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Bachelor degree participation in vocational institutions: examining the determinants of participation

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ABSTRACT

Recent studies in Australia have found that bachelor's degree participation in vocational institutions in Australia tends to skew towards students from high and middle socioeconomic status (SES) backgrounds. This outcome runs counter to overall vocational participation which is dominated by students from low and middle SES backgrounds. This paper uses data from the Longitudinal Surveys of Australian Youth (LSAY) to confirm findings from a mixed-methods study on bachelor courses in vocational institutions by school leaver-aged students. It characterises the student population in such courses and examines evidence on the influence of determinants of bachelor participation in vocational institutions, in relation to measures of family background, wealth and cultural status and school type. It is found that students entering bachelor programs in vocational education have higher household levels of cultural possession, are more likely to plan to enter university, and have higher self-assessments of academic ability than those undertaking traditional vocational qualification pathways, but lower than those who undertook bachelor qualifications at university.

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Introduction

The option to undertake bachelor degree studies at a vocational institution, and outside of the university sector, represents an important new or 'non-traditional' pathway created by ongoing reforms aimed at expanding Australia's higher education system. In order to understand the impact of these reforms and their success in achieving participation and equity objectives, it is important to monitor the characteristics of students following these new pathways and to have an appreciation of the traditional pathways from which they are likely to have been diverted. This paper examines factors contributing to post-compulsory education participation in Australia among school leavers, be it at a university or vocational institution. Using data from the 2009 Year 10 cohort of the Longitudinal Surveys of Australian Youth (LSAY), which includes a relatively small number

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of school-leavers who undertake bachelor degree studies in vocational institutions, it builds upon limited existing work on this topic.

The last decade has seen an expansion in Australian higher education, following a major review in 2008 – the 'Bradley Review' (Bradley, 2008) – and subsequent introduction of the 'demand driven funding system' in 2012 which saw public institutions given freedom to enrol bachelor degree students in publicly funded places. This was largely motivated by the Bradley Review's recommendation that higher education participation be widened such that 40% of 25 to 34 year-olds would have attained a degree (bachelor degree or higher) in 2020 (Koshy, 2016). This mirrored similar proposals in the United States (US), Europe, and the United Kingdom (UK). For instance, the UK establish a target of 50% of the population participating in some form of higher education by age 30 by 2010 (Bathmaker, 2016).

The Bradley Review had a series of recommendations, the interaction of two of which form the impetus for the research in this paper (see, Bradley, 2008, p. xviii). The first of these was to focus efforts to increase participation on specific groups of disadvantaged students – termed 'equity groups' in Australia – including low SES, regional or remote and Indigenous students, as well as students with a disability and those from non-English speaking backgrounds (NESB) (Koshy, 2016). This was adopted fully by government, with little deviation from the report's specifications of narrow equity groups. The second, to create a single tertiary sector, was not acted upon, leaving vocational education and higher education clearly bifurcated.

Previous research by Webb et al. (2017) arrived at the key finding that students from high and middle socioeconomic status (SES) backgrounds (as measured on the basis of family or school characteristics) are more likely to undertake bachelor degree qualifications in vocational institutions than students from low SES backgrounds. The reasons for this are varied, and this paper provides an additional perspective on this issue through an empirical analysis of choices around bachelor participation in the context of broader post-compulsory activities in Australia. The focus on higher education outside the traditional university sector allows consideration of higher education at the 'fringes' (Marginson, 2016) and its impact on a wider conception of equity in higher education beyond traditional equity categories.

Higher education qualifications in vocational institutions

The arrival of demand-driven funding and Australia's historically more generous support for higher education students through the income-contingent loans system, known as HECS-HELP, saw university enrolment emerge as an even stronger preferred option compared to vocational education and training over the last decade. In Australia, the post-school system is bifurcated into two systems of higher education (HE) and vocational education and training (VET) which have different governance and funding systems split between Federal and State governments. Higher education is provided by public and private universities and non-university higher education providers. Vocational education is provided by public and private training organisations registered by Australian Skills Qualification Authority [ASQA].

Brett (2018) observes that in 2016 around 41.2% of 19 and 20 year-olds were enrolled at a university, compared with just 10.1% in vocational courses (including TAFE). In

that year, higher education accounted for about 80% of all post-secondary enrolments in the school-leaver cohort, up from around 67% in 2006. This is the culmination of the historical shift in Australian post-compulsory education, which has seen the bachelor degree emerge as the preferred qualification.

