

The Proposed Job-ready Graduate Package: a misguided arrow missing its target

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Abstract

In June 2020 the Minister for Education, Dan Tehan announced the Job-ready Graduate Package which aimed to provide the price signals the Coalition Government believes are necessary to generate the skills required in the Australian labour market in the post-COVID-19 world. This paper uses existing evidence to argue that the proposed Job-ready Graduate Package is likely to miss its mark, crucially with respect to having a medium-term impact on student choice. The paper draws on evidence of employment patterns of new graduates and established graduates in the Australian labour market to assess the economic argument that certain degree disciplines are more 'job ready' than others; the rationale behind 'picking winners' and the economic case for the proposed funding structure. The evidence from previous changes in the HECS/HELP rates, which were not as large as the proposed ones, suggests that they are unlikely to have a significant effect on student choices. This is not surprising given the wide range of factors that influence choice of discipline including student preferences, educational background, the employment and income of existing graduates, socio-economic background, career guidance and school experience, occupational expectations, psychological attributes and university entrance scores. The idea of 'picking winners' among disciplines for study to generate 'job-ready' graduates faces many difficulties in the uncertain post-COVID-19 world against a background of long-term changes in the economic structure of the economy. Working lives can last for over 40 years and people can move between occupations, adapting skills and retraining over time. Individuals are best placed to make these choices for themselves rather than relying on government direction.

JEL Codes: I26, I28, J24

Keywords: Rates of return, higher education, job-ready, picking winners

Introduction

In June 2020, in the context of the COVID-19 pandemic, the Minister for Education, Dan Tehan, announced the Job-ready Graduate Package aimed at focusing public investment in higher education on national priorities and on promoting the benefit of students, industry and the community. The overall proposed package is designed to be budget-neutral (Peetz 2020a) and is supposed to address the rising demand for places which is expected with the COVID-19 recession (Norton 2020).

There has been a long history of Australian government support for universities but the trend in the last 30 years has been toward reducing that support from the high point of free university places for students, introduced by the Whitlam government in 1974. The current government support takes the form of direct payments to universities, support for students in the payment of their fees and loans for living expenses, and research grants.

The students' contribution to the cost of their education has grown over time. A small user payment was first introduced in 1989 in the form of an income contingent loan, the Higher Education Contribution Scheme (HECS) which has increased as a proportion of the costs of a degree and is now differentiated by type of degree (to be further discussed below) (for further background see Jackson 2003, Chapman and Ryan 2005). In addition, the Australian government provides direct funding support to universities through Commonwealth Supported Places (CSP) although the real value of that funding has declined over time and the universities have become increasingly dependent on income from overseas students.

In 2018-2019 there were 189,477 international tertiary student visas issued and in January 2019, 267,055 international tertiary enrolments (students can be enrolled in more than one course) (DESE 2020b). Before the current COVID-19 pandemic, direct Australian government support accounted for about 40 per cent of university income (OECD 2019). As the number of international students able to study in Australia in 2020 has declined dramatically, the universities have been left with large holes in their budgets and a problem requiring immediate attention by all stakeholders.

The most recent proposal for change from the Coalition government, the Job-ready Graduate Package (DESE 2020a), covers support for university teaching while the other major university activity, research, will continue to be funded through the Australian Research Council (ARC) and the National Health and Medical Research Council (NH&MRC). This proposal must be approved by the Parliament for introduction in 2021 and may be contentious in the Senate.

This paper outlines the major components of the proposed changes and uses evidence from earlier research to assess the possible implications of the introduction of the Job-ready Graduate Package if it were to be implemented in its current form. The paper draws on evidence of employment patterns of new graduates and established graduates in the Australian labour market to assess the economic argument that certain degree disciplines are more 'job ready' than others; the rationale behind 'picking winners' and the economic case for the proposed funding structure.

Outline of the Proposal

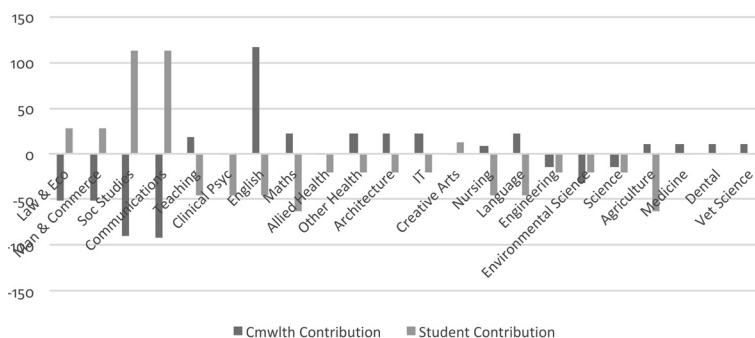
The Job-ready Graduate Package states –

‘The changes aim to deliver more job-ready graduates in the disciplines and regions where they are needed most and help drive the nation’s economic recovery from the COVID-19 pandemic’
(DESE 2020c)

There are a number of components to the proposed changes which aim to use price signals to both the universities and potential students to influence their choices of degrees offered or undertaken. The funds going directly to the universities for CSPs will reflect the cost of delivering courses and the HECS/HELP fees to students are designed to encourage students to undertake the courses which are most likely to promote good labour market outcomes for graduates and promote those skills predicted to be in demand in the post-COVID-19 world including nursing, health occupations, teaching and information technology (IT).

