Exceptional Industries

The economic contribution to Australia of industries relying on limitations and exceptions to copyright

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Contents

Executive summary

Copyright can strengthen the incentive to create by affording content owners exclusive rights to exploit their work. This can bring into existence work that would not otherwise exist, generating economic benefits.

A content owner's exclusive rights are subject to limitations and exceptions. These mediate the respective rights of the myriad participants in the copyright eco-system, where increasingly intellectual property outputs are developed from intellectual property inputs, where creators are also users, users are creators and copyright material cannot be distributed digitally without copies being made. Limitations and exceptions determine questions like:

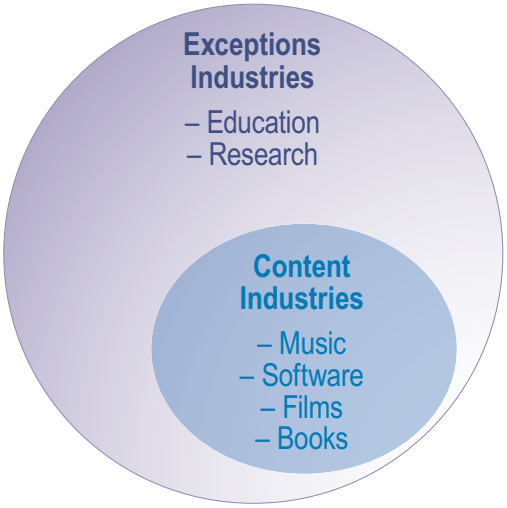
- How much may be quoted from a copyrighted work without permission?
- In what circumstances can someone who has a legitimate copyrighted work change the format in which it has been supplied, or the time and place at which they use it?
- Where intermediaries make digital copies of copyrighted works to help disseminating them to legitimate users, in what, if any, circumstances must they obtain explicit permission?

Numerous studies have identified the size of industries that produce copyrighted content. Because much intellectual property (IP) is built on existing IP, these industries also rely on inputs made available by limitations and exceptions to copyright. More recently, a methodology has been developed to quantify the contribution of another group of industries that also rely on limitations and exceptions to copyright. Such industries include:

- Educational and research institutions;
- Internet search and web hosting providers; and
- Producers of devices allowing individual copying of copyrighted content, like mp3 players.

These two groups of industries are illustrated as the 'exceptions' and 'content' industries in Figure 1.

FIGURE 1: INDUSTRIES RELYING ON LIMITATIONS AND EXCEPTIONS TO COPYRIGHT



This study explores the contribution to Australia's economy of all these industries and compares that with their contribution in other countries. It also examines the balance between the contribution made by the content industries with the contribution of those other industries that rely on limitations and exceptions to copyright.

The industries relying on limitations and exceptions to copyright are a sizable part of Australia's economy. In 2010, all the industries relying on limitations and exceptions to copyright:

- **Contributed 14% to Australia's Gross Domestic Product (GDP), or $182 billion**.
- **Employed 21% of our paid workforce, almost 2.4 million people**.
- **Paid wages and salaries of $116 billion during 2010**.

Between 2007 and 2010 economic contribution, employment and wages all **grew significantly faster than the rest of the economy**:

- Economic contribution to GDP grew by 2.6% per annum (compared with the economy wide figure of 1.6%).
- Employment increased by 4.2% per annum (compared with economy wide growth of 2%) producing an additional 273,000 jobs.
- Wages and salaries (adjusted for inflation) increased by 4.5% per annum (compared with the economy wide figure of 2.4%).

International comparisons suggest that industries depending on limitations and exceptions are relatively large in Australia and growing as a share of the economy.

Trade figures provide a particularly suggestive perspective as they offer a snapshot of Australia in the global marketplace as both a consumer and producer of copyright related goods and services.

In 2010:

- Australia made net payments for the use of IP of almost $3 billion. This deficit has grown by 9% per annum since 2006.
- By contrast our exports of services relying on exceptions to copyright, such as education and research, had net exports of almost $14 billion and this surplus is growing.

This strongly suggests that better-crafted limitations and exceptions would assist some of Australia's most globally competitive industries to become even more competitive. As the companion paper, *Excepting the Future,* makes clear, better crafted limitations and exceptions would not reduce returns to content industries.

1. Introduction

Interest in the role of copyright in fostering knowledge-based economies led to the development of a method to measure the economic impact of the copyright industries and the publication of a guide by the World Intellectual Property Organization (WIPO 2003 – See References). The WIPO Guide distinguishes between core copyright industries, interdependent industries, partial industries and non-dedicated industries. The core industries are industries that are wholly engaged in creation, production and manufacturing, performance, broadcast, communication and exhibition, or distribution and sales of works and other protected subject matter. Together with the non-core industries, they make up the 'total copyright industries' (Noll and Poort 2010).

There have been many national studies based on the WIPO method that report the industry value added[1] and its contribution to GDP, employment and trade balance for the identified industries, including a number focusing on Australia (PwC 2009). However, as Noll and Poort (2010) point out, the WIPO studies measure the size of industries where copyright plays a critical role, but do not analyse how these industries would perform with a more permissive or stringent copyright regime.

Stringent copyright protection comes at the cost of reduced consumption of goods and reduced production of copyright works where those works build on other copyright works, and both of these phenomena may detract more from welfare than any gains more stringent copyright holds out for copyright industries. The WIPO studies do not shed light on this trade-off, and it remains unclear whether a more desirable balance between creation and dissemination could be achieved.