In the aftermath of this expansion, Australian higher education is still largely delivered through 41 universities – 38 public institutions and three private – who in 2018 enrolled 771,344 students at the undergraduate level in bachelor, associate or 'other undergraduate' degree courses (Australian Department of Education, Skills and Employment, 2019). However, the changing nature of Australia's higher education system means that higher education cohorts are coming from non-traditional backgrounds who may not have previously attended higher education and are also attending in institutions that previously did not offer higher education. Thus, in additional to total enrolments in universities, a further 38,066 students were enrolled in bachelor courses in non-university higher education institutions (NUHEIs), including enrolments in the public vocational education institutions in Australia owned by the local state or territory government known as technical and further education (TAFE) institutions.

Each Australian state and territory manages its TAFEs differently, with some having a single entity for the whole state and others having quasi-competitive systems. Across the country in 2018, there were 11 TAFEs registered as non-university higher education institutions. However, they had a very small share of enrolments in bachelor and sub-bachelor programs. While the NUHEIs combined accounted for around 4.7% of total enrolments, TAFE bachelor enrolments accounted for less than a quarter of these, equal to around 1% of all bachelor degree enrolments (Webb et al., 2019).

The Australian Research Council Discovery Project, *Vocational Institutions, Undergraduate Degrees*, sought to investigate the delivery of higher education by TAFE Institutes across Australia (Webb et al., 2019). This included a case study approach, with two institutions who had the largest enrolments of bachelor degree students being selected for extended research on students in five broad fields of education (Business; Interior Design; Nursing; Fashion; and Early Years).

The *Vocational Institutions, Undergraduate Degrees* survey of students provides some indicative evidence on their backgrounds, including that they had higher than average levels of cultural possession and considerable social capital links (Webb et al., 2019). Coupled with earlier evidence from Gale et al. (2015) – primarily on school backgrounds – the research indicates that students enrolling in bachelor degree programs in vocational institutions generally come from high and middle SES backgrounds and schools compared with not only traditional vocational students, as expected, but also in many contexts (notably among metropolitan and on-campus cohorts) with other university students.

The students enrolling in higher education in TAFEs were also found to be generally older, with 36% being mature age (25 years or older) in the survey sample (Webb et al., 2019). Further, the survey reported significantly higher numbers of domestic students indicating they spoke a language in their home other than English, compared with the sectoral average.

These issues added to the narrative of the educators and administrators in the 11 case study institutions. These TAFE staff talked about widening participation in higher education in the context of the 'tertiary sector' and in a way that made the researchers consider

how equity was defined in Australia. Further, the survey sample, while representative of a significant proportion of students undertaking bachelor degrees at TAFE, was nonetheless small, n = 463, and did not include non-TAFE students. It was this question, which prompted a key finding in Webb et al. (2019):

> Current measures of equity used in Australia do not support a full understanding of the nature of the cohort who are taking higher education in vocational institutions.. (p. 5)

This paper takes a first step towards addressing this issue, specifically in relation to situating the decision to undertake bachelor studies in VET within a broader study of the decision to under a higher education degree. Its key aim is to identify differences between university and vocational institution-based bachelor students in relation to the influence of factors affecting their decision to engage in either stream of post-school education.

The determinants of higher education participation

Entry into higher education can be thought of as the interaction of forces acting across four aspects of access, as originally designated by Anderson et al. (1980):

- *Aspiration* (the motivation of individuals to participate in higher education);
- *Achievement* (the ability of individuals to demonstrate suitable levels of prior achievement);
- *Accessibility* (the extent to which institutions have open and transparent access for all potential students); and
- *Availability* (the extent to which higher education systems can meet expected demand for courses).

At the level of the individual, the decision to enter higher education at a university or vocational institution is shaped by three of the factors associated with the 'demand' for higher education – *Aspiration, Achievement* and *Accessibility*, which combine with the 'supply' factor – *Availability* – to drive overall participation.

The analysis of higher education participation has sought to explain the three demand factors. At first this focused on the existence of the gradient in enrolments in relation to socioeconomic status, and then extended to other, often related characteristics such as disability, Indigeneity and regional location (Koshy et al., 2019).

Recent studies in Australia have highlighted important facets of such factors affecting the demand for higher education, which may explain divergence in patterns of bachelor participation in vocational and higher education institutions. Several of these factors play prominent roles in determining overall participation at the bachelor level and the choice of institution.

The focus on socioeconomic status is still prevalent, given its importance across all factors shaping the post-compulsory pathway. This is immediately recognisable in studies examining the composition of Australian higher education enrolments by socioeconomic status, where growth in higher education enrolments is sourced from middle and high SES students, with low SES students dominating enrolments in vocational education. As Lamb et al. (2015) observe, in 2014, higher education enrolment rates for people under 25 ranged from 25% of people from areas in the lowest SES quintile to around 67% of people in the

highest quintile. This finding is commensurate with trends in the period directly prior to the introduction of the demand-driven funding system (for example, see Karmel et al., 2014).