The number of disciplinary funding clusters for CSPs will be reduced from eight to four. Direct funding to the universities will be reduced to \$1100 per student for Law, Economics, Management, Commerce, Social Studies, Political Science, Behavioural Science and Communications and increased to \$27,000 for Agriculture, Medicine, Veterinary Science and Dentistry (projected 2021 rates). The comparison between the current level of CSP funding and the proposed new levels is presented in Figure 1. The disciplines in the new lowest funding cluster will face the largest reduction in CSP support in addition to reductions in Engineering and Environmental Science. English will experience the largest growth in funding.

Figure 1: Proposed % change in Commonwealth and Student Contributions



Source: DESE (2020a)

In addition, there will be more CSPs, 39,000 places in 2023, growing to 100,000 by 2030 to address the expected increase in demand for places arising from

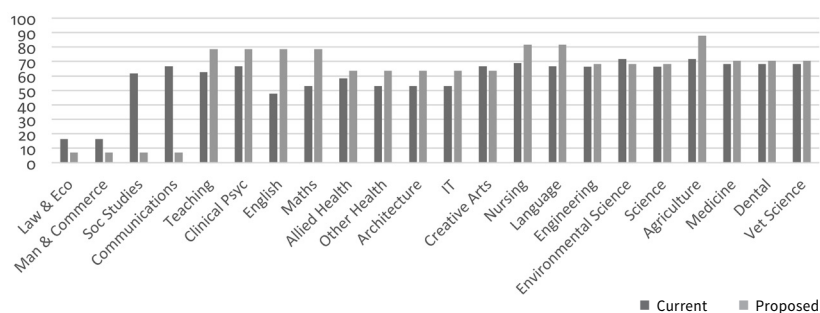
the COVID-19 recession and demographic factors, the so-called 'Costello baby boom'. There will be a funding envelope indexed to the CPI. Universities will be able to transfer funding between disciplines (except medicine) and degree level (undergraduate and postgraduate) as long as the changes are cost neutral. There will be additional funding from 2021 for universities in regional Australia and fast-growing metropolitan areas; an additional 3.5 per cent for regional campuses; 2.5 per cent for campuses in high growth metropolitan areas and 1 per cent for campuses in low growth metropolitan areas.

In order to further promote the vocational and regional aspects of higher education, there will be two funds established. The National Priority and Industry Linkage Fund (NPILF) will promote vocationally-orientated teaching and work experience. The second fund, the Indigenous, Regional and Low SES Attainment Fund (IRLSAF) will support students from the backgrounds listed in its title. In line with the promotion of regional campuses, there is a proposal to further develop research in these locations. There will also be support to promote online 'microcredentials'.

There are also significant changes proposed to the cost to students via HECS/HELP of individual degrees. The number of clusters has been increased from three to four. Law, Economics, Management, Commerce, Social Studies, Political Science, Behavioural Science and Communications students can expect to pay \$14,500 for each year of study while the lowest rate of \$3,700 per year will be charged to the Teaching, Clinical Psychology, English, Mathematics and Agriculture disciplines. Figure 1 shows that the largest increases proposed are for the disciplines of Social Studies, Political Science, Behavioural Science and Communications and the largest decreases for Mathematics and Agriculture. As identified by Bond-Smith and Cassells (2020), the impact of these changes will fall more heavily on women, who make up 60 per cent of the current student population, than men because of their existing preferences for humanities and the social sciences over STEM disciplines. In addition to these changes in the HECS/HELP fees future students might be expected to pay, there are proposed schemes to enable regional students to relocate for educational purposes and to encourage Indigenous students to attend their university of choice.

Figure 2 summarises the share of total revenue received by universities and incurred as costs by the Australian government (making the bold but empirically false, assumption that all the income contingent loans are repaid. See further discussion of this point below). An increase in the proposed Commonwealth contribution and a reduction in the student contribution results in an increase in the Commonwealth's share of the total contribution to universities for a given discipline. The largest changes in the proposed share of Commonwealth contributions in the total costs are for the disciplines of Social Studies, Political Science, Behavioural Science and Communications where the share is expected to fall from over 60 per cent to 7 per cent. In contrast, there will be increases in the Commonwealth contribution in the disciplines of English (64 per cent), Mathematics (47 per cent), Languages (23 per cent) and Agriculture (23 per cent).

Figure 2: Share of Commonwealth Contribution in Total %



Source: DESE (2020a)

What is the evidence?

This section will consider available evidence relevant to the proposal's aim of promoting 'job-ready' graduates in relevant disciplines and regions for the post-COVID-19 economy. It begins by comparing the available public evidence on the cost of providing tertiary education for different disciplines as presented in Deloitte (2016) and the proposed total payment to universities.

