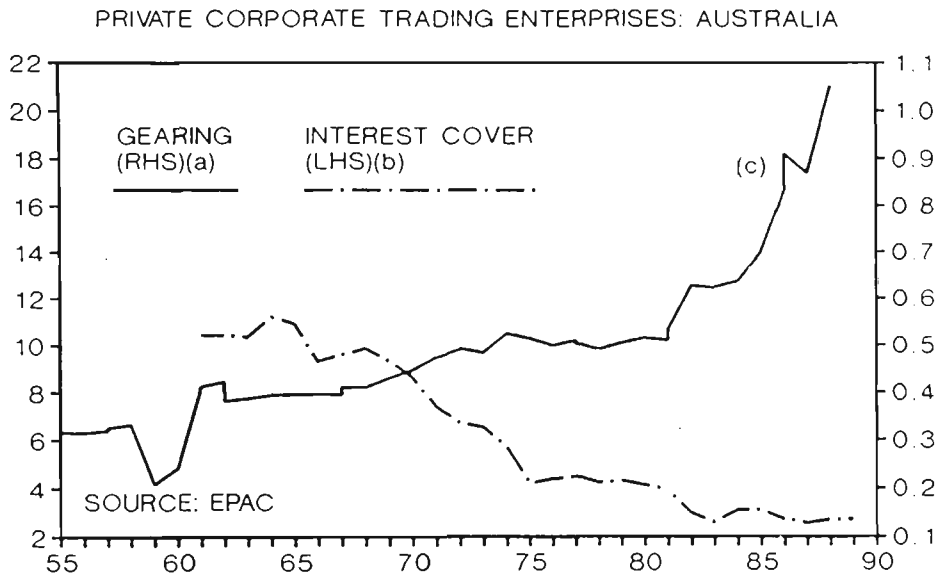
[13] See, e.g., Australian Bankers' Association (1990a: Charts 1-4, 9; 1990b: 12), EPAC (1992a: 22 Figure 17; 1992b: 30 Chart 17; 1990: *passim*), Fraser (1995a: 3-4, Chart 2), and Macfarlane (1989: 27-28 Graphs 7-8).

[14] Macfarlane (1989: 27-28).

the key 1980s period "was mainly due to increased demand for debt, although increased supply as a result of financial deregulation also played a role."[15] In turn, the "acceleration in the total provision of credit can be entirely accounted for by the increase in credit to the business sector" in the relevant period.[16]

FIGURE 11.1

Debt-Equity Ratio and Interest Cover
Source: Australian Bankers' Association (1990a).



(a) Based on book values. Debt-equity ratio = (Debentures + Mortgages + Other secured borrowing + Unsecured notes + Deposits + Other unsecured borrowing + Bank overdrafts)/(Shareholders funds - Prefential capital - Intangibles)
(b) Interest cover = (Gross operating surplus + Interest received + Rent/royalties received + Dividends received - Rent/royalties paid - Third party insurance transfers)/(Interest paid)
(c) Break in gearing series. RBA data to 1986. STATEX data thereafter.

4 Marxist and Alternative Explanations

Pollin has presented an analysis of the US experience in similar terms. The analysis integrates post-Keynesian views on the endogeneity of credit supply, principally those of Minsky, with "contemporary Marxist discussions of the economic crisis which recognize the observed declining rate of profit as a central

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[15] Macfarlane (1990: 27). Foster and Stewart (1991: Chart 3AA, New Capital Raisings) also show a growth in equity finance in the later 1980s, in particular. However, he relative growth in debt to equities is the issue here.

[16] Macfarlane (1989: 26). See also Fraser (1995a: 3 Graph 1).

feature of the economy's long-term stagnation."[17] Pollin also persuasively criticises explanations that downplay the role of the rate of profit. On the one hand, Minsky and others, such as the leading Wall Street economist Albert Wojnilower, point to an inherent tendency for companies to build up debt as the economy is driven to expand. On the other, neo-classical views, in particular, have focussed on the combined effects of inflation and taxation policy in cheapening the cost of credit.[18] In contrast Pollin argues:

> "Despite the distinctiveness of the neoclassical and Minskian approaches, there is an important common error in both arguments, rendering both inadequate for explaining the patterns since the mid-1960s. If corporations were motivated to increase debt financing either because of declining borrowing costs or as a result of boom psychology, we would then also expect this increase in debt financing to be accompanied by an increase in corporate spending. In particular, pursuing the logic of either approach, would expect increases in debt financing to be accompanied by increases in their fixed investment growth rate. But in fact what has accompanied the rise in corporate debt financing since the mid-1960s has been a *decline* in investment growth.
>
> "I therefore have developed a third explanation, one which tries to reconcile the rise in debt financing with the decline in real investment growth. This approach focuses on the effects on corporate behavior of stagnant real profit flows and declining profit rates, which [have] also occurred since the mid-1960s. More specifically, because real profit levels were stagnating, this tended also to reduce the amount of internal funds corporations had available for investment. When internal funds fell, corporations were then faced with some combination of two alternatives: reduce expenditure levels to reflect the decline in internal funds, or increase borrowing to avoid having to cut back on spending.

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17 Pollin (1987a: 145).

18 See, e.g., the years 1970-80 in Table 11.3, but cf. the perverse results in later years.

> "Most firms in this situation will probably try to pursue both alternatives partially. However, we observe empirically that firms have tended first to borrow more rather than cut expenditure levels. For firms to opt to cut expenditures would require that they also slow the rate at which they can innovate and lower production costs. Firms' competitive position would thus weaken by cutting back on expenditures; market dominance would be seized by those firms willing to make the requisite investments. Consistent with these competitive imperatives, we therefore observe that the rate of corporate debt financing has risen to fill the gap created by the decline in corporate internal funds. This is why the increase in debt financing has emerged in conjunction with declining, rather than increasing, rates of corporate investment growth."[19]

Significantly, I think that the competitive behaviour described by Pollin explains beyond mere assertion why investment and accumulation may be pressed through the profit barrier at times.

Influential mainstream Australian explanations have tended to lean, to a greater or lesser extent, on those accounts criticised in the above passage. At the same time, they also largely ignored the underlying profit trends.[20] In effect, mainstream explanations of the 1980s events combine a general recognition of the endogeneity of credit supply[21] with the specific role of inflation and tax policy. These are used to underwrite an account of the 1980s phenomena that has at its core increased corporate *speculative* demand for credit. Macfarlane's "major explanation" of the rise in the demand for credit "is that after nearly two decades of relatively high inflation, the community has concluded that the road to increased wealth has been to become the owner of assets that increase in value": e.g., real estate, equities, and corporate takeovers.[22] "Much of the debt taken on in the late 1980s was in anticipation of continuing rapid rises in asset prices and rapid enrichment of the

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[19] Pollin (1987a: 151-52). Pollin (1986: 227-8) sees some truth in neo-classical and Minskian accounts but regards them as inadequate.

[20] Macfarlane (1990, 1989) provides a clear example.

[21] See, e.g., Macfarlane and Stevens (1989: 5-6) and Macfarlane (1989: 22 n. 4).

[22] Macfarlane (1989: 29). See also Fraser (1995a: 3-4).

borrowers," claims Reserve Bank governor Fraser. "Financial deregulation played handmaiden to speculative activity, facilitating greater access to borrowed funds and leverage."[23] In this view savers, too, were less inclined to rely on loan-interest income alone: hence interest rates had to be pushed up in order to attract loan funds to meet the upward shift in borrower demand. The type of explanation offered by Pollin is implicitly disparaged by Macfarlane:

> "In the case of business fixed investment, however, the recent [1983-88] very high growth rates [in credit] do not appear to have simply been the result of a high growth of business investment. For much of the...period, business fixed investment was quite restrained; over the whole of the five-year period it averaged 16 per cent, while lending for business rose by 25 per cent."[24]

The problem with this is not that speculative activity did not increase corporate debt and interest payments. Abundant evidence exists for such activities, and they were surely reflected in the growth in credit. The problem is that Macfarlane juxtaposes credit and investment, as in his Graph 6,[25] which is reproduced here as **Figure 11.2**. The role of declining retained profit and the growing external finance for investment is absent. Yet we know from §3 that this role was significant: clearly, part of the expansion in credit helped to finance investment. It is far better to juxtapose the growth in business credit with that of external finance rather than that of investment.[26] Investment can fall while credit for external finance rises.

There is also a very strong sense in which speculation can be seen as a response to declining profit rates and reduced opportunities for productive investment (just as it may be said that privatisation is such a response today). "The merger and takeover phenomena [of the 1980s] can also be directly linked to the decline in the

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23 Fraser (1995a: 3).

24 Macfarlane (1989: 27).

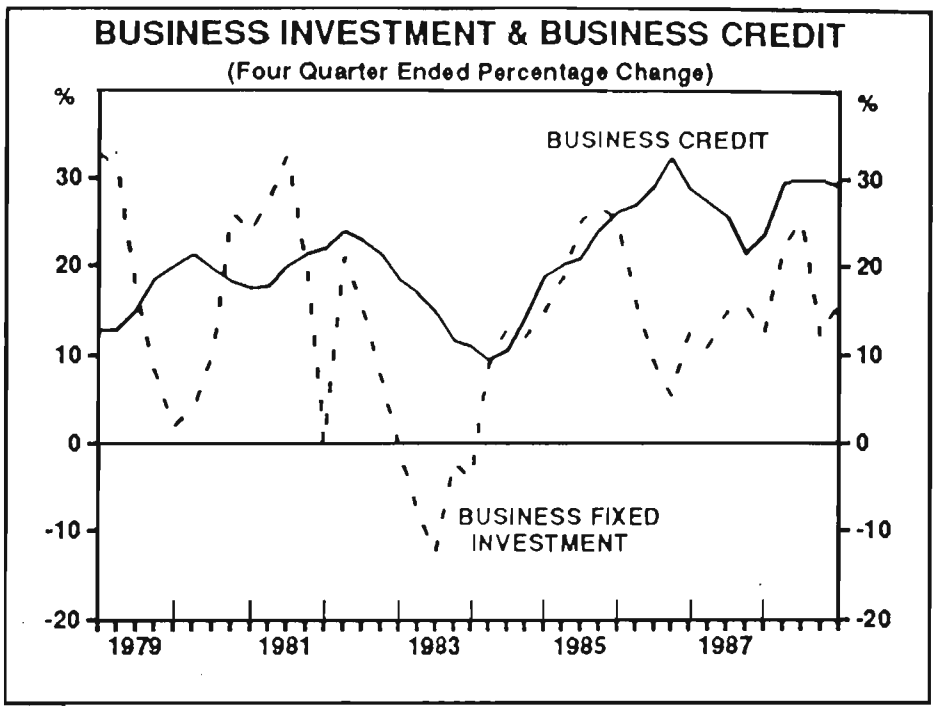
25 Macfarlane (1989: 27).

26 Better still would be to take a long view of external finance, credit flows (RBA 1994: Table D3), and the finical assets and liabilities (stocks) of companies (RBA 1994: Table D4). Unfortunately, the published form of these data has a short life-line, and it can be misleading to read too much from (or, worse, into) small parcels of figures.

average rate of corporate profitability," Pollin said of the US, "along with the extreme flexibility on the supply side of the of financial markets."[27] He cites additional evidence, based on Tobin's "Q ratio," in support: share prices were relatively low because of low profits and this encouraged the junk-bond financed corporate raiders.[28]

FIGURE 11.2

Business Investment and Business Credit
Source: Macfarlane (1989: 27)



5 Crisis Patterns in Australia

As an economy moves towards crisis, a rise in the share of interest payments in profits can be expected. The extent of its rise is in inverse proportion to the weight of internal financing of investment.[29] The reasons are clear enough: the rate of profit begins to fall and the profit denominator is squeezed; the short-run demand

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[27] Pollin (1987a: 152).

[28] See also Crotty (1993a).

[29] Dobb (1963a: 391-92). Dobb raises the interesting point that a high level of internal financing also helps to insulate firms from any tightening in monetary policy.

for credit increases, so that pressing obligations (including interest payments) can be met in the face of tighter profit margins; and interest rates rise, in part due to increased demand for funds but also because higher interest rates are used by the monetary authorities to relieve so-called "inflationary pressures." This pattern can be observed in the Australian data. Charts 11.1 and 11.4 show how interest payments peak with the onset of recessions in 1974-75, 1982-83, and 1990-92, and in the "credit squeeze" downturn of 1960-61. Marx remarked on similar patterns, and the role of financial factors has long occasioned comment among Marxists, though their emphases have varied.[30] At any rate, the data here are not at odds with the general view I have already presented of the mechanism by which financial variables can interact with a squeeze on profits, from whatever source, to translate into actual crises.[31]

This section will look at the Australian post-WWII crises from a slightly different aspect, examining the *weight* of financial factors in the successive crises while taking their *role* in these crises to be in accord with the mechanism described in Chapter 5§6. In other words, it looks at the importance of interest payments in their role as a *source* of the squeeze on retained profit and not just in *transmitting* the crisis. **Table 11.4**, which is in the same form as Table 11.2, helps to do this. It analyses changes in the retained profit-capital ratio first in terms of changes in the net-gross profit rate, and then it describes the subsequent contributions of changes in the ratios of interest, tax, and dividends to capital. The caveat made in the empirical discussion of crises in Chapter 10§5(ii) about the inadequacies of annual data applies here, too. Also, it would be expected that the collapse in the net-gross (*ipso facto* gross) profit rate would be dominant at the bottom of the cycle as an effect of the recession (see the last entry for each recession in Table 11.4).

A pattern is brought into focus by Table 11.4: *in successive crises the effect of the interest-capital ratio on retained profit is both stronger and occurs earlier* (see italicised numbers). The weight of financial factors in each successive crisis grew. This can be seen also in the growing proportion of interest to net profit in each period. It stood at about 24% in 1974, 34% in 1980, and 63% in 1989. In

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[30] (*Capital III*: 481-84). See, e.g., Dobb (1937: 117-18), Mandel (1980: 169, 173-74), and Sweezy (1981a: 35-36). See also Crotty (1987: 78).

[31] See Chapter 5§6 and Crotty (1987: 77-80).

1964 the interest-net profit figure was a relatively small 12%. This ratio is roughly the inverse of the standard interest cover ratio (see Figure 11.1 and its notes). In fact, support can be found in the data for the view that the 1991-92 crisis contained features of a general type of semi-autonomous financial crisis.[32] It is worth remembering also that Tables 10.4 and 10.5 showed that declining capacity use had a larger effect on the rate of profit at the onset of the 1991-92 crisis than it did in the two preceding Australian crises. This would reflect production cutbacks due to reduced aggregate demand contributed to by a financial squeeze: e.g., shelved investment plans because of higher interest rates and the snowballing effect of bankruptcies (including those of financial institutions) on investment and consumption spending. As I noted in Chapter 10§6(ii), the profit share and output-capital used ratio also behaved in a reasonably predictable manner towards the cycle peak, but they were less influential than in previous crises.

TABLE 11.4

Contributions (%) to Change in the Corporate Retained Profit-Capital Ratio Before Australia's Three Postwar Crises

YEARS		ACTUAL CHANGE RETAINED PROFIT-CAPITAL RATIO	NET-GROSS PROFIT RATE	INTEREST-CAPITAL RATIO	TAX-CAPITAL RATIO	DIVIDENDS CAPITAL RATIO
FROM	TO	$\Delta(RP_c/K_c)$ %	(NP_c/K_c) % contribution	(IN_c/K_c) % contribution	(T_c/K_c) % contribution	(DI_c/K_c) % contribution
1974-75 Recession						
1972	1973	-0.28	-186.16	40.69	245.35	0.12
1973	1974	-1.02	172.51	-17.12	-15.82	-39.57
1974	1975	-1.46	135.84	*29.77*	-52.25	-13.36
1982-83 Recession						
1980	1981	0.54	38.93	-3.01	52.25	11.75
1981	1982	-0.61	143.98	*106.79*	-128.06	-22.71
1982	1983	-0.73	132.56	*52.31*	-68.78	-16.10
1991-92 Recession						
1988	1989	-0.79	85.46	*109.26*	31.40	44.79
1989	1990	-1.26	-11.48	*60.85*	11.87	39.77
1990	1991	-0.84	156.64	-29.98	-36.86	10.20

Source: Appendix 3, C37, C13, C52-54. Averages overlapped for first and last years. Phase and period averages are approximate, as explained in Chapter 9 n. 72. See Table 9.1 Part (ii).

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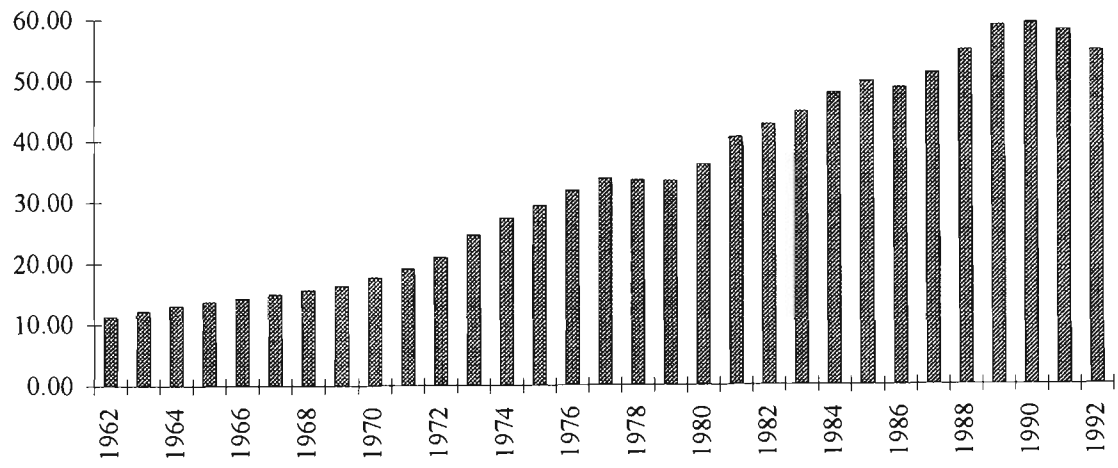
[32] Crotty (1987: 79).

There is no doubt also that speculation sharply accentuated the financial contribution to the 1990-91 crisis (e.g., the Pyramid and Tricontinental collapses). But is also reasonable to conclude that the long-run trend growth in reliance on external finance, which has been discussed extensively in §§1-3, and the rise in the interest-capital and interest-net profits ratios, which incorporate the trend rise in real interest rates, were the underlying factors. To emphasise the trend, **Chart 11.7** presents a five-year moving average of the interest-net profits ratio. Together with the successively stronger and earlier impact of interest payments in each crisis, this trend is a potent indicator of increased financial fragility. It restricts the room to move before a squeeze on profits becomes a crisis, and it increases the potential for interest rates and interest payments to contribute to the squeeze in their own right.

CHART 11.7

The Corporate Interest-Net Profit Ratio
Source: Appendix 3, C37. Five-year moving average. Current price. %



"Financial fragility emerges endogenously," Pollin concluded from similar US data, because firms were forced "to rely increasingly on borrowed funds." But the expansion did not

> "...generate profits at a rate commensurate with investment expenditures. As a result of the declining profits trend, internal funds come to provide an

> finance sustained growth. Thus, borrowing increases relative to investment, but the ability to pay declines: financial fragility ensues."[33]

Increased financial fragility then may be regarded as the *cost of pressing productive investment (accumulation) beyond its profit constraint.* In so far as such instability is accentuated by increased speculation, it may be regarded as the cost of the "alternatives" to that productive investment. In either case, the profit constraint was fundamental.

A theoretical loose end must be noted at this point: who are the rentiers, the recipients of the increased *net* interest payments deducted from the realised profits of companies? Their behaviour must be different from that of businesses, but are they spendthrifts akin to Ricardian landlords? retired working-class superannuants? offshore lenders? or what? What the interest recipients do with their enhanced "incomes" is clearly an important economic question. Unfortunately, it is also a complex question, which includes the role of speculation in the prices of assets (property and financial). A satisfactory answer will not be attempted here. However, the national flow of funds accounts[34] are a useful place to start. Broadly they show that, throughout the 1980s and into the 1990s, successively less of the net borrowing by companies has been provided by net household lending (saving), which has declined from more than 4% of gross domestic product in the early 1970s to an estimated average of less than 1% in the early 1990s. In flow-of-funds terms, the major source of corporate borrowing has been net overseas lending, which has increased from less than 1% of gross domestic product in the early 1970s to an estimate of 4% in the early 1990s.[35] This implies that the interest flows were largely directed offshore and that their effect on the Australian economy was their absence. It also implies that most discussions of the increase in Australia's foreign indebtedness (and of the associated deficits in the current account of the balance of payments) are inadequate, since they ignore the central role of the rate of profit. Two-thirds of Australia's overseas debt is owed by private companies and

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33 Pollin (1986: 228-29). See also Martin (1987: 139-41) and Pollin (1987b) for further corresponding evaluations of the US situation. See also Glyn (1992: 83-85).

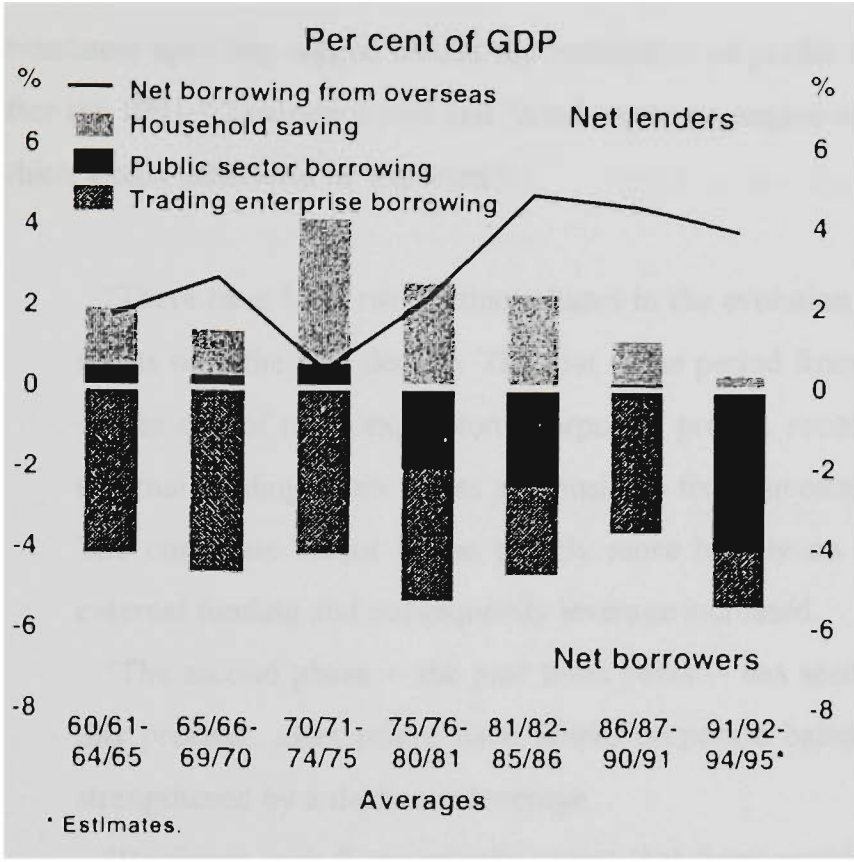
34 (ABS 5204.0: 73-77 Tables 80-84; see also 5216.0: 153-59).

35 Fraser (1995a: 3; see also 6-8).

financial institutions.[36] The Reserve Bank chart reproduced here as **Figure 11.3** summarises the flow-of-funds relevant information.

FIGURE 11.3

Australia's Flows of Funds: A Summary
Source: Fraser (1995a: 3).



6 Implications for Marxist Investment Theory

If §5 demonstrated that investment and accumulation were pushed above their profit constraint in the 1980s, the evidence of the 1990s in this section will show the exact opposite: increased retained profit, a drop in external finance, and investment held below the profit constraint. Companies have used the post-recovery increase in the rate of profit to expunge at least some of the financial fragility built up in the previous decade, in particular. If, in previous years, "increased reliance on credit led to a deterioration in the strength of corporate balance sheets...[as] debt increased in relation to equity, the maturity of that debt

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[36] Fraser (1995a: 6).

shortened, and liquidity declined,"[37] companies subsequently reacted to strengthen their balance sheets. First, they restructured their enterprises in a process notable for its emphasis on sustained job-shedding and a delayed resumption of new investments. Second, they emphasised debt-shedding as they initiated a process of restructuring their financial positions.[38]

The "correction" was described by the Reserve Bank to explain why business investment spending lagged behind the restoration of profits in the initial recovery after the 1991-92 recession and had "not become an engine of recovery in the way which would otherwise be expected":

> "There have been two distinct phases in the evolution of corporate balance sheets over the past decade. The first -- the period from 1984/85 to 1989/90 -- was one of rapid expansion. Corporate profits, recourse by companies to external funding, asset prices and business fixed investment all rose strongly. The corporate sector began to rely more heavily on debt as a source of external funding and consequently leverage increased.
>
> "The second phase -- the past three years -- has seen a partial reversal of this process: asset prices have fallen, corporate balance sheets have been strengthened by a decline in leverage...
>
> "Declining cash flows initially meant that firms could not restructure their finances without repercussions for operating procedures and asset structures. Operating costs had to be cut, and this had implications for employment. Firms also began to reduce their holdings of financial assets...in an attempt to fund the reduction in debt...In addition, investment in fixed assets was pared back sharply as balance sheet restructuring exacerbated the normal effects of a slowdown in the economy on investment. The fall in investment has, as a result, been very large by historical standards...The fall in plant and equipment [spending in 1991-92 meant that this spending]...was at its lowest point in the past 40 years."[39]

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[37] Martin (1987: 139).