Underpinning the observation of, and impact attributable to, socioeconomic status, is the idea that institutions and individuals replicate existing social structures through the use of cultural capital (access to cultural practices) and social capital (access to social networks), identified and explicated by Bourdieu (1986) as being critical to access and success in higher education. In both practice and research in higher education, the socioeconomic status of an individual student is either inferred on the basis of an individual's parental background using data on parental education and occupation (Chesters & Watson, 2013), the area in which they reside using data from a census or major statistical collections (Koshy, 2016), or measures of cultural capital such as book ownership and attendance at cultural activities (Noble & Davies, 2009).

Socio-spatial factors impact on participation through factors associated with family background but also in terms of accessibility to post-compulsory options. A common lens for examining the impact of such factors is through the inclusion of school-related data, particularly in relation to bachelor degree participation in vocational institutions. In a study of the influence of schools on student movements into TAFEs, Gale et al. (2015) found that students from high SES schools, largely in metropolitan areas, registered the largest number of preferences for bachelor degree courses in TAFEs. They find that preferences for TAFE degrees often emerged after the publication of school results, a finding echoed by Cardak et al. (2015), who observe that students from high socioeconomic backgrounds are more likely to alter their preferences for university. This evidence suggests that school type, status and location play an important role in shaping institutional preferences.

Gender is a critical determinant of bachelor participation, partly as a consequence of the expansion in Australian higher education, widening participation policies and changes in broader education policy (Bell, 2016), but also the increasing perception of the importance of bachelor degree education to female workforce participation and outcomes (Le & Miller, 2004). In the context of the decision to attend a vocational or higher education institution, the evidence from national studies of earnings by qualification, indicates that female students see relatively lower increases in earnings due to vocational training compared to males. For instance, Wilkins (2015, p. 72) calculates that that the 'earnings premium' for completing a diploma or advanced diploma relative to a Year 11 high school qualification in Australia, is equal to 31.6% for males compared to 10.3% for females, with the equivalent premium associated with a bachelor degree completion being 45.4% for males and 33.5% for females. Clearly, the gains to female graduates from further education are more pronounced at the bachelor level.

Finally, the study by Cardak et al. (2015) on academic performance indicates that access to university courses in Australia is primarily rationed using academic outcomes for relatively higher levels of achievement, but that towards the middle and lower ranks of the achievement distribution, socioeconomic status, be it accumulated via family or at school, or a combination of the two, becomes an important determinant of preference behaviour. As the authors observe, this is particularly pertinent in relation to the level and types of information students have access to in terms of shaping their perceptions of alternative pathways to bachelor-level participation.

Method

To examine the influences on articulation to post-compulsory education, we utilised data from a large, longitudinal cohort-based study in Australia – the Longitudinal Surveys of Australian Youth (LSAY). The LSAY provides data on a variety of measures of equity status and has significant sample size to generate non-trivial sub-samples for vocational (predominantly TAFE) bachelor students. The one drawback in using LSAY data is its exclusive collection starting point among youth cohorts, which excludes mature age commencers. However, offset against this, is the wide range of explanatory variables available in this data set.

The LSAY data was used to analyse youth transitions into four specific vocational and higher education pathways:

- **University degree –** those participants who were *observed* to be studying towards a bachelor degree or higher at university. This group may have also studied towards lower VET qualifications at some point. We excluded vocational degree participants from this group.
- **Vocational (VET) bachelor degree –** those participants who were *observed* to be studying towards a bachelor degree and the institute at which they are studying is a vocational institution, including TAFEs or other providers outside the Australian university sector.
- **Higher vocational (VET) qualification**: those participants who were *not observed* at any point to be studying for a bachelor degree or higher in either the VET sector or university, but were *observed* at some point to be studying towards a diploma, advanced diploma or associate degree at a TAFE or university
- **Lower vocational (VET) qualification**: those participants who were *observed* to be in a course and working towards a vocational certificate (Level 2, 3 or 4), and who were *never observed* to be studying towards one of the qualifications listed above.

Individuals were allocated to one of these groups on a mutually exclusive and hierarchical basis, with vocational degree status – a focus of this paper – taking precedence over university degree status, which in turn takes precedence over higher vocational qualifications and, finally lower vocational qualifications. Individuals were assigned to a group based on the highest ranked course attempted, coded by commencement and irrespective of whether the course was completed.

To highlight the distinguishing characteristics of students who followed the pathway of a bachelor degree at a vocational institution, we estimated a series of multivariate models to compare the probability of a participant undertaking a vocational degree compared with each alternative. This allowed us to inspect the effect of a variable after controlling for a range of other key background characteristics of the student and to map the key defining features of vocational bachelor students.