One aim of the Job-ready Graduate Package is to provide incentives for the universities to shift the mix of disciplines in which they offer places towards those favoured by the Coalition government. Deloitte (2016) uses 2015 data derived from 17 universities, half the sector's enrolments, and presents estimates of median and mean costs based on raw data and employs three methodologies to estimate 'reasonable' costs across a range of disciplines. The report emphasises that costs per student in a given discipline can differ substantially between institutions for legitimate reasons and are particularly influenced by staff/student ratios and the share of casual teaching staff employed. In addition, universities supply both teaching and research and the allocation of costs between these two outputs, which are often considered as joint products, is complex (see Norton 2015 for a discussion of the cross-subsidisation of research by teaching income in Australian universities). The report summarises costs per student according to a range of measures, some based on raw data and some estimated (see Deloitte 2016:69). The absolute levels of costs differ by measure but the ranking remains similar between them all. Veterinary Science and Dental Studies were reported to have the highest costs and Education, Management and Commerce, Other Social and Cultural (excluding Psychology), Communications and Media the lowest. The rankings were similar to those reported in an earlier study by Deloitte using 2010 data. They also concluded that postgraduate costs exceeded undergraduate ones.

On the basis of the median raw cost data adjusted to 2019 prices and compared with the proposed total income from the Job-ready Graduate Package (CSP and student

contributions)¹, universities will have an incentive to expand Mathematics, Engineering, Environmental Science, Science and Agriculture where costs were below the proposed total income. In contrast Law and Economics, Management and Commerce, English, Nursing, Creative Arts and Allied Health will offer low or negative margins. Dental Studies and Veterinary Science continue to be expensive courses to run and places in Medicine will not be determined by individual universities. These calculations, based on the median raw costs presented by Deloitte (2016), are indicative and the experience of individual institutions may differ. They do however suggest that apart from possibly Nursing and Allied Health, the incentives for the average institution are likely to encourage expansion in the disciplines the Coalition government is keen to promote (see Bond-Smith and Cassells 2020 for similar calculations based on different assumptions).

There is, however, no discussion in the proposal of any future role for international students in the Australian university sector. While the number of these students is unlikely to return to the levels seen in 2019 for some time, if ever, their existing preferences for the disciplines of Management and Commerce and IT and the profitability of offering these courses could influence the universities' choices of disciplinary mix in favour of these two areas. The role of international students' fees in financing university research is another reason why universities may continue to offer Management and Commerce degrees as a means of attracting international students to their institution. In addition, universities are unlikely to expand the number of places in courses for which there is limited demand even if the financial incentives offered by the government would encourage them to do so.

One component of the package, the NPILF, will provide incentives for universities to promote work experience among students. Over the past decade, many universities have increased the opportunities for students to gain labour market experience through Work-Integrated Learning (WIL) programs with the aim of giving their graduates an advantage when entering the labour market. Jackson and Collings (2017) used a sample of domestic students from a Western Australian university to study the effects of WIL and paid employment on the employment outcomes of graduates. They found no evidence that participation in WIL units was associated with higher full-time employment. However, employment in the final year of study was associated with higher full-time employment of graduates in both the short and long term.

The second aim of the Job-ready Graduate Package is to encourage students to undertake study in disciplines that the government sees as being vocationally relevant in the post-COVID-19 economy. The size of the HECS/HELP contribution is only one component of a student's decision on choice of discipline. Student preferences, educational background and the employment and income of existing graduates is likely to also contribute to the decision on choice of discipline. Studies have shown

1 The list of disciplines reported in the Deloitte study does not match that used in the Job-ready Graduate Package. Specifically, the following categories for median costs were applied – other Science for Science, Medical Science for Allied Health and Nursing, Other Creative Arts for Creative Arts, Other Society and Culture for Law and Economics; Social Studies, and English.

that factors including socio-economic background, career guidance and school experience, occupational expectations, psychological attributes as well as university entrance scores all influence the decision to go to university and the course chosen by students (Marks *et al.* 2001, Tomaszewki *et al.* 2020, Law 2020, Parker 2020).

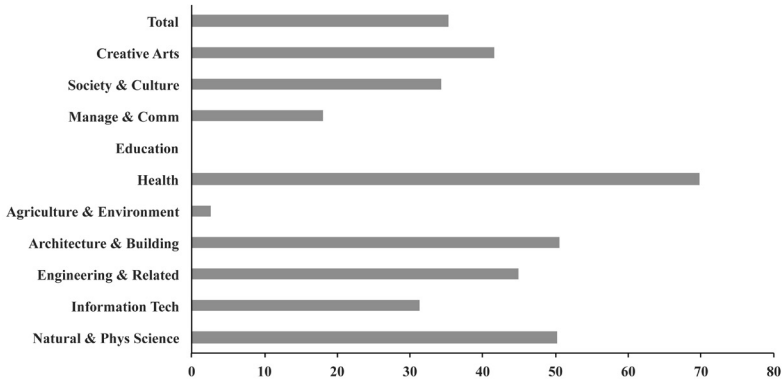
Outcomes for current graduates are also likely to be relevant in choice of discipline to study. The medium-term implications of the pandemic for employment and the demand for particular skills is hard to predict but the evidence from the recent experience of graduates is likely to remain relevant. The following presents evidence on employment and income for new graduates, taken from Quality Indicators for Learning and Teaching (QUILT 2020) and for all graduates from the 2016 Census of Population. Prior to the onset of the COVID-19 pandemic, there was already evidence that the labour market for workers under 35 years of age in Australia was not as robust as it had been a decade earlier before the Global Financial Crisis (GFC) (Productivity Commission 2020).