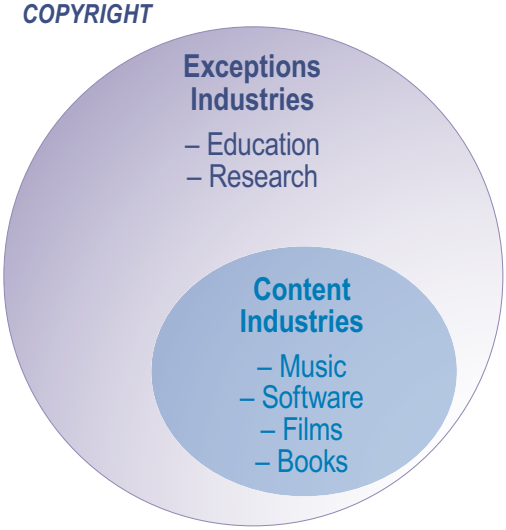
Seeking to address this key policy issue more directly, recent studies in the United States and Europe have adopted a variation of the WIPO methodology that focuses on the economic

[1] The 'value added' of an industry measures the extent to which goods or services were produced using their own labour and capital resources as opposed to being purchased from other industries. Thus for instance, where a movie studio purchases electricity to run its operations, it must earn revenue to fund this purchase, but this does not represent value added by the movie industry, but rather by the electricity industry.

contribution of industries relying on limitations and exceptions to copyright (Rogers and Szamosszegi 2007, 2010, 2011; Akker et al. 2010). In this study, we adopt and extend this latter approach to explore the economic contribution to Australia of industries relying on limitations and exceptions to copyright, compare the contribution in Australia with that in other countries, and examine the balance between copyright and exceptions industries.

The terminology we use to distinguish between the various industries in the two methodologies is illustrated in Figure 1, right, which distinguishes between the 'content industries' as identified in the WIPO methodology and the 'exceptions industries' as identified in the broader methodology mentioned above. The two together are aggregated into 'Industries relying on limitations and exceptions to copyright'.

FIGURE 1: INDUSTRIES RELYING ON LIMITATIONS AND EXCEPTIONS TO COPYRIGHT



Details of the method are in Annex I.

2. The contribution of industries relying on limitations and exceptions

The economic contribution in Australia of industries depending on limitations and exceptions to copyright includes:

- a contribution of 14% to Australia's Gross Domestic Product (GDP), or $182 billion;
- the employment of around 21% of Australia's paid workforce, almost 2.4 million people at the end of June 2010;
- the payment of wages and salaries worth $116 billion in the year to June 2010.

Between 2007 and 2010 economic contribution, employment and wages all grew significantly faster than the rest of the economy. Employment in these industries increased by 4.2% per annum,[2] creating some 273,000 additional jobs (See Annex Table AII-1). In real terms, wages and salaries paid increased by 4.5% per annum, industry income by 3.2% per annum, and the sum of individual industries value added by 2.6% per annum.

TABLE 1: THE ECONOMIC CONTRIBUTION TO AUSTRALIA OF INDUSTRIES DEPENDING ON LIMITATIONS AND EXCEPTIONS TO COPYRIGHT, 2009-10

	Employed end of June	Wages and salaries	Industry income	Industry value add
	'000	$m	$m	$m
C Manufacturing	50	2,246	9,252	4,034
16 Printing (including recorded media)	50	2,246	9,252	4,034
J Information media & telecommunications	177	11,641	73,977	35,029
54 Publishing (except Internet & music publishing)	49	3,199	13,181	7,091
55 Motion picture and sound recording activities	36	1,155	6,752	2,157
56 Broadcasting (except Internet)	18	1,397	9,337	4,052
57 Internet publishing and broadcasting	5	218	947	392
58 Telecommunications services	55	4,895	40,559	19,980
59 Internet service providers, web search portals	13	713	2,994	1,250
60 Library and other information services	1	64	209	107
M Professional, scientific & technical services	941	53,176	180,409	83,895
69 Professional, scientific and technical services	778	41,003	145,781	65,554
70 Computer system design and related services	162	12,173	34,628	18,342
P Education and training (private)	322	13,136	27,330	16,631
80 Preschool and school education (private)	191	9,380	16,299	11,441
81 Tertiary education (private)	60	2,162	5,989	2,533
82 Adult, community and other education (private)	71	1,594	5,042	2,657
Education and Training (public)[1]	830	35,022	71,461	40,915
Education and training (total)	1,152	48,158	98,791	57,546
R Arts and recreation services	43	1,020	4,206	1,807
89 Heritage activities	6	229	705	366
90 Creative and performing arts activities	37	791	3,501	1,441
Total	1,533	81,219	295,174	141,396[2]
Total incl. Public education	2,363	116,241	366,635	182,311

Note:[1] Public sector education estimates based on government expenditure on education and training, with value added from national accounts. [2] Is the sum of individual industry value added.
Sources: ABS (2011) Australian Industry, 2009-10 (Cat No 8155.0). Author's analysis.

[2] Note we adopt the convention here that the year 2007 refers to the financial year 2006-7 and 2010 to 2009-10 and, where official statistics are quoted, this convention is adopted throughout the report except where otherwise specified.