Data

The LSAY is comprised of a series of surveys of cohorts of young Australians in the transition from school. For each cohort, data are initially collected for around 14,000

participants aged 15, with annual follow-up surveys through to age 25. Cohorts were initiated in 1995, 1998, 2003, 2006, 2009 and 2015 (referred to as the Y95, Y98, Y03, Y06, Y09 and Y15 cohorts, respectively). Since 2003, the initial cohorts for the LSAY were integrated with the samples chosen for the OECD's Programme for International Student Assessment (PISA) tests on scholastic performance in mathematics, reading and science (OECD, 2012).

We drew on LSAY to investigate the characteristics of students who studied towards a bachelor degree at a vocational institution. As this marks a relatively new and growing vocational pathway, we opted to use the most recent possible data. However, as only four annual waves of data were available for the Y15 cohort, up until they reached the age of 19 – and therefore, providing only an initial glimpse of their engagement in post-school education and training – we instead focused on the Y09 cohort, for which data from nine waves (collection points over time) were available, providing observations through to age 23. In the Y09 cohort, around 70% of the students were aged 15 years at the time of the Wave 1 (PISA) survey, and the remainder were aged 16 (National Centre for Vocational Education Research [NCVER], 2019). This cohort would have commenced consideration of their post-compulsory education options just prior to the announcement of the demand-driven system. However, they made 'hard' choices during the early period of the commensurate increase in available higher education places in 2012–13. Thus, the Y09 cohort were the first LSAY cohort to make decisions between work, university, and vocational institutions in the context of a very significant expansion in higher education.

The Y09 cohort sample is generally representative in relation to family background and geography, however, it tends to have a higher proportion of female respondents, corresponding to around 55.8% of the entire retained sample for the Y09 cohort, due to higher levels of attrition among male respondents. We restricted the sample to those individuals who continued in the sample until at least Wave 5, when most would have turned 19, to ensure there has been some opportunity to observe choices of post-secondary pathways. Of the 5,809 participants who continued in the survey, only 55 were observed at some point to be studying towards a bachelor degree in a vocational institution rather than a university, with a much larger group of 3,725 participants studying towards a bachelor degree or higher at university. Among those studying for a non-bachelor qualification in a vocational institution, 446 were studying towards a higher, and 569 towards a lower, vocational qualification.

Analysis and findings

The means for key variables selected are presented in Table 1. These are defined using data from Wave 1 of the Y09 cohort collection, when most respondents were aged 15. The exception is *School sector attended*, observations for which are selected on the basis of the school the participant was enrolled at in their final year.

An examination of means indicates differences between participants. As expected, in terms of household ownership of cultural possessions, participants who attended university generally had higher levels of ownership relative to those in vocational institutions, with bachelor degree enrolees in vocational institutions having higher levels of ownership than those undertaking traditional vocational qualifications – particularly in relation to book ownership (technical books; books to help with school work). Similar patterns can be

Table 1. Means, student characteristics, by educational destination.

	Vocational institution			
	Low (Cert 2–4)	High (Diploma +)	Bachelor's degree	University Bachelor's degree
Possessions in the home (per cent)				
Desk	87.5	92.4	94.5	96.0
Own room	92.3	92.8	87.3	94.3
Quiet study place	85.6	88.6	89.1	92.8
Computer for school work	95.3	97.5	98.2	99.4
Educational software	64.9	70.4	65.5	76.7
A link to the Internet	92.8	96.9	94.5	98.4
Classic literature (e.g., Shakespeare)	24.8	30.0	40.0	50.3
Books of poetry	35.5	36.8	41.8	50.8
Works of art (e.g., paintings)	75.0	73.3	74.5	81.1
Books to help with school work	75.6	81.4	87.3	87.6
Technical reference books	47.6	50.7	61.8	60.4
A dictionary	97.7	96.4	96.4	99.0
A dishwasher	60.3	67.9	69.1	75.0
A DVD or VCR player	98.6	97.8	96.4	99.2
Cable/Pay TV	49.6	47.1	49.1	43.0
iPhone	15.3	14.8	12.7	17.1
Plasma or LCD TV	73.3	72.4	78.2	73.7
Gender (per cent)				
Female	54.7	66.6	50.9	60.2
Male	45.3	33.4	49.1	39.8
School sector attended (per cent)				
Government School	73.5	72.0	45.5	48.0
Catholic school	16.0	16.6	41.8	27.8
Other (Private)	10.5	11.4	12.7	24.2
Plan to do straight after school (per cent)				
Go to university	15.6	25.3	49.1	50.4
Do an apprenticeship	9.1	3.6	0.0	1.0
Self-assessed performance at school[a]				
(1 = very poor, 3 = average, 5 = very well)	3.35	3.45	3.83	3.98
Indices (country mean = 0)				
Wealth	0.62	0.72	0.62	0.78
Cultural Possessions	−0.25	−0.20	−0.02	0.18
Observations	527–569	425–446	53–55	3597–3725

a. *Self-assessed performance at school* is sourced from the participant's own assessment on how they are doing in subject overall, compared to most students in their year.

observed for the derived *Cultural possessions* index, sourced from PISA data. That the future vocational degree students reported fewer possessions than traditional VET students on a handful of items, such as having your own room, may suggest that while the vocational degree and traditional university degree students have similar cultural backgrounds, the families of the vocational degree students are more financially constrained.