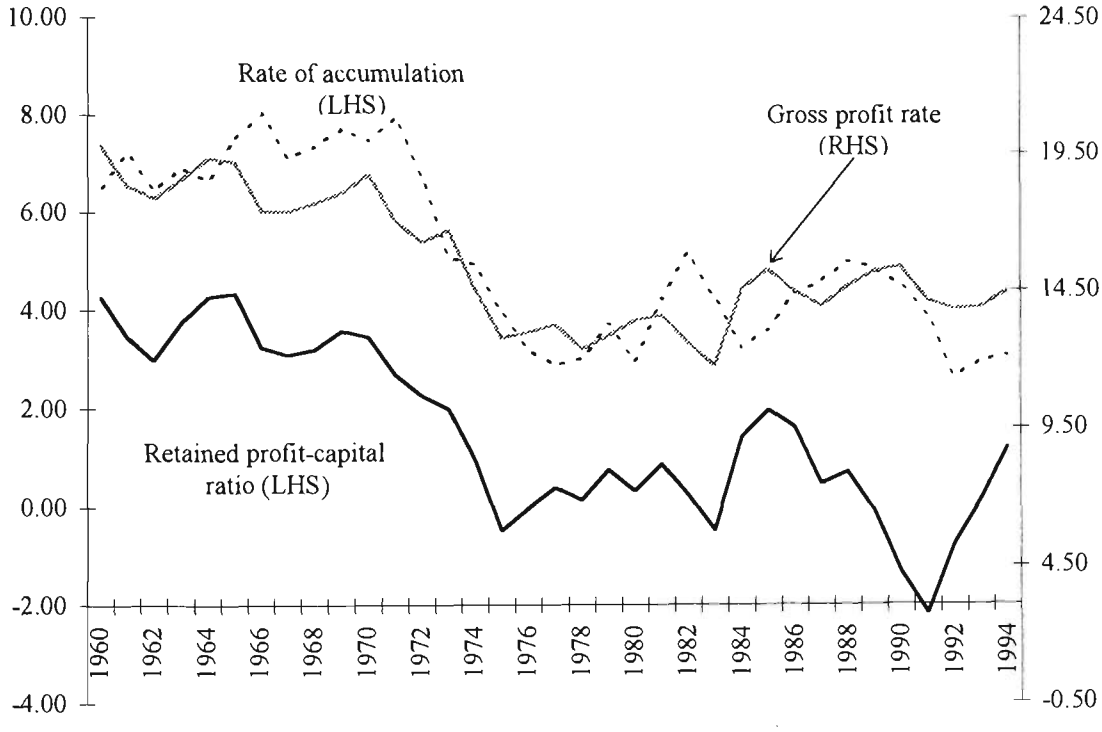
[38] See, e.g., RBA (1993: 3-6; 1992: 10) and Fraser (1995a: 4; 1993: 10-12).

[39] RBA (1993: 1-4), citing Mills, Morling, and Tease (1993) and Lowe and Shuetrim (1992).

All of these conclusions are evident in Charts 11.1-11.7. **Chart 11.8** is a summary chart showing the gross profit rate, the retained profit-capital ratio, and the rate of accumulation. It will serve to illustrate the more general conclusions I will draw. It is similar to Chart 10.4 and the charts used by Glyn.[40] While I used Chart 10.4 and cited Glyn's charts in the context of illustrating the broad relationship between the rates of profit and accumulation, subsequent sections have delved deeper and have suggested how the two may part. It is to this "lack of relation" that Glyn drew particular attention, noting also the differences between countries in both response and timing.[41] Close examination of Chart 11.8 gives some idea of how Australia performed.

CHART 11.8

Summary: Key Corporate Rates of Profit and Accumulation
Source: Appendix 3, C11 (current price), C28 (constant price), C37 (current price). %



40 Glyn (1992: 87-88). See Chapter 10§1 n. 7.

41 Glyn (1992: 86; see also 85-90). The US experience depicted by Glyn seems to be the closest to Australia's.

Crotty's contributions are extremely valuable in drawing out the theoretical implications of behaviour such that as described in §§4-5 and above.[42] First, these contributions locate the role of financial variables squarely within Marx's framework, and they relate this role to the theory of crisis (see Chapter 5§§6-7) and, more generally, to a more rounded theoretical treatment of profit-making and accumulation (see Chapter 3§2). Second, they deepen the discussion of Marxist investment theory, adding to the seminal work that was initiated a generation or so earlier by Dobb and to the accumulation of insights due to discussion of the Okishio theorem and the empirical studies of profit and accumulation during the 1970s and 1980s.[43] In this discussion of the 1980s, Crotty focuses on the short-run survival strategies adopted because of the intense competition faced by US companies. He argues that these accounted for the coincidence of a reduced profit rate and increased cost-cutting investment, a result that not only contradicted neo-classical and Minskian explanations but "also most formulations of Marx's theory of accumulation [which] accept the proposition that a falling profit rate inevitably lowers investment."[44] I think that the key observations he makes are:

> (i) "...[I]n this invest-or-die environment firms substantially increased expenditures on capital-deepening, labor-saving, cost-cutting investment goods. Here is where Marx's theory of investment is uniquely helpful: *a falling profit rate and shrinking markets triggered greater capital-deepening investment.* Coerced by the outbreak of fratricidal competition, corporations raised spending on those investment projects that made it possible to fire a large percentage of their workers and frighten or bully the rest -- without raising capacity."
>
> (ii) However, "by investing in the face of battered profits (and, later, engaging in debt-financed stock buybacks), managers pushed their firms into an unprecedented degree of financial fragility, something they never would

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42 See, e.g., Crotty (1993a, 1993b, 1987, 1985) and Crotty and Goldstein (1992).

43 See, esp., Dobb (1963a: 281-319) and the various contributions discussed in Chapters 7§§5-8 and 8§§2-4.

44 Crotty (1993a: 2).

> have done if the shift to a regime of anarchic competition had not put the very survival of the firm in question (or if the surge in hostile takeovers had not threatened their autonomy). The spike in debt-equity ratios and plunge in interest-coverage ratios in the 1980s will strangle the accumulation process for many years to come."[45]

That firms can be driven into an "invest-or-die" survivalist response hinges crucially on understanding the realism of the "core assumption" made by Marx "that physical capital is substantially *illiquid* and, therefore, investment is irreversible." Once a wave of cost-cutting investment is embarked upon, all companies are obliged ("coerced) to follow. Not only will recalcitrants lose their market shares if competitors can under-price them, but their capital will be "substantially devalued by technical change" and huge losses or ruin will ensue.[46]

Increased competition in Australia during the 1980s, including that which resulted from tariff cuts, no doubt contributed to increased investment in the face of constrained profits, and the experience of a number of Australian manufacturing and other industries was precisely as Crotty describes as having occurred in the US. It is questionable whether the Australian investment was as capital-deepening, on average, as is suggested for the US.[47] However, the consequence in the early 1990s of the investment behaviour of the 1980s was clearly as imagined by Crotty for the US: depressed and "severely burdened by the financial fragility created in the 1980s."[48] And, while the Australian evidence tells us that cost-cutting, capital-deepening, job-shedding reorganisation of production resulted from the recession

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45 Crotty (1993a: 20; see also 2). Crotty (1993a: 24, n. 29) notes "...that the thesis that a Marxian theory of competition is required to make sense of the simultaneous occurrence of a falling rate of profit, a steady or only modestly declining gross rate of capital accumulation and a rising rate of corporate indebtedness is not original here. Robert Pollin (1986), for one, stated it quite clearly. What is original, I believe, is the theoretical foundation presented here in support of the thesis." See also Crotty and Goldstein (1992: 227-28 n. 16).

46 Crotty (1993a: 5).

47 Crotty (1993a: 20). Cf. Chart 10.7, which shows the direction of the Australian capital used-annual flow of labour hours ratio in the key years. Note, however, that the behaviour of the capital used- stock labour ratio is much more complex than this chart indicates. In particular, the question of how *extensively* a given fixed capital stock is used must be accounted for before any conclusions concerning the stock measure of capital intensity may be drawn from the ratio of capital used to the annual flow of labour hours. See Chapter 10§6.

48 Crotty (1993a: 12; see also 20).

of the early 1990s,[49] survival also dictated the sort of safety-inspired financial readjustments responsible for *drawing investment (accumulation) down below its profit constraint*.[50] If, in turn, these changes contribute to more than a mere chimerical rise in the rate of profit and/or the retained profit-capital ratio throughout the 1990s, it will become safer to resuscitate the rate of accumulation to some degree.[51]

Crotty's contributions are also significant for their ability to engage the (post)-Keynesian tradition and to integrate its insights within *a fundamentally Marxist perspective*. Moreover, while the problem of Marxist investment theory may never be *solved* completely, given that its empirical determination so patently is the open-systemic result of the working of a number of causal-generative mechanisms, from technology and politics to capitalist mass psychology ("animal spirits"), the value of the exercise is to be derived from the search itself. Crotty's words point out what the search might involve:

> "Though most Marxian economists are familiar with Minsky's financial theory of investment instability, many do not realize that Marx developed his own financial fragility theory [Crotty 1987]...But it must be stressed that a Marxian financial oversensitivity theory, as reflected in the growth-safety trade-off model, *must* be an integral component of a Marxian theory of investment. Optimistic expectations, confidence in the meaningfulness of forecasts, managerial stress on growth rather than safety, and a robust financial structure contribute to a rapid rate of accumulation, while financial fragility, pessimistic expectations, shattered confidence in the ability to forecast and an obsession with safety will severely depress investment. And for Marx, the effect of these variables on accumulation is conditioned by the mode and intensity of competition."[52]

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[49] RBA (1993). See n. 39.

[50] The data I have are to June 1994. Obviously, caution should be exercised in extrapolation beyond that date.

[51] The most recent Australian studies and data suggest that this has started to happen (Fraser 1995a: 3-4).

[52] Crotty (1993a: 12).

Any serious search for an enhanced investment theory along these lines doubtless will help to fill some of the gaps that were acknowledged to exist in the theories discussed in Chapters 5-8. However, I think there is a gap in Crotty's own approach, in that he does not explicitly address *all* of "the conditions under which competitive pressure can simultaneously reduce the profit rate and raise cost-cutting investment."[53] Key ideas raised by the theories discussed in Chapters 5-8 should be integrated explicitly in the analysis of these conditions, if only to anticipate inevitable queries. Surely, if the cost-cutting investment raises the rate of profit for the leading competitors it will do so across the board, eliminating the reason to increase debt into the bargain. *Inter alia*, Okishio-type arguments and the roles of the wage share and real wage rate cannot be avoided. In this sense, it is not really possible to "take Marx's dialectical and contradictory theory of profit determination as given and concentrate on the investment function itself,"[54] precisely because problems within Marx's theory of profit determination can strike at the heart of the investment function. In this case, the views of Laibman (and Dobb) may provide a suitable foundation.[55] Alternatively, it needs to be explained more clearly if the cost-cutting investment coerced by intense competition does not achieve a higher rate of profit, and why.[56] It is not really clear whether this alternative is the one Crotty and Goldstein opt for when they remark that the cost-cutting, labour-saving investment "decision is not about whether such investment is or is not long-run profit maximizing: the firm cannot know whether it is or it is not." If the short- medium-run choice is either to make the investment (and "stay in the game") or face bankruptcy, many firms will choose the former.[57]

Curiously, or so it may seem, I think the recognition of the centrality of financial variables and the exigencies of competition actually reinforces the fundamental significance of the profit-accumulation nexus, rather than diminishing it. The apparent lack of relation in the empirical data between rates of profit and accumulation over some years can itself be explained in terms of responses to the

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53 Crotty (1993a: 2; see also 6).

54 Crotty (1993a: 22 n. 4). Boddy and Crotty (1975), which is consistent with the rising-wage profit squeeze approach, should be noted, as it is by Crotty and Goldstein (1992: 225-26 n. 2).

55 See Chapter 7§§5-6 and 8.

56 See Chapters 7§7 and 8§4.

57 Crotty and Goldstein (1992: 226 n. 3). See also Crotty (1993a: 6).

underlying profit conditions. This is the way the arguments in this section and in §§4-5 have been structured. When the rate of accumulation is pushed above the profit constraint, financial instability and fragility becomes a feature of over-accumulation. When companies opt to reduce their level of financial insecurity by reducing borrowing and debt, their rate of accumulation is adjusted downwards, to a level beneath that which would normally prevail at the given rate of profit. The rate of profit emerges as a constraint on the trajectory of accumulation, retarding its rise and limiting its fall. And, since accumulation and economic growth are related in much the same way, it is appropriate to conjure up the image of systemic centres of gravity to describe the role of the profit-accumulation nexus.

But, if this is so, is it not also appropriate to recognise the explanatory force of those aspects of Marxist theories of the profit rate that pass the empirical test, whatever their other weaknesses may be? Within limits, I think this assessment is warranted by the evidence: the key determinants of the rate of profit, which are given by production and realisation conditions, have been shown also to operate as constraints and centres of gravity. The Conclusion, which follows immediately, will present a summary that relates the theories and the Australian evidence. In so far as my view summarises a Marxist theoretical position, despite my evident departures from value theory, the Conclusion is also an explicit statement that Marx's broad model of profit, accumulation, and crisis remains a valuable theoretical apparatus[58] with which to analyse modern capitalist economies, in that it meets the following criteria: (i) suitably updated and modified Marxist theories have not been refuted by the evidence (e.g., as presented in Chapters 10-11); and, most importantly, (ii) logically consistent theories generated within the Marxist framework can be used to *explain* that evidence socially, historically, and critically. In other words, Marxist economic theories can pass crucial realist tests suggested by Bhaskar's model of empirically controlled scientific explanation.[59]

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[58] Paradigm, research programme, etc.

[59] See Chapter 1§§1 and 4.

Conclusion

The objective of *Profit and Accumulation: Marxist Theories and the Australian Evidence 1949-94* was to assess the capacity of the various contemporary Marxist economic theories to explain Australia's postwar development. A realist method was outlined to distinguish the approach adopted from alternatives that would either privilege theories by insulating them from the rigours of empirical accountability or that would deny them access to the deeper social realities governing economic events and relationships. It was argued as a result that a Marxist social economics must be especially demanding of itself, both empirically and regarding its own logical structure.

On this basis the most general aspects of Marx's economic model of profit and accumulation were shown to be sound logically, empirically, and in practice. The economic system can be structured rigorously on an underlying set of determinate social and class relations. It can be demonstrated that profit depends on the exercise of surplus labour and that the labour process and the capital-labour relation are indeed fundamental social realities of capitalism. Nothing in the evidence gives the slightest reason to challenge either these central Marxist propositions or the broad Marxist characterisation of capitalism.[1] However, we do not need the inconsistent labour theory of value to underwrite them. Marx's general economic framework, without the labor theory of value, and without other arcane constructions such as the productive-unproductive labour distinction and a dogmatic insistence on the primacy of "production" over "circulation," is still a

[1] See the specifications given in Chapter 3. See also Glyn (1990b: 274-75, 279) and King (1982: 158).

powerful vehicle for analysing the accumulation process, crisis, and *inter alia* the effects on the rate of profit of technological change and distributional conflict.[2]

None of the particular Marxist theories of accumulation and crisis that were discussed can be ruled out *a priori*. However, there are problems with the formulation of the traditional under-consumption position that cannot be overlooked. Demand-side theories need, at least, to be recast in Kaleckian terms for them to be viable.[3] In fact, integration of the role of effective aggregate demand is necessary for Marxist economics as a whole, and Kalecki's realism in theory construction provides a necessary link.[4] Traditional formulations of the rising-composition falling rate of profit thesis also do not survive critical examination. They neither account fully for the productivity effects of technical change nor adequately explain why a falling output-capital ratio,[5] which is necessary for there to be a logically consistent rising composition theory, should also be so in reality. Furthermore, rising composition theorists rarely confront the problem posed by the Okishio theorem.

Yet the output-capital ratio fell in advanced countries, including Australia, during the postwar years.[6] The rising composition approach proposed by Laibman offers part of the necessary reformulation that is required to explain this trend. A theoretical intersection with the rising-wage variant of profit-squeeze theory became evident in the discussion of such a reformulation. On the one hand, the movement of wages and income shares explains how it is possible to have a falling output-capital ratio without violating Okishian conditions.[7] On the other, an integration of the two approaches can help to fill a void in more recent profit-squeeze theories, which have not comfortably explained the stubborn fact of the output-capital ratio's decline. It was notable in this discussion, however, that the theoretical architecture for an integrated explanation was sketched some time ago

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[2] King (1995b: 180). It is also worth noting my conclusion that Marx's approach to "turnover" should be set aside but that his insistence on the need for historically relative revaluation has too often been ignored. Note also my conclusions in Chapter 4§6 concerning prices.

[3] See also the more rigorous under-consumption formulation offered by Sherman (1991).

[4] See, e.g., Dobb (1973: Chapter 8 *passim*), King (1995c: 464), Armstrong, Glyn, and Harrison (1991: 124; 1984: 177, 239).

[5] Or diminishing returns to, or productivity of, investment (Rowthorn and Harris 1985: 349).

[6] See, e.g., Duménil, Glick, and Lévy (1992).

[7] The possibility that new investments do not achieve higher innovator's profits must also be left open. See Chapters 7§7, 8§4, and 11§6.

by Dobb, whose approach also allowed for the insights of a rigorous demand-side Marxism influenced by Kalecki to be joined as well.[8]

Nonetheless, it was argued that any theory left at this level would not be adequate. Missing is a more rounded Marxist theory of capitalist competitive and investment behaviour, a theory that by necessity must accommodate the role of financial variables and, in so doing, open the door to insights drawn from Minsky and others in the post-Keynesian tradition, for example. Crotty for one has suggested some of the directions this enquiry may take.[9] Here we are at the crux of what should be regarded as the most fruitful area of ongoing Marxist research. Of course, this is hardly a revelation but more a reminder that no comprehensive answer has yet been given.[10] Certainly none have been suggested in this work. It is worth noting also that a deeper exploration of this field also offers the promise of a more effective re-engagement with Marxist crisis theory.[11]

Turning directly to the data, it was possible to use the Australian economy as a case study to reflect on alternative Marxist perspectives and to see some of the above theoretical themes adopt a tangible form. One important weakness of this confrontation with the evidence was that it was just a case study of Australia, and thus the results cannot properly be generalised. Moreover, though the data traversed more than 40 years, which gives considerable scope for some conclusions, some of the events really required additional evidence or examples (e.g., the over-accumulation crises discussed). No doubt at times I have also been guilty of overstating the links, of reading too much into the data. However, I took the view that, where possible, it is better to say something and add caveats, to put up a set of views to be knocked down, than to seek comfort in qualified statements and add a few tentative opinions along the way. At attempt to avoid evasion also applied to the preceding discussions of method, framework, and theoretical alternatives.

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[8] Alternative attempts at an integrated theoretical approach offered by Marxists of a similar generation, namely by Mandel (e.g., 1975) and Sweezy (e.g., 1981a, 1942), were valuable but less successful.

[9] See also the contributions of Pollin mentioned in Chapter 11, and note the connection with Dobb's approach to the nature of investments, which was also suggested there.

[10] See Kalecki (1971: 148, 165), as noted by Glyn (1990b: 282-83).

[11] See, e.g., Crotty (1987, 1985).

A pervasive long-run determinant of the direction of the rate of profit in Australia since WWII has been the declining output-capital ratio. On the measurement techniques used in Chapter 10 it was the main cause of the profit rate's fall of approximately 50% over that time. The falling profit share was the other key reason the profit rate fell. (Other measurement choices elevate the importance of the profit share at the expense of the output-capital ratio. All measures, however, show that both ratios combined to cause the change in the profit rate.[12]) In turn, the main reason for the behaviour of the output-capital ratio has been the long-run increase in the capital-labour ratio.[13] However, the fall of the output-capital ratio was not constant. At times it increased, especially when the economy moved towards its peak, suggesting that this ratio and the social-technical forces underlying it (reflected in the different stock-flow forms of the capital-labour ratio and labour productivity) were also a function of the level of economic growth (and demand). Finding the reason for the falling output-capital ratio required more than the necessary social-technical enquiry into capital-labour intensities and productivity or the historical search for waves of self-sustaining technical innovation, for example.[14] From "why has the output-capital ratio fallen?" the relevant question became "why did it not level out or continue to grow?"

Provided the level of demand (from investment, government, and exports) is sufficient, there is no reason in principle that high levels of growth cannot be sustained.[15] Thus the answer to the question must turn on answers to the intimately (inter-) related questions of why over-accumulation brought growth to a grinding halt just as the output-capital ratio rose or began to stabilise and why the level of growth was flaccid in many years after each postwar crisis. The longer-run declines in the output-capital ratio and the profit share obviously contributed to over-accumulation, narrowing successively the critical margin in which the profit rate could be squeezed without precipitating a crisis. In the shorter run, the evident squeeze on the profit rate exercised by the falling profit share, associated

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[12] Issues of the relative weight to be attached to the respective ratios have been outlined in Chapter 9§2(i), noted in Chapter 10, and are discussed in detail in Appendix 1. In particular, see Tables A1.1-1.3.

[13] See, e.g., Chart 10.7 and Tables 10.1-10.2.

[14] I am not claiming to have undertaken either the enquiry or the search in this work.

[15] See the formulation by Armstrong, Glyn, and Harrison (1991: 124; 1984: 177, 239). See also Chapter 8§4 n. 59.

principally with the constraint of tighter labour markets and resulting wage pressures, played an important part in ending the long boom and in the slump of the early 1980s. Over-accumulation in the early 1990s crisis had different features, and demonstrated that financial variables can have a decisive short-run impact, especially if the rate of accumulation had previously been pushed above the level of its profit constraint by increased corporate borrowing.

The rate of profit emerged clearly as the principal constraint on (centre of gravity of) the rate of accumulation, and thus itself was instrumental in determining the level of investment demand and, in turn, its own determination.[16] Overlaid, too, was the significant role of government spending and interest rate policy decisions, the political-institutional dimension of the business cycle. It is a manifest weakness of this work that this role was not able to be covered except in passing. What we can say, however, is that an integrated Marxist theoretical position as suggested above, especially one informed by further research into the dynamics of capitalist competitive and investment behaviour, is the necessary framework for there to be a realistically complete assessment of the actual behaviour of profit and accumulation. It should be remembered that I have paid scant attention to the explanatory power or otherwise of alternative theoretical traditions, and I have not even been comprehensive in surveying the output of Marxist or radical alternatives.[17]

Nonetheless, what *Profit and Accumulation: Marxist Theories and the Australian Evidence 1949-94* has shown is that a Marxist theoretical position in economics *is* a solid platform from which to analyse macroeconomic development and from which to join the intellectual battle in political economy. Contemporary Marxist political economy has neither failed the explanatory test nor been supplanted by a superior anti-capitalist paradigm or research programme with anything like its panoramic social and historical scope or realist methodological depth. Radical economists will thus not only keep using it, but a broad Marxist

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[16] "Kalecki...immortalized Marx's insight in the dictum 'workers spend what they get, capitalists get what they spend'..." (Glyn 1990b: 282).

[17] As noted in part throughout the text, absences include the "regulation school," the modern European post-Keynesian school of thought informed by Kalecki and Steindl, views associated with "analytical" or "rational choice" Marxism, the Japanese "Uno school," etc.

profile in economics will also continue to be a defining frame of reference and a challenging intellectual force.

Appendix 1

Accounting for Self-Employment Income and Different Profit Rate Ratios

Data series for private businesses as a whole, as opposed to those for the corporate sector alone, contain a distortion because of the way in which self-employment income is treated in the national accounts. By convention, national accountants treat *all* self-employment income as profit. In Australia, it is included within the categories of net or gross "operating surplus" of "unincorporated trading enterprises." Two effects are evident:

> (i) the recorded magnitude of the rate of profit for private businesses (incorporated and unincorporated) tends to be higher than that of private corporate trading enterprises (cf. Charts 10.1-10.3); and
>
> (ii) *ceteris paribus*, the recorded rate of profit will fall when there is a trend away from self-employment and *vice versa*.

The second distortion is more important. A clear view of the trend in the private business rate of profit and its constituents is possible only if it is isolated from the influence of trends to and from self-employment.

Normally this problem is "resolved" by splitting self-employment income into relative income shares according to an arbitrary rule:

> "First is the *asset basis*, whereby the average rate of profit of the corporate sector is imputed to the capital stock used by the self-employed, and the residual is treated as labour income. Second is the *labour basis*, with self-

> employed people being credited with average earnings in the industry in which they are engaged and their remaining income regarded as a return to their property. As returns to both capital and labour tend to be lower than in the corporate sector, these two methods of calculation yield significantly different results. A third rule, the *proportional basis*, simply allocates self-employment income according to the shares of labour and property in the rest of the economy. Alternatively, statistics may be drawn from the corporate sector alone..."[1]

Armstrong, Glyn, and Harrison opt for the labour basis.[2]

None of these approaches is entirely satisfactory. Not only do they generate results that are sufficiently different to be worrying, but they each arbitrarily eliminate a comparative statistic by assuming it to be equal to its corporate or economy-wide counterpart: the wage rate, the profit rate, or relative income shares.[3] For these reasons, and because I am more concerned with proportionate changes in variables than their absolute magnitudes, I have used an original method to deal with the problem. In the table Australian Private Business: Aggregates and Ratios in Appendix 3, the current-dollar gross operating surplus of private businesses (GP_c, C11) is "adjusted" in the following way to obtain an Adjusted Gross Operating Surplus (GP_c', C23):

> (i) Source data for the gross operating surplus of unincorporated trading enterprises (UTEs) are separated from those for corporate gross operating surplus.[4]

> (ii) An index is calculated measuring the ratio of the ABS labour force category "employers and self-employed" (ESE) to the total private sector workforce, which comprises ESE plus "wage and salary earners" (WSE). It

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[1] King (1990a: 165-66). See also King and Regan (1976: 13-15).

[2] Armstrong, Glyn, and Harrison (1991: 348; 1984: 461).

[3] Doughney (1991b: 58-60).

[4] Source tables are not reproduced in Appendix 3 for reasons of space. As noted in Appendix 2§4, they are available from the author on request.

is assumed that *working* employers (e.g., the plumbing contractor with a tradesperson and apprentice) can be treated in principle in the same way as the self-employed.[5] At any rate, these are the smaller part of the ESE category, and separate data for working employers and the self-employed are available only from the mid-1960s.[6] For convenience, the year 1989-90 is used as the base year for the index.[7]

(iii) The UTE gross operating surplus is divided by the above index to give an adjusted figure for the given year. *This figure represents what the operating surplus would have been had the proportion of employers and self-employed been the same as in 1989-90.* All other influences operate without being affected by this adjustment since the gross operating surplus accruing to UTEs is not altered in any other way.

(iv) The adjusted UTE data are then added to corresponding corporate data to obtain the Adjusted Private Business Gross Operating Surplus (C23).

This method merely accomplishes its task: to isolate the effects on the private business rate of profit of trends to and from self-employment. It does not suggest how self-employment income may be separated into wage and property components. Nor does it say whether the separation should occur, an exercise that is clearly fraught with additional technical complications, conceptual predicaments, and inevitable disputes. Unless otherwise stated, adjusted data are used within the main body of this work.

Evaluation and criticism of this method are made easier because the private business table in Appendix 3 also gives unadjusted profit, value added, and productivity measures for comparison. In addition, a separate Self-employment Adjustment Rate is given (C32) so that the percentage contribution of the trend to and from self-employment on the recorded unadjusted rate of profit may be

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[5] Note that the labour method makes a similar assumption in the allocation of labour income and the property residual (see below).

[6] (ABS 6204.0).

[7] 1989-90 is the base-year presently used for constant price estimates in the Australian National Accounts.

measured. This allows the significance of this trend to be assessed. For example, it can be shown that the 12.48% reduction in self-employment from 1949 to 1994 contributed 14.12% of the 61.10% fall in the recorded (unadjusted) private business rate of profit, as opposed to the 85.88% contribution of the constituents of the adjusted rate. The implications of this may be stated more precisely: were the rate of profit to remain unadjusted, there would be a 14.12% distortion in any assessment of reasons for the fall in the rate of profit over those years.