Corliss, Daly and Lewis (2020) reported that between 2001 and 2016 the number of bachelor completions had risen by 43.2 per cent and of that 30.1 percentage points of the rise was between 2006 and 2016. DESE (2020d) reports an increase in bachelor completions of 35 per cent between 2008 and 2018, the latest year for which published data are available. Such a big increase in the number of new graduates entering the labour market during a period of slow to modest growth in employment (Lewis 2015) would have been expected to have a significant impact on graduate employment and earnings. In addition, there was evidence of reduced demand for graduates (see also Productivity Commission 2020).

Interestingly, the increase in bachelor graduations was not evenly distributed across disciplines as indicated in Figure 3 which shows the growth between 2008 and 2018 by broad field of study. The biggest percentage increase was in Health, while above average percentage increases were observed for STEM subjects – Science, Engineering and for Creative Arts and Architecture. Education completions actually fell slightly while growth rates for Management and Commerce, Agriculture and Environmental Science and IT were below average. The existing increases in Health, STEM and Architecture were in line with the current government proposal but the declines in Agriculture and Environmental Science, IT and Education and the expansion of Creative Arts were opposite to the proposed changes in these disciplines.

The growth in graduates seems only partly to reflect changes in labour market demand. For instance, while the growth in health professionals accords with the growth in demand for personal services and projected growth in the health sector (Lewis 2015), the second biggest growth rate was in Creative Arts, an area yielding the poorest economic rewards for graduates (to be discussed in more detail below, see Corliss, Daly and Lewis 2020). The growth in Creative Arts graduates may well be due to the deterioration in the labour market for graduates generally whereby, as the career prospects of taking a more “career focussed” area of study diminishes, those degrees that have a high consumption good element experience an increase in demand (Lewis and Lee 2020).

Figure 3: Completions of bachelor degrees by broad field of study, percentage change, 2008-2018



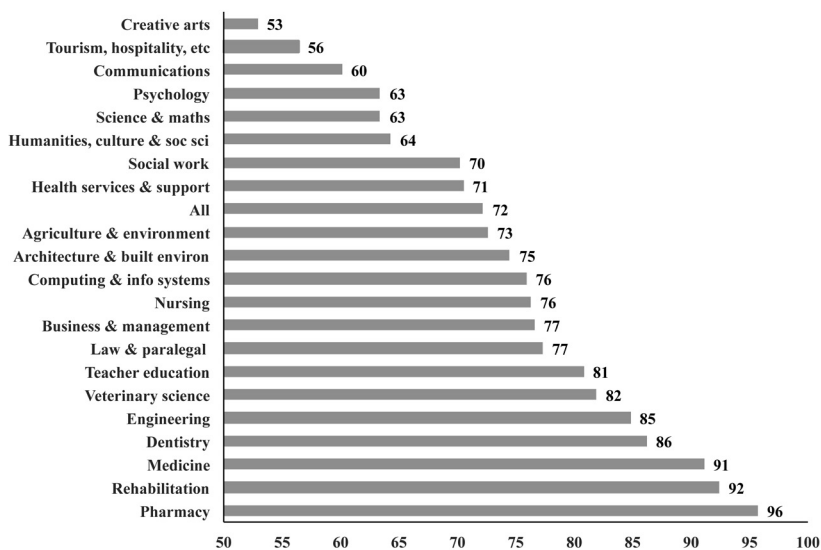
Source: Department of Education, Skills and Employment (DESE 2020d), uCube, Higher Education Data.

When differential HECS rates by discipline were introduced in 1997, Education and Nursing were declared areas of ‘National Priority’ and had the lowest HECS rates. The evidence presented here suggests that the low HECS rate for Education was not a sufficient attraction to students to move to this discipline.

Corliss, Daly and Lewis (2020) demonstrated that the number of undergraduate degree completions soared in the wake of the GFC of 2007 as the jobs market became slack and investment in a university education became more attractive. They also found that after the economic contraction following the GFC and the huge expansion in university graduates, the percentage of new graduates obtaining a full-time job fell from 80 per cent almost continuously each year until reaching a low of 68 per cent in 2014. There were some small signs of recovery thereafter but not to the ‘boom’ levels of 2006 or the ‘normal’ levels observed before then. Graduate starting salaries fell by over 14 per cent for males and 11 per cent for females in real terms between 2007 and 2014. It is probable that the impact on the market for new graduates of COVID-19 will be as great or even greater than that of the GFC.

Figures 4 and 5 present the most recent evidence from the Graduate Outcomes Survey (GOS) of the employment and starting salaries of new graduates for 2018. There has been a deterioration in both these indicators in recent years (Corliss, Daly and Lewis 2020).