The means for gender composition confirm the heavier weighting towards female respondents in LSAY. An analysis of patterns of enrolment indicates how gender balance shifts across qualification type and institution. As expected, females dominate university bachelor enrolments (60.2% compared to 39.8% for males), but vocational bachelor enrolments are virtually evenly split (50.9 compared to 49.1), suggesting higher rates of enrolment by males if attrition rates for this sub-sample reflect general rates of attrition among males. Generally, these patterns align with those seen in Australian population collections, with women dominating university enrolments (and attainment) and a narrower balance emerging in vocational education (Australian Bureau of Statistics, 2018).

Participants enrolled in vocational degrees, like university students, were more likely to attend non-government schools than those undertaking vocational qualifications (over 50% in both cases compared to less than 30%). However, vocational degree students were more likely to attend a Catholic school than university students – 41.8% compared to 27.8%.

Self-assessed academic aptitude was highest for university students, followed by vocational bachelor degree students and then traditional vocational course students. This was true also of plans to attend university, but the proportion of students who, at around age 15, indicated they planned to attend university was strikingly similar for the vocational bachelor and university students (49.1 versus 50.4%).

We used the LSAY data to estimate a series of standard logistic regressions to examine binary outcomes for vocational degree commencement, that is, the probability of a participant entering a vocational bachelor degree level course compared with a designated alternative. In Model 1, the sample was restricted to only those who were observed to do either a course for a lower vocational qualification or a vocation bachelor degree. In Model 2 the sample was restricted to those undertaking a higher vocational qualification or vocational bachelor degree. Finally, in Model 3, we estimated a model for students observed studying for a bachelor's degree at either a university or vocational institution. Hence, Model 1 of Table 2 models the characteristics associated with students who undertake a vocation degree relative to those who enter lower vocational courses; Model 2 the characteristics of vocation degree students relative to students who enter higher vocational courses; and Model 3 contrasts the characteristics of those who commence vocational degrees with the characteristics of traditional university students.

For each model we present the estimated coefficients from the logistic regression (β), their significance level and, to aid interpretation, the associated odds ratio. The odds ratios can be interpreted with reference to a value of unity, which would indicate no difference from the baseline probability of undertaking a vocational degree. For example,

Table 2. Logistic regression models of the probability of studying for a bachelor's degree at a vocational institution, LSAY 2009 cohort.

	Model 1 Compared to Lower Vocational Qualification			Model 2 Compared to Higher Vocational Qualification			Model 3 Compared to University Degree		
Variable	β	Pr > χ^2	Odds Ratio	β	Pr > χ^2	Odds Ratio	β	Pr > χ^2	Odds Ratio
Intercept	−6.19	0.000		−5.19	0.000		−3.57	0.000	
Gender (Male)	0.06	0.849	1.07	0.68	0.036	1.98	0.51	0.076	1.66
NESB	0.86	0.160	2.36	0.38	0.521	1.46	−0.08	0.876	0.93
Sole parent household	−0.29	0.520	0.75	0.01	0.990	1.01	0.11	0.791	1.11
Indigenous	−0.94	0.239	0.39	0.15	0.859	1.16	0.29	0.696	1.33
Plans to go to university	1.68	0.000	5.35	1.11	0.001	3.03	0.15	0.602	1.16
School performance [1–5]	0.83	0.000	2.28	0.60	0.006	1.83	−0.24	0.200	0.79
School sector Government school	–			–			–		
Catholic school	1.78	0.000	5.93	1.61	0.000	5.01	0.54	0.079	1.71
Private school	0.75	0.152	2.12	0.62	0.232	1.85	−0.51	0.280	0.60
Wealth index	−0.36	0.152	0.70	−0.53	0.017	0.59	−0.26	0.208	0.77
Cultural possessions index	0.15	0.381	1.16	0.18	0.279	1.20	−0.10	0.487	0.91
Observations	521			417			3586		
Likelihood ratio score	71.6	0.000		52.2	0.000		15.2	0.125	

the odds ratio of 1.07 for *Gender (Male)* in Model 1 indicates that males are estimated to be 7% more likely than females (1.07–1.00 = +0.07) to undertake a vocational degree, as opposed to a lower vocational qualification, holding other factors constant. The estimated odds ratio of 0.75 for *Sole parent household* in the same model indicates that youth from a sole parent family are 25% less likely (0.75–1.00 = −0.25) to undertake a vocational degree, though in both these cases the estimated effects are insignificant. For the continuous variables, *School performance*, the *Wealth index* and *Cultural possessions* index, the odds ratio reflects the increased probability of an outcome associated with a one-unit increase in the variable.