Anticipating that my method will be contentious, I also present four alternative methods so that the overall results may be compared.[8] In so far as these lead to a similar evaluation of the competing Marxist theories, the evaluation given in Chapters 10-11 is strengthened. Of course, differing evaluations will open new sites of conflict. Results from the alternative approaches are cited at various points in the evaluation of theories. The alternative methods are:

(i) *Labour Method:* in principle, this is as described by King in the passage quoted above. The Labour Method columns (C103-119) of the private business table in Appendix 3 are derived by converting the data for the wage rate (C44) to current dollars and multiplying it by the total of private employment (WSE plus ESE). The value added data (C13) do not change. Gross "Profit" (C105) is calculated by subtraction.

(ii) *Asset Method:* in principle, as described by King above. The Asset Method columns (C69-85) are derived by applying the gross rate of profit of private corporate trading enterprises[9] to the gross fixed capital stock of UTEs, which is separated from the aggregate private business stock. This gives an imputed profit for UTEs, which is then added to corporate gross operating surplus to obtain Gross "Profit" (C71). Imputed wage income (C72) is derived by subtraction from the value added data (C13), which again do not change.

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[8] See columns 52-119 of the table Australian Private Business: Aggregates and Ratios in Appendix 3. Specific column references are given in the descriptions of the methods below.

[9] See C11 of the table Australian Private Corporate Trading Enterprises: Aggregates and Ratios in Appendix 3.

(iii) *Australian Bureau of Statistics Total Factor Productivity Method (ABS):* a version of the proportional method (C52-68).[10] In effect, aggregate UTE wage income is imputed by the Labour Method and aggregate UTE property income is imputed by the Asset Method. The two are used to derive imputed income shares. These are then applied to the UTE gross operating surplus to obtain "scaled" imputed UTE wage and property income. The "scaled" UTE wage data are added to existing wage data (C12) to obtain "Wages" (C55) and subtracted from existing gross operating surplus data (C11) to obtain Gross "Profit" (C54). Again, value added data (C13) do not change.

(iv) *Economic Planning Advisory Council Method (EPAC):* in principle, uses the Labour Method unless this results in the return to property falling below a "minimum return to capital" in the UTE sector (C86-102). This minimum is set by EPAC to cover "depreciation plus [the] real interest cost of funds employed."[11] When this occurs, the minimum rate is adopted and imputed UTE wage data are reduced accordingly. Here, I have chosen the minimum return to be that derived by the Asset Method (a practical difference from EPAC's set rate). As with the ABS Method, the imputed UTE wage data are added to existing wage data (C12) to obtain "Wages" (C89) and subtracted from existing gross operating surplus data (C11) to obtain Gross "Profit" (C88). Again, value added data (C13) do not change.

Note that, as labour income is attributed to the ABS ESE category by all four alternatives, aggregate data for persons employed and hours worked must be adjusted accordingly.[12] Hence each uses the ABS labour force categories for

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[10] Presented by Apsden (1990: 20). See also Covick (1990: 502-04), who summarises the problem that this method is designed to overcome: "...the revenue they [the self-employed] receive from their production is typically not sufficient for them to be deemed to be earning both the same average hourly rate of return on their labour as employees, and the same average rate of return on property as proprietors in the corporate sector."

[11] EPAC (1988: 23).

[12] Hours worked data start in 1966-67. For the years 1948-49 to 1965-66, data are available only for average persons or wage and salary earners employed (ABS 6204.0).

private persons employed and hours worked rather than those for private sector wage and salary earners (C9, C10). There is another significant difference. My approach adjusts profit to eliminate the effects of changes in self-employment. Thus it also adjusts value added and any ratio that is derived from it. The four alternative approaches do not adjust value added data. The two differences identified in this paragraph between my preferred approach and the alternatives mean that important ratios such as the capital-labour ratio, output-capital ratio, and labour productivity will also differ.

Which is the best way to measure these ratios? It is true to say that the unadjusted measure each year estimates more accurately, say, output per dollar of fixed capital. But it is also true to say that the trend over a number of years will not be "pure," in so far as it is affected by the self-employment trend. This trend will influence the levels of UTE output and capital stock and, on the reasonable assumption that corporate and unincorporated output-capital ratios differ, the overall private business average. The adjusted data correct for such developments, presenting the trends in the ratios as they would have been had the proportion of employers and self-employed been the same as in 1989-90. The question of which is the best way to measure the ratios, however, should be distinguished from the recognition that these are hypothetical ratios. Creating "what if" ratios is not a problem in itself. Indeed, all the other methods create hypothetical wage and profit shares. In principle there is no difference in this respect.

Nonetheless, I concede that it remains moot in this context which really is the best way to measure such ratios as the output-capital ratio, etc. The answer will be likely to depend on circumstances and purposes and will certainly depend on how sensibly any measure is used. Debates over statistical favourites are unedifying at the best of times and often take on a quixotic dimension. Suffice it to say that a range of estimates should be used for these ratios as well as for the different rates of profit. This is an additional argument for presenting the private business data in unadjusted, adjusted, and four alternative forms. In the end, I have used the "adjusted" approach in Chapter 10 because I think there is something to be said for a method that directly addresses the problem (the changing *level* of self-

employment). The other methods do not so much address the problem as banish it as an indirect result of the assumptions they make about income distribution.[13]

Finally, it must also be accepted that the different techniques for dealing with the self-employment trend can generate some noticeably different results. This is true especially for the profit share and consequent profit rate measures shown in the private business table in Appendix 3, where the similarities and differences among the six approaches may be observed. However, a weightier problem is that the *analysis* of major contributions to changes in profit rates is also affected by the choice of technique. This is directly germane to an evaluation of competing theories. In short we are confronted with a methodological dilemma. Theories (the wagging dog) should not have to depend for their validity on the acuity of an arbitrary statistical-allocative technique (the tail).

One case may be given as an example. It is easy to show that the choice of the Labour Method contains an endemic bias towards falling profit-share results: i.e., the theories of Chapter 8. Table A1.1 illustrates this using both gross and net data for the 1960s to the 1990s and for 1960-65 to 1970-75, years that are especially relevant to the original profits-squeeze argument (see also Chapter 10§§4-5). It also shows that an opposite bias is evident in the Asset Method.[14] The other approaches deliver a broadly similar answer to the question of whether the profit share or the current dollar output-capital ratio has been the more influential ratio over the long run, though there are obvious differences in the percentage weights attributed to each. The 1960-65 to 1970-75 figures calculated using other methods, despite being reasonably close, deposit themselves on either side of the 50% divide. Table A1.2 presents a finer decomposition, which allows us to compare the respective influences of the constant dollar output-capital used ratio and the profit share under the various methods. Again, the Labour Method tilts towards the profit share while all the other methods emphasise the constant dollar output-capital used ratio to varying degrees.

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[13] Though this may seem to contradict what I have just said, I do think that the ABS Method is the least problematic of the alternatives in terms of the purpose here. See n. 10.

[14] For an explanation of the differences between the results of the Asset and Labour Methods, see the passage from King quoted above.

TABLE A1.1

Contributions (%) of the Profit Share and the Current-Price Output-Capital Ratio to Profit Rate Changes with Net and Gross Ratios under Six Treatments of Self-Employment

YEARS FROM	TO	METHOD	RATIOS (GROSS or NET)	CHANGE IN PROFIT RATE $\Delta(GP_c/K_c)$ or $\Delta(NP_c/NK_c)$ %	OUTPUT-CAPITAL RATIO (current-price) (Yc/Kc) or (NYc/NKc) % contribution	PROFIT SHARE (GP/Y) or (NP/NY) % contribution
1964	1994	Adjusted	Gross	-10.79	69.55	30.45
		"	Net	-15.93	54.96	45.04
		Labour	Gross	-10.33	47.98	52.02
		"	Net	-15.81	29.85	70.15
		Asset	Gross	-5.58	95.96	4.04
		"	Net	-8.11	67.72	32.28
		EPAC	Gross	-7.22	77.51	22.49
		"	Net	-10.67	54.75	45.25
		ABSTFP	Gross	-7.44	70.98	29.02
		"	Net	-11.10	48.04	51.96
		Unadjusted	Gross	-10.45	70.60	29.40
		"	Net	-15.36	55.90	44.10
1964	1990	Adjusted	Gross	-9.56	71.67	28.33
		"	Net	-14.26	60.60	39.40
		Labour	Gross	-9.06	52.07	47.93
		"	Net	-13.68	37.14	62.86
		Asset	Gross	-4.77	104.24	-4.24
		"	Net	-6.90	80.79	19.21
		EPAC	Gross	-6.41	81.02	18.98
		"	Net	-9.47	62.64	37.36
		ABSTFP	Gross	-6.58	74.68	25.32
		"	Net	-9.76	55.96	44.04
		Unadjusted	Gross	-9.51	71.76	28.24
		"	Net	-14.18	60.67	39.33
1960-65	1970-75	Adjusted	Gross	-3.99	52.70	47.30
		"	Net	-6.45	51.55	48.45
		Labour	Gross	-5.90	32.85	67.15
		"	Net	-9.15	27.50	72.50
		Asset	Gross	-3.13	64.26	35.74
		"	Net	-4.86	55.04	44.96
		EPAC	Gross	-4.08	50.59	49.41
		"	Net	-6.35	43.70	56.30
		ABSTFP	Gross	-4.31	46.25	53.75
		"	Net	-6.69	39.39	60.61
		Unadjusted	Gross	-5.74	50.28	49.72
		"	Net	-9.14	47.58	52.42

TABLE A1.1
Continued

				Profit rate Δ	Output-capital	Profit share
1960-65	1990-94	Adjusted	Gross	-9.79	73.26	26.74
		"	Net	-14.55	59.75	40.25
		Labour	Gross	-9.27	52.15	47.85
		"	Net	-14.09	33.98	66.02
		Asset	Gross	-5.30	100.12	-0.12
		"	Net	-7.72	73.84	26.16
		EPAC	Gross	-6.26	87.18	12.82
		"	Net	-9.21	64.26	35.74
		ABSTFP	Gross	-6.80	76.16	23.84
		"	Net	-10.12	53.89	46.11
		Unadjusted	Gross	-9.91	73.45	26.55
		"	Net	-14.72	60.14	39.86

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

The need to contrast results derived from alternative legitimate methods and measurement choices is underscored because its is obvious from Tables A1.1 and A1.2 that the figures derived by decomposing the net profit rate are different from those derived from the gross rate. The remarks above about methodological dilemmas therefore apply with equal force to the "net" *versus* "gross" choice. It is clear that, were I to choose net rates and variables, I could offer results that reduce the relative influence of the output-capital ratio and increase that of the profit share. While I gave a number of reasons in Chapter 9§2 for electing to use the gross profit rate for the data analysis in Chapter 10, a few additional technical arguments are worth presenting here. These follow from the view that gross variables do not depend for their accuracy on the robustness of the particular depreciation methods adopted by the national accountants.[15]

It is a reasonably simple exercise to show that straight-line depreciation, which is used in the national accounts, *by itself* will bring about four effects that raise questions about the suitability of net variables in an analysis such as this. The first two concern the profit rate numerator:

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[15] See Chapter 9§2(i) and Hill (1979: 57, 60).

TABLE A1.2

Contributions (%) of Key Ratios to Profit Rate Changes with Net and Gross Ratios under Six Treatments of Self-Employment

YEARS		METHOD	RATIOS (GROSS or NET)	CHANGE IN PROFIT RATE	CAPAC-ITY USE	RELAT-IVE PRICE RATIO	OUTPUT-CAPITAL USED RATIO	PROFIT SHARE
				$\Delta(GP_c/K_c)$ or $\Delta(NP_c/NK_c)$	(K_u/K)	(P_y/P_k) or (P_{ny}/P_{nk})	(Y/K_u) or (NY/NK_u)	(GP/Y) or (NP/NY)
FROM	TO			%	% contrib.	% contrib.	% contrib.	% contrib.
1964	1994	Adjusted	Gross	-10.79	-4.85	-23.04	97.44	30.45
		"	Net	-15.93	-3.95	-17.56	76.47	45.04
		Labour	Gross	-10.33	-3.43	-16.29	67.69	52.02
		"	Net	-15.81	-2.21	-9.82	41.88	70.15
		Asset	Gross	-5.58	-6.85	-32.58	135.39	4.04
		"	Net	-8.11	-5.01	-22.28	95.01	32.28
		EPAC	Gross	-7.22	-5.54	-26.31	109.36	22.49
		"	Net	-10.67	-4.05	-18.01	76.81	45.25
		ABSTFP	Gross	-7.44	-5.07	-24.09	100.14	29.02
		"	Net	-11.10	-3.55	-15.80	67.40	51.96
		Unadjusted	Gross	-10.45	-5.04	-23.97	99.60	29.40
		"	Net	-15.36	-4.14	-18.39	78.43	44.10
1964	1990	Adjusted	Gross	-9.56	-11.77	-19.84	103.28	28.33
		"	Net	-14.26	-9.54	-13.56	83.71	39.40
		Labour	Gross	-9.06	-8.58	-14.46	75.10	47.93
		"	Net	-13.68	-5.86	-8.34	51.34	62.86
		Asset	Gross	-4.77	-17.17	-28.94	150.35	-4.24
		"	Net	-6.90	-12.76	-18.14	111.68	19.21
		EPAC	Gross	-6.41	-13.35	-22.49	116.86	18.98
		"	Net	-9.47	-9.89	-14.06	86.59	37.36
		ABSTFP	Gross	-6.58	-12.30	-20.73	107.72	25.32
		"	Net	-9.76	-8.84	-12.56	77.36	44.04
		Unadjusted	Gross	-9.51	-11.82	-19.92	103.50	28.24
		"	Net	-14.18	-9.58	-13.62	83.87	39.33
1960-65	1970-75	Adjusted	Gross	-3.99	-21.83	-28.68	104.69	47.30
		"	Net	-6.45	-16.52	-20.81	90.46	48.45
		Labour	Gross	-5.90	-9.83	-12.92	56.74	67.15
		"	Net	-9.15	-6.70	-8.43	41.07	72.50
		Asset	Gross	-3.13	-19.19	-25.21	110.74	35.74
		"	Net	-4.86	-13.29	-16.74	87.15	44.96
		EPAC	Gross	-4.08	-15.10	-19.84	87.13	49.41
		"	Net	-6.35	-10.55	-13.28	64.69	56.30
		ABSTFP	Gross	-4.31	-13.79	-18.12	79.60	53.75
		"	Net	-6.69	-9.51	-11.98	62.39	60.61
		Unadjusted	Gross	-5.74	-14.78	-19.42	85.29	49.72
		"	Net	-9.14	-11.26	-14.19	73.88	52.42

TABLE A1.2
Continued

				Profit rate Δ	Capacity use	Rel.prices	Out-CapU	Profit share
1960-65	1990-94	Adjusted	Gross	-9.79	-3.39	-26.77	103.55	26.74
		"	Net	-14.55	-2.72	-19.99	82.61	40.25
		Labour	Gross	-9.27	-2.42	-19.05	73.79	47.85
		"	Net	-14.09	-1.55	-11.40	45.66	66.02
		Asset	Gross	-5.30	-4.63	-36.50	141.38	-0.12
		"	Net	-7.72	-3.35	-24.66	102.02	26.16
		EPAC	Gross	-6.26	-4.03	-31.78	123.10	12.82
		"	Net	-9.21	-2.92	-21.46	85.96	35.74
		ABSTFP	Gross	-6.80	-3.52	-27.78	107.59	23.84
		"	Net	-10.12	-2.45	-18.01	74.51	46.11
		Unadjusted	Gross	-9.91	-3.39	-26.78	103.73	26.55
		"	Net	-14.72	-2.73	-20.08	83.08	39.86

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

(i) Net profits will decline as a proportion of gross profits when the gross profit rate declines (and *vice versa*). This is because depreciation is set (approximately) as a constant share of the gross fixed capital stock but gross profits and income, of course, are not.[16] Hence the net profit share will tend to decline more steeply than the gross share when the gross profit rate falls (and *vice versa*).

(ii) Even if the gross profit share does not decline, the net profit share will fall for the same reason as above if the gross output-capital ratio falls (and *vice versa*).

By analogy, the annual flow of straight-line depreciation charges can cause the changing gross variables to resonate on their net counterparts without more fundamental processes being involved at all. Furthermore, it also can be shown that straight-line depreciation can transmit two quite exogenous technical effects (or statistical biases) via the stock of accumulated depreciation provisions. These

16 Depreciation is also deducted from gross income to obtain net income, but it is obvious that the proportionate change in net income will always be less than that in net profits as the latter is a component of the former.

provisions comprise the difference between the gross and the net stocks of fixed capital, the profit rate denominators in this analysis. The effects are:

> (iii) The net capital stock, unlike the annual net profit flow, does not change if the gross profit rate moves. However, it will be affected by changes in the rate of investment of fixed capital. A declining rate of investment, for example, will decrease the proportion of the net to the gross stocks by increasing the relative weight of accumulated depreciation provisions (and *vice versa*). *Ceteris paribus*, two unacceptable by-products will be: (a) the net output-capital ratio will be distorted as an indicator of productivity trends, increasing in proportion to the gross measure if the rate of investment declines (and *vice versa*); and (b) the net profit rate will increase in proportion to the gross rate if the rate of investment declines (and *vice versa*).
>
> (iv) A change in the average lives of fixed capital assets (i.e., rate of retirement or scrapping) will affect both annual depreciation allocations and the relative weight of accumulated depreciation provisions. All three of the net profit rate, profit share, and output-capital ratio[17] will thus change in proportion to the corresponding gross measures. For example, with all three gross rates unchanged, a decline in average asset lives will reduce the net profit share, increase the net output-capital ratio, and reduce the net profit rate (and *vice versa*).

It is clear from Tables A1.1-1.2, the table in Appendix 3, and Chart A1.1 below that the effects on the profit rate numerator described in (i) and (ii) above have been the strongest over the years of this study. Both the net rate of profit and profit share have declined relatively to the gross rates. Thus decompositions of net variables will accord more weight to the declining profit share and less weight to

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[17] See my comments in Chapters 8§4 n. 67 and 10§2 n. 23 on Armstrong, Glyn, and Harrison Armstrong, Glyn, and Harrison (1991: 181-82, 248, 250; 1984: 253-54) on this point. It is worth noting, too, that the ratio of retirement to capital is also affected by the trend rate of investment, the former increasing if the latter declines.

the output-capital ratio than will decompositions of their gross counterparts (and *vice versa*). Moreover, due to (iii)(a) above, the declining rate of investment evident in general over these years will have acted to accentuate the emphasis on the profit share by tempering the relative decline in the net output-capital ratio. These arguments reinforce the point made in Chapter 9§2 that net estimates can be sensitive to the particular depreciation methods adopted and the techniques the statisticians use to gather their data on asset lives.

This Appendix and the arguments advanced in Chapter 9§2 explain why I think the adjusted gross variables used in Chapter 10 give better measures on balance. Nonetheless, my decisions may be debated. It should be understood clearly that I am not saying that results derived from the Labour Method and net variables are inherently suspect. Reasonable arguments can be presented for net variables, as well as for the Labour Method of treating self-employment income.[18] A case can also be mounted that not using either or both will unintentionally (or intentionally) reduce the importance of the declining profit share in an explanation of the underlying trends. My point is rather that it behoves authors who use a particular technique to point out its bias(es), juxtapose their results with results arrived at using alternative methods, and argue a case for their data.[19]

Since the Labour Method and net variables in combination give answers that are weighted differently from mine, and since they also are the techniques used in most other Marxist studies, this work offers the reader Table A1.3 so that the different results may be compared directly. It contrasts gross-adjusted, gross-labour, net-adjusted, and net-labour approaches to the key decompositions of the rate of profit used in Chapter 10. Chart A1.1 is also offered in this vein. So that an already complicated table was not made even more difficult to follow, similar results from the other methods of accounting for self-employment income have not been presented here. These, however, are in line with the general pattern established by Tables A1.1 and A1.2.

This appendix has outlined starkly the methodological problems that arise from what may appear superficially to be an innocuous, even arcane, series of choices

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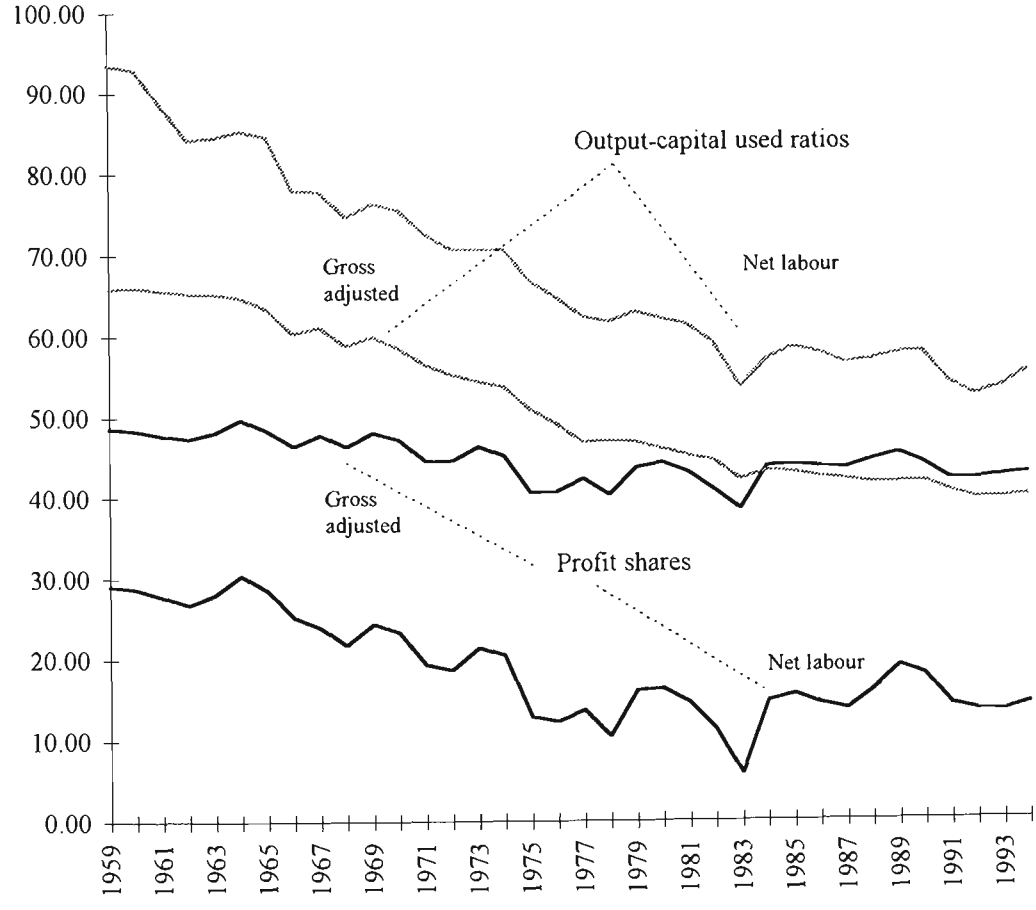
[18] Armstrong, Glyn, and Harrison (1984: 459-60), for instance, argue that straight-line depreciation is a reasonable proxy for economic depreciation.

[19] Armstrong, Glyn, and Harrison (1991, 1984), for example, can be criticised for erring in this respect.

between statistical-allocative techniques and variables. Yet it is also important to recognise that these problems also have their limits and do not sully our ability to draw substantive conclusions. The alternative measurement methods do not cast any doubt whatever on which ratios have been the major influences on the rate(s) of profit. At issue is how to weigh these influences. The consequences of the measurement choices for evaluating theories are similarly limited to this concern, as important as it may be in itself. Furthermore, in so far as my theoretical conclusions emphasise the *interplay* of the forces shaping the output-capital ratio and the profit share, I do not think the overall approach is compromised.[20]

CHART A1.1

Key Gross Adjusted and Net Labour Ratios Compared
Source: Appendix 3. Adjusted for self-employment income (C35, 43). Labour method (C141, 144). %



[20] See the Conclusion and Chapters 10§§5-7, 8§§2-4, and 7§6 *passim*.