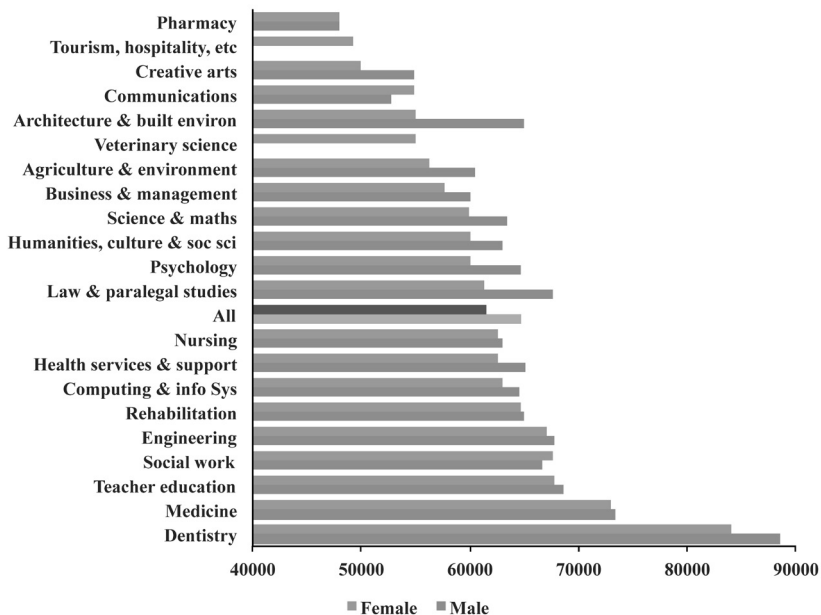
Figure 4: New bachelor graduates in full-time employment as a percentage of all wanting full-time employment, per cent by field of study, 2018



Source: Quality Indicators for Learning and Teaching, (QILT, 2020)

The overall employment and salary conditions of all university bachelor graduates masks somewhat the differences between graduates according to field of study. Teacher Education, Dentistry, Rehabilitation, Veterinary Science, Engineering, Pharmacy and Medicine had a full-time employment rate of 80 per cent or better in 2018. By contrast, as shown in Figure 4, the fields of Creative Arts, Communications, Humanities, Science and Maths, Culture and Social Sciences and Psychology had full-time employment figures about or lower than 65 per cent.

Figure 5: Median starting salaries of new graduates by field of study, \$, 2018



Source: Quality Indicators for Learning and Teaching, (QILT, 2020)

Note: For Vet Science and Tourism etc. there were insufficient observations to calculate a reliable median.

Figure 5 presents data on starting salaries by discipline. In 2018 graduates in Dentistry had by far the biggest starting salaries (median \$88,500), while other fields of study with above median starting salaries (in the \$61,000-\$75,000 band) were Medicine, Nursing, Education, Engineering, Computing and Information Systems, Law and Paralegal Studies, Rehabilitation and Psychology. Study areas with particularly low levels of earnings were Communications, Creative Arts and Pharmacy. The relatively low starting salary for Pharmacy is largely explained by the requirement that graduates must meet additional training requirements in order to gain professional registration.

In summary, many of the disciplines that the Coalition government is keen to promote in its Job-ready Graduate Package such as Engineering, IT and Education had above average performance in terms of both employment and starting salaries in 2018 but other disciplines such as Agriculture and Environmental Studies, and Science and Mathematics performed poorly on these indicators. Tourism etc., Communications and Creative Arts, all disciplines the current proposal aims to deter students from undertaking, had relatively low starting salaries and high unemployment rates.

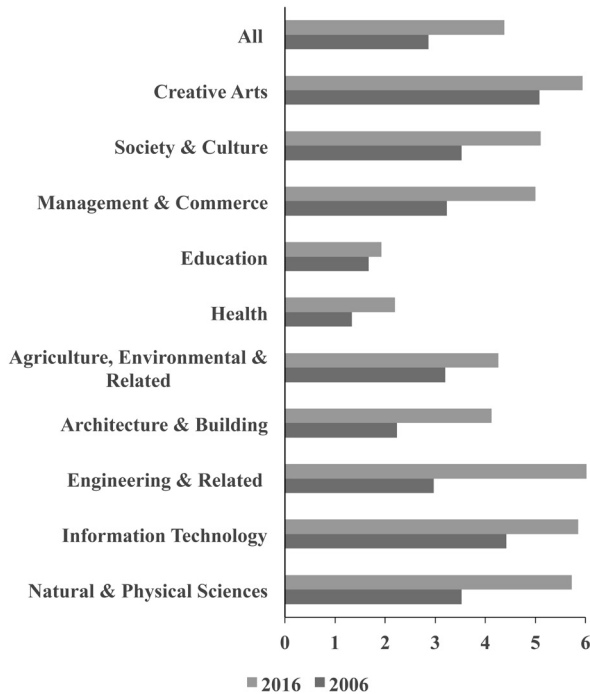
One of the major shortcomings of the GOS and its forerunner the Graduate Destination Survey (GDS) is that it only examines the employment situation very shortly (about four months) after graduation which is a relatively short period in which

graduates can enter into full-time employment. However, in the GOS Longitudinal (GOS-L) a sample of those in the survey after graduation is surveyed three years later. The survey finds that employment and salaries had improved, as expected, three years after graduation.