2.1 Manufacturing

Following standard practice, some manufacturing industries are selected for their reliance on exceptions or limitations as an input (e.g. publishing, where quotation of other works is involved and, in media reporting and critique), while others are selected because demand for their output is dependent on exceptions or limitations (e.g. manufacture of unrecorded media, computer and information processing equipment, etc.).

The printing industry employed 50,000 people at the end of 2010, earned $9.3 billion income and generated $4 billion industry value added. Perhaps not surprisingly in the developing digital economy, printing industry employment, income and value added have all declined in recent years.

The professional and scientific equipment, computer and electronic equipment manufacturing industries employed a further 39,000 people in 2007 (the most recent year for which data are available), earned almost $10 billion income and generated some $2.8 billion industry value added.

2.2 Information media and telecommunications

The information media and telecommunications industries also include some industries that are included on the basis of the demand driving effect of limitations and exceptions (e.g. telecommunications and data processing services), and others that use limitations and exceptions as an input in the production process (e.g. broadcasting and Internet services).

The core information media and telecommunications industries employed some 177,000 people at the end of June 2010, paid wages and salaries amounting to $11.6 billion during 2010, earned $74 billion industry income and generated $35 billion industry value added. While telecommunications services was the largest contributor, publishing, motion picture and sound recording activities, broadcasting and Internet services also made substantial contributions.

Employment in these industries increased by a modest 1.2% per annum between 2007 and 2009-10, while wages and salaries paid and industry income declined slightly in real terms, and industry value added grew by just 0.8% per annum.

2.3 Professional, scientific and technical services

The professional, scientific and technical services industries depend on limitations and exceptions to copyright to varying degrees. To some they are an essential input (e.g. research and consulting services).

The professional, scientific and technical services industries employed 941,000 people at the end of June 2010, paid wages and salaries amounting to $53 billion during 2009-10, earned $180 billion industry income and generated $84 billion industry value added.

Employment in these industries increased by 2.5% per annum between 2007 and 2010, creating some 66,000 additional jobs. In real terms, wages and salaries paid increased by 3% per annum, industry income by 3.3% per annum, and industry value added by 2.5% per annum.

2.4 Education and training

The education sector makes substantial use of limitations and exceptions as an input in the production process (e.g. citation and critique).

Private sector education and training employed 322,000 people at the end of June 2010, paid wages and salaries amounting to $13 billion during 2010, earned $27 billion industry income and generated almost $17 billion industry value added. Of course, much education activity in Australia takes place in the public sector, which is not included in these data.

Adding public and private sector education is not easy. Most estimates of public sector education are derived from public funding for education, but of course some of that funding goes to the private sector. Ignoring (perhaps double counting) this element, we follow the example of previous studies and estimate revenue and employment for public education from public expenditure (Akker et al. 2010), and derive value added from the National Accounts. This suggests employment in public sector education of around 830,000 at the end of June 2010, the payment of wages and salaries worth $35 billion during 2010, and the generation of industry income of around $70 billion and industry value added of around $40 billion.

Taken together, private and public education activities employed more than 1 million people in 2010, paid wages and salaries of an estimated $48 billion during 2010, earned industry income approaching $100 billion and generated almost $60 billion industry value added.

Growth in education and training has been strong. Employment increased by 6.5% per annum between 2007 and 2010, creating almost 200,000 additional jobs. In real terms, estimated industry income increased by 7.2% per annum, and industry value added by 4.4% per annum.

2.5 Arts and recreation services

Creative industries also use limitations and exceptions to copyright as an input for their production processes. Creative activities are the main element, with heritage activities making a smaller contribution.

Taken together, these industries employed around 43,000 people in 2010, paid wages and salaries of just over $1 billion during 2010, earned industry income of $4.2 billion and generated $1.8 billion industry value added. Employment in performing arts and heritage activities increased by 2.4% per annum between the end of 2007 and 2010, but industry income and value added contracted.

2.6 Wholesale and retail trade

The industries identified in Table 1 (page 6) included parts of the wholesale and retail trade that rely on the demand driving effect of limitations and exceptions to copyright. These include the wholesale and retail of electrical and electronic goods, professional and scientific equipment, and printed material (including newspapers, magazines and books). Limited recent data were found, but for completeness we present what data are available.

In 2006, the selected wholesale industries employed 59,000 people, paid wages and salaries of $4 billion, earned industry income of $37 billion and generated individual industry value added of $7.2 billion (Table 2). The selected retail industries employed 102,000 people, earned an industry income of more than $25 billion and generated individual industry value added of $4.8 billion. Together these selected wholesale and retail industries employed 160,000 people and generated total individual industry value added of $12 billion.

TABLE 2: SELECTED WHOLESALE AND RETAIL INDUSTRIES, 2006

	Employment at end of June	Wages and salaries	Total income	Industry value added
	'000	$m	$m	$m
Selected Wholesale in 2006	**59**	**4,039**	**37,197**	**7,232**
3491 Professional and scientific goods	15	954	7,200	1,973
3492 Computer & computer peripheral	29	2,065	20,842	3,397
3493 Telecommunication goods	12	849	7,562	1,528
3735 Book and magazine	4	172	1,594	334
Selected Retail in 2006	**102**	**2,968**	**26,496**	**4,812**
422 Electrical and electronic goods	65	2,330	20,973	3,737
4244 Newspaper and book	37	639	5,523	1,075
Total	**160**	**7,008**	**63,693**	**12,044[1]**

Note: [1] The simple sum of individual industry value added.
Source: ABS (2007) Retail and Wholesale Industries, Australia, 2005-06 (Cat No 8622.0). Author's analysis.