TABLE A1.3

Contributions (%) of Key Ratios to Profit Rate Changes with Net and Gross Ratios under Adjusted and Labour Treatments of Self-Employment

YEARS		METHOD	RATIOS (GROSS or NET)	CHANGE IN PROFIT RATE	CAPAC-ITY USE	RELAT-IVE PRICE RATIO	OUTPUT-CAPITAL USED RATIO	PROFIT SHARE
				$\Delta(GP_c/K_c)$ or $\Delta(NP_c/NK_c)$	(K_u/K)	(P_y/P_k) or (P_{ny}/P_{nk})	(Y/K_u) or (NY/NK_u)	(GP/Y) or (NP/NY)
FROM	TO			%	% contrib.	% contrib.	% contrib.	% contrib.
(i) Long run								
1960-65	1985-90	Adjusted	Gross	-9.63	-5.91	-9.70	96.09	19.67
		"	Net	-14.29	-4.75	-6.14	78.51	32.68
		Labour	Gross	-8.97	-4.31	-7.08	69.29	42.31
		"	Net	-13.52	-2.84	-3.67	44.67	60.67
1965-70	1985-90	Adjusted	Gross	-8.49	-2.43	-2.45	88.00	16.99
		"	Net	-12.00	-2.02	0.03	70.45	31.81
		Labour	Gross	-6.37	-2.08	-2.10	68.98	35.27
		"	Net	-9.17	-1.37	0.02	39.65	58.56
1960-65	1990-94	Adjusted	Gross	-9.79	-3.39	-26.77	103.55	26.74
		"	Net	-14.55	-2.72	-19.99	82.61	40.25
		Labour	Gross	-9.27	-2.42	-19.05	73.79	47.85
		"	Net	-14.09	-1.55	-11.40	45.66	66.02
1965-70	1990-94	Adjusted	Gross	-8.65	0.28	-21.49	96.43	24.86
		"	Net	-12.26	0.23	-15.95	75.36	40.47
		Labour	Gross	-6.66	0.23	-17.77	74.78	42.78
		"	Net	-9.75	0.15	-10.16	41.34	65.56
1960-74	1982-94	Adjusted	Gross	-8.63	0.79	-10.76	88.06	22.05
		"	Net	-12.51	0.64	-7.12	69.71	37.04
		Labour	Gross	-7.03	0.62	-8.45	64.98	42.60
		"	Net	-10.47	0.39	-4.31	29.40	64.43
(ii) Phase to phase								
1960-74	1974-82	Adjusted	Gross	-7.16	-0.88	-0.40	70.37	31.82
		"	Net	-10.41	-0.71	0.75	57.79	43.35
		Labour	Gross	-6.59	-0.60	-0.27	45.19	55.80
		"	Net	-9.73	-0.38	0.40	17.97	71.17
1974-82	1982-94	Adjusted	Gross	-1.47	7.34	-51.31	157.30	-16.18
		"	Net	-2.10	5.78	-36.92	114.84	13.17
		Labour	Gross	-0.44	14.40	-100.66	288.20	-106.40
		"	Net	-0.74	6.80	-43.49	124.40	8.43
1960-65	1975-80	Adjusted	Gross	-8.87	-3.73	-6.70	75.61	34.68
		"	Net	-13.36	-2.96	-4.51	63.19	44.24
		Labour	Gross	-9.41	-2.30	-4.13	47.00	59.16
		"	Net	-14.25	-1.48	-2.25	30.38	71.72

TABLE A1.3
Continued

				Profit rate Δ	Capacity use	Rel.prices	Out-CapU	Profit share
1975-80	1985-90	Adjusted	Gross	-0.76	-26.01	-37.46	285.27	-118.90
		"	Net	-0.93	-23.86	-23.54	242.07	-90.72
		Labour	Gross	0.43	27.02	38.90	-277.91	304.74
		"	Net	0.73	12.98	12.80	-121.59	189.08
(iii) Peak Years								
Long run								
1964	1994	Adjusted	Gross	-10.79	-4.85	-23.04	97.44	30.45
		"	Net	-15.93	-3.95	-17.56	76.47	45.04
		Labour	Gross	-10.33	-3.43	-16.29	67.69	52.02
		"	Net	-15.81	-2.21	-9.82	41.88	70.15
1964	1990	Adjusted	Gross	-9.56	-11.77	-19.84	103.28	28.33
		"	Net	-14.26	-9.54	-13.56	83.71	39.40
		Labour	Gross	-9.06	-8.58	-14.46	75.10	47.93
		"	Net	-13.68	-5.86	-8.34	51.34	62.86
Successive								
1964	1973	Adjusted	Gross	-3.94	-26.28	-33.43	114.09	45.62
		"	Net	-6.45	-19.80	-23.36	96.11	47.05
		Labour	Gross	-5.94	-11.81	-15.02	60.23	66.61
		"	Net	-9.32	-8.15	-9.62	46.45	71.32
1973	1980	Adjusted	Gross	-6.12	8.60	19.85	56.24	15.30
		"	Net	-8.54	7.22	16.92	43.94	31.92
		Labour	Gross	-3.75	8.64	19.93	40.27	31.17
		"	Net	-5.36	5.58	13.08	22.20	59.15
1980	1990	Adjusted	Gross	0.50	126.20	329.53	-339.86	-15.87
		"	Net	0.73	97.89	231.95	-238.73	8.88
		Labour	Gross	0.63	62.08	162.11	-196.69	72.49
		"	Net	1.00	34.11	80.82	-101.74	86.81
Phase								
1964	1980	Adjusted	Gross	-10.05	-3.25	1.76	75.89	25.60
		"	Net	-14.99	-2.62	2.25	62.94	37.43
		Labour	Gross	-9.69	-2.30	1.24	50.94	50.12
		"	Net	-14.68	-1.54	1.32	34.76	65.46
1980	1994	Adjusted	Gross	-0.74	-21.77	-284.90	325.03	81.64
		"	Net	-0.94	-19.44	-248.65	234.23	133.86
		Labour	Gross	-0.64	-15.22	-199.19	242.47	71.94
		"	Net	-1.13	-7.10	-90.88	93.69	104.29
(iv) 1960s to 1970s								
Marker years								
1964	1974	Adjusted	Gross	-5.40	-19.51	-11.29	86.44	44.36
		"	Net	-7.99	-16.35	-7.21	76.97	46.59
		Labour	Gross	-7.04	-10.09	-5.84	51.32	64.61
		"	Net	-10.32	-7.49	-3.30	40.68	70.11
1970	1972	Adjusted	Gross	-2.93	6.43	-0.33	46.91	46.99
		"	Net	-4.57	4.93	0.27	41.42	53.38
		Labour	Gross	-2.70	4.28	-0.22	27.69	68.25
		"	Net	-4.20	2.71	0.15	20.39	76.76

TABLE A1.3
Continued

				Profit rate Δ	Capacity use	Rel.prices	Out-CapU	Profit share
1970	1973	Adjusted	Gross	-1.63	-0.76	-36.56	110.00	27.32
		"	Net	-2.34	-0.64	-27.09	93.07	34.67
		Labour	Gross	-1.44	-0.54	-25.81	73.25	53.10
		"	Net	-2.04	-0.39	-16.22	52.28	64.32
1970	1974	Adjusted	Gross	-3.10	-1.94	1.87	65.91	34.16
		"	Net	-3.88	-1.89	5.65	57.35	38.89
		Labour	Gross	-2.54	-1.47	1.41	45.68	54.38
		"	Net	-3.04	-1.25	3.74	34.12	63.39
1970	1975	Adjusted	Gross	-6.81	3.59	3.44	44.49	48.47
		"	Net	-9.73	2.96	4.37	35.77	56.89
		Labour	Gross	-6.01	2.39	2.29	25.44	69.88
		"	Net	-8.62	1.53	2.26	15.54	80.67
1973	1974	Adjusted	Gross	-1.46	-3.18	42.06	19.80	41.32
		"	Net	-1.54	-3.65	52.10	6.68	44.87
		Labour	Gross	-1.10	-2.58	34.15	12.52	55.92
		"	Net	-1.00	-2.85	40.60	0.58	61.66
1973	1975	Adjusted	Gross	-5.17	4.77	14.27	26.76	54.20
		"	Net	-7.39	3.91	12.63	20.74	62.73
		Labour	Gross	-4.56	3.12	9.35	13.43	74.09
		"	Net	-6.57	1.95	6.30	7.51	84.24
Period averages								
1960-65	1970-75	Adjusted	Gross	-3.99	-21.83	-28.68	104.69	47.30
		"	Net	-6.45	-16.52	-20.81	90.46	48.45
		Labour	Gross	-5.90	-9.83	-12.92	56.74	67.15
		"	Net	-9.15	-6.70	-8.43	41.07	72.50
1965-70	1970-75	Adjusted	Gross	-2.84	-15.80	-10.86	80.15	48.39
		"	Net	-4.15	-13.06	-7.07	68.92	53.31
		Labour	Gross	-3.30	-8.61	-5.91	47.77	68.18
		"	Net	-4.80	-5.99	-3.24	26.98	75.86
(v) 1979-82 and 1988-91								
1979	1981	Adjusted	Gross	-0.49	-30.30	-56.03	136.01	50.32
		"	Net	-0.74	-22.42	-34.89	92.49	64.82
		Labour	Gross	-0.62	-14.34	-26.52	63.93	76.94
		"	Net	-0.99	-7.39	-11.50	30.18	88.70
1979	1982	Adjusted	Gross	-1.80	5.05	-13.81	47.58	61.19
		"	Net	-2.80	3.61	-6.74	35.46	67.67
		Labour	Gross	-1.96	2.72	-7.45	27.39	77.34
		"	Net	-3.01	1.36	-2.54	14.31	86.87
1980	1981	Adjusted	Gross	-0.50	-35.62	-24.11	63.57	96.16
		"	Net	-0.82	-24.77	-12.30	44.29	92.78
		Labour	Gross	-0.69	-15.81	-10.70	34.60	91.92
		"	Net	-1.08	-8.23	-4.09	18.53	93.79

TABLE A1.3
Continued

				Profit rate Δ	Capacity use	Rel.prices	Out-CapU	Profit share
1980	1982	Adjusted	Gross	-1.82	3.34	-5.67	29.04	73.29
		"	Net	-2.87	2.35	-1.34	23.86	75.13
		Labour	Gross	-2.02	1.76	-2.99	19.16	82.07
		"	Net	-3.10	0.88	-0.50	11.16	88.46
1988	1990	Adjusted	Gross	1.47	19.09	88.87	3.58	-11.54
		"	Net	2.35	13.48	60.12	10.77	15.64
		Labour	Gross	1.07	16.60	77.27	-7.99	14.12
		"	Net	1.82	8.24	36.78	0.19	54.79
1988	1991	Adjusted	Gross	-0.12	306.18	-1377.86	375.29	796.40
		"	Net	-0.17	227.21	-1001.38	207.62	666.56
		Labour	Gross	-0.44	49.22	-221.51	81.38	190.91
		"	Net	-0.65	26.55	-117.02	37.46	153.01
1989	1990	Adjusted	Gross	0.05	147.62	1029.32	80.03	-1156.97
		"	Net	0.00	n.a.	n.a.	n.a.	n.a.
		Labour	Gross	-0.19	-22.48	-156.76	9.55	269.70
		"	Net	-0.34	-11.35	-76.71	0.47	187.59
1989	1991	Adjusted	Gross	-1.54	37.88	-52.87	30.49	84.50
		"	Net	-2.52	26.13	-36.74	22.00	88.62
		Labour	Gross	-1.70	21.43	-29.91	18.49	89.99
		"	Net	-2.81	10.90	-15.33	9.90	94.53
1990	1991	Adjusted	Gross	-1.59	40.94	-22.76	31.87	49.96
		"	Net	-2.52	29.01	-17.04	25.07	62.95
		Labour	Gross	-1.51	26.65	-14.82	19.56	68.61
		"	Net	-2.46	13.57	-7.97	11.03	83.37

The most influential variable in the direction of the rate of profit is underlined. Source: Appendix 3. Adjusted for self-employment (C29, 35, 36, 41, 43). See Table 9.1, Chapter 9§6 for the method used to obtain % contributions. NB. Contributions do not add exactly to 100 for average to average changes.

Appendix 2
Data Sources and Uses

1 General Approach

Data sources must be good and their uses have to be explained. It is frustrating when authors who use data extensively to support their views seem indifferent to this requirement, preferring instead to be parsimonious with their sources, cryptic in their references, or just plain vague. At a certain point, such tardiness or, more charitably, the victory of brevity over clarity, is costly. Their analyses can become opaque to the curious and, to that extent, also unconvincing. The aim here is to be as transparent as possible: the risk of pedantry notwithstanding. Readers should be able to clarify data cited in the text, tables, and charts by cross-referencing with this appendix and the column numbers of the heading panels of the tables presented in Appendix 3: Data Tables. All symbols correspond to those outlined in Figure 9.1 (Chapter 9§1).

All data series are annual and are from the most recent edition of the Australian Bureau of Statistics (ABS) catalogue cited. Stocks data are dated June 30 of the year shown. Flows are for the year to June 30 of the year shown. All data in constant dollars are consistent with the latest ABS base year: $M89-90 (million dollars at average prices for the 1989-90 financial year). The subscript (c) designates current dollars. No subscript designates constant dollars. Ratios always are presented in the percentage (%) form.

Most data come from updated annual editions of three publications: (i) *Australian National Accounts: National Income, Expenditure and Product* (ABS 5204.0); (ii) *Australian National Accounts: Capital Stock* (ABS 5221.0); and (iii) *Labour Force Australia* (ABS 6204.0 or 6203.0 for August of each year). The

publication *Australian National Accounts: Concepts, Sources and Methods* (ABS 5216.0) is the prime source for conceptual background on national accounts data, as is *A Guide to Labour Statistics* (ABS 6102.0) for labour data.

Unless otherwise stated, all references are to the most recent edition of the ABS catalogue cited. Data for years earlier than shown in the most recent ABS publications are obtained, in preferred order: (i) directly from the ABS in a consistent series with the most recent publications; or (ii) the Reserve Bank of Australia's compilation of ABS data.[1] An incremental method is used only if the ABS does not maintain a consistent series for earlier years and one is not available from the Reserve Bank. This entails using successive editions of the ABS publications to obtain earlier data, with priority being given to data in the more recent over less recent editions.

Other manipulations of data are identified clearly. An honest attempt also is made to make the reader aware of data limitations that are thought to be significant. If a number is underlined in the tables of Appendix 3 it means that a comment is made in this appendix or the relevant ABS source publication. ABS 5216.0 and 6102.0 are key sources for commentary on the accuracy and reliability of ABS estimates.[2] A consistent methodology is followed in estimating the absolute value of a given year's data, which means that proportionate changes in data are sound estimates. This suits the approach of this work, which places stress on the nature of change rather than the absolute number itself.

2 Australian Private Business: Aggregates and Ratios

This table covers the institutional sectors of private corporate trading enterprises, private financial enterprises, and unincorporated trading enterprises (including the self-employed[3]). Non-farm and farm businesses are included. Dwellings owned by persons are excluded here. This also removes the dwelling component of the private business capital stock: a limitation that should be recognised since private

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[1] Foster and Stewart (1991).

[2] See especially (ABS 5216.0: 32-40).

[3] See Appendix 1: Accounting for Self-Employment Income and Different Profit Rate Ratios.

business dwelling income is included in value added series, as is labour devoted to such activity included in labour series. The discrepancy is trivial.[4]

C1-8. *Capital Stock.* (ABS 5221.0). Fixed capital at replacement cost less totals for dwellings. The "industry of enterprise" statistical unit is used.[5] Real estate transfer expenses are excluded. Inventories of raw materials, work-in-process, and finished goods are not included. Data for these circulating capital items may be obtained in separate series, for farm and non-farm sectors, but have not been added here to the fixed capital series. A recognised limitation is that ABS estimates, in following the United Nations System of National Accounts recommendations, include quality change in constant-price estimates, which is to say that only "pure" price changes are included in price indexes. This means that "the effect of technological improvements is partly embodied in the constant price estimates of the capital stock..."[6]

C9-10. *Labour.* Labour of wage and salary earners. This differs from the ABS definition of the labour force, which includes employers and the self-employed, but it is the precise counterpart of the aggregate income component of wages, salaries, and supplements. A range of ABS data is used to construct the labour data shown because immediately suitable ABS labour data series are not available. Labour data are estimated in the following way: (i) average August-August employed wage and salary earners (6203.0; Foster and Stewart 1991: 156[7]) *less* (ii) average August-August public sector wage and salary earners (ABS 6248.0; Foster and Stewart 1991: 167) *times* 52 *times* (iii) all wage and salary earners' average hours worked per week (ABS 6203.0; Foster and Stewart 1991: 168). The ABS considers all the series used to be "sufficiently reliable for most purposes."[8]

ABS labour hours data are available only from 1967. Before then only data for private business wage and salary earners (persons) are given. Besides the usual caveats concerning use of different data collections, there are some specific

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[4] See EPAC (1988: 22).

[5] See (ABS 1231.0: Chapters 4 and 5) for detailed descriptions of statistical standards.

[6] Moore and Brown (1988: 64-65; see also 59-60). See also (ABS 5216.0: 169, 273-75), Apsden (1990), and Castles (1992).

[7] Foster and Stewart (1991: 156) cite M.W. Butlin (1977) for their total of wage and salary earners before 1965.

[8] (ABS 6203.0: 51).

problems of comparability and consistency between (ABS 6203/4.0) and (ABS 6248.0) concerning farm employees.[9] However, these do not apply to the government employees component, which is the only relevant one here. Note also that various alterations to ABS labour data methodology have occurred over the years. Averages for years before 1964-65 are June-June. The 1948-49 figure for total wage and salary earners is an exponential trend estimate calculated by the author, as are 1948-49 and 1949-50 figures for public sector wage and salary earners. A key assumption specific to this table is that average hours worked per week by all wage and salary earners is a reasonable approximation of private sector wage and salary earners' average hours worked per week. This assumption is supported by noting that those working in the private sector make up about three-quarters of the total.

C11-19. *Value Added* (ABS 5204.0). Income and production (output) estimates are of value added: defined here as the sum of private business gross operating surplus and the wages, salaries, and supplements of private business employees.[10] Private business gross operating surplus is the sum of the surpluses of private corporate and unincorporated trading enterprises and private financial enterprises after deduction of the stock valuation adjustment (SVA).[11] Annual consumption of fixed capital from ABS 5221.0 rather than 5204.0 is deducted to derive net operating surplus. Though they come from the same source series, small differences between 5221.0 and 5204.0 exist due to timing differences. The choice of the 5221.0 is arbitrary and is made to maintain comparability within the capital stock data. The implicit price deflator for the expenditure measure of GDP is used to obtain constant-dollar income magnitudes, a reasonable assumption given the weight of the private sector in total output.[12]

Two problems arise concerning private financial enterprises: (i) the bothersome issue of the imputed bank service charge (IBSC) and (ii) how to isolate private financial enterprises' gross operating surplus from that of public financial enterprises for the years before 1966-67. The IBSC appears in the national

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[9] Foster and Stewart (1991: 167 Note a).

[10] This corresponds to the "factor cost" definition of gross domestic product.

[11] (ABS 5204.0: Table 9 Note (a), 117), (5216.0: 64-67), (Jackson 1989: 116).

[12] See Chapter 10§1(i), especially n. 8.

accounts as a deduction from total gross operating surplus. However, it is not allocated to institutional sectors. Gross operating surpluses of private corporate and unincorporated trading enterprises, dwellings owned by persons, public trading enterprises, and general government are overstated to the extent of that portion of IBSC applicable to them. The IBSC is part of a broader imputed service charge used to estimate the value added by financial enterprises.[13] However, the ABS notes:

> "... The SNA [United Nations' System of National Accounts] treatment of the gross output of financial enterprises is currently being reviewed internationally and it appears likely that the treatment of the imputed bank service charge will be changed in the proposed 1991 edition of the SNA. It is expected that the service charge will be attributed to depositors with financial enterprises as well as borrowers and will be fully allocated to institutional sectors and industries.... Such a treatment would be adopted eventually in the ANA [Australian National Accounts]."[14]

The change, which will eliminate the problem, has not yet occurred.

The gross operating surplus of private financial enterprises may be obtained for the years from 1966-67 onwards in a series constructed incrementally. A consistent series is kept by the ABS at present only for the most recent 12 years. For 1960-61 to 1965-66, data are not distinguished between the public and private financial sectors. Before 1960-61, the only relevant entry is for financial enterprises gross operating surplus less IBSC. According to the ABS, the proposed change concerning the IBSC should (i) create a consistent series for the gross operating surplus of all financial enterprises from 1949-50 but (ii) is unlikely to disaggregate this series into private and public constituents.

Considering these (provisional) problems, I have opted to set the gross operating surplus of private financial enterprises equal to zero for all years. Hence, private business gross operating surplus in all versions of this table before the proposed

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[13] (ABS 5216.0: 80-81), EPAC (1988: 22; citing Covick 1982), Jackson (1989: 24-25).
[14] (ABS 5216.0: 80).

changes by the ABS should be understood to mean the gross operating surplus of private corporate trading enterprises and unincorporated enterprises only. This compromise is clearly undesirable. However, it should be noted in mitigation: (i) that similar compromises concerning IBSC are necessitated in all studies that use similar data sources;[15] (ii) private financial gross operating surplus is a relatively small part of the private business total (averaging less than 4% over the past 12 years); (iii) while it is possible to strip financial enterprises from capital stock data, a similar deletion cannot be accomplished precisely or easily for labour data (one set of data will always be at odds); and (iv) the trends (proportionate changes) in the relevant ratios derived from this data are not affected significantly.

The ABS currently keeps a consistent series for wages, salaries, and supplements only from the mid-1960s. However, data from 1959-60 were provided directly to the author by the ABS in 1990, when a consistent series from 1959-60 was available. The following method was used to estimate the 1948-49 to 1958-59 data: (i) total wages, salaries, and supplements of all employees (public and private) is multiplied by (ii) the average ratio of aggregate private to public wages, salaries, and supplements for the succeeding ten years (1959-60 to 1969-70) on the ground that (iii) this ratio has been relatively consistent over the years. Clearly, this series is not perfectly consistent and the first ten years should be used cautiously. However, from 1959-60 on, the quality of the sources and the stability of the series in relation to aggregate wages, salaries, and supplements and labour data suggest that the result for these years is satisfactory.

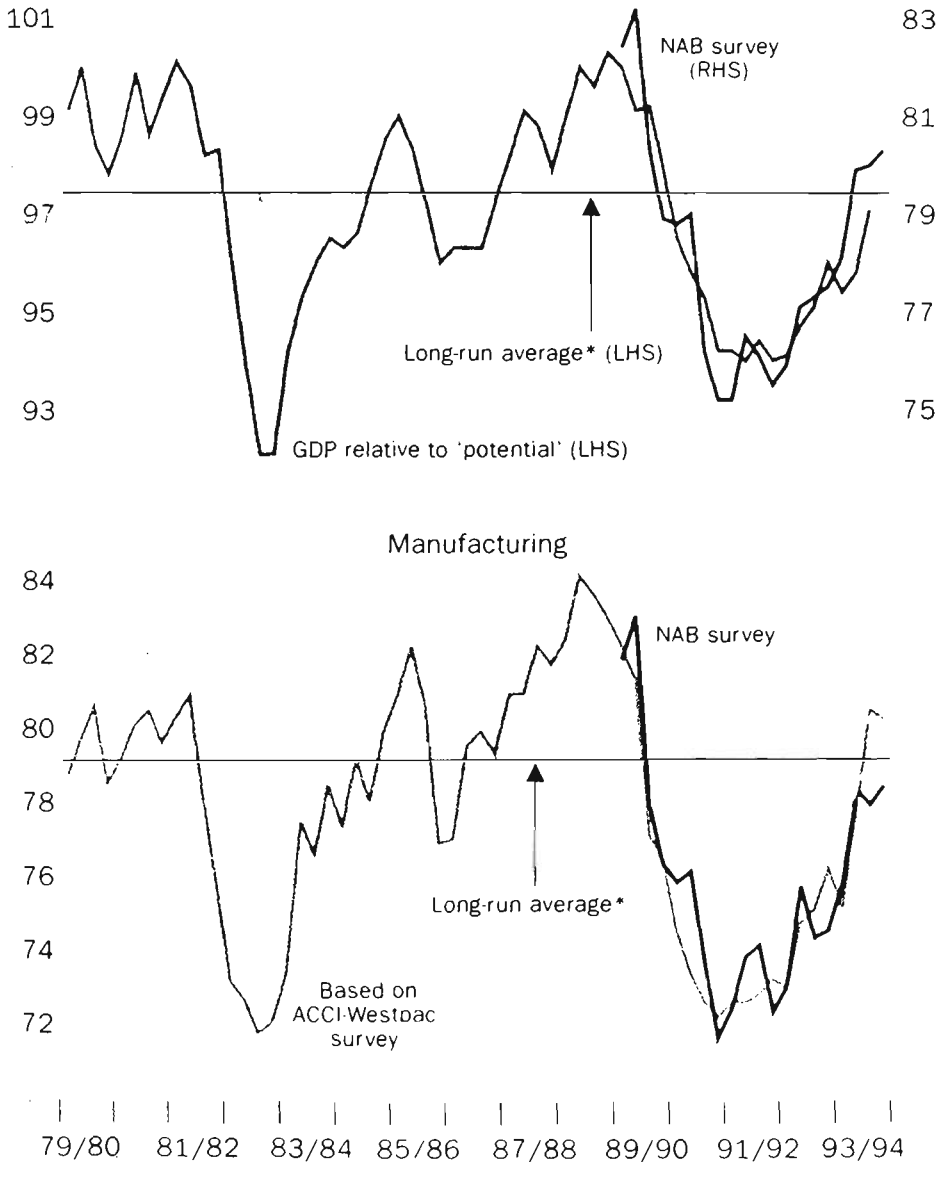
C41. *Capacity Use* (ABS 1343.0). The capacity use ratio of the National Income Forecasting model (NIF 10) is "the only proxy to a capacity utilisation rate published by the ABS ... [T]his estimate is constructed by dividing actual gross non-farm product (GNP) to potential GNP. Potential GNP is estimated by linking the time series peaks in actual GNP. We regard this estimate as a rather crude proxy because ... a peak in GNP does not necessarily mean that production is at total capacity; and ... the method of linking the peaks uses a constant growth rate between peaks, which ignores factors which may influence total capacity such as

[15] See, e.g., EPAC (1988), following Covick (1982).

technological progress."[16] (See the discussion in Chapter 9§§2(ii) and 5.) While the ABS measure differs from other published capacity use series, it should be remembered, in the present context, that trends and proportionate changes are far more important than absolute measures.[17] The Reserve Bank chart, reproduced here as **Figure A2.1**, shows that the various series available move in similar ways despite their different absolute magnitudes. It should be noted, however, that the ABS is currently considering whether to adopt a different estimation technique for its capacity use ratio.

FIGURE A2.1

Alternative Measures of Capacity Use
Source: RBA (1994: 10)



[16] Information provided with ABS capacity use series, October 25, 1995. The ABS is currently reviewing the series.

[17] See also the comments in (RBA 1994: 10).

C19-51. *Ratios.* Definitions and sources of the ratios derived in these columns are clear from the "Calc." row of the heading panel. They are also detailed in Chapter 9§2 and Figure 9.1 of Chapter 9§1. Note that the prime (') annotation means that data have been adjusted to eliminate the trend in self-employment in the preferred way outlined in Appendix 1. Data without this notation have not been adjusted and are distorted by the trend.

C52-69. *Net variables.* Definitions and sources of the ratios derived in these columns are also clear from the "Calc." row of the heading panel. The ratios are the net correlates of the gross ratios in columns C19-51, and the prime (') has the same meaning as there. Fixed capital stocks are net of accumulated depreciation (i.e., gross fixed capital stock less accumulated depreciation). Annual flows of value added are net of that year's depreciation expense (i.e., gross operating surplus or income less depreciation (C7)). See the detailed discussion in Chapter 9§2 and Appendix 1.

C70-141. *Alternative methods of treating self-employment income.* See Appendix 1 for a discussion of the ABS, asset, EPAC, and labour methods of accounting for self-employment income, which are set out in these columns. Only shown are those data that record a change from the data in columns 1-69 and the key net profit share variable for each method other than the Labour Method. For the latter a full set of net ratios is given (C141-C147). Note that the forms of the gross and net output-capital ratio for each method will equal the corresponding unadjusted gross and net ratios (C37, C42 and C60, C64). Labour product and capital intensity ratios, however, will differ because the labour denominator used in the alternative methods is not equal to that used prior to C70. This is explained in Appendix 1. Although these ratios have been included here for the Labour Method only, it is an easy exercise to calculate them from the data given.

3 Australian Private Corporate Trading Enterprises: Aggregates and Ratios

Non-farm and farm companies are included. Dwellings owned companies are included in the capital stock data and dwelling income obtained by them is included in value added series. The discrepancy noted for private businesses as a whole is

thus eliminated. Data in this table are generally more consistent, comparable, and reliable.

C1-8. *Capital Stock.* (ABS 5221.0). Fixed capital at replacement cost. The "industry of enterprise" statistical unit is used. Real estate transfer expenses are excluded. Inventories of raw materials, work-in-process, and finished goods are not included. The same caveat as for the private business table concerning technological change applies here (see §2C1-8).