Given the limitation of the GDS/GOS, here we examine Census data on unemployment rates for all graduates. Although the most recent Census data are for 2016, they are likely to provide a reasonable description of the state of the labour market for graduates pre-COVID-19. The use of data spanning the whole working life of graduates is likely to give a better picture of the adequacy of different degrees for the labour market than a very narrow 'jobs ready' approach looking only at new graduates.

Of course, the labour market experience of new graduates may differ from that of graduates as a whole. For instance, it may be difficult for new graduates to find their first full-time job, and that job may be relatively low paid, but the rest of their career might be quite successful in gaining a premium for having had a university education. However, an examination of Census data indicates that unemployment among new graduates was quite persistent affecting graduates quite some time after graduation (see Corliss, Daly and Lewis 2020 for a more detailed examination of unemployment among graduates under 30 years of age).

Figure 6: Unemployment rates for all bachelor graduates by discipline of degree, 2006 and 2016, per cent



Source: Corliss, Daly and Lewis (2020) based on Census of Population and Housing data, 2006 and 2016, unpublished.

Figure 6 demonstrates that the unemployment rate for bachelor graduates as a whole (of all ages) rose between 2006 and 2016. The reasons for this are open to conjecture but the explanation is probably found both on the supply side, increased numbers of new domestic graduates, increased numbers of skilled migrants and, on the demand side, the lower rates of economic growth over the period in question.

In 2006 the unemployment rate of all those holding a bachelor degree was 2.8 per cent compared to the national rate of unemployment of 4.8 per cent. By 2016 the comparative figures for all bachelor graduates and for the workforce as a whole were, respectively, 4.4 and 5.7 per cent. A university degree still reduced the probability of unemployment for graduates, but it did not make a graduate immune to the effects of the business cycle.

The most recent data for May 2020 from the Labour Force Survey conducted by ABS show that while graduate employment has been affected by the COVID-19 lockdown, the falls have been smaller than for those without a tertiary qualification. As current unemployment figures are difficult to interpret given the range of government programs such as JobKeeper aimed at keeping workers connected to their employers,

the figures presented in Table 1 compare the employment population (E/P) ratio for 2019 with E/P for full and part-time workers in May 2020. They show that the falls in employment for both part-time and full-time graduates at this point in the post-COVID-19 world were smaller than for those without a tertiary qualification.

Table 1: Employment/Population Ratio for Tertiary Graduates compared with non-Graduates, aged 15+, 2019 and May 2020

	<i>Graduates^a</i>		<i>No tertiary qualification</i>	
	<i>Full-time</i>	<i>Part-time</i>	<i>Full-time</i>	<i>Part-time</i>
2019	0.57	0.21	0.37	0.20
May 2020	0.56	0.19	0.35	0.17
% change	-3	-7	-5	-13

Source: ABS (2020) *Labour force survey*, cat no.6202.0

Note a. Graduates include post-graduates and those with a bachelor degree.

Two main conclusions can be drawn from the above analysis. First, general downturns in the economy affect employment of graduates in all disciplines. Second, graduates in some disciplines have been particularly affected by changes in the structure of demand and supply in the labour market and as a result of structural and technological change in the Australian economy (see, for instance, Kelly and Lewis 2010, Lewis 2015, Borland and Coelli 2017, Peetz and Murray 2019). There has been a relatively strong increase in demand, relative to supply, of graduates in Health care and Education and relatively weak increases for graduates in STEM subjects such as Engineering, Information Technology and Science. Interestingly, Creative Arts graduates, who experience higher average rates of unemployment have been least affected and experienced the smallest increase in unemployment rates. In fact, Lewis and Lee (2020), using a number of measures show that the labour market for Creative Arts (as well as Humanities) graduates in Australia has improved markedly over two decades.

Unemployment is only one measure of labour market ‘match’ of supply and demand. A more comprehensive measure is the rate of return to a university degree which takes into account both the costs (to students) of education and the financial benefits arising from a degree. Corliss, Daly and Lewis (2020) have recently produced estimates of rates of return for a number of degrees using both 2006 and 2016 Census data. Although they consider a number of scenarios, estimates for what they term the base case are presented in Table 2 below.

Table 2: Estimated rates of return to an undergraduate degree by discipline

	<i>Males</i>		<i>Females</i>	
	<i>2006</i>	<i>2016</i>	<i>2006</i>	<i>2016</i>
Allied Health	13%	11%	14%	11%
Architecture	9%	10%	6%	8%
Creative Arts	*	5%	*	9%
Dentistry	20%	17%	17%	14%
Economics	18%	15%	15%	13%
Education	11%	12%	10%	12%
Engineering	15%	13%	14%	12%
Humanities	3%	4%	9%	6%
Information Technology	17%	15%	15%	14%
Law	17%	15%	15%	15%
Management & Commerce	17%	14%	15%	13%
Mathematics & Statistics	13%	12%	12%	13%
Medicine	16%	15%	15%	16%
Nursing	17%	19%	14%	16%
Science	10%	8%	11%	8%
All Bachelors	15%	13%	12%	13%

Source: Corliss, Daly and Lewis (2020) based on Census of Population and Housing data, 2006 and 2016, unpublished.