During 2011, income from the retail sales of electrical and electronic goods was $18.2 billion, and income from newspaper and book retailing was $4.7 billion – together accounting for 9.3% of total retail sales in Australia.

3. International comparisons

The following sections present a comparison of the contributions of limitations and exceptions dependent industries in Australia and the United States, and then look at the relative dependence on copyright and exceptions dependent industries (i.e. comparing the WIPO studies of copyright industries with those using the modified method focusing on industries depending on limitations and exceptions).

3.1 National and international comparisons

Differences between national economies (e.g. different mixes of copyright content production and use within the same industries), difficulties matching industry classification schema, and data collection limitations and timings make international comparisons difficult.

As noted above, the coverage of industries achieved is close to that of the previous US and European studies using the same approach, but there are some important differences. The US studies include education, securities and other financial investment and insurance. The European studies include public education but not private education or government. This study includes both private and public education but does not include finance and insurance, retail and wholesale trade. There are also some other relatively minor differences in the coverage of professional and technical services. The following tables present national and international comparisons, discussing some of these issues as well as more direct national differences.

The industries depending on limitations and exceptions to copyright accounted for 21% of employment in Australia in 2010 (14% if public education is excluded), and generated the equivalent of 14% of GDP in the sum of industries' value added during 2010 (11% if public education is excluded) (Table 3). At $49,189, wages and salaries per employee were a little higher in the limitations and exceptions industries in Australia than was the case nationally, but value added per employee was lower than was the case nationally at $77,147.

At 21% (14% excluding public sector education), the industries depending on limitations and exceptions accounted for a higher share of national employment in Australia than was the case in the United States (13%) or Europe (4%). However, the European employment data are exclusive of the education and creative industries due to data limitations in the European study. Both sectors are major employers. In addition to coverage issues, difference will reflect different mixes of labour intensive services and less labour intensive manufacturing in the different countries.

TABLE 3: NATIONAL AND INTERNATIONAL COMPARISONS – PERCENTAGE SHARE OF TOTAL AND PRODUCTIVITY

	Australia 2010 *(All Industries)*[1]	Australia 2010 *(Exceptions & Limitations Industries)*	United States 2009 *(Fair Use Industries)*	Europe 2007 *(Exceptions & Limitations Industries)*
Share of Employment	100%	21% (14%)[2]	13%	4%
Share of GDP	100%	14% (11%)[2]	17%	9.3%
Wages & Salaries per Employee	40,461	49,189	91,098 (71,170)[3]	57,944 (34,906)[3]
Value Added per Employee	82,753	77,147	180,895 (141,324)[3]	211,771 (127,573)[3]

Notes: 1 Excluding Finance and Insurance Services; 2 Shares excluding public sector education; and 3 Value in original currency.
Source: Compiled from various sources. Author's analysis.

The industries depending on limitations and exceptions generated industries' value added equivalent to 14% of GDP in Australia (11% excluding public sector education), which was higher than in Europe (9.3%) but lower than in the United States (17%). Both wages and salaries per employee and value added per employee were considerably higher in the United States and Europe. However, this may be due, in part, to differences in industry coverage and composition.

Employment in the industries depending on limitations and exceptions increased faster in Australia than did employment across the economy between 2007 and 2010, at 4.2% per annum compared with 2% per annum (Table 4). Moreover, wages and salaries paid, industry income and industry value added also increased more quickly than was the case nationally.

TABLE 4: NATIONAL AND INTERNATIONAL COMPARISONS - GROWTH, PER CENT PER ANNUM (NOMINAL VALUES)

	Australia 2007 to 2010 *(All Industries)*[1]	Australia 2007 to 2010 *(Exceptions & Limitations Industries)*	United States 2002 to 2009 *(Fair Use Industries)*	Europe 2003 to 2007 *(Exceptions & Limitations Industries)*
Employment	2.0%	4.2%	0.1%	2.1%
Wages & Salaries	5.3%	7.5%	4.4%	3.1%
Income	4.6%	6.1%	3.9%	..
Value Added	4.5%	5.5%	5.3%	7.5%

Notes: [1] Excluding Finance and Insurance Services.
Source: Compiled from various sources. Author's analysis.

3.2 Relative dependence on copyright and exceptions dependent industries

As noted, the WIPO methodology looks at the copyright industries, focusing on production and use, while the method adopted herein looks at the exceptions dependent industries, focusing on use. However, production of content often involves use, so there is considerable overlap between the industries covered in the two methodologies. The principal difference is the inclusion of a somewhat wider set of 'use' industries in the latter studies (e.g. education and some professional and technical services), so the economic contribution of industries depending on limitations and exceptions is likely to be larger than the copyright industries identified using the WIPO method.

Despite data limitations and caveats, international comparison of the difference between the WIPO and exceptions studies goes to the heart of the issue of whether and to what extent the copyright regime affects the development of industries depending on limitations and exceptions.

Comparing the most recent studies from Australia and the US we see a substantially larger difference between copyright and exceptions industries' employment in Australia than there is in the US. However, in Australia exceptions using industries generate lower value added per employee. Accordingly these industries make a lower contribution to GDP in Australia than they do in the US. Indeed, as one might expect, the US benefits from a larger contribution of both copyright and exceptions industries.