C9-13. *Operating Surplus and Profit Rates* (ABS 5204.0). Wages, salaries, and supplements data are not compiled separately for the corporate sector. Hence, no income and production (output) estimates are possible. Gross operating surplus is given at factor cost and after deduction of the stock valuation adjustment (SVA).[18] Annual consumption of fixed capital from ABS 5221.0 rather than 5204.0 is deducted from the gross figure to derive net operating surplus (see §2C11-19). No problems arise concerning the gross operating surplus of private financial enterprises, which is a separate institutional sector from corporate trading enterprises. However, the operating surplus estimates here include the applicable component of the imputed bank service charge (see §2C11-19). Gross, net, and net-gross rates of profit before interest and tax are calculated as shown in the "Calc." row of the heading panel of the corporate table in Appendix 3. Data here are available in consistent series from 1948-49.

C14-22. *Interest, Tax, and Dividends* (5204.0). These are obtained from the Private Corporate Trading Enterprises Income and Outlay Account (Table 35). Interest is net, being interest, royalties, and land rent paid, plus third party insurance payments to persons, less interest, royalties, and land rent received.[19] The insurance payments involved are not significant, averaging less than 4% over the past 12 years, and are included with interest payments for convenience. Dividends are also net. Income tax payable is an accrual provision rather than an actual cash disbursement. These data are available in a consistent series only from

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[18] (ABS 5204.0: Table 9 Note (a), 117), (5216.0: 64-67) and (Jackson 1989: 116).
[19] (ABS 5216.0: 87-90; 5204.0: 105-06).

1959-60. Gross, net, and net-gross rates of profit after interest and after interest and tax are calculated as shown in the heading panel.

C23-26. *Finance of investment.* Current-dollar gross fixed capital expenditure (C25) is shown to be financed from retained profits (C23), which is equal to net operating surplus (C10) less net interest (C14), tax (C18), and dividends (C22). Added to current-dollar consumption of fixed capital (C7) it gives internal finance (C24). "External" finance (C26) is a residual: investment (C25) less internal finance. See Chapter 9§4 on the limitations of this definition of external finance.

C27-54. *Ratios.* Definitions and sources of the ratios derived in these columns are clear from the "Calc." row of the heading panel. They are also detailed in Chapter 9§2 and Figure 9.1 of Chapter 9§1. Note that the prime (') annotation here designates rates of investment, accumulation, and retirement calculated using year-end capital stock data (C27-29). Data without this notation use the year-start (previous year-end) data (C49-51). See §2C41 on capacity use (47), §2C11-19 and n. 11 on the use of the GDP implicit price deflator (C45).

4 Additional Tables

The following tables are not reproduced in Appendix 3 for reasons of space. However, they are available on disk from the author on request.

4.1 Source

(i) Value Added Source Data
(ii) Capital Stock Source Data
(iii) Labour Source Data
(iv) Self-Employment Source Data

4.2 Private Business: Aggregates and Ratios

(i) Annual % Change

(ii) Period Averages

(iii) Period Average % Change

(a) Ordinary Average of Annual % Change

(b) Compound Average % Growth Trend

4.3 Private Corporate Trading Enterprises: Aggregates and Ratios

(i) Annual % Change

(ii) Period Averages

(iii) Period Average % Change

(a) Ordinary Average of Annual % Change

(b) Compound Average % Growth Trend

4.4 Index Numbers

The tables shown in 4.1-4.4 in index number form.

Appendix 3
Data Tables

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	1 Kc Gross Non-Dw. Fix.Cap. Stock	2 K Gross Non-Dw. Fix.Cap. Stock	3 Pk GFCS Price Ratio	4 I Gross Non-Dw. Fix.Cap. Expend.	5 A GFCS Accumu-lation	6 R GFCS Retire-ment	7 Dc Consump-tion of Non-Dw. Fix.Cap.	8 NKc Net Non-Dw. Fix.Cap. Stock	9 N Private Wage& Salary Earners	10 L PWSE Total Hours/ Year	11 GPc Gross Operating Surplus	12 Wc Wages, Salaries, & Supple-ments	13 Yc Value Added (Output, Income)	14 Py GDP Implicit Price Deflator	15 GP Gross Operating Surplus	16 W Wages, Salaries, & Supple-ments	17 Y Value Added (Output, Income)	18 NPc Net Operating Surplus	19 NP Net Operating Surplus	20 GPc/Kc Gross Profit Rate	21 NPc/NKc Net Profit Rate	22 NPc/Kc Net-Gross Rate	23 GPc' Adj. Gross Operating Surplus	24 Yc' Value Added (Output, Income)	25 GP' Adj. Gross Operating Surplus	26 Y' Value Added (Output, Income)
	Abbrv.	GFCSc	GFCS		Expend. GFCE			CFC	NFCSc	PWSE											GPR	NPR	NGPR				
	ABS Table	5221.0 2,6	5221.0 2,6		5221.0 2,6			5221.0 2,6	5221.0 2,6			5204.0 9,88			5204.0 3,86												
	Calc.			C1/C2		C2(t)-C2(t-1)	C4-C5			Avg.1965-Aug.-Aug.				C11+C12		C11/C14	C12/C14	C13/C14	C11-C7	C18/C14	C11/C1	C18/C8	C18/C1		C12+C23	C23/C14	C24/C14
	Notes									See App.2	See App.2		See App.2											See App.1-2			
	$,%,#	$MCurr.	$M89-90	%	$M89-90	$M89-90	$M89-90	$MCurr.	$MCurr.	'000	M.Hrs.	$MCurr.	$MCurr.	$MCurr.	Index	$M89-90	$M89-90	$M89-90	$MCurr.	$M89-90	%	%	%	$MCurr.	$MCurr.	$M89-90	$M89-90
1949	1	4681	62260	7.52	4598	n/a	n/a	223	2743	2028	n/a	1644	1535	3179	6.4	25688	23985	49672	1421	22203	35.12	51.80	30.36	1436	2971	22432	46417
1950	2	5706	65446	8.72	5265	3186	2079	261	3384	2078	n/a	2050	1750	3800	7.0	29286	25007	54293	1789	25557	35.93	52.87	31.35	1809	3560	25843	50850
1951	3	7229	69525	10.40	6263	4079	2184	339	4359	2178	n/a	3037	2213	5250	8.8	34511	25145	59656	2698	30659	42.01	61.89	37.32	2715	4928	30850	55995
1952	4	8709	73761	11.81	6530	4236	2294	431	5306	2223	n/a	2494	2798	5292	9.2	27109	30417	57526	2063	22424	28.64	38.88	23.69	2255	5053	24508	54925
1953	5	9472	77333	12.25	5997	3572	2425	500	5778	2162	n/a	3140	3009	6149	10.5	29905	28657	58562	2640	25143	33.15	45.69	27.87	2822	5831	26875	55532
1954	6	10173	81960	12.41	7189	4627	2562	521	6258	2218	n/a	3453	3217	6670	10.8	31972	29786	61758	2932	27148	33.94	46.85	28.82	3146	6363	29129	58915
1955	7	11228	87273	12.87	7991	5313	2678	579	6965	2277	n/a	3490	3511	7001	10.9	32018	32211	64230	2911	26706	31.08	41.79	25.93	3191	6702	29276	61488
1956	8	12463	93407	13.34	8960	6134	2826	642	7800	2343	n/a	3712	3851	7563	11.2	33143	34386	67529	3070	27411	29.78	39.36	24.63	3431	7282	30632	65018
1957	9	13738	99678	13.78	9274	6271	3003	713	8645	2364	n/a	4126	4070	8196	12.0	34383	33916	68299	3413	28442	30.03	39.48	24.84	3839	7909	31990	65905
1958	10	14909	105885	14.08	9427	6207	3220	786	9415	2394	n/a	3970	4224	8194	12.0	33083	35198	68281	3184	26533	26.63	33.82	21.36	3738	7962	31149	66347
1959	11	16029	111831	14.33	9378	5946	3432	839	10129	2428	n/a	4411	4418	8829	12.0	36758	36815	73574	3572	29767	27.52	35.27	22.28	4184	8602	34865	71681
1960	12	17263	118649	14.55	10431	6818	3613	914	10939	2512	n/a	4828	4973	9801	12.6	38317	39468	77786	3914	31063	27.97	35.78	22.67	4648	9621	36891	76359
1961	13	18555	126348	14.69	11536	7699	3837	975	11812	2686	n/a	4953	5378	10331	13.0	38100	41369	79469	3978	30600	26.69	33.68	21.44	4913	10291	37790	79160
1962	14	19712	133434	14.77	11142	7086	4056	1049	12543	2664	n/a	5021	5498	10519	13.1	38328	41969	80298	3972	30321	25.47	31.67	20.15	4935	10433	37673	79643
1963	15	21028	141695	14.84	12513	8261	4252	1111	13409	2737	n/a	5509	5887	11396	13.3	41421	44263	85684	4398	33068	26.20	32.80	20.91	5456	11343	41021	85285
1964	16	22925	151119	15.17	13947	9424	4523	1196	14691	2834	n/a	6317	6424	12741	13.8	45775	46551	92326	5121	37109	27.56	34.86	22.34	6328	12752	45855	92406
1965	17	25260	161825	15.61	15435	10706	4729	1322	16283	2924	n/a	6751	7242	13993	14.2	47542	51000	98542	5429	38232	26.73	33.34	21.49	6757	13999	47584	98584
1966	18	27705	173553	15.96	16781	11728	5053	1454	17949	3054	n/a	6611	7797	14408	14.6	45281	53404	98685	5157	35322	23.86	28.73	18.61	6724	14521	46055	99459
1967	19	30203	184970	16.33	16896	11417	5479	1598	19616	3180	6258	7428	8462	15890	15.1	49192	56040	105232	5830	38609	24.59	29.72	19.30	7729	16191	51184	107224
1968	20	33018	196969	16.76	17754	11999	5755	1738	21458	3280	6413	7517	9224	16741	15.5	48497	59510	108006	5779	37284	22.77	26.93	17.50	7949	17173	51286	110795
1969	21	36483	210763	17.31	19963	13794	6169	1916	23785	3382	6541	8777	10225	19002	16.1	54516	63509	118025	6861	42615	24.06	28.85	18.81	9438	19663	58623	122133
1970	22	40594	224490	18.08	20412	13727	6685	2105	26497	3511	6783	9507	11530	21037	16.9	56254	68225	124479	7402	43799	23.42	27.94	18.23	10271	21801	60774	128999
1971	23	46125	240047	19.21	22668	15557	7111	2372	30187	3572	6948	9760	13121	22881	17.8	54831	73713	128545	7388	41506	21.16	24.47	16.02	10499	23620	58984	132697
1972	24	51715	254485	20.32	22021	14438	7583	2693	33821	3573	6911	10822	14450	25272	19.0	56958	76053	133011	8129	42784	20.93	24.04	15.72	11570	26020	60894	136946
1973	25	58217	268045	21.72	21694	13560	8134	2955	38002	3649	6983	12855	16006	28861	20.8	61803	76952	138755	9900	47596	22.08	26.05	17.01	13778	29784	66242	143194
1974	26	72052	262248	25.53	22906	14203	8703	3342	46978	3696	7025	14994	19509	34503	23.8	63000	81971	144971	11652	48958	20.81	24.80	16.17	15998	35507	67220	149191
1975	27	89992	294004	30.61	20995	11756	9239	4362	58244	3625	6777	15990	24480	40470	28.3	56502	86502	143004	11628	41088	17.77	19.96	12.92	16645	41125	58815	145316
1976	28	106179	305462	34.76	21269	11458	9811	5231	68174	3570	6580	18765	27921	46686	32.5	57738	85911	143649	13534	41643	17.67	19.85	12.75	19072	46993	58683	144594
1977	29	122620	316813	38.70	21726	11351	10377	6079	78040	3571	6536	21933	29808	51741	36.1	60756	82571	143327	15854	43917	17.89	20.32	12.93	21725	51533	60180	142751
1978	30	139812	328068	42.62	22245	11255	10990	7044	88172	3565	6544	23197	33873	57070	38.9	59632	87077	146710	16153	41524	16.59	18.32	11.55	22709	56582	58377	145454
1979	31	160187	342005	46.84	25533	13937	11596	8078	100698	3569	6607	28885	36353	65238	41.9	68938	86761	155699	20807	49659	18.03	20.66	12.99	28085	64438	67030	153791
1980	32	182680	354547	51.52	24622	12542	12080	9280	114215	3643	6706	33286	40487	73773	46.5	71583	87069	158652	24006	51626	18.22	21.02	13.14	32058	72545	68942	156011
1981	33	209058	370368	56.45	28904	15821	13083	10578	131011	3769	6879	36686	47293	83979	51.3	71513	92189	163702	26108	50893	17.55	19.93	12.49	35634	82927	69463	161652
1982	34	242257	388679	62.33	32314	18311	14003	12028	152757	3814	6921	38936	55327	94263	56.6	68792	97751	166542	26908	47541	16.07	17.61	11.11	38105	93432	67323	165074
1983	35	269897	404092	66.79	28224	15413	12811	13863	168654	3698	6673	38447	60156	98603	62.5	61515	96250	157765	24584	39334	14.25	14.58	9.11	37386	97542	59817	156067
1984	36	290008	417125	69.53	27990	13033	14957	14955	180247	3671	6661	50519	63192	113711	66.8	75627	94599	170226	35564	53240	17.42	19.73	12.26	48896	112088	73197	167796
1985	37	326474	433327	75.34	32003	16202	15801	15930	202694	3800	6897	56811	70206	127017	70.5	80583	99583	180166	40881	57987	17.40	20.17	12.52	54910	125116	77887	177470
1986	38	378805	450690	84.05	33692	17363	16329	18878	234529	3934	7098	62980	78115	141095	75.4	83528	103601	187129	44102	58491	16.83	18.80	11.64	60450	138565	80173	183773
1987	39	425461	468602	90.80	34852	17912	16940	21968	262988	4101	7389	68539	86069	154608	80.8	84825	106521	191347	46571	57637	16.11	17.71	10.95	66089	152158	81793	188314
1988	40	463972	490516	94.59	39657	21914	17743	24087	288162	4310	7811	78796	96196	174992	86.8	90779	110825	201604	54709	63029	16.98	18.99	11.79	76907	173103	88602	199427
1989	41	505530	516215	97.93	44198	25699	18499	25568	316507	4614	8446	91735	109804	201539	94.4	97177	116318	213495	66167	70092	18.15	20.91	13.09	91000	200804	96398	212716
1990	42	546545	540917	101.04	44021	24702	19319	27638	343377	4822	8839	98635	125563	224198	100.0	98635	125563	224198	70997	70997	18.05	20.68	12.99	98635	224198	98635	224198
1991	43	569976	558731	102.01	37924	17814	20110	29229	355713	4771	8647	94194	129468	223660	103.1	91362	125573	216935	64965	63012	16.53	18.26	11.40	93818	223284	90997	216570
1992	44	589606	571817	103.11	33929	13086	20843	30197	363099	4707	8457	95238	129574	224812	105.0	90703	123404	214107	65041	61944	16.15	17.91	11.03	93931	223505	89458	212862
1993	45	615706	585352	105.19	35327	13535	21792	32099	375120	4729	8532	101472	134483	235955	106.3	95458	126513	221971	69373	65262	16.48	18.49	11.27	98902	233385	93040	219553
1994	46	633182	600660	105.41	37803	15308	22495	33551	383525	4881	8922	108314	143024	251338	107.5	100757	133046	233803	74763	69547	17.11	19.49	11.81	106450	249474	99023	232068

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	27 NPc' Adj. Net Operating Surplus	28 NP' Adj. Net Operating Surplus	29 GPc'/Kc Adj. Gross Profit Rate GPR'	30 NPc'/NKc Adj. Net Profit Rate NPR'	31 NPc'/Kc Adj. Net-Gross Rate NGPR'	32 SE Self-Emp. ROP Adjust. Rate	33 Dc/Kc Deprec-iation/ Capital Ratio	34 GP/Y Gross Profit Share (GPc/Yc)	35 GP'/Y' Adjust. Gross Profit Share	36 Py/Pk Output/ Capital Price Ratio	37 Y/K Output/ Capital Ratio	38 Y'/K Adjust. Output/ Capital Ratio	39 W/Y Wage Share	40 W/Y' Adjust. Wage Share	41 Ku/K Capacity Use Ratio 1343.0	42 Y/Ku Output/ Capital Used Ratio	43 Y'/Ku Adj.Out. Capital Used Ratio	44 w Wage Rate (W/N,L)	45 Y/L Wage Labour Product	46 Y'/L Adjust. Wage Labour Product	47 K/L Capital/ Labour Ratio	48 Ku/L Capital Used/ Labour Ratio	49 I/K Invest-ment/ Capital Ratio	50 R/K Retire-ment/ Capital Ratio	51 A/K Rate of Accumul-ation
	Abbrv. ABS Table Calc.	C23-C7	C27/C14	C23/C1	C27/C8	C27/C1	C22/C31	C7/C1	C15/C17 (C11/C13)	C25/C26 (C23/C24)	C14/C3	C17/C2	C26/C2	C16/C17 (1-C34)	C16/C26 (1-C35)	Year Average	C17/ (C2xC41)	C26/ (C2xC41)	C16/C9 C16/C10	C17/C9 C17/C10	C26/C9 C26/C10	C2/C9 C2/C10	(C2xC41) /C9,C10	C4(t)/ C2(t-1)	C6(t)/ C2(t-1)	C49-C50, C5(t)/ C2(t-1)
	Notes																										
	$,%,#	$MCurr.	$M89-90	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	$	$	$	$	$	%	%	%
1949	1	1213	18948	30.67	44.21	25.91	117.18	4.76	51.71	48.33	85.12	79.78	74.55	48.29	51.67	n/a	n/a	n/a	11828.86	24497.51	22892.14	30705.61	n/a	n/a	n/a	n/a
1950	2	1548	22115	31.70	45.75	27.13	115.57	4.57	53.94	50.82	80.29	82.96	77.70	46.06	49.18	n/a	n/a	n/a	12035.80	26130.92	24474.06	31498.95	n/a	8.46	3.34	5.12
1951	3	2376	26998	37.55	54.50	32.86	113.56	4.69	57.85	55.09	84.63	85.81	80.54	42.15	44.91	n/a	n/a	n/a	11547.67	27396.75	25715.35	31928.82	n/a	9.57	3.34	6.23
1952	4	1824	19823	25.89	34.37	20.94	113.12	4.95	47.12	44.62	77.92	77.99	74.46	52.88	55.38	n/a	n/a	n/a	13686.16	25883.55	24713.27	33188.30	n/a	9.39	3.30	6.09
1953	5	2322	22113	29.79	40.18	24.51	113.70	5.28	51.06	48.40	85.73	75.73	71.81	48.94	51.60	n/a	n/a	n/a	13255.04	27087.03	25685.69	35769.20	n/a	8.13	3.29	4.84
1954	6	2625	24305	30.92	41.95	25.80	111.70	5.12	51.77	49.44	87.01	75.35	71.88	48.23	50.56	n/a	n/a	n/a	13432.27	27850.41	26568.36	36960.54	n/a	9.30	3.31	5.98
1955	7	2612	23964	28.42	37.50	23.26	111.44	5.16	49.85	47.61	84.72	73.60	70.45	50.15	52.39	n/a	n/a	n/a	14145.52	28206.23	27002.11	38325.54	n/a	9.75	3.27	6.48
1956	8	2789	24900	27.53	35.75	22.38	110.08	5.15	49.08	47.11	83.94	72.30	69.61	50.92	52.89	n/a	n/a	n/a	14676.22	28821.70	27749.95	39866.41	n/a	10.27	3.24	7.03
1957	9	3126	26048	27.94	36.16	22.75	109.19	5.19	50.34	48.54	87.07	68.52	66.12	49.66	51.46	n/a	n/a	n/a	14349.80	28897.43	27884.65	42173.89	n/a	9.93	3.21	6.71
1958	10	2952	24599	25.07	31.35	19.80	107.87	5.27	48.45	46.95	85.23	64.49	62.66	51.55	53.05	n/a	n/a	n/a	14702.96	28522.52	27714.33	44230.25	n/a	9.46	3.23	6.23
1959	11	3345	27874	26.10	33.02	20.87	106.79	5.23	49.96	48.64	83.72	65.79	64.10	50.04	51.36	97.40	67.55	65.81	15163.77	30304.05	29524.39	46061.74	44864.14	8.86	3.24	5.62
1960	12	3734	29637	26.93	34.14	21.63	104.81	5.29	49.26	48.31	86.60	65.56	64.36	50.74	51.69	97.55	67.21	65.97	15714.70	30971.20	30403.23	47241.34	46083.93	9.33	3.23	6.10
1961	13	3938	30290	26.48	33.34	21.22	101.02	5.25	47.94	47.74	88.52	62.90	62.65	52.06	52.26	95.58	65.81	65.55	15399.51	29582.05	29466.78	47032.46	44951.27	9.72	3.23	6.49
1962	14	3886	29665	25.04	30.98	19.71	102.21	5.32	47.73	47.30	88.68	60.18	59.69	52.27	52.70	91.48	65.79	65.25	15756.37	30145.74	29899.78	50094.42	45823.87	8.82	3.21	5.61
1963	15	4345	32668	25.95	32.40	20.66	101.22	5.28	48.34	48.10	89.62	60.47	60.19	51.66	51.90	92.40	65.44	65.14	16169.49	31300.74	31154.73	51761.68	47827.79	9.38	3.19	6.19
1964	16	5132	37188	27.60	34.93	22.39	99.79	5.22	49.58	49.62	90.97	61.09	61.15	50.42	50.38	94.53	64.63	64.69	16425.80	32578.01	32606.05	53323.57	50404.11	9.84	3.19	6.65
1965	17	5435	38274	26.75	33.38	21.52	99.89	5.23	48.25	48.27	90.97	60.89	60.92	51.75	51.73	96.43	63.15	63.18	17441.86	33701.18	33715.41	55343.71	53365.17	10.21	3.13	7.08
1966	18	5270	36096	24.27	29.36	19.02	97.86	5.25	45.88	46.31	91.46	56.86	57.31	54.12	53.69	95.13	59.78	60.24	17487.47	32314.92	32568.27	56830.89	54060.38	10.37	3.12	7.25
1967	19	6131	40601	25.59	31.25	20.30	95.09	5.29	46.75	47.74	92.48	56.89	57.97	53.25	52.26	95.00	59.89	61.02	8.95	16.82	17.13	29.56	28.08	9.74	3.16	6.58
1968	20	6211	40073	24.08	28.95	18.81	93.04	5.26	44.90	46.29	92.47	54.83	56.25	55.10	53.71	95.83	57.22	58.70	9.28	16.84	17.28	30.71	29.43	9.60	3.11	6.49
1969	21	7522	46723	25.87	31.63	20.62	91.21	5.25	46.19	48.00	93.01	56.00	57.95	53.81	52.00	96.85	57.82	59.83	9.71	18.04	18.67	32.22	31.20	10.14	3.13	7.00
1970	22	8166	48318	25.30	30.82	20.12	90.65	5.19	45.19	47.11	93.46	55.45	57.46	54.81	52.89	98.38	56.37	58.41	10.06	18.35	19.02	33.10	32.56	9.68	3.17	6.51
1971	23	8127	45658	22.76	26.92	17.62	90.91	5.14	42.66	44.45	92.64	53.55	55.28	57.34	55.55	98.28	54.49	56.25	10.61	18.50	19.10	34.55	33.95	10.10	3.17	6.93
1972	24	8877	46720	22.37	26.25	17.16	91.58	5.21	42.82	44.47	93.50	52.27	53.81	57.18	55.53	97.60	53.55	55.14	11.01	19.25	19.82	36.83	35.94	9.17	3.16	6.01
1973	25	10823	52035	23.67	28.48	18.59	91.47	5.08	44.54	46.26	95.77	51.77	53.42	55.46	53.74	98.43	52.59	54.28	11.02	19.87	20.51	38.38	37.78	8.52	3.20	5.33
1974	26	12656	53178	22.20	26.94	17.57	92.06	4.64	43.46	45.06	93.23	51.36	52.86	56.54	54.94	98.63	52.08	53.59	11.67	20.64	21.24	40.18	39.62	8.55	3.25	5.30
1975	27	12283	43401	18.50	21.09	13.65	94.67	4.85	39.51	40.47	92.46	48.64	49.43	60.49	59.53	97.28	50.00	50.81	12.76	21.10	21.44	43.38	42.20	7.44	3.27	4.17
1976	28	13841	42587	17.96	20.30	13.04	97.78	4.93	40.19	40.58	93.50	47.03	47.34	59.81	59.42	96.48	48.75	49.07	13.06	21.83	21.97	46.42	44.79	7.23	3.34	3.90
1977	29	15646	43341	17.72	20.05	12.76	101.33	4.96	42.39	42.16	93.27	45.24	45.06	57.61	57.84	96.43	46.92	46.73	12.63	21.93	21.84	48.47	46.74	7.11	3.40	3.72
1978	30	15665	40269	16.24	17.77	11.20	103.12	5.04	40.65	40.13	91.28	44.72	44.34	59.35	59.87	94.48	47.33	46.93	13.31	22.42	22.23	50.14	47.37	7.02	3.47	3.55
1979	31	20007	47750	17.53	19.87	12.49	104.00	5.04	44.28	43.58	89.46	45.53	44.97	55.72	56.42	96.10	47.37	46.79	13.13	23.57	23.28	51.77	49.75	7.78	3.53	4.25
1980	32	22778	48985	17.55	19.94	12.47	105.39	5.08	45.12	44.19	90.25	44.75	44.00	54.88	55.81	95.93	46.65	45.87	12.98	23.66	23.27	52.87	50.72	7.20	3.53	3.67
1981	33	25056	48843	17.05	19.13	11.99	104.20	5.06	43.68	42.97	90.88	44.20	43.65	56.32	57.03	96.93	45.60	45.03	13.40	23.80	23.50	53.84	52.19	8.15	3.69	4.46
1982	34	26077	46072	15.73	17.07	10.76	103.19	4.96	41.31	40.78	90.81	42.85	42.47	58.69	59.22	95.58	44.83	44.44	14.12	24.06	23.85	56.16	53.67	8.72	3.78	4.94
1983	35	23523	37636	13.85	13.95	8.72	104.51	5.14	38.99	38.33	93.58	39.04	38.62	61.01	61.67	91.90	42.48	42.03	14.42	23.64	23.39	60.56	55.65	7.26	3.30	3.97
1984	36	33941	50809	16.86	18.83	11.70	104.78	5.16	44.43	43.62	96.08	40.81	40.23	55.57	56.38	93.35	43.72	43.09	14.20	25.55	25.19	62.62	58.45	6.93	3.70	3.23
1985	37	36980	55291	16.82	19.23	11.94	104.88	4.88	44.73	43.89	93.57	41.58	40.96	55.27	56.11	95.28	43.64	42.99	14.44	26.12	25.73	62.83	59.86	7.67	3.79	3.88
1986	38	41572	55135	15.96	17.73	10.97	106.09	4.98	44.64	43.63	89.71	41.52	40.78	55.36	56.37	96.30	43.12	42.34	14.60	26.36	25.89	63.49	61.14	7.78	3.77	4.01
1987	39	44121	54605	15.53	16.78	10.37	105.55	5.16	44.33	43.43	88.99	40.83	40.19	55.67	56.57	95.63	42.70	42.02	14.42	25.90	25.48	63.42	60.64	7.73	3.76	3.97
1988	40	52820	60852	16.58	18.33	11.38	103.58	5.19	45.03	44.43	91.77	41.10	40.66	54.97	55.57	97.78	42.04	41.58	14.19	25.81	25.53	62.80	61.40	8.46	3.79	4.68
1989	41	65432	69313	18.00	20.67	12.94	101.12	5.06	45.52	45.32	96.40	41.36	41.21	54.48	54.68	99.00	41.78	41.62	13.77	25.28	25.18	61.12	60.51	9.01	3.77	5.24
1990	42	70997	70997	18.05	20.68	12.99	100.00	5.06	43.99	43.99	98.97	41.45	41.45	56.01	56.01	99.38	41.71	41.71	14.20	25.36	25.36	61.19	60.81	8.53	3.74	4.79
1991	43	64589	62647	16.46	18.16	11.33	100.58	5.13	42.11	42.02	101.07	38.83	38.76	57.89	57.98	95.70	40.57	40.50	14.52	25.09	25.05	64.62	61.84	7.01	3.72	3.29
1992	44	63734	60699	15.93	17.55	10.81	102.05	5.12	42.36	42.03	101.83	37.44	37.23	57.64	57.97	94.05	39.81	39.58	14.59	25.32	25.17	67.62	63.60	6.07	3.73	2.34
1993	45	66803	62844	16.06	17.81	10.85	103.85	5.21	43.00	42.38	101.06	37.92	37.51	57.00	57.62	94.83	39.99	39.55	14.83	26.01	25.73	68.60	65.05	6.18	3.81	2.37
1994	46	72899	67813	16.81	19.01	11.51	102.56	5.30	43.09	42.67	101.98	38.92	38.64	56.91	57.33	96.83	40.20	39.90	14.91	26.21	26.01	67.33	65.19	6.46	3.84	2.62