Table 2 shows quite clearly there is substantial incentive for private individuals to attain a bachelor degree although this incentive, as measured by the internal rate of return, fell somewhat between 2006 and 2016 for almost all disciplines.

There is considerable variation in the internal rate of return for the different fields of study. The highest rates of return for both men and women in 2006 and 2016 were in Dentistry, Nursing, Commerce, Law, Economics and IT. Both men and women had a high rate of return in Nursing and in Education in 2016 and improved on the rate of return in 2006. The lowest rates of return for both males and females were in the Creative Arts (a negative rate of return in 2006 but improving to a positive rate of return in 2016), Humanities and Architecture. In most cases but not all, the internal rates of return were slightly higher for males than for females, most notably in Dentistry and Nursing. On the other hand, females with a Humanities or Creative Arts qualification received a higher rate of return than their male counterparts. The STEM subjects – Mathematics and Natural Sciences– have positive, but below average, rates of return.

It is interesting to compare the rates of return with the growth in the number of completions over the period from 2008 to 2018 (Figure 3) which can be regarded as a measure of the supply response of students to market signals (in this case the rate of return). This must be qualified somewhat since for some disciplines, such as Medicine, places are strongly “rationed” or limited.

The large rise in completions in Health – which includes Dentistry, Medicine and Nursing has not stopped Health degrees from yielding a comparatively high rate of return, particularly for males. This indicates that for these disciplines new entrants have responded efficiently to labour market signals. The almost zero growth in new Education graduates is in contrast to low unemployment rates and high rate of return. Perhaps surprisingly, some areas with high completion growth rates – Architecture, Engineering and Science are among degrees with relatively low rates of return.

Daly, Fleming and Lewis (2006) use Census data to show that the ex-post private return to a university degree over the 1990s differed substantially from the ex-ante return estimated from 1986 Census data alone. Over that period the skill differential widened and the estimated ex- post rate of return was at least as good and usually substantially better for most of the groups identified. For many of those entering a post-COVID-19 labour force, the immediate opportunities unfortunately are unlikely to be so sanguine. This illustrates the significant difficulties involved in predicting employment prospects and incomes over a working life of more than 40 years and helps to put in perspective the likely effects of changes in the HECS/HELP rates on student choices in the medium term. These changes will alter the predicted private rate of return to individual degrees but an investment in a university education is likely to remain worthwhile from an individual's point of view, especially if the available employment opportunities while studying are low, reducing the opportunity cost of attending university.

The role of HECS/HELP in determining student discipline choice

As noted earlier, the decision to go to university and the choice of discipline is subject to a wide range of determinants. Given its wide-ranging implications for an individual's life, it is unlikely that the size of the student contribution to study (HECS/HELP) will be a major determinant of degree choice. Studies on the impact of the introduction of differential HECS by degree following the 1997 reforms found that they did not have a major impact on the social composition of university participation (Chapman and Ryan 2005). Nor has the low rate of HECS for Education degrees as a 'National Priority' degree since 1997 increased the number of students completing this degree (see Figure 3). This in part reflects the design of an income-contingent loan which separates the point of consumption from the time of repayment. Graduates do not need to repay the loan until an income threshold is reached. The choice of the income threshold for repayment and the rate of repayment are therefore critical to postponing repayment and encouraging participation of disadvantaged groups.

This threshold is particularly relevant for anyone in full-time employment, especially mature-aged students who may find themselves repaying their HECS/HELP debt while studying. The threshold in the 2020-2021 financial year is \$46,620 and the prospect of immediate repayment may deter some potential students from undertaking a university degree. A second potential deterrent for mature-aged students is the focus on STEM disciplines for which they may not have the academic background and the high costs of degrees in Management and Commerce, the Humanities and

Social Sciences which may be more relevant to their employment but now will be very expensive.

If graduates do not expect to have earnings above the repayment threshold, the new HECS/HELP payments will not alter behaviour. For example, Creative Arts degrees have been one of the fastest growing degrees since 2006 despite poor labour market prospects. Under the new proposed HECS/HELP rates it is the Australian government that will be bearing the risk of the debt associated with undertaking these degrees if graduates never reach the HECS/HELP repayment threshold. Lewis and Lee (2020) report that only about half the graduates in Creative Arts repay their HECS/HELP debt.

The repayment of HECS/HELP debt has become a significant political issue. According to the most recent figures presented by the Parliamentary Library (Ferguson 2019), in 2017-18 there was \$A61.9 million of HECS/HELP debt and 2.9 million debtors, including both higher education and vocational education students and graduates who owed the Australian government, on average A\$21,557. The time taken to repay these debts has been increasing and in 2017-18 stood at 9.1 years. Chapman and Higgins (2013) estimated that the foregone HECS revenue from graduates between 1989 and 2011 working overseas was over \$400 million. The larger HECS/HELP charges proposed for 2021 and the state of the post-COVID-19 economy are likely to increase these numbers even further.