TABLE 5: COMPARISON OF THE WIPO COPYRIGHT AND EXCEPTIONS INDUSTRIES CONTRIBUTIONS IN AUSTRALIA AND THE UNITED STATES

	Australia		US	
	WIPO method (2009)	Exceptions method (2010)	WIPO method (2011)	Exceptions method (2011)
Employment ('000)	840	2,363 (1,533)	..	..
Employment as share of total national employment	8.0%	21% (14%)	8.2%	13%
Industry value added ($ billions)	98	182 (141)	..	..
Industry value added as a share of GDP	10%	14% (11%)	11%	17%

Sources: Compiled from Rogers, T., Szamosszegi, A. (2011) Fair use in the U.S. economy: Economic contribution of Industries relying on Fair Use, prepared for the Computer & Communications Industry Association, and WIPO (2012) Copyright + Creativity = Jobs and Economic Growth, Geneva: World Intellectual Property Organization. Authors' analysis.

These data are consistent with Australia exhibiting a relatively larger reliance on exceptions dependent industries (use) and lesser reliance on copyright industries (production) than is the case in the US.

Alternative approaches also suggest this. Deloitte Access Economics (2011) estimated the value of the digital economy in Australia from employment in various Internet industries, including:

- *ISPs, Web Search Portals & Data Processing*: ISPs provide the connection between the user and the Internet. This category also includes web hosting companies, who store web pages of content on their servers and make it accessible to visitors, and Internet search engines, which have become a vital part of the Internet, allowing people to find information quickly and easily; and
- *Internet publishing and broadcasting*: This segment comprises news, entertainment, research and information services, but excludes search engines, e-commerce sites, and websites of enterprises such as businesses, government and academia, which are classified in other segments.

These categorisations map reasonably well to Internet intermediaries and content providers and users, respectively. They estimated employment in the former at almost four times the latter and their contribution to GDP at almost six times. Again, perhaps, suggesting a relatively greater reliance in Australia on exceptions dependent industries than on copyright industries – although there is overlap.

4. International trade and competitiveness in different sectors

Statistics on trade in services include many items that are subject to copyright (e.g. audio-visual services), as do those on goods trade (e.g. books and periodicals). They also include charges for the use of intellectual property. These data can be matched to the industries depending on limitations and exceptions, and are suggestive of Australia's position as a producer and user of copyright related services and intellectual property rights.

The advantage of trade data is that it more clearly distinguishes between production and use of copyrighted content. The data show a reliance in Australia on the use of imported copyright materials (Tables 8 and 9) with industries that *use* copyright inputs showing a healthy trade surplus while the flow of international payments for IP itself shows a strong deficit.

Overall, exports of services relying on limitations and exceptions to copyright amounted to $26 billion in 2011, up from $17 billion in 2006 showing growth of 8.3% per annum (Table 8). Imports of services relying on limitations and exceptions exceeded $12 billion in 2011 (less than half the exports), up from $7 billion in 2006, or by 10.7% per annum.

There was a surplus on trade in services relying on limitations and exceptions to copyright of almost $14 billion during 2011, up from $10 billion in 2006 and growing by 6.5% per annum (in current prices) over the last five years.

TABLE 8: TRADE IN COPYRIGHT RELATED SERVICES, 2006 TO 2011

	Exports			Imports		
	2006	2011	CAGR	2006	2011	CAGR
Telecommunications, computer and information services:	1,644	1,712	0.8%	1,610	2,014	4.6%
Telecommunication services	445	152	-19.3%	543	393	-6.3%
Computer and Information services	1,199	1,560	5.4%	1,067	1,621	8.7%
Computer services	1,070	1,308	4.1%	938	1,337	7.3%
Information services	21	81	31.0%	25	76	24.9%
Other services	108	171	9.6%	104	208	14.9%
Other business services:	5,180	7,369	7.3%	3,647	7,432	15.3%
Research and development services	410	539	5.6%	189	232	4.2%
Professional and management consulting services	2,285	3,097	6.3%	1,600	2,598	10.2%
Legal, accounting, consulting and other professional services	2,072	2,745	5.8%	1,409	2,404	11.3%
Advertising, market research and public opinion polling	213	352	10.6%	191	194	0.3%
Technical, trade-related and other business services	2,485	3,733	8.5%	1,858	4,602	19.9%
Architectural, engineering, scientific and other technical services	1,242	1,938	9.3%	535	2,552	36.7%
Waste treatment and de-pollution, agricultural and mining services	221	308	6.9%	163	543	27.2%
Operational leasing services	199	236	3.5%	769	535	-7.0%
Trade-related commission services	573	807	7.1%	189	277	7.9%
Other business services	250	444	12.2%	202	695	28.0%
Personal, cultural, and recreation services:	647	820	4.9%	1,109	1,475	5.9%
Audio-visual and related services	227	164	-6.3%	916	1,202	5.6%
Other personal, cultural & recreational services	420	656	9.3%	193	273	7.2%
Travel services (Education)	9,745	15,753	10.1%	741	914	4.3%
Education related travel	9,745	15,753	10.1%	741	914	4.3%
Total copyright related services	17,987	26,583	8.1%	9,753	15,649	9.9%
Total All Services	41,900	50,570	3.8%	41,254	57,360	6.8%
Share of total	43%	53%	-	24%	27%	-

Note: Education services are split between education related travel services and other personal services.
Source: ABS (2011) International Trade in Services by Detailed Services Category, Financial Year, 2010-11. Cat No 5368.0.55.003. Author's analysis.