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item / Abbrv. / ABS Table / Calc. / Notes	52 NK Net Non-Dw. Fix.Cap. Stock NFCS 5221 2,6	53 NYc Net Value Added (Output, Income) C13-C7	54 NY Net Value Added (Output, Income) C53/C14	55 NYc' Net Value Added (Output, Income) C24-C7	56 NY' Net Value Added (Output, Income) C55/C14	57 NP/NY Net Profit Share (NPc/NYc) C19/C54 (C18/C53)	58 NP'/NY' Adjust. Net Profit Share C28/C56 (C27/C55)	59 Pny/Pnk NetOut./ Capital Price Ratio C14/ (C8/C52)	60 NY/NK NetOut./ Capital Ratio C54/C52	61 NY'/NK Adjust. NetOut./ Capital Ratio C56/C52	62 W/NY Net Wage Share C16/C54 (C12/C53)	63 W/NY' Adjust. Net Wage Share C16/C56 (C12/C55)	64 NY/NKu NetOut./ Capital Used Ratio C54/ (C52xC41)	65 NY'/NKu Adj.Net. Out.Cap. Used Ratio C56/ (C52xC41)	66 NY/L Net Wage Labour Product C54/C9 C54/C10	67 NY'/L Adjust. Net Wage Labour Product C56/C9 C56/C10	68 NK/L Net Capital/ Labour Ratio C52/C9 C52/C10	69 NKu/L Net Cap. Used/ Labour Ratio (C52xC41) /C9,C10
	$,%,#	$M89-90	$MCurr.	$M89-90	$MCurr.	$M89-90	%	%	%	%	%	%	%	%	%	$	$	$	$
1949	1	36485	2956	46188	2748	42933	48.07	44.13	85.13	126.59	117.67	51.93	55.87	n/a	n/a	22779.07	21173.70	17993.81	n/a
1950	2	38748	3539	50564	3299	47122	50.54	46.93	80.15	130.49	121.61	49.46	53.07	n/a	n/a	24336.37	22679.51	18649.29	n/a
1951	3	41784	4911	55804	4589	52143	54.94	51.78	84.35	133.55	124.79	45.06	48.22	n/a	n/a	25627.62	23946.22	19188.98	n/a
1952	4	44834	4861	52841	4622	50240	42.44	39.46	77.74	117.86	112.06	57.56	60.54	n/a	n/a	23775.66	22605.38	20172.78	n/a
1953	5	47127	5649	53800	5331	50771	46.73	43.56	85.64	114.16	107.73	53.27	56.44	n/a	n/a	24884.48	23483.15	21797.87	n/a
1954	6	50381	6149	56934	5842	54091	47.68	44.93	86.95	113.01	107.36	52.32	55.07	n/a	n/a	25674.95	24392.90	22719.73	n/a
1955	7	54162	6422	58918	6123	56176	45.33	42.66	84.76	108.78	103.72	54.67	57.34	n/a	n/a	25873.52	24669.40	23784.99	n/a
1956	8	58609	6921	61797	6640	59286	44.36	42.00	84.16	105.44	101.16	55.64	58.00	n/a	n/a	26375.20	25303.46	25014.51	n/a
1957	9	63055	7483	62357	7196	59964	45.61	43.44	87.53	98.89	95.10	54.39	56.56	n/a	n/a	26383.51	25370.72	26678.65	n/a
1958	10	67340	7408	61731	7176	59797	42.98	41.14	85.83	91.67	88.80	57.02	58.86	n/a	n/a	25786.46	24978.27	28129.24	n/a
1959	11	71270	7990	66582	7763	64689	44.71	43.09	84.43	93.42	90.77	55.29	56.91	95.92	93.19	27424.27	26644.62	29355.19	28591.96
1960	12	75928	8887	70532	8707	69105	44.04	42.89	87.46	92.89	91.01	55.96	57.11	95.23	93.30	28082.96	27514.99	30231.53	29490.86
1961	13	81319	9356	71969	9316	71660	42.52	42.27	89.50	88.50	88.12	57.48	57.73	92.60	92.20	26790.21	26674.94	30270.62	28931.15
1962	14	85943	9470	72290	9384	71635	41.94	41.41	89.76	84.11	83.35	58.06	58.59	91.95	91.12	27139.48	26893.52	32265.12	29514.52
1963	15	91551	10285	77331	10232	76931	42.76	42.46	90.81	84.47	84.03	57.24	57.54	91.42	90.94	28249.22	28103.21	33443.90	30902.16
1964	16	98133	11545	83659	11556	83739	44.36	44.41	92.18	85.25	85.33	55.64	55.59	90.19	90.27	29519.91	29547.94	34627.03	32731.20
1965	17	105662	12671	89232	12677	89274	42.85	42.87	92.15	84.45	84.49	57.15	57.13	87.58	87.62	30517.23	30531.47	36136.11	34844.25
1966	18	113932	12954	88726	13067	89500	39.81	40.33	92.67	77.88	78.56	60.19	59.67	81.87	82.58	29053.83	29307.17	37307.66	35488.91
1967	19	121688	14292	94649	14593	96641	40.79	42.01	93.67	77.78	79.42	59.21	57.99	81.87	83.60	15.12	15.44	19.44	18.47
1968	20	129669	15003	96794	15435	99582	38.52	40.24	93.67	74.65	76.80	61.48	59.76	77.90	80.14	15.09	15.53	20.22	19.38
1969	21	139169	17086	106124	17747	110232	40.16	42.39	94.20	76.26	79.21	59.84	57.61	78.74	81.78	16.22	16.85	21.27	20.60
1970	22	148385	18932	112024	19696	116543	39.10	41.46	94.64	75.50	78.54	60.90	58.54	76.74	79.84	16.52	17.18	21.88	21.52
1971	23	159097	20509	115219	21248	119371	36.02	38.25	93.81	72.42	75.03	63.98	61.75	73.69	76.35	16.58	17.18	22.90	22.50
1972	24	168393	22579	118837	23327	122773	36.00	38.05	94.60	70.57	72.91	64.00	61.95	72.31	74.70	17.20	17.77	24.37	23.78
1973	25	176645	25906	124548	26829	128987	38.22	40.34	96.68	70.51	73.02	61.78	59.66	71.64	74.19	17.84	18.47	25.30	24.90
1974	26	185395	31161	130929	32165	135149	37.39	39.35	93.92	70.62	72.90	62.61	60.65	71.61	73.91	18.64	19.24	26.39	26.03
1975	27	191576	36108	127590	36763	129903	32.20	33.41	93.08	66.60	67.81	67.80	66.59	68.47	69.71	18.83	19.17	28.27	27.50
1976	28	197432	41455	127554	41762	128498	32.65	33.14	94.12	64.61	65.08	67.35	66.86	66.97	67.46	19.38	19.53	30.00	28.95
1977	29	203135	45662	126488	45454	125912	34.72	34.42	93.97	62.27	61.98	65.28	65.58	64.58	64.28	19.35	19.26	31.08	29.97
1978	30	208759	50026	128602	49538	127346	32.29	31.62	92.10	61.60	61.00	67.71	68.38	65.21	64.57	19.65	19.46	31.90	30.14
1979	31	216990	57160	136420	56360	134512	36.40	35.50	90.29	62.87	61.99	63.60	64.50	65.42	64.51	20.65	20.36	32.84	31.56
1980	32	223586	64493	138695	63265	136054	37.22	36.00	91.03	62.03	60.85	62.78	64.00	64.67	63.44	20.68	20.29	33.34	31.98
1981	33	233669	73401	143082	72349	141032	35.57	34.63	91.50	61.23	60.36	64.43	65.37	63.18	62.27	20.80	20.50	33.97	32.92
1982	34	246185	82235	145292	81404	143823	32.72	32.03	91.22	59.02	58.42	67.28	67.97	61.75	61.13	20.99	20.78	35.57	34.00
1983	35	253560	84740	135584	83679	133886	29.01	28.11	93.96	53.47	52.80	70.99	71.89	58.19	57.46	20.32	20.06	38.00	34.92
1984	36	260081	98756	147838	97133	145408	36.01	34.94	96.39	56.84	55.91	63.99	65.06	60.89	59.89	22.19	21.83	39.04	36.45
1985	37	269813	111087	157570	109186	154874	36.80	35.70	93.84	58.40	57.40	63.20	64.30	61.30	60.25	22.85	22.46	39.12	37.27
1986	38	280322	122217	162092	119687	158736	36.08	34.73	90.12	57.82	56.63	63.92	65.27	60.04	58.80	22.84	22.36	39.49	38.03
1987	39	291084	132640	164158	130190	161126	35.11	33.89	89.43	56.40	55.35	64.89	66.11	58.98	57.89	22.22	21.81	39.39	37.67
1988	40	305636	150905	173854	149016	171677	36.25	35.45	92.06	56.88	56.17	63.75	64.55	58.18	57.45	22.26	21.98	39.13	38.26
1989	41	323485	175971	186410	175236	185631	37.60	37.34	96.48	57.63	57.38	62.40	62.66	58.21	57.96	22.07	21.98	38.30	37.92
1990	42	339865	196560	196560	196560	196560	36.12	36.12	98.98	57.83	57.83	63.88	63.88	58.20	58.20	22.24	22.24	38.45	38.21
1991	43	349130	194431	188585	194055	188220	33.41	33.28	101.19	54.02	53.91	66.59	66.72	56.44	56.33	21.81	21.77	40.38	38.64
1992	44	353683	194615	185348	193308	184103	33.42	32.97	102.28	52.41	52.05	66.58	67.03	55.72	55.35	21.92	21.77	41.82	39.34
1993	45	358986	203856	191774	201286	189356	34.03	33.19	101.73	53.42	52.75	65.97	66.81	56.34	55.63	22.48	22.19	42.07	39.90
1994	46	365967	217787	202593	215923	200859	34.33	33.76	102.58	55.36	54.88	65.67	66.24	57.17	56.68	22.71	22.51	41.02	39.72

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	ABS METHOD	70 Npp=N Private Persons Employed	71 Lpp=L PPE Total Hours/ Year	72 GPc Gross "Profit"	73 Wc "Wages"	74 GP Gross Operating Surplus	75 W Wages, Salaries, & Supple-ments	76 NPc Net Operating Surplus	77 NP Net Operating Surplus	78 GPc/Kc Gross Profit Rate	79 NPc/NKc Net Profit Rate	80 NPc/Kc Rate of Profit	81 GP/Y Gross Profit Share (GPc/Yc)	82 W/Y "Wage" Share	83 w "Wage" Rate (W/N,L)	84 Y/L Labour Product	85 K/L Capital/ Labour Ratio	86 Ku/L Capital Used/ Labour Ratio	87 NP/NY Net Profit Share (NPc/NYc)
	Abbrv. ABS Table Calc.		PPE								GPR	NPR	NGPR							
	Notes		Avg.1965-Aug.-Aug. See App.1-2	" " " "	See App.1	" "	C72/C14	C73/C14	C72-C7	C76/C14	C72/C1	C76/C8	C76/C1	C74/C17 (C73/C13)	C75/C17 (1-C81) (C73/C13)	C75/C70 C75/C71	C17/C70 C75/C71	C2/C70 C2/C71	(C2xC41) /C70,C71	C77/C54 (C76/C53)
	$,%,#		'000	M.Hrs.	$MCurr.	$MCurr.	$M89-90	$M89-90	$MCurr.	$M89-90	%	%	%	%	%	$	$	$	$	%
1949	1		2678	n/a	890	2289	13913	35759	667	10429	19.02	24.33	14.26	28.01	71.99	13353.75	18549.59	23250.38	n/a	22.58
1950	2		2726	n/a	1088	2712	15547	38746	827	11818	19.07	24.45	14.50	28.64	71.36	14214.95	19918.68	24010.54	n/a	23.37
1951	3		2839	n/a	1653	3597	18784	40872	1314	14932	22.87	30.14	18.18	31.49	68.51	14399.25	21016.88	24493.57	n/a	26.76
1952	4		2890	n/a	1285	4007	13971	43555	854	9287	14.76	16.10	9.81	24.29	75.71	15073.47	19908.70	25527.25	n/a	17.57
1953	5		2824	n/a	1836	4313	17485	41077	1336	12723	19.38	23.12	14.10	29.86	70.14	14545.86	20737.31	27384.21	n/a	23.65
1954	6		2890	n/a	2258	4412	20906	40852	1737	16082	22.19	27.75	17.07	33.85	66.15	14138.16	21373.34	28364.77	n/a	28.25
1955	7		2962	n/a	2237	4764	20524	43706	1658	15212	19.92	23.81	14.77	31.95	68.05	14754.85	21683.51	29462.72	n/a	25.82
1956	8		3034	n/a	2390	5173	21338	46192	1748	15606	19.18	22.41	14.02	31.60	68.40	15224.64	22257.49	30786.75	n/a	25.25
1957	9		3054	n/a	2739	5457	22826	45473	2026	16884	19.94	23.44	14.75	33.42	66.58	14892.11	22367.47	32643.85	n/a	27.08
1958	10		3083	n/a	2763	5431	23023	45258	1977	16473	18.53	21.00	13.26	33.72	66.28	14680.20	22148.10	34345.35	n/a	26.69
1959	11		3114	n/a	3068	5760	25571	48003	2229	18579	19.14	22.01	13.91	34.76	65.24	15415.92	23627.88	35914.06	34980.30	27.90
1960	12		3201	n/a	3415	6386	27103	50682	2501	19849	19.78	22.86	14.49	34.84	65.16	15835.49	24303.86	37071.44	36163.19	28.14
1961	13		3377	n/a	3453	6878	26565	52905	2478	19065	18.61	20.98	13.36	33.43	66.57	15664.33	23529.71	37409.84	35754.46	26.49
1962	14		3363	n/a	3514	7005	26821	53477	2465	18813	17.82	19.65	12.50	33.40	66.60	15903.11	23879.29	39681.20	36298.38	26.02
1963	15		3444	n/a	3903	7493	29345	56339	2792	20992	18.56	20.82	13.28	34.25	65.75	16356.46	24876.02	41137.19	38010.77	27.15
1964	16		3548	n/a	4514	8227	32709	59617	3318	24043	19.69	22.58	14.47	35.43	64.57	16802.90	26022.01	42592.73	40260.78	28.74
1965	17		3662	n/a	4821	9172	33954	64589	3499	24644	19.09	21.49	13.85	34.46	65.54	17637.50	26909.41	44190.33	42610.53	27.62
1966	18		3797	n/a	4698	9710	32177	66508	3244	22218	16.96	18.07	11.71	32.61	67.39	17514.37	25987.84	45703.71	43475.66	25.04
1967	19		3917	8049	5055	10835	33474	71757	3457	22892	16.74	17.62	11.44	31.81	68.19	8.91	13.07	22.98	21.83	24.19
1968	20		4007	8173	5362	11379	34596	73410	3624	23383	16.24	16.89	10.98	32.03	67.97	8.98	13.22	24.10	23.09	24.16
1969	21		4106	8281	6235	12767	38724	79301	4319	26823	17.09	18.16	11.84	32.81	67.19	9.58	14.25	25.45	24.65	25.28
1970	22		4246	8555	6964	14073	41206	83273	4859	28750	17.15	18.34	11.97	33.10	66.90	9.73	14.55	26.24	25.81	25.66
1971	23		4324	8773	7053	15828	39622	88923	4681	26296	15.29	15.51	10.15	30.82	69.18	10.14	14.65	27.36	26.89	22.82
1972	24		4338	8797	7614	17658	40075	92936	4921	25901	14.72	14.55	9.52	30.13	69.87	10.56	15.12	28.93	28.23	21.80
1973	25		4430	8895	8969	19892	43119	95635	6014	28913	15.41	15.83	10.33	31.08	68.92	10.75	15.60	30.14	29.66	23.21
1974	26		4504	8934	9860	24643	41429	103542	6518	27387	13.68	13.87	9.05	28.58	71.42	11.59	16.23	31.59	31.16	20.92
1975	27		4460	8714	10272	30198	36298	106706	5910	20884	11.41	10.15	6.57	25.38	74.62	12.24	16.41	33.74	32.82	16.37
1976	28		4438	8584	12128	34558	37316	106333	6897	21221	11.42	10.12	6.50	25.98	74.02	12.39	16.73	35.58	34.33	16.64
1977	29		4496	8652	14311	37430	39642	103685	8232	22803	11.67	10.55	6.71	27.66	72.34	11.98	16.57	36.62	35.31	18.03
1978	30		4515	8664	14988	42082	38528	108181	7944	20420	10.72	9.01	5.68	26.26	73.74	12.49	16.93	37.87	35.77	15.88
1979	31		4534	8729	18585	46653	44355	111344	10507	25076	11.60	10.43	6.56	28.49	71.51	12.76	17.84	39.18	37.65	18.38
1980	32		4653	8949	21826	51947	46937	111715	12546	26980	11.95	10.98	6.87	29.58	70.42	12.48	17.73	39.62	38.00	19.45
1981	33		4796	9138	24651	59328	48053	115649	14073	27433	11.79	10.74	6.73	29.35	70.65	12.66	17.91	40.53	39.28	19.17
1982	34		4834	9130	26071	68192	46062	120481	14043	24811	10.76	9.19	5.80	27.66	72.34	13.20	18.24	42.57	40.69	17.08
1983	35		4710	8871	26218	72385	41949	115816	12355	19768	9.71	7.33	4.58	26.59	73.41	13.06	17.78	45.55	41.86	14.58
1984	36		4690	8889	35745	77966	53510	116716	20790	31123	12.33	11.53	7.17	31.43	68.57	13.13	19.15	46.92	43.80	21.05
1985	37		4867	9223	41491	85526	58853	121313	25561	36257	12.71	12.61	7.83	32.67	67.33	13.15	19.53	48.98	44.76	23.01
1986	38		5061	9520	45678	95417	60580	126548	26800	35543	12.06	11.43	7.07	32.37	67.63	13.29	19.66	47.34	45.59	21.93
1987	39		5259	9843	49631	104977	61425	129922	27663	34236	11.66	10.52	6.50	32.10	67.90	13.20	19.44	47.61	45.52	20.86
1988	40		5483	10302	57504	117488	66248	135355	33417	38498	12.39	11.60	7.20	32.86	67.14	13.14	19.57	47.61	46.55	22.14
1989	41		5808	10979	66341	135198	70276	143219	40773	43191	13.12	12.88	8.07	32.92	67.08	13.04	19.44	47.02	46.55	23.17
1990	42		6042	11382	71659	152539	71659	152539	44021	44021	13.11	12.82	8.05	31.96	68.04	13.40	19.70	47.52	47.23	22.40
1991	43		5992	11157	67871	155789	65830	151105	38642	37480	11.91	10.86	6.78	30.35	69.65	13.54	19.44	50.08	47.92	19.87
1992	44		5948	11005	68471	156341	65210	148896	38274	36451	11.61	10.54	6.49	30.46	69.54	13.53	19.46	51.96	48.87	19.67
1993	45		6020	11219	72170	163785	67892	154078	40071	37696	11.72	10.68	6.51	30.59	69.41	13.73	19.79	52.17	49.47	19.66
1994	46		6182	11665	77595	173743	72182	161621	44044	40971	12.25	11.48	6.96	30.87	69.13	13.86	20.04	51.49	49.86	20.22

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	ASSET METHOD	88 Npp=N Private Persons Employed	89 Lpp=L PPE Total Hours/ Year	90 GPc Gross "Profit"	91 Wc "Wages"	92 GP Gross Operating Surplus	93 W Wages, Salaries, & Supple-ments	94 NPc Net Operating Surplus	95 NP Net Operating Surplus	96 GPc/Kc Gross Profit Rate	97 NPc/NKc Net Profit Rate	98 NPc/Kc Rate of Profit	99 GP/Y Gross Profit Share (GPc/Yc)	100 W/Y "Wage" Share	101 w "Wage" Rate (W/N,L)	102 Y/L Labour Product	103 K/L Capital/ Labour Ratio	104 Ku/L Capital Used/ Labour Ratio	105 NP/NY Net Profit Share (NPc/NYc)
	Abbrv. ABS Table Calc.		PPE								GPR	NPR	NGPR							
	Notes		Avg.1965-Aug.-Aug. See App.1-2	" " "	See App.1	" "	C90/C14	C91/C14	C90-C7	C94/C14	C90/C1	C94/C8	C94/C1	C92/C17 (C90/C13)	C93/C17 (1-C99) (C91/C13)	C93/C88 C93/C89	C17/C88 C17/C89	C2/C88 C2/C89	(C2xC41) /C88,C89	C95/C54 (C94/C53)
	$,%,#		'000	M.Hrs.	$MCurr.	$MCurr.	$M89-90	$M89-90	$MCurr.	$M89-90	%	%	%	%	%	$	$	$	$	
1949	1		2678	n/a	723	2456	11304	38368	500	7820	15.46	18.25	10.69	22.76	77.24	14328.05	18549.59	23250.38	n/a	16.93
1950	2		2726	n/a	814	2986	11629	42663	553	7901	14.27	16.34	9.69	21.42	78.58	15652.13	19918.68	24010.54	n/a	15.63
1951	3		2839	n/a	1121	4129	12737	46920	782	8885	15.50	17.94	10.82	21.35	78.65	16529.71	21016.88	24493.57	n/a	15.92
1952	4		2890	n/a	1073	4220	11662	45864	642	6977	12.32	12.10	7.37	20.27	79.73	15872.78	19908.70	25527.25	n/a	13.20
1953	5		2824	n/a	1547	4602	14732	43830	1047	9970	16.33	18.12	11.05	25.16	74.84	15520.71	20737.31	27384.21	n/a	18.53
1954	6		2890	n/a	2050	4620	18980	42779	1529	14155	20.15	24.43	15.03	30.73	69.27	14804.90	21373.34	28364.77	n/a	24.86
1955	7		2962	n/a	2065	4936	18943	45287	1486	13631	18.39	21.33	13.23	29.49	70.51	15288.39	21683.51	29462.72	n/a	23.14
1956	8		3034	n/a	2228	5336	19891	47639	1586	14159	17.87	20.33	12.72	29.45	70.55	15701.57	22257.49	30786.75	n/a	22.91
1957	9		3054	n/a	2552	5643	21270	47029	1839	15328	18.58	21.28	13.39	31.14	68.86	15401.67	22367.47	32643.85	n/a	24.58
1958	10		3083	n/a	2771	5423	23092	45189	1985	16542	18.59	21.08	13.31	33.82	66.18	14657.76	22148.10	34345.35	n/a	26.80
1959	11		3114	n/a	2973	5856	24771	48803	2134	17779	18.54	21.06	13.31	33.67	66.33	15672.78	23627.88	35914.06	34980.30	26.70
1960	12		3201	n/a	3364	6437	26702	51084	2450	19448	19.49	22.40	14.19	34.33	65.67	15960.90	24303.86	37071.44	36163.19	27.57
1961	13		3377	n/a	3338	6993	25676	53794	2363	18176	17.99	20.00	12.73	32.31	67.69	15927.52	23529.71	37409.84	35754.46	25.25
1962	14		3363	n/a	3451	7068	26346	53951	2402	18339	17.51	19.15	12.19	32.81	67.19	16044.31	23879.29	39681.20	36298.38	25.37
1963	15		3444	n/a	3818	7578	28709	56975	2707	20355	18.16	20.19	12.87	33.51	66.49	16541.21	24876.02	41137.19	38010.77	26.32
1964	16		3548	n/a	4322	8419	31320	61006	3126	22654	18.85	21.28	13.64	33.92	66.08	17194.38	26022.01	42592.73	40260.78	27.08
1965	17		3662	n/a	4721	9272	33250	65293	3399	23940	18.69	20.88	13.46	33.74	66.26	17829.77	26909.41	44190.33	42610.53	26.83
1966	18		3797	n/a	4684	9724	32084	66601	3230	22125	16.91	18.00	11.66	32.51	67.49	17538.91	25987.84	45703.71	43475.66	24.94
1967	19		3917	8049	5091	10799	33717	71515	3493	23134	16.86	17.81	11.57	32.04	67.96	8.88	13.07	22.98	21.83	24.44
1968	20		4007	8173	5657	11084	36499	71507	3919	25287	17.13	18.27	11.87	33.79	66.21	8.75	13.22	24.10	23.09	26.12
1969	21		4106	8281	6375	12627	39599	78426	4459	27699	17.48	18.75	12.22	33.55	66.45	9.47	14.25	25.45	24.65	26.10
1970	22		4246	8555	7340	13697	43433	81046	5235	30977	18.08	19.76	12.90	34.89	65.11	9.47	14.55	26.24	25.81	27.65
1971	23		4324	8773	7584	15317	42496	86049	5192	29170	16.40	17.20	11.26	33.06	66.94	9.81	14.65	27.36	26.89	25.32
1972	24		4338	8797	8072	17200	42486	90525	5379	28312	15.61	15.91	10.40	31.94	68.06	10.29	15.12	28.93	28.23	23.82
1973	25		4430	8895	9282	19579	44625	94129	6327	30419	15.94	16.65	10.87	32.16	67.84	10.58	15.60	30.14	29.66	24.42
1974	26		4504	8934	9952	24551	41816	103155	6610	27774	13.81	14.07	9.17	28.84	71.16	11.55	16.23	31.59	31.16	21.21
1975	27		4460	8714	10855	29615	38358	104645	6493	22945	12.06	11.15	7.22	26.82	73.18	12.01	16.41	33.74	32.82	17.98
1976	28		4438	8584	12967	33719	39899	103750	7736	23804	12.21	11.35	7.29	27.78	72.22	12.09	16.73	35.58	34.33	18.66
1977	29		4496	8652	15269	36472	42295	101032	9190	25456	12.45	11.78	7.49	29.51	70.49	11.68	16.57	36.62	35.31	20.13
1978	30		4515	8664	16220	40850	41697	105012	9176	23589	11.60	10.41	6.56	28.42	71.58	12.12	16.93	37.87	35.77	18.34
1979	31		4534	8729	19277	45961	46006	109693	11199	26727	12.03	11.12	6.99	29.55	70.45	12.57	17.84	39.18	37.65	19.59
1980	32		4653	8949	22908	50865	49266	109386	13628	29309	12.54	11.93	7.46	31.05	68.95	12.22	17.73	39.62	38.00	21.13
1981	33		4796	9138	26472	57507	51603	112099	15894	30983	12.66	12.13	7.60	31.52	68.48	12.27	17.91	40.53	39.28	21.65
1982	34		4834	9130	28394	65869	50166	116376	16366	28915	11.72	10.71	6.76	30.12	69.88	12.75	18.24	42.57	40.69	19.90
1983	35		4710	8871	29564	69039	47303	110462	15701	25122	10.95	9.31	5.82	29.98	70.02	12.45	17.78	45.55	41.86	18.53
1984	36		4690	8889	39215	74496	58705	111521	24260	36317	13.52	13.46	8.37	34.49	65.51	12.55	19.15	46.92	43.80	24.57
1985	37		4867	9223	46277	80740	65641	114525	30347	43045	14.17	14.97	9.30	36.43	63.57	12.42	19.53	46.98	44.76	27.32
1986	38		5061	9520	50878	90217	67477	119651	32000	42440	13.43	13.64	8.45	36.06	63.94	12.57	19.66	47.34	45.59	26.18
1987	39		5259	9843	54999	99609	68068	123278	33031	40880	12.93	12.56	7.76	35.57	64.43	12.52	19.44	47.61	45.52	24.90
1988	40		5483	10302	62949	112043	72522	129082	38862	44772	13.57	13.49	8.38	35.97	64.03	12.53	19.57	47.61	46.55	25.75
1989	41		5808	10979	70857	130682	75061	138434	45289	47976	14.02	14.31	8.96	35.16	64.84	12.61	19.44	47.02	46.55	25.74
1990	42		6042	11382	77001	147197	77001	147197	49363	49363	14.09	14.38	9.03	34.35	65.65	12.93	19.70	47.52	47.23	25.11
1991	43		5992	11157	73800	149860	71581	145354	44571	43231	12.95	12.53	7.82	33.00	67.00	13.03	19.44	50.08	47.92	22.92
1992	44		5948	11005	74669	150143	71114	142993	44472	42355	12.66	12.25	7.54	33.21	66.79	12.99	19.46	51.96	48.87	22.85
1993	45		6020	11219	78442	157513	73793	148177	46343	43597	12.74	12.35	7.53	33.24	66.76	13.21	19.79	52.17	49.47	22.73
1994	46		6182	11665	84064	167274	78199	155603	50513	46989	13.28	13.17	7.98	33.45	66.55	13.34	20.04	51.49	49.86	23.19