Picking winners

The preceding discussion illustrates the difficulty of predicting how the Job-ready Graduate Package is likely to affect the mix of courses offered by universities and the decisions of students about their choice of discipline. In fact the Deputy Secretary of Higher Education from the Department of Education, Skills and Employment told a COVID-19 parliamentary inquiry that there had been no modelling of the package and in the past, responses to changes in the HECS/HELP rate had been ‘muted’ (Guardian 28 July 2020). Even if the package were to have its desired effect, the process of ‘picking winners’ is fraught with difficulties.

Workforce planning has had a very chequered history which is perhaps not surprising given working lives can last for over 40 years and people can move between occupations, adapting skills and retraining over time. There is not a great deal of matching between qualifications, skills and occupations, apart from certain exceptions such as medicine. In most of the skilled occupations only a minority pursue a lengthy career in their field of qualification. Even graduates from the most vocational courses, such as the trades, do not tend to stay in the associated occupation for the whole of their career. Generally, skills attained in most disciplines are often highly transferable meaning that lack of specific discipline-to-occupation matching is not necessarily the same as ‘wastage’ (Lewis 2008).

Future demand for skills is difficult to predict. Peetz (2020b) notes that given an ageing population there is likely to be a need for health workers in the medium term but the implications of further developments in artificial intelligence (AI) and other changes in the economy for the future skills in demand are much less clear-

cut. He cites evidence that supports the conclusions of earlier work (Kelly and Lewis 2010, Lewis 2015, Peetz and Murray 2019) that ‘soft skills’ such as creativity, problem solving, communication and emotional intelligence may be the critical skills for the future.

The push in the Job-ready Graduate Package toward STEM-based disciplines is not supported by the pre-COVID-19 evidence on labour market outcomes in all these disciplines (see Figures 4-6). In addition, Norton (2016) noted that the employment of science graduates was less likely to match their qualifications than for other graduates and that there were high attrition rates for IT graduates. Dockery and Bawa (2018) argue that women in Australia face particular problems in establishing careers in STEM disciplines. If the Coalition government is serious about promoting careers based in these disciplines, more will be required than just a change in university funding.

Given the complex factors involved in individual choices about further study and prospects for the labour market, it is not clear that government strategies to ‘encourage’ people into particular disciplines of study will necessarily produce the best outcomes for society. The individuals making these choices are best placed to know what is in their best interest and choices are made with the expectation that circumstances are likely to change in the future and further education and training may be required to fill particular career goals.

Conclusion

The COVID-19 pandemic has created significant problems for Australian universities by reducing income from international students, forcing the fuller adoption of online learning, and increasing the expected number of domestic applicants for the 2021 academic year. The Coalition government has responded by proposing a new funding model which is supposed to be ‘cost neutral’ and aims to use price signals to encourage both universities and prospective students to move into disciplines which the government believes will be in demand in the post-COVID-19 economy. This paper uses existing evidence to argue that the proposed Job-ready Graduate Package is likely to miss its mark, crucially with respect to having a medium-term impact on student choice.

The incentives for universities proposed in the package take no account of any future role of international students in Australian universities which may also influence the mix of disciplines which universities wish to offer. The two most popular disciplines with international students have been Management and Commerce, and IT. The former is not one of the proposal’s preferred areas of study. The cross-subsidisation of university research by teaching revenue is likely to require a continued intake of international students in the future. The size of the international student intake has in the past been closely linked to immigration and the ability to obtain visas which enable international graduates to work in Australia. The future of this pathway into the Australian labour force will also be relevant to determining the number of potential students from overseas and hence the mix of disciplines offered by Australian universities. It also seems likely that universities will be reluctant to expand courses

for which there is limited domestic demand, even if there are financial incentives to do so.

On the domestic student side, evidence shows that the decision to attend university and the choice of discipline is based on a number of factors including socio-economic status, university entrance scores, level of school and career counselling support, psychological factors and the labour market experience of graduates. There is little evidence that changes in HECS/HELP in the past have had a big impact on students' choice of discipline although these proposed changes are larger than any earlier ones. The Deputy Secretary of Higher Education recently told a parliamentary committee that the past response had been 'muted' and there had been no modelling of the most recent changes so it will be a matter of waiting to see if these changes have a very different effect than earlier ones. The choice of university discipline is the beginning of a series of career choices and people are likely to take a longer term view of the benefits and costs of a particular degree rather than being strongly influenced by the size of the HECS/HELP bill. For example, are discouraged Law students likely to switch to a degree in Agricultural Science? The HECS/HELP bill will not be relevant until their earnings exceed the repayment threshold. Given the nature of income contingent loans, it may be the Australian government which bears an increasing cost of the rising HECS/HELP debt if graduate incomes do not reach this threshold.

The strategy of workforce planning fell out of favour after the 1960s because of its lack of success. It does not acknowledge the fluid nature of the labour market where people retrain and shift between occupations as opportunities arise. Given the uncertainty which is expected in a post-COVID-19 world, in addition to existing technological and economic changes in the nature of work, forecasting the extent and the direction of changes in the aggregate demand for various skills over the next decade is particularly difficult. Individuals are best placed to make these choices for themselves rather than relying on government direction.

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