Some of these services categories relate more directly to local copyright content production (e.g. audio-visual services) and others, while mixed, relate more to directly to the use of copyright content as an input to production (e.g. professional and management consulting services, research and development services, and education).

In general, Australia's trade performance appears stronger in the use or exceptions dependent industries than in the production or copyright industries. For example:

- Education services (travel related) exports were worth almost $15.8 billion in 2011, with exports exceeding imports by $14.8 billion and growing more than twice as fast over the last five years;
- Australia's professional and management consulting services exports were worth more than $3 billion in 2011, and exports exceeded imports by almost $500 million; and
- Australia's research and development services exports were worth $539 million during 2011, more than double the value of imports, and exports have grown faster than imports over the last five years.

TABLE 9: INTERNATIONAL INTELLECTUAL PROPERTY PAYMENTS, 2006 TO 2011

	Exports			Imports		
	2006	2011	CAGR	2006	2011	CAGR
Charges for the use of intellectual property:	771	929	3.8%	2,646	3,814	7.6%
Licences to reproduce and/or distribute computer services	267	189	-6.7%	779	1,289	10.6%
Licences to reproduce and/or distribute audio-visual and related services	–	–		–	–	
Outcomes of research and development	227	373	10.4%	693	534	-5.1%
Franchise and trademarks licencing fees	27	20	-5.8%	509	1,189	18.5%
Other charges for the use of IP	250	347	6.8%	665	802	3.8%

Source: ABS (2011) International Trade in Services by Detailed Services Category, Financial Year, 2010-11. Cat No 5368.0.55.003. Author's analysis.

International payments for intellectual property harms the trade balance, with payments for exports exceeding receipts for imports by $2.9 billion in 2011 (Table 9). In 2011, Australia received payments from other countries of $929 million for the use of intellectual property, up from $771 million in 2006, or by 3.8% per annum. But Australia made payments to other countries for the use of intellectual property of more than $3.8 billion during 2011, up from $2.6 billion in 2006, or by 7.6% per annum.

The deficit on trade in the use of intellectual property has grown by 9% per annum since 2006, with licences to reproduce and/or distribute computer services a major contributor – as the deficit on trade in such licences exceeded $1 billion in 2011 and has grown by more than 16% per annum (in current prices) over the last five years.

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Annex I: The Method

Limitations and exceptions to copyright have the potential to enable economic activities that would be more difficult to achieve otherwise. There are at least two ways in which an industry can be linked to exceptions and/or limitations:

- *Exceptions or limitations are an input to a production process* - creative processes often use intellectual property as an input, thereby relying on an exception or limitation (e.g. research and education); or
- *By creating demand for the industry's output* - limitations and exceptions enable end user processes, such as time and space shifting, and these processes drive the demand for goods and services (e.g. blank recording media and MP3 players) (Akker et al. 2010).

What is immediately apparent from the first selection criteria is that copyright content producers and users are often one and the same (e.g. a broadcast television station may produce program content and distribute content produced by others). Consequently, there is considerable overlap between the original WIPO approach focusing on copyright industries and the variation adopted herein, which focuses on industries dependent on limitations and exceptions to copyright, and it is sometimes difficult to see how one might attribute industry activity between content producer protection, on the one hand, and exception and limitation facilitated use, on the other. Moreover, as different countries may have different mixes of production and use within the same industries, international comparison can be rather inconclusive.

Rogers and Szamosszegi (2010) suggest that the exploitation of ICTs relies heavily on exceptions, and that search, portals and web hosting would not be possible in their current form in the absence of limitations and exceptions to copyright. In a world without limitations and exceptions to copyright, those industries would either become less viable or would need substantial reorganising, leading to a decline in innovation and growth. While no doubt true, the more immediate issue in a globalised world is the influence that national copyright regimes may have on the location of these activities, related industry investment and innovation.

Identifying industries

Following the lead of the previous US and European studies, we begin by identifying the industries that depend to a greater or lesser extent on limitations and exceptions to copyright. The list of industries in the US study of Rogers and Szamosszegi (2007) was the starting point from which Akkers et al. (2010) developed their list of industries for Europe.

The US study on fair use industries identified the industries using the 2002 version of the North American Industrial Classification System (NAICS), while the European study converted these to the European standard industry classification, *Nomenclature statistique des activités économiques dans la Communauté européenne* (NACE). Drawing on both of these industry lists, we undertook a manual concordance to *The Australian and New Zealand Standard Industrial Classification* (ANZSIC) 2006, with the aid of ABS concordance tables. Such concordances are no more than approximate. Consequently, following the lead of Akkers et al. (2010), we eliminated industries for which the correspondence was partial and poor.

The indicators of economic contribution adopted in previous studies included: number of persons employed, wages and salaries paid, revenue or turnover, and industry value added. Relying almost entirely on data from the Australian Bureau of Statistics (ABS), we found that it was difficult to source up-to-date information for the range of industries at the 4-digit industry code level. This led us to focus on a core set of industries at the 2-digit level for which consistent and recent data were available, supplemented by data for some manufacturing industries at the 4-digit level where necessary. We were unable to achieve sufficient matching for wholesale and retail industries, and have not included them in the main industry tables. The industries identified through this process are listed in AI-1.