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	E P A C M E T H O D	106 Npp=N Private Persons Employed	107 Lpp=L PPE Total Hours/ Year	108 GPc Gross "Profit"	109 Wc "Wages"	110 GP Gross Operating Surplus	111 W Wages, Salaries, & Supple-ments	112 NPc Net Operating Surplus	113 NP Net Operating Surplus	114 GPc/Kc Gross Profit Rate	115 NPc/NKc Net Profit Rate	116 NPc/Kc Rate of Profit	117 GP/Y Gross Profit Share (GPc/Yc)	118 W/Y "Wage" Share	119 w "Wage" Rate (W/N,L)	120 Y/L Labour Product	121 K/L Capital/ Labour Ratio	122 Ku/L Capital Used/ Labour Ratio	123 NP/NY Net Profit Share (NPc/NYc)
	Abbrv. ABS Table Calc.		PPE				C108/C14	C109/C14	C108-C7	C112/C14	C108/C1	C112/C8	C112/C1	C110/C17 (C108/C13)	C111/C17 (1-C117) (C89/C13)	C111/ C105,C107	C17/ C105,C107	C2 C105,C107	(C2xC41)/ C105,C107	C113/C54 (C111/C53)
	Notes		Avg.1965-Aug.-Aug. See App.1-2	" " " "	See App.1	"														
	$,%,#		'000	M.Hrs.	$MCurr.	$MCurr.	$M89-90	$M89-90	$MCurr.	$M89-90	%	%	%	%	%	$	$	$	$	
1949	1		2678	n/a	1152	2027	17997	31675	929	14512	24.61	33.86	19.84	36.23	63.77	11828.86	18549.59	23250.38	n/a	31.42
1950	2		2726	n/a	1504	2296	21487	32806	1243	17758	26.36	36.73	21.79	39.58	60.42	12035.80	19918.68	24010.54	n/a	35.12
1951	3		2839	n/a	2365	2884	26878	32778	2026	23026	32.72	46.49	28.03	45.06	54.94	11547.67	21016.88	24493.57	n/a	41.26
1952	4		2890	n/a	1654	3638	17980	39546	1223	13295	18.99	23.05	14.04	31.26	68.74	13686.16	19908.70	25527.25	n/a	25.16
1953	5		2824	n/a	2219	3930	21130	37432	1719	16368	23.42	29.74	18.14	36.08	63.92	13255.04	20737.31	27384.21	n/a	30.42
1954	6		2890	n/a	2478	4192	22946	38813	1957	18122	24.36	31.27	19.24	37.15	62.85	13432.27	21373.34	28364.77	n/a	31.83
1955	7		2962	n/a	2434	4567	22329	41901	1855	17017	21.68	26.63	16.52	34.76	65.24	14145.52	21683.51	29462.72	n/a	28.88
1956	8		3034	n/a	2576	4987	23002	44528	1934	17269	20.67	24.80	15.52	34.06	65.94	14676.22	22257.49	30786.75	n/a	27.95
1957	9		3054	n/a	2938	5258	24482	43817	2225	18540	21.38	25.74	16.19	35.85	64.15	14349.80	22367.47	32643.85	n/a	29.73
1958	10		3083	n/a	2771	5423	23092	45189	1985	16542	18.59	21.08	13.31	33.82	66.18	14657.76	22148.10	34345.35	n/a	26.80
1959	11		3114	n/a	3163	5666	26356	47218	2324	19364	19.73	22.94	14.50	35.82	64.18	15163.77	23627.88	35914.06	34980.30	29.08
1960	12		3201	n/a	3464	6337	27490	50296	2550	20236	20.06	23.31	14.77	35.34	64.66	15714.70	24303.86	37071.44	36163.19	28.69
1961	13		3377	n/a	3570	6761	27459	52010	2595	19959	19.24	21.97	13.98	34.55	65.45	15399.51	23529.71	37409.84	35754.46	27.73
1962	14		3363	n/a	3578	6941	27315	52983	2529	19307	18.15	20.16	12.83	34.02	65.98	15756.37	23879.29	39681.20	36298.38	26.71
1963	15		3444	n/a	3989	7407	29989	55695	2878	21636	18.97	21.46	13.68	35.00	65.00	16169.49	24876.02	41137.19	38010.77	27.98
1964	16		3548	n/a	4699	8042	34047	58279	3503	25381	20.50	23.84	15.28	36.88	63.12	16425.80	26022.01	42592.73	40260.78	30.34
1965	17		3662	n/a	4923	9070	34670	63872	3601	25360	19.49	22.12	14.26	35.18	64.82	17441.86	26909.41	44190.33	42610.53	28.42
1966	18		3797	n/a	4713	9695	32279	66406	3259	22320	17.01	18.16	11.76	32.71	67.29	17487.47	25987.84	45703.71	43475.66	25.16
1967	19		3917	8049	5091	10799	33717	71515	3493	23134	16.86	17.81	11.57	32.04	67.96	8.88	13.07	22.98	21.83	24.44
1968	20		4007	8173	5657	11084	36499	71507	3919	25287	17.13	18.27	11.87	33.79	66.21	8.75	13.22	24.10	23.09	26.12
1969	21		4106	8281	6375	12627	39599	78426	4459	27699	17.48	18.75	12.22	33.55	66.45	9.47	14.25	25.45	24.65	26.10
1970	22		4246	8555	7340	13697	43433	81046	5235	30977	18.08	19.76	12.90	34.89	65.11	9.47	14.55	26.24	25.81	27.65
1971	23		4324	8773	7564	15317	42496	86049	5192	29170	16.40	17.20	11.26	33.06	66.94	9.81	14.65	27.36	26.89	25.32
1972	24		4338	8797	8072	17200	42486	90525	5379	28312	15.61	15.91	10.40	31.94	68.06	10.29	15.12	28.93	28.23	23.82
1973	25		4430	8895	9282	19579	44625	94129	6327	30419	15.94	16.65	10.87	32.16	67.84	10.58	15.60	30.14	29.66	24.42
1974	26		4504	8934	9952	24551	41816	103155	6610	27774	13.81	14.07	9.17	28.84	71.16	11.55	16.23	31.59	31.16	21.21
1975	27		4460	8714	10855	29615	38358	104645	6493	22945	12.06	11.15	7.22	26.82	73.18	12.01	16.41	33.74	32.82	17.98
1976	28		4438	8584	12967	33719	39899	103750	7736	23804	12.21	11.35	7.29	27.78	72.22	12.09	16.73	35.58	34.33	18.66
1977	29		4496	8652	15269	36472	42295	101032	9190	25456	12.45	11.78	7.49	29.51	70.49	11.68	16.57	36.62	35.31	20.13
1978	30		4515	8664	16220	40850	41697	105012	9176	23589	11.60	10.41	6.56	28.42	71.58	12.12	16.93	37.87	35.77	18.34
1979	31		4534	8729	19277	45961	46006	109693	11199	26727	12.03	11.12	6.99	29.55	70.45	12.57	17.84	39.18	37.65	19.59
1980	32		4653	8949	22908	50865	49266	109386	13628	29309	12.54	11.93	7.46	31.05	68.95	12.22	17.73	39 62	38.00	21.13
1981	33		4796	9138	26472	57507	51603	112099	15894	30983	12.66	12.13	7.60	31.52	68.48	12.27	17.91	40.53	39.28	21.65
1982	34		4834	9130	28394	65869	50166	116376	16366	28915	11.72	10.71	6.76	30.12	69.88	12.75	18.24	42 57	40.69	19.90
1983	35		4710	8871	29564	69039	47303	110462	15701	25122	10.95	9.31	5.82	29.98	70.02	12.45	17.78	45 55	41.86	18.53
1984	36		4690	8889	39215	74496	58705	111521	24260	36317	13.52	13.46	8.37	34.49	65.51	12.55	19.15	46.92	43 80	24.57
1985	37		4867	9223	46277	80740	65641	114525	30347	43045	14.17	14.97	9.30	36 43	63.57	12.42	19.53	46.98	44.76	27.32
1986	38		5061	9520	50878	90217	67477	119651	32000	42440	13.43	13.64	8.45	36.06	63.94	12.57	19.66	47.34	45.59	26.18
1987	39		5259	9843	54999	99609	68068	123278	33031	40880	12.93	12.56	7.76	35.57	64.43	12.52	19.44	47.61	45.52	24.90
1988	40		5483	10302	62949	112043	72522	129082	38862	44772	13.57	13.49	8.38	35.97	64.03	12.53	19.57	47.61	46.55	25.75
1989	41		5808	10979	70857	130682	75061	138434	45289	47976	14.02	14.31	8.96	35.16	64.84	12.61	19.44	47.02	46.55	25.74
1990	42		6042	11382	77001	147197	77001	147197	49363	49363	14.09	14.38	9.03	34.35	65.65	12.93	19.70	47.52	47.23	25.11
1991	43		5992	11157	73800	149860	71581	145354	44571	43231	12.95	12.53	7.82	33.00	67.00	13.03	19.44	50.08	47.92	22.92
1992	44		5948	11005	74669	150143	71114	142993	44472	42355	12.66	12.25	7.54	33.21	86.79	12.99	19.46	51.96	48.87	22.85
1993	45		6020	11219	78442	157513	73793	148177	46343	43597	12.74	12.35	7.53	33.24	66.76	13.21	19.79	52.17	49.47	22.73
1994	46		6182	11665	84064	167274	78199	155603	50513	46989	13.28	13.17	7.98	33.45	66.55	13.34	20.04	51.49	49.86	23.19

AUSTRALIAN PRIVATE BUSINESS: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	LABOUR METHOD	124 Npp=N Private Persons Employed	125 Lpp=L PPE Total Hours/ Year	126 GPc Gross "Profit"	127 Wc "Wages"	128 GP Gross Operating Surplus	129 W Wages, Salaries, & Supple-ments	130 NPc Net Operating Surplus	131 NP Net Operating Surplus	132 GPc/Kc Gross Profit Rate	133 NPc/NKc Net Profit Rate	134 NPc/Kc Rate of Profit	135 GP/Y Gross Profit Share (GPc/Yc)	136 W/Y "Wage" Share	137 w "Wage" Rate (W/N,L)	138 Y/L Labour Product	139 K/L Capital/ Labour Ratio	140 Ku/L Capital Used/ Labour Ratio	141 NP/NY Net Profit Share (NPc/NYc)	142 NY/NK NetOut./ Capital Ratio	143 W/NY Net Wage Share	144 NY/NKu NetOut / Capital Used Ratio	145 NY/L Net Wage Labour Product	146 NK/L Net Capital/ Labour Ratio	147 NKu/L Net Cap. Used/ Labour Ratio
	Abbrv. ABS Table Calc. Notes		PPE								GPR	NPR	NGPR													
			Avg.1965-Aug.-Aug. See App.1-2	" " "	C13-C127	C14xC137 x(C124, C125)	C126/C14	C127/C14	C126-C7	C130/C14	C126/C1	C130/C8	C130/C1	C128/C17 (C126/C13)	C129/C17 (1-C135) (C127/C13)	See App.1	C17/ C124,C125	C2/ C124,C125	(C2xC41) C124,C125	C131/C54 (C130/C53)	C54/C52	C127/ (C13-C7)	C54/ (C41xC52)	C54/ C124,C125	C52/ C124,C125	(C41xC52) C124,C125
	$,%,#		'000	M.Hrs.	$MCurr.	$MCurr.	$M89-90	$M89-90	$MCurr.	$M89-90	%	%	%	%	%	$	$	$	$	%	%	%	%	$	$	$
1949	1		2678	n/a	1152	2027	17997	31675	929	14512	24.61	33.86	19.84	36.23	63.77	11828.86	18549.59	23250.38	n/a	31.42	126.59	68.58	n/a	17248.38	13624.96	n/a
1950	2		2726	n/a	1504	2296	21487	32806	1243	17758	26.36	36.73	21.79	39.58	60.42	12035.80	19918.68	24010.54	n/a	35.12	130.49	64.88	n/a	18550.76	14215.69	n/a
1951	3		2839	n/a	2365	2884	26878	32778	2026	23026	32.72	46.49	28.03	45.06	54.94	11547.67	21016.88	24493.57	n/a	41.26	133.55	58.74	n/a	19659.73	14720.45	n/a
1952	4		2890	n/a	1654	3638	17980	39546	1223	13295	18.99	23.05	14.04	31.26	68.74	13686.16	19908.70	25527.25	n/a	25.16	117.86	74.84	n/a	18287.38	15516.18	n/a
1953	5		2824	n/a	2219	3930	21130	37432	1719	16368	23.42	29.74	18.14	36.08	63.92	13255.04	20737.31	27384.21	n/a	30.42	114.16	69.58	n/a	19051.08	16688.03	n/a
1954	6		2890	n/a	2478	4192	22946	38813	1957	18122	24.36	31.27	19.24	37.15	62.85	13432.27	21373.34	28364.77	n/a	31.83	113.01	68.17	n/a	19703.82	17435.89	n/a
1955	7		2962	n/a	2434	4567	22329	41901	1855	17017	21.68	26.63	16.52	34.76	65.24	14145.52	21683.51	29462.72	n/a	28.88	108.78	71.12	n/a	19890.24	18284.69	n/a
1956	8		3034	n/a	2576	4987	23002	44528	1934	17269	20.67	24.80	15.52	34.06	65.94	14676.22	22257.49	30786.75	n/a	27.95	105.44	72.05	n/a	20368.19	19317.40	n/a
1957	9		3054	n/a	2938	5258	24482	43817	2225	18540	21.38	25.74	16.19	35.85	64.15	14349.80	22367.47	32643.85	n/a	29.73	98.89	70.27	n/a	20421.62	20650.07	n/a
1958	10		3083	n/a	2754	5439	22953	45328	1968	16403	18.47	20.91	13.20	33.62	66.38	14702.96	22148.10	34345.35	n/a	26.57	91.67	73.43	n/a	20023.51	21842.72	n/a
1959	11		3114	n/a	3163	5666	26356	47218	2324	19364	19.73	22.94	14.50	35.82	64.18	15163.77	23627.88	35914.06	34980.30	29.08	93.42	70.92	95.92	21382.54	22888.06	22292.97
1960	12		3201	n/a	3464	6337	27490	50296	2550	20236	20.06	23.31	14.77	35.34	64.66	15714.70	24303.86	37071.44	36163.19	28.69	92.89	71.31	95.23	22037.38	23723.42	23142.20
1961	13		3377	n/a	3570	6761	27459	52010	2595	19959	19.24	21.97	13.98	34.55	65.45	15399.51	23529.71	37409.84	35754.46	27.73	88.50	72.27	92.60	21309.06	24077.40	23011.97
1962	14		3363	n/a	3578	6941	27315	52983	2529	19307	18.15	20.16	12.83	34.02	65.98	15756.37	23879.29	39681.20	36298.38	26.71	84.11	73.29	91.95	21497.95	25558.12	23379.29
1963	15		3444	n/a	3989	7407	29989	55695	2878	21636	18.97	21.46	13.68	35.00	65.00	16169.49	24876.02	41137.19	38010.77	27.98	84.47	72.02	91.42	22450.85	26579.28	24559.25
1964	16		3548	n/a	4699	8042	34047	58279	3503	25381	20.50	23.84	15.28	36.88	63.12	16425.80	26022.01	42592.73	40260.78	30.34	85.25	69.66	90.19	23579.32	27658.68	26144.37
1965	17		3662	n/a	4923	9070	34870	63872	3601	25360	19.49	22.12	14.26	35.18	64.82	17441.86	26909.41	44190.33	42610.53	28.42	84.45	71.58	87.58	24367.12	28853.63	27822.11
1966	18		3797	n/a	4713	9695	32279	66406	3259	22320	17.01	18.16	11.76	32.71	67.29	17487.47	25987.84	45703.71	43475.66	25.16	77.88	74.84	81.87	23365.25	30003.03	28540.38
1967	19		3917	8049	5006	10884	33155	72077	3408	22572	16.58	17.38	11.28	31.51	68.49	8.95	13.07	22.98	21.83	23.85	77.78	76.15	81.87	11.76	15.12	14.36
1968	20		4007	8173	4986	11755	32167	75839	3248	20954	15.10	15.14	9.84	29.78	70.22	9.28	13.22	24.10	23.09	21.65	74.65	78.35	77.90	11.84	15.87	15.20
1969	21		4106	8281	6058	12944	37629	80396	4142	25728	16.61	17.42	11.35	31.88	68.12	9.71	14.25	25.45	24.65	24.24	76.26	75.76	78.74	12.82	16.81	16.28
1970	22		4246	8555	6494	14543	38429	86051	4389	25973	16.00	16.57	10.81	30.87	69.13	10.06	14.55	26.24	25.81	23.19	75.50	76.81	76.74	13.09	17.34	17.06
1971	23		4324	8773	6314	16567	35469	93076	3942	22143	13.69	13.06	8.55	27.59	72.41	10.61	14.65	27.36	26.89	19.22	72.42	80.78	73.69	13.13	18.14	17.82
1972	24		4338	8797	6877	18395	36193	96817	4184	22020	13.30	12.37	8.09	27.21	72.79	11.01	15.12	28.93	28.23	18.53	70.57	81.47	72.31	13.51	19.14	18.68
1973	25		4430	8895	8473	20388	40738	98017	5518	26531	14.55	14.52	9.48	29.36	70.64	11.02	15.60	30.14	29.66	21.30	70.51	78.70	71.64	14.00	19.86	19.55
1974	26		4504	8934	9694	24809	40732	104238	6352	26690	13.45	13.52	8.82	28.10	71.90	11.67	16.23	31.59	31.16	20.39	70.62	79.61	71.61	14.66	20.75	20.47
1975	27		4460	8714	8991	31479	31771	111233	4629	16357	9.99	7.95	5.14	22.22	77.78	12.76	16.41	33.74	32.82	12.82	66.60	87.18	68.47	14.64	21.98	21.38
1976	28		4438	8584	10261	36425	31574	112075	5030	15478	9.66	7.38	4.74	21.98	78.02	13.06	16.73	35.58	34.33	12.13	64.61	87.87	66.97	14.86	23.00	22.19
1977	29		4496	8652	12287	39454	34036	109291	6208	17196	10.02	7.95	5.06	23.75	76.25	12.63	16.57	36.62	35.31	13.60	62.27	86.40	64.58	14.62	23.48	22.64
1978	30		4515	8664	12221	44849	31416	115293	5177	13308	8.74	5.87	3.70	21.41	78.59	13.31	16.93	37.87	35.77	10.35	61.60	89.65	65.21	14.84	24.09	22.76
1979	31		4534	8729	17205	48033	41063	114636	9127	21784	10.74	9.06	5.70	26.37	73.63	13.13	17.84	39.18	37.65	15.97	62.87	84.03	65.42	15.63	24.86	23.89
1980	32		4653	8949	19739	54034	42449	116202	10459	22492	10.81	9.16	5.73	26.76	73.24	12.98	17.73	39.62	38.00	16.22	62.03	83.78	64.67	15.50	24.98	23.97
1981	33		4796	9138	21155	62824	41238	122463	10577	20618	10.12	8.07	5.06	25.19	74.81	13.40	17.91	40.53	39.28	14.41	61.23	85.59	63.18	15.66	25.57	24.79
1982	34		4834	9130	21276	72987	37590	128952	9248	16339	8.78	6.05	3.82	22.57	77.43	14.12	18.24	42.57	40.69	11.25	59.02	88.75	61.75	15.91	26.96	25.77
1983	35		4710	8871	18626	79977	29802	127963	4763	7621	6.90	2.82	1.76	18.89	81.11	14.42	17.78	45.55	41.86	5.62	53.47	94.38	58.19	15.28	28.58	26.27
1984	36		4690	8889	29382	84329	43985	126241	14427	21597	10.13	8.00	4.97	25.84	74.16	14.20	19.15	46.92	43.80	14.61	56.84	85.39	60.89	16.63	29.26	27.31
1985	37		4867	9223	33129	93888	46992	133174	17199	24396	10.15	8.49	5.27	26.08	73.92	14.44	19.53	46.98	44.76	15.48	58.40	84.52	61.30	17.08	29.25	27.87
1986	38		5061	9520	36333	104762	48187	138942	17455	23149	9.59	7.44	4.61	25.75	74.25	14.60	19.66	47.34	45.59	14.28	57.82	85.72	60.04	17.03	29.45	28.36
1987	39		5259	9843	39958	114650	49452	141894	17990	22264	9.39	6.84	4.23	25.84	74.16	14.42	19.44	47.61	45.52	13.56	56.40	86.44	58.98	16.88	29.57	28.28
1988	40		5483	10302	48124	126868	55442	146161	24037	27692	10.37	8.34	5.18	27.50	72.50	14.19	19.57	47.61	46.55	15.93	56.88	84.07	58.18	16.88	29.67	29.01
1989	41		5808	10979	58803	142736	62291	151204	33235	35206	11.63	10.50	6.57	29.18	70.82	13.77	19.44	47.02	46.55	18.89	57.63	81.11	58.21	16.98	29.46	29.17
1990	42		6042	11382	62514	161684	62514	161684	34876	34876	11.44	10.16	6.38	27.88	72.12	14.20	19.70	47.52	47.23	17.74	57.83	82.26	58.20	17.27	29.86	29.67
1991	43		5992	11157	56598	167062	54896	162039	27369	26546	9.93	7.69	4.80	25.31	74.69	14.52	19.44	50.08	47.92	14.08	54.02	85.92	56.44	16.90	31.29	29.95
1992	44		5948	11005	56189	168623	53513	160593	25992	24754	9.53	7.16	4.41	24.99	75.01	14.59	19.46	51.96	48.87	13.36	52.41	86.64	55.72	16.84	32.14	30.23
1993	45		6020	11219	59127	176828	55623	166348	27028	25426	9.60	7.21	4.39	25.06	74.94	14.83	19.79	52.17	49.47	13.26	53.42	86.74	56.34	17.09	32.00	30.34
1994	46		6182	11665	64345	186993	59856	173947	30794	28646	10.16	8.03	4.86	25.60	74.40	14.91	20.04	51.49	49.86	14.14	55.36	85.86	57.17	17.37	31.37	30.38

