

Committee Secretary
Senate Education and Employment Committees
PO Box 6100
Parliament House
Canberra ACT 2600

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By email: eec.sen@aph.gov.au

Dear Secretary,

EMCR Submission to the Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020 Inquiry

The Early and Mid-Career Researcher Forum of the Australian Academy of Science (**EMCR Forum**) welcomes this Inquiry and the opportunity to provide a further submission regarding the Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020 (**the Bill**) to the Senate Standing Committee for Education and Employment.

This submission aligns with our recent submission to the Department of Education, Skills and Employment on the Bill. While the EMCR Forum supports efforts to invest in and improve Australia's higher education and research system, we are concerned there are other aspects of the Bill that will have unintended consequences for the sector.

Our submission focuses on the following areas:

1. Concerns with the analysis in the Deloitte report which underpins the Bill
2. The impact of a reduction in overall funding on the capacity of universities to continue high quality STEM teaching and research
3. The impact of this legislation on EMCRs
4. The impact of this legislation on the short- and longer-term strength of the R&D sector

Further to this written submission, we welcome any opportunity to provide any further information at the request of the Committee.

Introduction

The EMCR Forum is the representative body of over 5,600 early to mid-career researchers (EMCRs) in science, technology, engineering, mathematics and medicine (STEMM) in Australia. EMCRs are defined as researchers with less than 15 years' experience post PhD. EMCRs work across the higher education sector, government, research organisations and industry.

The EMCR Forum Executive comprises 12 EMCR volunteers from across the STEM disciplines across Australia, including metropolitan and regional universities.

The EMCR Forum's mission is to serve as the voice of Australia's EMCRs, championing improvement in the national research environment through advocacy. We believe that the role of universities to produce job-ready graduates is crucial to the continuing success of Australia as a thriving nation and the EMCR Forum strongly supports attempts to improve our higher education system.

As EMCRs, we are directly affected by many of the proposals in this draft legislative amendment. **We are responsible for the bulk of higher degree teaching and research in Australia.** Many of **our members and colleagues are precariously employed** (casual or fixed-term contracts), and others are **overworked** through the combination of administrative tasks and ambitious research goals with (relative to the OECD average) poor financial and structural support.

We propose several recommendations, based on the issues presented in this submission and the accompanying discussion:

1. Complete a comprehensive review of the integrity of the data underlying the bill, and the costs and risks associated with the Bill, including the effects on the capacity to combine research and teaching, teaching quality, and retention of a suitability qualified and capable university teaching workforce
2. Consider the Bill's consequences on the careers of a generation of emerging scientists and the impact of this on Australia's capacity to maintain and grow its high quality, cost-effective research output, and economically productive R&D sector
3. Consider delaying the Bill at least until the above matters are debated in Parliament and the Minister's Research Sustainability Working Group develops a framework for Research funding
4. In the interest of equity and considering generational impacts, expand the Research Sustainability Working Group beyond university VCs and ensure EMCR views are included.

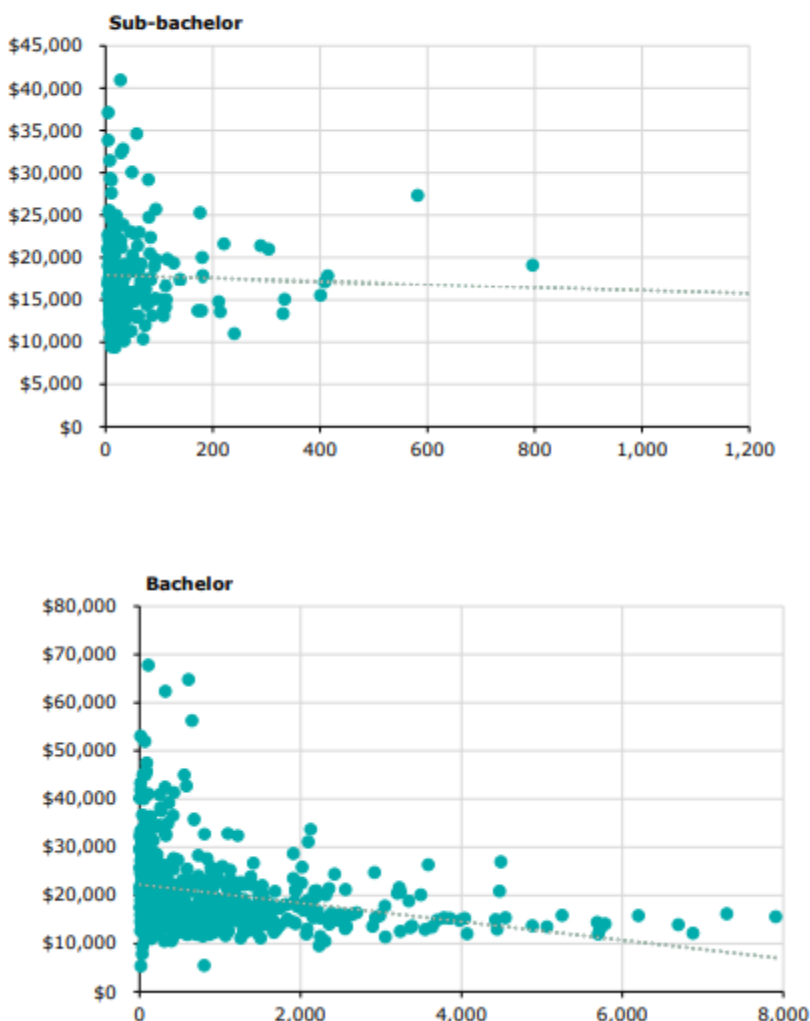
Issue 1: Issues with the data underpinning the reforms