Generally, the findings confirmed the similarity between students undertaking degrees in vocational institutions and universities, as shown in Model 3, with fewer statistical differences observed between the two groups compared with those undertaking lower vocational qualifications (Model 1) or higher vocational qualifications (Model 2). This is confirmed by the statistically insignificant likelihood ratio score for Model 3 ($p = 0.125$), which cannot reject a reduced version of Model 3 as true, that is, a model which omits the explanatory variables.

As expected, gender played a strong role in shaping bachelor participation in vocational institutions, with male LSAY participants (see *Gender* in Table 2) having a substantially higher likelihood than females of undertaking a vocational degree compared to either a higher vocational qualification (almost twice as likely – an odds ratio of 1.98; $p < .05$), or university degree (although the effect is only weakly significant, $p = 0.076$). For the school leaver or non-mature age cohort, which represents 64% of the vocational degree student load (Webb et al., 2019), this accords somewhat with what we know about gender representation in vocational education and university higher education (a larger female majority) in Australia.

The measured effects attributable to participants from *NESB, Sole parent household* or *Indigenous* backgrounds were uniformly insignificant, indicating no observable specific effects in relation to these groups. The result for NESB was somewhat surprising, particularly in Model 3, given the findings from an analysis of vocational institution data on bachelor degree enrolments, which considered all enrolments not just those from youth cohorts, indicates an over-representation of NESB students relative to their population (Webb et al., 2019).

An expressed expectation of entering university at age 15 or 16 (*Plans to go to university*) was both a strong and highly significant indicator of future student enrolment in a bachelor degree in a vocational institution compared to studying for a vocational qualification (see Models 1 and 2). A participant who indicated in Year 10 that they planned to go to university was five times more likely to undertake a vocational bachelor degree instead of a lower vocational qualification, compared to one who did not (Model 1, odds ratio of 5.35, $p = 0.000$). Unsurprisingly, this effect was not present in Model 3, with a declaration of intent to study at university having no observable statistical effect on the likelihood of undertaking a vocational as opposed to university bachelor degree.

As the expectation and eventuality of higher education access is dependent on measured school performance, increases in youths' own assessment of their *School performance* were associated with a greater chance of undertaking a bachelor qualification relative to either level of vocational qualification and a lower (but not significant)

chance of undertaking a bachelor degree at a vocational institution rather than at university.

The inclusion of a series of variables for school sector (*School sector – Government, Catholic* and *Private)* indicated that attendance at a Catholic school was a strong and significant factor in affecting the decision to undertake a bachelor degree in a vocational institution instead of a vocational qualification, in comparison with attendance at a government school. This effect is smaller, though still substantial in its implied magnitude in Model 3 (odds ratio of 1.71), but significant only at the 10% level ($p = 0.079$). Hence, attendance at a Catholic school may be also be an important influence in any consideration between undertaking a bachelor degree at a vocational institution or university, but this cannot be determined with any great certainty with the existing data.

In conjunction with the above finding, we can also demonstrate that household wealth (as proxied by the LSAY *Wealth index*) had a significant and negative impact on the probability of undertaking a bachelor degree versus a higher vocational qualification in a vocational institution (see Model 2, *Wealth index, p* = 0.017), with a similar, but statistically insignificant, effect being observed in Models 1 and 3 as well.

No significant results were observed in relation to the *Cultural possessions index* across any of the models.

Discussion

In an overview of hierarchical competition in Australian higher education, Marginson (2018) observes that

> Since 1973 the policy approach to equity has been Pareto optimal, extending higher education to under-represented social groups at the margins of participation rather than redistributing social access to elite universities …. (p. 289)

The expansion of bachelor degree enrolments in vocational institutions in Australia has prompted the question as to what extent this trend has widened participation in Australia in terms of promoting bachelor qualifications to a broader section of the community, particularly students from disadvantaged backgrounds in comparison with the expansion seen in non-elite university enrolments.

This paper sheds light on this question by examining school-leaver access to bachelor degree programs, be they at university or in a vocational institution, in the context of overall post-compulsory pathways. The LSAY Y09 cohort which it reports on, largely reached the age 16 in 2009–10, which means they were forming plans for post-compulsory education in the lead-up to the expansion and deregulation of Australian higher education. To this extent, their eventual actions provide some indications of the key drivers of participation across the institutional spectrum in Australia in a contemporary context of widening participation in university education.

Analysis of this LSAY Y09 cohort provided a somewhat informative, but imperfect, picture of the bachelor degree cohort in Australian vocational education. Principally, the cohort analysed does not include mature age students, an important sub-population of vocational degree participants, nor does LSAY include standard equity group measures from Australian higher education – an already vexed issue in view of the functional

separation of higher and vocational education reporting in Australia, even in identical qualification levels.