The coverage of industries achieved is close to that of the previous US and European studies using the same approach, although there are some important differences. These include the treatment of education, government and public sector activities, finance and insurance. For example, the US studies of fair use industries include education, securities and other financial investment and insurance; whereas the European studies of industries relying on limitations and exceptions include public education but not private education or government. The coverage in this study includes both private and public education but does not include finance and insurance, retail and wholesale trade.

The WIPO method looks at the copyright industries, focusing on production and use, while the method adopted herein looks at the exceptions dependent or fair use industries, focusing on use. However, as noted, production of content often involves use. Hence there is considerable overlap between the industries covered in the two methods. The principal difference is the inclusion of a somewhat wider set of 'use' industries in the latter studies (e.g. education and some professional and technical services). As a result, the economic contribution of industries depending on limitations and exceptions will typically be somewhat larger than the copyright industries identified using the WIPO method.

Identifying activities

There is a number of alternative, non-industry based ways to explore the economic impact of limitations and exceptions to copyright, including: employment in occupations depending on limitations and exceptions; investment in intangibles depending on limitations and exceptions; and international trade in copyright related services and payments for the use of intellectual property. Each is explored briefly, following the industry analysis.

TABLE AI-1: DETAILED INDUSTRY CODES, LIMITATIONS AND EXCEPTIONS INDUSTRIES (ANZSIC 2006)

C Manufacturing

16 Printing (including the Reproduction of Recorded Media)

- 161 Printing and Printing Support Services
  - 1611 Printing
  - 1612 Printing Support Services
- 162 Reproduction of Recorded Media
  - 1620 Reproduction of Recorded Media

J Information Media and Telecommunications

54 Publishing (except Internet and Music Publishing)

- 541 Newspaper, Periodical, Book and Directory Publishing
  - 5411 Newspaper Publishing
  - 5412 Magazine and Other Periodical Publishing
  - 5413 Book Publishing
  - 5414 Directory and Mailing List Publishing
  - 5419 Other Publishing (except Software, Music and Internet)
- 542 Software Publishing
  - 5420 Software Publishing

55 Motion Picture and Sound Recording Activities

- 551 Motion Picture and Video Activities
  - 5511 Motion Picture and Video Production
  - 5512 Motion Picture and Video Distribution
  - 5513 Motion Picture Exhibition
  - 5514 Post-production Services and Other Motion Picture and Video Activities
- 552 Sound Recording and Music Publishing
  - 5521 Music Publishing
  - 5522 Music and Other Sound Recording Activities

56 Broadcasting (except Internet)

- 561 Radio Broadcasting
  - 5610 Radio Broadcasting
- 562 Television Broadcasting
  - 5621 Free-to-Air Television Broadcasting
  - 5622 Cable and Other Subscription Broadcasting

57 Internet Publishing and Broadcasting

- 570 Internet Publishing and Broadcasting
  - 5700 Internet Publishing and Broadcasting

58 Telecommunications Services

- 580 Telecommunications Services
  - 5801 Wired Telecommunications Network Operation
  - 5802 Other Telecommunications Network Operation
  - 5809 Other Telecommunications Services

59 Internet Service Providers, Web Search Portals and Data Processing Services

- 591 Internet Service Providers and Web Search Portals
  - 5910 Internet Service Providers and Web Search Portals
- 592 Data Processing, Web Hosting and Electronic Information Storage Services
  - 5921 Data Processing and Web Hosting Services
  - 5922 Electronic Information Storage Services

M Professional, Scientific and Technical Services

69 Professional, Scientific and Technical Services (Except Computer System Design Services)
- 691 Scientific Research Services
  - 6910 Scientific Research Services
- 692 Architectural, Engineering and Technical Services
  - 6921 Architectural Services
  - 6922 Surveying and Mapping Services
  - 6923 Engineering Design and Engineering Consulting Services
  - 6924 Other Specialised Design Services
  - 6925 Scientific Testing and Analysis Services
- 693 Legal and Accounting Services
  - 6931 Legal Services
  - 6932 Accounting Services
- 694 Advertising Services
  - 6940 Advertising Services
- 695 Market Research and Statistical Services
  - 6950 Market Research and Statistical Services
- 696 Management and Related Consulting Services
  - 6961 Corporate Head Office Management Services
  - 6962 Management Advice and Related Consulting Services
- 697 Veterinary Services
  - 6970 Veterinary Services
- 699 Other Professional, Scientific and Technical Services
  - 6991 Professional Photographic Services
  - 6999 Other Professional, Scientific and Technical Services n.e.c.

70 Computer System Design and Related Services
- 700 Computer System Design and Related Services
  - 7000 Computer System Design and Related Services

P Education and Training

80 Preschool and School Education
- 801 Preschool Education
  - 8010 Preschool Education
- 802 School Education
  - 8021 Primary Education
  - 8022 Secondary Education
  - 8023 Combined Primary and Secondary Education
  - 8024 Special School Education

81 Tertiary Education
- 810 Tertiary Education
  - 8101 Technical and Vocational Education and Training
  - 8102 Higher Education

82 Adult, Community and Other Education
- 821 Adult, Community and Other Education
  - 8211 Sports and Physical Recreation Instruction
  - 8212 Arts Education
  - 8219 Adult, Community and Other Education n.e.c.
- 822 Educational Support Services
  - 8220 Educational Support Services

R Arts and Recreation Services

89 Heritage Activities
- 891 Museum Operation
  - 8910 Museum Operation
- 892 Parks and Gardens Operations
  - 8921 Zoological and Botanical Gardens Operation
  - 892 Nature Reserves and Conservation Parks Operation

90 Creative and Performing Arts Activities
- 900 Creative and Performing Arts Activities
  - 9001 Performing Arts Operation
  - 9002 Creative Artists, Musicians, Writers and Performers
  - 9003 Performing Arts Venue Operation

Source: Author's analysis.