AUSTRALIAN PRIVATE CORPORATE TRADING ENTERPRISES: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item Abbrv. ABS Table Calc. Notes	1 Kc Gross Fixed Capital Stock GFCSc 5221.0 3	2 K Gross Fixed Capital Stock GFCS 5221.0 3	3 Pk GFCS Price Ratio C1/C2	4 I Gross Fixed Capital Expend. GFCE 5221.0 3	5 A GFCS Accumu-lation C2(t)-C2(t-1)	6 R GFCS Retire-ment C4-C5	7 Dc Consump-tion of Fixed Capital CFC 5221.0 3	8 NKc Net Fixed Capital Stock NFCSc 5221.0 3	9 GPc Gr.Oper. Surplus (Bef.Int., Tax) 5204.0 9.88	10 NPc Net Oper. Surplus (Bef.Int., Tax) C9-C7	11 GPc/Kc Gr.Profit Rate (Bef.Int., Tax) GPRBIT C9/C1	12 NPc/NKc Net Profit Rate (Bef.Int., Tax) NPRBIT C10/C8	13 NPc/Kc Net-Gr. Rate (Bef.Int., Tax) ROPBIT C10/C1	14 iNc Net Interest, etc. Paid 5204.0 35	15 GPIc/Kc Gr.Profit Rate (After Interest) GPRAIN (C9-C14)/ C1	16 NPIc/NKc Net Profit Rate (After Interest) NPRAIN (C10-C14)/ C8	17 NPIc/Kc Net-Gr. Rate (After Interest) ROPAIN (C10-C14)/ C1	18 Tc Income Tax Payable 5204.0 35	19 GPITc/Kc Gr.Profit Rate (Aft. Int., Tax) GPRAINT (C9-C14 -C18)/C1	20 NPITc/NKc Net Profit Rate (Aft. Int., Tax) NPRAINT (C10-C14 -C18)/C8	21 NPITc/Kc Net-Gr. Rate (Aft. Int., Tax) ROPAINT (C10-C14 -C18)/C1	22 Dlc Dividends Paid (Net) 5204.0 35	23 RPc Retained Profits (C10-C14 -C18-C22)
	$,%,#	$MCurr.	$M89-90	%	$M89-90	$M89-90	$M89-90	$MCurr.	$MCurr.	$MCurr.	$MCurr.	%	%	%	$MCurr.	%	%	%	$MCurr.	%	%	%	$MCurr.	$MCurr.
1949	1	2644	35685	7.41	2319	n/a	n/a	110	1531	409	299	15.47	19.53	11.31	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1950	2	3180	37133	8.56	2528	1448	1080	127	1859	454	327	14.28	17.59	10.28	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1951	3	3989	39146	10.19	3134	2013	1121	163	2369	619	456	15.52	19.25	11.43	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1952	4	4774	41308	11.56	3327	2162	1165	206	2873	589	383	12.34	13.33	8.02	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1953	5	5199	43341	12.00	3245	2033	1212	237	3152	851	614	16.37	19.48	11.81	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1954	6	5585	45947	12.16	3868	2606	1262	247	3433	1129	882	20.21	25.69	15.79	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1955	7	6172	49037	12.59	4405	3090	1315	275	3848	1140	865	18.47	22.48	14.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1956	8	6892	52796	13.05	5142	3759	1383	313	4363	1240	927	17.99	21.25	13.45	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1957	9	7661	56782	13.49	5439	3986	1453	350	4905	1436	1086	18.74	22.14	14.18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1958	10	8366	60679	13.79	5443	3897	1546	391	5398	1573	1182	18.80	21.90	14.13	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1959	11	9050	64469	14.04	5422	3790	1632	421	5858	1701	1280	18.80	21.85	14.14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1960	12	9840	68966	14.27	6205	4497	1708	464	6402	1948	1484	19.80	23.18	15.08	127	18.51	21.20	13.79	538	13.04	12.79	8.32	401	418
1961	13	10720	74310	14.43	7142	5344	1798	506	7029	1963	1457	18.31	20.73	13.59	162	16.80	18.42	12.08	501	12.13	11.30	7.41	424	370
1962	14	11556	79431	14.55	7037	5121	1916	556	7588	2063	1507	17.85	19.86	13.04	193	16.18	17.32	11.37	498	11.87	10.75	7.06	471	345
1963	15	12489	85317	14.64	7928	5886	2042	601	8230	2316	1715	18.54	20.84	13.73	215	16.82	18.23	12.01	555	12.38	11.48	7.57	479	466
1964	16	13691	91382	14.98	8245	6065	2180	657	9033	2642	1985	19.30	21.97	14.50	232	17.60	19.41	12.80	663	12.76	12.07	7.96	507	583
1965	17	15258	98776	15.45	9736	7394	2342	739	10125	2925	2186	19.17	21.59	14.33	283	17.32	18.80	12.47	728	12.54	11.60	7.70	515	660
1966	18	16991	107370	15.82	11151	8594	2557	828	11354	2953	2125	17.38	18.72	12.51	341	15.37	15.71	10.50	717	11.15	9.40	6.28	517	550
1967	19	18744	115580	16.22	10935	8210	2725	924	12537	3254	2330	17.36	18.58	12.43	363	15.42	15.69	10.49	771	11.31	9.54	6.38	618	578
1968	20	20789	124735	16.67	12085	9155	2930	1023	13915	3674	2651	17.67	19.05	12.75	398	15.76	16.19	10.84	922	11.32	9.57	6.40	666	665
1969	21	23278	135158	17.22	13618	10423	3195	1149	15620	4203	3054	18.06	19.55	13.12	463	16.07	16.59	11.13	1061	11.51	9.80	6.57	701	829
1970	22	26314	146045	18.02	14419	10887	3532	1288	17687	4925	3637	18.72	20.56	13.82	606	16.41	17.14	11.52	1322	11.39	9.66	6.49	804	905
1971	23	30414	158669	19.17	16466	12624	3842	1485	20516	5179	3694	17.03	18.01	12.15	730	14.63	14.45	9.75	1334	10.24	7.95	5.36	810	820
1972	24	34554	170111	20.31	15627	11442	4185	1723	23257	5622	3899	16.27	16.76	11.28	860	13.78	13.07	8.79	1385	9.77	7.11	4.79	872	782
1973	25	38987	179212	21.75	13669	9101	4568	1912	26014	6511	4599	16.70	17.68	11.80	1014	14.10	13.78	9.20	1826	9.42	6.76	4.51	984	775
1974	26	48235	188466	25.59	14218	9254	4964	2170	31939	7008	4838	14.53	15.15	10.03	1170	12.10	11.48	7.60	2181	7.58	4.66	3.08	1022	465
1975	27	60185	196140	30.68	13037	7674	5363	2825	39353	7670	4845	12.74	12.31	8.05	1721	9.88	7.94	5.19	2263	6.12	2.19	1.43	1158	-297
1976	28	70613	202646	34.85	12239	6506	5733	3369	45490	9143	5774	12.95	12.69	8.18	1948	10.19	8.41	5.42	2540	6.59	2.83	1.82	1305	-19
1977	29	80907	208643	38.78	12152	5997	6155	3873	51320	10704	6831	13.23	13.31	8.44	2199	10.51	9.03	5.73	2793	7.06	3.58	2.27	1532	307
1978	30	91730	215109	42.64	13059	6466	6593	4430	57428	11330	6900	12.35	12.02	7.52	2376	9.76	7.88	4.93	2694	6.82	3.19	1.99	1710	120
1979	31	104541	223335	46.81	15261	8226	7035	5029	65068	13418	8389	12.84	12.89	8.02	2844	10.11	8.52	5.30	3050	7.20	3.83	2.39	1715	780
1980	32	118446	230139	51.47	14209	6804	7405	5714	73139	15879	10165	13.41	13.90	8.58	3455	10.49	9.17	5.67	4334	6.83	3.25	2.01	2008	368
1981	33	135515	240302	56.39	18190	10163	8027	6465	84018	18381	11916	13.56	14.18	8.79	3975	10.63	9.45	5.86	4574	7.26	4.01	2.48	2211	1156
1982	34	157836	253335	62.30	21562	13033	8529	7355	98901	19838	12483	12.57	12.62	7.91	5665	8.98	6.89	4.32	4086	6.39	2.76	1.73	2355	377
1983	35	177081	264475	66.96	19517	11140	8377	8528	110738	20827	12299	11.76	11.11	6.95	7029	7.79	4.76	2.98	3699	5.70	1.42	0.89	2435	-864
1984	36	190557	273317	69.72	17783	8842	8941	9248	118604	27689	18441	14.53	15.55	9.68	8189	10.23	8.64	5.38	4533	7.85	4.82	3.00	3020	2699
1985	37	214563	283559	75.67	19663	10242	9421	9849	133222	32725	22876	15.25	17.17	10.66	10126	10.53	9.57	5.94	5253	8.08	5.63	3.49	3299	4198
1986	38	249530	296386	84.19	22584	12827	9757	11725	154918	36049	24324	14.45	15.70	9.75	11862	9.69	8.04	4.99	5506	7.49	4.49	2.79	2957	3999
1987	39	281479	310548	90.64	24226	14162	10064	13622	175143	39138	25516	13.90	14.57	9.06	14084	8.90	6.53	4.06	6931	6.44	2.57	1.60	3233	1268
1988	40	308827	326892	94.47	26859	16344	10515	15056	193422	45143	30087	14.62	15.56	9.74	15560	9.58	7.51	4.70	8154	6.94	3.29	2.06	4212	2161
1989	41	336469	343611	97.92	27672	16719	10953	16085	211936	51124	35039	15.19	16.53	10.41	19841	9.30	7.17	4.52	9714	6.41	2.59	1.63	5773	-289
1990	42	363758	359738	101.12	27725	16127	11598	17449	229487	55900	38451	15.37	16.76	10.57	24230	8.71	6.20	3.91	11044	5.67	1.38	0.87	8058	-4881
1991	43	382717	374324	102.24	26680	14586	12094	18621	240463	54025	35404	14.12	14.72	9.25	24526	7.71	4.52	2.84	10431	4.98	0.19	0.12	8807	-8360
1992	44	397993	384457	103.52	22631	10133	12498	19382	246788	54962	35580	13.81	14.42	8.94	20419	8.68	6.14	3.81	10832	5.96	1.75	1.09	7364	-3035
1993	45	418726	396198	105.69	24866	11741	13125	20757	257321	58077	37320	13.87	14.50	8.91	17095	9.79	7.86	4.83	11580	7.02	3.36	2.06	8027	618
1994	46	433017	408765	105.93	26219	12567	13652	21836	264760	62559	40723	14.45	15.38	9.40	15900	10.78	9.38	5.73	11669	8.08	4.97	3.04	8012	5142

AUSTRALIAN PRIVATE CORPORATE TRADING ENTERPRISES: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item Abbrv. ABS Table Calc. Notes	24 IFc Internal Funds to Finance Invest.	25 Ic Gross Fixed Capital Expend. GFCE 5221.0 3	26 EFc "External" Funds to Finance Invest.	27 Pi GFCE Price Ratio	28 A'/K Accumul-ation/ Capital Ratio	29 I'/K Invest-ment/ Capital Ratio	30 R'/K Retire-ment/ Capital Ratio	31 Pi/Pk Invest./ Capital Price Ratio	32 Ic/Kc Invest-ment/ Capital Ratio	33 IFc/Kc Internal Finance/ Capital Ratio	34 EFc/Kc "External" Finance/ Capital Ratio	35 IFc/Ic Internal Finance Share	36 EFc/Ic "External" Finance Share	37 RPc/Kc Retained Profits/ Capital Ratio	38 Dc/Kc Deprec-iation/ Capital Ratio	39 RPc/IFc Retained Profits Share	40 Dc/IFc Deprec-iation Share	41 RPc/NPc Ret.Prof /Net Profit Ratio	42 INc/NPc Interest /Net Profit Ratio	43 Tc/NPc Tax /Net Profit Ratio	44 DIc/NPc Dividends /Net Profit Ratio
		C7+C23		C25-C24	C25/C4	C5/C2	C4/C2	C6/C2	C27/C3	C29xC31, C25/C1	C24/C1	C26/C1	C24/C25	C26/C25	C23/C1	C7/C1	C23/C24	C7/C24	C23/C10	C14/C10	C18/C10	C22/C10
	$,%,#	$MCurr.	$MCurr.	$MCurr.	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1949	1	n/a	172	n/a	7.42	n/a	6.50	n/a	100.10	6.51	n/a	n/a	n/a	n/a	n/a	4.16	n/a	n/a	n/a	n/a	n/a	n/a
1950	2	n/a	210	n/a	8.31	3.90	6.81	2.91	97.00	6.60	n/a	n/a	n/a	n/a	n/a	3.99	n/a	n/a	n/a	n/a	n/a	n/a
1951	3	n/a	310	n/a	9.89	5.14	8.01	2.86	97.07	7.77	n/a	n/a	n/a	n/a	n/a	4.09	n/a	n/a	n/a	n/a	n/a	n/a
1952	4	n/a	383	n/a	11.51	5.23	8.05	2.82	99.61	8.02	n/a	n/a	n/a	n/a	n/a	4.32	n/a	n/a	n/a	n/a	n/a	n/a
1953	5	n/a	410	n/a	12.63	4.69	7.49	2.80	105.33	7.89	n/a	n/a	n/a	n/a	n/a	4.56	n/a	n/a	n/a	n/a	n/a	n/a
1954	6	n/a	496	n/a	12.82	5.67	8.42	2.75	105.49	8.88	n/a	n/a	n/a	n/a	n/a	4.42	n/a	n/a	n/a	n/a	n/a	n/a
1955	7	n/a	570	n/a	12.94	6.30	8.98	2.68	102.81	9.24	n/a	n/a	n/a	n/a	n/a	4.46	n/a	n/a	n/a	n/a	n/a	n/a
1956	8	n/a	676	n/a	13.15	7.12	9.74	2.62	100.71	9.81	n/a	n/a	n/a	n/a	n/a	4.54	n/a	n/a	n/a	n/a	n/a	n/a
1957	9	n/a	731	n/a	13.44	7.02	9.58	2.56	99.61	9.54	n/a	n/a	n/a	n/a	n/a	4.57	n/a	n/a	n/a	n/a	n/a	n/a
1958	10	n/a	770	n/a	14.15	6.42	8.97	2.55	102.61	9.20	n/a	n/a	n/a	n/a	n/a	4.67	n/a	n/a	n/a	n/a	n/a	n/a
1959	11	n/a	781	n/a	14.40	5.88	8.41	2.53	102.61	8.63	n/a	n/a	n/a	n/a	n/a	4.65	n/a	n/a	n/a	n/a	n/a	n/a
1960	12	882	911	29	14.68	6.52	9.00	2.48	102.90	9.26	8.96	0.29	96.82	3.18	4.25	4.72	47.39	52.61	28.17	8.56	36.25	27.02
1961	13	876	1059	183	14.83	7.19	9.61	2.42	102.78	9.88	8.17	1.71	82.72	17.28	3.45	4.72	42.24	57.76	25.39	11.12	34.39	29.10
1962	14	901	1074	173	15.26	6.45	8.86	2.41	104.91	9.29	7.80	1.50	83.89	16.11	2.99	4.81	38.29	61.71	22.89	12.81	33.05	31.25
1963	15	1067	1201	134	15.15	6.90	9.29	2.39	103.49	9.62	8.54	1.07	88.84	11.16	3.73	4.81	43.67	56.33	27.17	12.54	32.36	27.93
1964	16	1240	1250	10	15.16	6.64	9.02	2.39	101.19	9.13	9.06	0.07	99.20	0.80	4.26	4.80	47.02	52.98	29.37	11.69	33.40	25.54
1965	17	1399	1559	160	16.01	7.49	9.86	2.37	103.66	10.22	9.17	1.05	89.74	10.26	4.33	4.84	47.18	52.82	30.19	12.95	33.30	23.56
1966	18	1378	1813	435	16.26	8.00	10.39	2.38	102.74	10.67	8.11	2.56	76.01	23.99	3.24	4.87	39.91	60.09	25.88	16.05	33.74	24.33
1967	19	1502	1835	333	16.78	7.10	9.46	2.36	103.48	9.79	8.01	1.78	81.85	18.15	3.08	4.93	38.48	61.52	24.81	15.58	33.09	26.52
1968	20	1688	2035	347	16.84	7.34	9.69	2.35	101.04	9.79	8.12	1.67	82.95	17.05	3.20	4.92	39.40	60.60	25.06	15.01	34.78	25.12
1969	21	1978	2361	383	17.34	7.71	10.08	2.36	100.67	10.14	8.50	1.65	83.78	16.22	3.56	4.94	41.91	58.09	27.14	15.16	34.74	22.95
1970	22	2193	2594	401	17.99	7.45	9.87	2.42	99.85	9.86	8.33	1.52	84.54	15.46	3.44	4.89	41.27	58.73	24.88	16.66	36.35	22.11
1971	23	2305	3126	821	18.98	7.96	10.38	2.42	99.04	10.28	7.58	2.70	73.74	26.26	2.70	4.88	35.57	64.43	22.20	19.76	36.11	21.93
1972	24	2505	3207	702	20.52	6.73	9.19	2.46	101.03	9.28	7.25	2.03	78.11	21.89	2.26	4.99	31.22	68.78	20.06	22.06	35.52	22.36
1973	25	2687	2936	249	21.48	5.08	7.63	2.55	98.73	7.53	6.89	0.64	91.52	8.48	1.99	4.90	28.84	71.16	16.85	22.05	39.70	21.40
1974	26	2635	3297	662	23.19	4.91	7.54	2.63	90.60	6.84	5.46	1.37	79.92	20.08	0.96	4.50	17.65	82.35	9.61	24.18	45.08	21.12
1975	27	2528	3782	1254	29.01	3.91	6.65	2.73	94.54	6.28	4.20	2.08	66.84	33.16	-0.49	4.69	-11.75	111.75	-6.13	35.52	46.71	23.90
1976	28	3350	4112	762	33.60	3.21	6.04	2.83	96.42	5.82	4.74	1.08	81.47	18.53	-0.03	4.77	-0.57	100.57	-0.33	33.74	43.99	22.60
1977	29	4180	4570	390	37.61	2.87	5.82	2.95	96.98	5.65	5.17	0.48	91.47	8.53	0.38	4.79	7.34	92.66	4.49	32.19	40.89	22.43
1978	30	4550	5438	888	41.64	3.01	6.07	3.06	97.65	5.93	4.96	0.97	83.67	16.33	0.13	4.83	2.64	97.36	1.74	34.43	39.04	24.78
1979	31	5809	6992	1183	45.82	3.68	6.83	3.15	97.88	6.69	5.56	1.13	83.08	16.92	0.75	4.81	13.43	86.57	9.30	33.90	36.36	20.44
1980	32	6082	7154	1072	50.35	2.96	6.17	3.22	97.83	6.04	5.13	0.91	85.02	14.98	0.31	4.82	6.05	93.95	3.62	33.99	42.64	19.75
1981	33	7621	9943	2322	54.66	4.23	7.57	3.34	96.93	7.34	5.62	1.71	76.65	23.35	0.85	4.77	15.17	84.83	9.70	33.36	38.39	18.55
1982	34	7732	12928	5196	59.96	5.14	8.51	3.37	96.23	8.19	4.90	3.29	59.81	40.19	0.24	4.66	4.88	95.12	3.02	45.38	32.73	18.87
1983	35	7664	13011	5347	66.66	4.21	7.38	3.17	99.57	7.35	4.33	3.02	58.90	41.10	-0.49	4.82	-11.27	111.27	-7.02	57.15	30.08	19.80
1984	36	11947	12361	414	69.51	3.24	6.51	3.27	99.70	6.49	6.27	0.22	96.65	3.35	1.42	4.85	22.59	77.41	14.64	44.41	24.58	16.38
1985	37	14047	14071	24	71.56	3.61	6.93	3.32	94.57	6.56	6.55	0.01	99.83	0.17	1.96	4.59	29.89	70.11	18.35	44.26	22.96	14.42
1986	38	15724	18183	2459	80.51	4.33	7.62	3.29	95.63	7.29	6.30	0.99	86.48	13.52	1.60	4.70	25.43	74.57	16.44	48.77	22.64	12.16
1987	39	14890	21695	6805	89.55	4.56	7.80	3.24	98.80	7.71	5.29	2.42	68.63	31.37	0.45	4.84	8.52	91.48	4.97	55.20	27.16	12.67
1988	40	17217	25262	8045	94.05	5.00	8.22	3.22	99.56	8.18	5.57	2.61	68.15	31.85	0.70	4.88	12.55	87.45	7.18	51.72	27.10	14.00
1989	41	15796	26715	10919	96.54	4.87	8.05	3.19	98.59	7.94	4.69	3.25	59.13	40.87	-0.09	4.78	-1.83	101.83	-0.82	56.63	27.72	16.48
1990	42	12568	27725	15157	100.00	4.48	7.71	3.22	98.89	7.62	3.46	4.17	45.33	54.67	-1.34	4.80	-38.84	138.84	-12.69	63.02	28.72	20.96
1991	43	10261	27247	16986	102.13	3.90	7.13	3.23	99.89	7.12	2.68	4.44	37.66	62.34	-2.18	4.87	-81.47	181.47	-23.61	69.27	29.46	24.88
1992	44	16347	23197	6850	102.50	2.64	5.89	3.25	99.01	5.83	4.11	1.72	70.47	29.53	-0.76	4.87	-18.57	118.57	-8.53	57.39	30.44	20.70
1993	45	21375	26459	5084	106.41	2.96	6.28	3.31	100.68	6.32	5.10	1.21	80.79	19.21	0.15	4.96	2.89	97.11	1.66	45.81	31.03	21.51
1994	46	26978	28290	1312	107.90	3.07	6.41	3.34	101.86	6.53	6.23	0.30	95.36	4.64	1.19	5.04	19.06	80.94	12.63	39.04	28.65	19.67

AUSTRALIAN PRIVATE CORPORATE TRADING ENTERPRISES: Aggregates and Ratios

YEAR (at or to June 30)	C# Symbol Item	45 Py GDP Implicit Price Deflator	46 Py/Pk Output/ Capital Price Ratio	47 Ku/K Capacity Use Ratio	48 GP/Ku Gr. Oper. Surplus/ Cap. Used Ratio	49 I/K Invest-ment/ Capital Ratio	50 R/K Retire-ment/ Capital Ratio	51 A/K Rate of Accumul-ation	52 Dlc/Kc Dividends to Capital Ratio	53 Tc/Kc Tax to Capital Ratio	54 INc/Kc Interest to Capital Ratio
	Abbrv.										
	ABS Table	5204.0 3.86		1343.0							
	Calc.		C45/C3	Year Average	C11/ (C46xC47)	C4(t)/ C2(t-1)	C6(t)/ C2(t-1)	C20-C21. C5(t)/ C2(t-1)	C22/C1	C18/C1	C14/C1
	Notes										
	$,%,#	Index	%	%	%	%	%	%	%	%	%
1949	1	6.4	86.38	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1950	2	7.0	81.74	n/a	n/a	7.08	3.03	4.06	n/a	n/a	n/a
1951	3	8.8	86.36	n/a	n/a	8.44	3.02	5.42	n/a	n/a	n/a
1952	4	9.2	79.60	n/a	n/a	8.50	2.98	5.52	n/a	n/a	n/a
1953	5	10.5	87.53	n/a	n/a	7.86	2.93	4.92	n/a	n/a	n/a
1954	6	10.8	88.85	n/a	n/a	8.92	2.91	6.01	n/a	n/a	n/a
1955	7	10.9	86.60	n/a	n/a	9.59	2.86	6.73	n/a	n/a	n/a
1956	8	11.2	85.80	n/a	n/a	10.49	2.82	7.67	n/a	n/a	n/a
1957	9	12.0	88.94	n/a	n/a	10.30	2.75	7.55	n/a	n/a	n/a
1958	10	12.0	87.04	n/a	n/a	9.59	2.72	6.86	n/a	n/a	n/a
1959	11	12.0	85.48	97.40	22.57	8.94	2.69	6.25	n/a	n/a	n/a
1960	12	12.6	88.31	97.55	22.98	9.62	2.65	6.98	4.08	5.47	1.29
1961	13	13.0	90.11	95.58	21.26	10.36	2.61	7.75	3.96	4.67	1.51
1962	14	13.1	90.04	91.48	21.67	9.47	2.58	6.89	4.08	4.31	1.67
1963	15	13.3	90.86	92.40	22.09	9.98	2.57	7.41	3.84	4.44	1.72
1964	16	13.6	92.11	94.53	22.16	9.66	2.56	7.11	3.70	4.84	1.69
1965	17	14.2	91.93	96.43	21.63	10.65	2.56	8.09	3.38	4.77	1.85
1966	18	14.6	92.26	95.13	19.80	11.29	2.59	8.70	3.04	4.22	2.01
1967	19	15.1	93.11	95.00	19.63	10.18	2.54	7.65	3.30	4.11	1.94
1968	20	15.5	93.00	95.83	19.83	10.46	2.54	7.92	3.20	4.44	1.91
1969	21	16.1	93.48	96.85	19.94	10.92	2.56	8.36	3.01	4.56	1.99
1970	22	16.9	93.80	98.38	20.28	10.67	2.61	8.06	3.06	5.02	2.30
1971	23	17.8	92.86	98.28	18.66	11.27	2.63	8.64	2.66	4.39	2.40
1972	24	19.0	93.54	97.60	17.82	9.85	2.64	7.21	2.52	4.01	2.49
1973	25	20.8	95.61	98.43	17.75	8.04	2.69	5.35	2.52	4.68	2.60
1974	26	23.8	92.99	98.63	15.84	7.93	2.77	5.16	2.12	4.52	2.43
1975	27	28.3	92.23	97.28	14.21	6.92	2.85	4.07	1.92	3.76	2.86
1976	28	32.5	93.27	96.48	14.39	6.24	2.92	3.32	1.85	3.60	2.76
1977	29	36.1	93.09	96.43	14.74	6.00	3.04	2.96	1.89	3.45	2.72
1978	30	38.9	91.22	94.48	14.33	6.26	3.16	3.10	1.86	2.94	2.59
1979	31	41.9	89.51	96.10	14.92	7.09	3.27	3.82	1.64	2.92	2.72
1980	32	46.5	90.35	95.93	15.47	6.36	3.32	3.05	1.70	3.66	2.92
1981	33	51.3	90.97	96.93	15.38	7.90	3.49	4.42	1.63	3.38	2.93
1982	34	56.6	90.85	95.58	14.48	8.97	3.55	5.42	1.49	2.59	3.59
1983	35	62.5	93.35	91.90	13.71	7.70	3.31	4.40	1.38	2.09	3.97
1984	36	66.8	95.81	93.35	16.25	6.72	3.38	3.34	1.58	2.38	4.30
1985	37	70.5	93.17	95.28	17.18	7.19	3.45	3.75	1.54	2.45	4.72
1986	38	75.4	89.56	96.30	16.75	7.96	3.44	4.52	1.19	2.21	4.75
1987	39	80.8	89.14	95.63	16.31	8.17	3.40	4.78	1.15	2.46	5.00
1988	40	86.8	91.88	97.78	16.27	8.65	3.39	5.26	1.36	2.64	5.04
1989	41	94.4	96.40	99.00	15.92	8.47	3.35	5.11	1.72	2.89	5.90
1990	42	100.0	98.89	99.38	15.64	8.07	3.38	4.69	2.22	3.04	6.66
1991	43	103.1	100.84	95.70	14.63	7.42	3.36	4.05	2.30	2.73	6.41
1992	44	105.0	101.43	94.05	14.48	6.05	3.34	2.71	1.85	2.72	5.13
1993	45	106.3	100.58	94.83	14.54	6.47	3.41	3.05	1.92	2.77	4.08
1994	46	107.5	101.48	96.83	14.70	6.62	3.45	3.17	1.85	2.69	3.67

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