Nevertheless, the findings confirmed critical patterns in both the aspiration among, and the capacity of, students to engage with higher education systems. Participants who ultimately entered bachelor programs in vocational institutions were found to have household levels of cultural possession, plans to enter university and self-assessments of academic ability which exceeded those ultimately undertaking traditional vocational qualification pathways, but below those who undertook bachelor qualifications at university. The modelling revealed no statistically significant differences between the populations of vocational degree students and university degree students on these dimensions.

A finding of note in relation to status was the common propensity of non-government school students to enter bachelor programs, at university or a vocational institution, but with Catholic schools seeing far stronger representation in vocational institution enrolment. Such differences in the effects of school choice may indicate important but subtle social distinctions in the reproduction of social inequality that require 'southern theories' of social differences according to Gale (2012). Taking this argument further Sheppard and Biddle (2017) contend that although comparatively egalitarian, Australia displays meaningful differences across their six-class model. They contend that researchers should give more attention to the effects of social class in Australia suggesting that 'Australians are acutely aware of their class identity with self-assessed class membership reflecting the relative capital and mobility of the objectively measured classes … Australian society is stratified beyond just occupational categorisation or socio-economic status' (Sheppard and Biddle (2017, pp. 512–513). Our finding in relation to school and pathway preferences suggests that the effects of self-assessed class membership need to be explored further.

The analysis of participants' decision to ultimately enter a bachelor program in a vocational institution, compared to three other pathways – two traditional vocational pathways, and a bachelor degree in a university – confirms the preliminary observations from the case-study sample data (provided in Webb et al., 2019). In addition, it highlights the importance of gender in affecting degree participation, with males more likely to undertake vocational degrees than other pathways – other things being equal – in comparison with females, but with this effect noticeably weakening (and becoming insignificant at the 5% level) in relation to the decision to enter a university. The effect associated with self-assessment of academic performance and 'plans to go to university' was as expected, with strong positive effects as observed compared to traditional vocational courses.

Again, the importance and influence of school type was observed, particularly in relation to schools in the Catholic sector. This observation, coupled with unidentifiable effects around cultural possession ownership and household wealth variables, suggests that school resourcing in relation to post-compulsory educational planning can play a significant role in shaping decisions around novel or newer pathway options for students.

Conclusion

Australian post-compulsory education is at an important juncture in its history. The educational landscape has been dramatically altered over the past decade following the expansion in higher education places, with implications for universities, vocational

institutions, and students. The system must now take stock of its recent past and consider an uncertain future in view of the emergence of COVID-19 in 2020.

Participation should be at the centre of this discussion. This paper raises issues around how we view the widening participation in higher education in Australia. While we are told that issues around equity are complicated but understandable, and from a policy perspective, discernible, the reality is more complex. For instance, while this paper sheds light on the choices of students in the early stages of the demand-driven expansion, it also identifies the need for an ongoing study of contemporaneous drivers of student decision-making in relation to institutional and subject choice.

This requirement for such a nuanced assessment is particularly pressing at the fringe of higher education delivery, and especially obvious in the Australian divide between higher and vocational education policy making. Analysing the system in totality means including vocational pathways in the analysis and discussion of higher education alternatives. This complexity manifests itself at the level of the individual, with students being subject to a multitude of factors, many of which originate in their family, but which are also reinforced by neighbourhood, peer, and school effects. This means that individual measures of equity are important in assessing and understanding student choice.

In effect, both research and reporting efforts need to be 'student centred' if they are to truly characterise participation in post-compulsory education.

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References

Anderson, D., Boven, R., Fensham, P., & Powell, J. (1980). *Students in Australian higher education: A study of their social composition since the abolition of fees*. Australian Government Publishing Service. Education Research and Development Committee. Report No. 23.

Australian Bureau of Statistics. (2018) . *Gender Indicators, Australia. (September)*. Catalogue Number 4125.0.

Australian Department of Education, Skills and Employment. (2019). *Students: Selected higher education statistics: 2018 section 2 – All Students. (Table 2.6)*. Australian Department of Education, Skills and Employment. Retrieved January 29, 2020, from: https://docs.education.gov.au/node/53016

Bathmaker, A.-M. (2016). Higher education in further education: The challenges of providing a distinctive contribution that contributes to widening participation. *Research in Post-Compulsory Education*, *21*(1–2), 20–32. https://doi.org/10.1080/13596748.2015.1125667

Bell, S. (2016). Ivory towers and glass ceilings: Women in non-traditional fields. In A. Harvey, C. Burnheim, & M. Brett (Eds.), *Student Equity in Australian higher education: Twenty-five years of a fair chance for all* (pp. 109–124). Springer.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood.