TABLE AI-2: INCOMPLETE AND POORLY MATCHING CODES NOT INCLUDED IN THE MAIN INDUSTRY DATA TABLES (ANZSIC 2006)

C Manufacturing

24 Machinery and Equipment Manufacturing

- 241 Professional and Scientific Equipment Manufacturing
  - 2411 Photographic, Optical and Ophthalmic Equipment Manufacturing
  - 2412 Medical and Surgical Equipment Manufacturing
  - 2419 Other Professional and Scientific Equipment Manufacturing
- 242 Computer and Electronic Equipment Manufacturing
  - 2421 Computer and Electronic Office Equipment Manufacturing
  - 2422 Communication Equipment Manufacturing
  - 2429 Other Electronic Equipment Manufacturing

G Retail Trade

- 422 Electrical and Electronic Goods Retailing
  - 4221 Electrical, Electronic and Gas Appliance Retailing
  - 4222 Computer and Computer Peripheral Retailing
  - 4229 Other Electrical and Electronic Goods Retailing
  - 4244 Newspaper and Book Retailing

F Wholesale Trade

- 349 Other Machinery and Equipment Wholesaling
  - 3491 Professional and Scientific Goods Wholesaling
  - 3492 Computer and Computer Peripheral Wholesaling
  - 3493 Telecommunication Goods Wholesaling
  - 3494 Other Electrical and Electronic Goods Wholesaling
  - 3735 Book and Magazine Wholesaling

Source: Author's analysis.

Annex II: Economic impact of industries, 2006-07

TABLE AII 1: ECONOMIC IMPACT OF INDUSTRIES DEPENDING ON LIMITATIONS AND EXCEPTIONS, 2006-07

	Employed end of June	Wages and salaries	Industry income	Industry value add
	'000	$m	$m	$m
C Manufacturing	50	2,185	9,466	3,963
16 Printing (including recorded media)	50	2,185	9,466	3,963
J Information media and telecommunications	171	10,793	68,910	31,457
54 Publishing (except Internet & music publishing)	48	2,732	12,782	6,723
55 Motion picture & sound recording activities	27	778	5,742	2,065
56 Broadcasting (except Internet)	19	1,306	9,114	3,654
57 Internet publishing and broadcasting	3	158	758	425
58 Telecommunications services	60	4,973	35,952	17,350
59 Internet service providers, web search, etc.	12	772	4,248	1,120
60 Library and other information services	2	76	315	120
M Professional, scientific and technical services	875	44,695	150,468	71,663
69 Professional, scientific & technical services	727	34,125	122,756	56,296
70 Computer system design & related services	148	10,570	27,712	15,367
P Education and training (private)	282	9,577	21,832	13,093
80 Preschool and school education (private)	166	6,733	12,140	9,076
81 Tertiary education (private)	52	1,589	4,979	2,093
82 Adult, community & other education (private)	64	1,255	4,713	1,925
Education and Training (public)	672	25,482	51,996	33,418
Education and training (total)	954	35,059	73,828	46,511
R Arts and recreation services	40	851	4,036	1,727
89 Heritage activities	5	169	655	291
90 Creative and performing arts activities	35	682	3,381	1,436
Total	1,418	68,101	254,712	121,903[1]
Total incl. Public education	2,090	93,583	306,708	155,321

Note: [1] Is the sum of individual industry value added.
Sources: ABS (2011) Australian Industry, 2009-10 (Cat No 8155.0). Author's analysis.

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John Houghton is Professorial Fellow at Victoria University's Centre for Strategic Economic Studies (CSES) and Director of the Centre's Information Technologies and the Information Economy Program. He has published and spoken widely on information technology, industry and science and technology policy issues, and he has been a regular consultant to national and international agencies, including the Organisation for Economic Cooperation and Development. John's research is at the interface of theory and practice with a strong focus on the policy application of economic and social theory, and of leading-edge research in various relevant fields. Consequently, his contribution tends to be in bringing knowledge and research methods to bear on policy issues in an effort to raise the level of policy debate and improve policy outcomes. In 1998, John was awarded a National Australia Day Council, Australia Day Medal for his contribution to IT industry policy development.

Nicholas Gruen is CEO of Lateral Economics and has several decades of experience of economics and policy making. Dr Gruen was an advisor to Treasurer John Dawkins from 1991 to 1994 and appointed to the Productivity Commission in 1994 and 1995. After three years at the Business Council of Australia directing the Council's New Directions project, he founded Lateral Economics and Peach Financial. He chaired the internationally acclaimed Federal Government's Government 2.0 Taskforce; he was on the Expert Panel that reviewed Australia's Innovation System; he is a board member of Innovation Australia; he was founding chairman of Kaggle, a Silicon Valley-based start-up that crowd sources data analytics, and he is chairman of The Australian Centre for Social Innovation.