Bradley, D. (2008). *Review of higher education: Final report (The Bradley Review)*. Department of Education, Employment and Workplace Relations.

Brett, M. (2018). *Equity Performance and Accountability*. Equity Fellows Report. Perth, Australia: National Centre for Student Equity in Higher Education. Retrieved February10, 2020, from: https://www.ncsehe.edu.au/publications/equity-performance-accountability/

Cardak, B. A., Bowden, M. P., & Bahtsevanoglou, J. (2015). *Are low SES students disadvantaged in the university application process?* Curtin University. National Centre for Student Equity in Higher Education.

Chesters, J., & Watson, L. (2013). Understanding the persistence of inequality in higher education: Evidence from Australia. *Journal of Education Policy*, *28*(2), 198–215. https://doi.org/10.1080/02680939.2012.694481

Gale, T. (2012). Towards a southern theory of student equity in Australian higher education: Enlarging the rationale for expansion. *International Journal of Sociology of Education*, *1*(3), 238–262. https://doi.org/10.4471/rise.2012.14

Gale, T., Parker, S., Molla, T., Findlay, K., & Sealey, T. (2015). *Student Preferences for Bachelor Degrees at TAFE: The socio-spatial influence of schools*. Centre for Research in Education Futures and Innovation (CREFI), Deakin University. Report to the National Centre for Student Equity in Higher Education (NCSEHE).

Karmel, T., Roberts, D., & Lim, P. (2014). *The Impact of Increasing University Participation on the Pool of Apprentices*. National Centre for Vocational Education and Research (NCVER). LSAY Research Report No. 67.

Koshy, P. (2016). Equity policy in Australian higher education: Past, present and prospective. In M. Hill, A. Hudson, S. Mckendry, N. Raven, D. Saunders, J. Storan, & T. Ward (Eds.), *Closing the Gap: Bridges for Access and Lifelong Learning* (pp. 277–302). Forum for Access and Continuing Education.

Koshy, P., Dockery, A. M., & Seymour, R. (2019). Parental expectations for young people's participation in higher education in Australia. *Studies in Higher Education*, *44*(2), 302–317. https://doi.org/10.1080/03075079.2017.1363730

Lamb, S., Jackson, J., Walstab, A., & Huo, S. (2015). *Educational opportunity in Australia 2015: Who succeeds and who misses out*. Report by the Centre for International Research on Education Systems (Victoria University). Mitchell Institute: Melbourne. Retrieved February 10, 2020, from http://www.mitchellinstitute.org.au/wp-content/uploads/2015/11/Educational-opportunity-in-Australia-2015-Who-succeeds-and-who-misses-out-19Nov15.pdf

Le, A., & Miller, P. (2004). School-leaving decisions in Australia: A cohort analysis. *Education Economics*, *12*(1), 39–65. https://doi.org/10.1080/0964529042000193943

Marginson, S. (2016). High Participation Systems of Higher Education. *The Journal of Higher Education*, *87*(2), 243–271. https://doi.org/10.1080/00221546.2016.11777401

Marginson, S. (2018). Regulated isomorphic competition and the middle layer of institutions: High participation higher education in Australia. In B. Cantwell, S. Marginson, & A. Smolentseva (Eds.), *High participation systems of higher education* (pp. 266–294). Oxford University Press.

National Centre for Vocational Education Research (NCVER). (2019). *Longitudinal Surveys of Australian Youth (LSAY) 2009 Cohort User Guide*. NCVER.

Noble, J., & Davies, P. (2009). Cultural capital as an explanation of variation in participation in higher education. *British Journal of Sociology of Education*, *30*(5), 591–605. https://doi.org/10.1080/01425690903101098

OECD. (2012). *PISA 2009 technical report*.

Sheppard, J., & Biddle, N. (2017). Class, Capital, and identity in Australian society. *Australian Journal of Political Science*, *52*(4), 500–516. https://doi.org/10.1080/10361146.2017.1364342

Webb, S., Bathmaker, A.-M., Gale, T., Hodge, S., Parker, S., & Rawolle, S. (2017). Higher vocational education and social mobility: Educational participation in Australia and England. *Journal of Vocational Education & Training*, *69*(1), 147–167. https://doi.org/10.1080/13636820.2016.1269359

Webb, S., Rawolle, S., Hodge, S., Gale, T., Bathmaker, A.-M., Knight, E., & Parker, S. (2019). *Degrees of difference, examining the scope, provision and equity effects of degrees in vocational institutions*. Interim Project Report. Monash University. Retrieved November 31, 2020, from www.monash.edu/hive

Wilkins, R. (2015). *The household, income and labour dynamics in Australia survey: Selected findings from waves 1 to 12*. Melbourne Institute of Applied Economic and Social Research. http://melbourneinstitute.com/downloads/hilda/Stat_Report/statreport_2015.pdf