The Bill is based on modelling conducted by Deloitte in its *Transparency in Higher Education Expenditure* report from 2019.¹ The report drew on data from 32 of our 42 universities, treating these universities as homogenous and comparable. Australia's university sector is diverse, with each university specialising in different areas, having different teaching/research workloads and being located in different areas. The costs of a university based in Sydney for example, would differ hugely compared with regional universities. Placing all universities in a "one-size-fits-all"

comparison is therefore problematic. Of further concern is the use of the Deloitte Data to suggest that as university class sizes increase, they become more efficient (and therefore cheaper per student to run).

Chart 2.21 depicts the negative correlation between scale and cost, whereby increasing total EFTSL is associated with decreasing unit costs for each level of education. Notably, the highest cost observations are all delivered in instances of smaller EFTSL.

Chart 2.21: Correlation between scale and unit costs



As the graphs show there is very limited data available for higher equivalent full-time student load (EFTSL) subjects, compared to the significant mass of data towards the lower end of the scale. The trendline does not offer a range of modelled scenarios or show the error range associated with the calculation.² The model additionally does not break down the data by subject area - treating all subjects the same. The Deloitte report found that the most significant driver of costs was staff-student ratios. This suggests that the way that universities achieve efficiencies from having larger student cohorts in certain subject areas is by engaging fewer staff to teach the larger cohort. This approach may work in some subject areas, notably lecture-

based subjects such as Law - where a single lecturer can teach many hundreds of students at a time (with casual tutors to fill needed gaps).³ The same approach is unlikely to work in STEMM subject areas which involve more lab-intensive and workshop intensive courses. This underlying assumption that staff-student ratio can be increased without impacting quality of teaching is thus highly problematic for STEMM disciplines and jeopardises the high-quality education in these areas that our Universities have been able to provide in recent years.

It is also not certain that reducing cost in some areas and increasing it in others will help improve staff-student ratios. For example, if student numbers drop in humanities (but universities continue to maintain current academic levels in those areas) but increase in STEMM, then the overall staff-student ratio averaged across a university may not change significantly (as measured by full-time equivalent staff). The Deloitte report found that total student numbers had a limited statistical significance after other drivers were accounted for, suggesting that merely increasing university places in particular degrees will not lower the costs universities face.

Overall, the report and data underpinning the proposed shift could be described providing insufficient evidence to support the key proposal of the Bill. When paired with the likely impacts of reduced funding per student, a more comprehensive review is needed before the Bill is voted on.

Issue 2: Reduction in Overall Funding

The Bill as drafted aims to increase the number of students studying in “Job-Ready” fields, notably in the fields of Science, Technology, Engineering, Mathematics and Medicine (STEMM).⁴ While the EMCR Forum is supportive of attempts to educate more STEMM students to boost our future research workforce, the Bill does this by reducing the contribution students would pay to take certain science courses.⁵ The Bill simultaneously reduces the overall funding provided to tertiary institutions per student.⁶

The EMCR Forum is concerned that the reduction in cost will not achieve the Government’s stated aim - as students are unlikely to respond to price signals given the deferred nature of HECS.⁷ The EMCR Forum is further concerned that the reduction in funding per student could force universities to either find further efficiencies (increasing the workload for remaining staff) or actively encourage students to enrol in programs that attract greater overall funding compared to their cost to deliver.

As highlighted by the Australian Academy of Science in their submission, the loss of international students due to the effects of COVID-19, combined with cuts to student funding, have already cost the university sector \$4.7 billion in research funding.⁸ While the Bill will provide teaching funding certainty to the university sector, the reduction in funding per student could have significant unintended effects.

One aim underpinning the Bill is to separate funding for teaching and research. A key issue here is Parliament is being asked to vote to implement cuts to overall funding per student before a roadmap is proposed for research funding. In this circumstance, there is no certainty that the research funding plan will make up for the revenue shortfall introduced by this legislation and could lead to further losses in the research sector. It is also important to note that the teaching and research workforce in STEM are intertwined for a reason. As is the case in other highly skilled and specialised workforces, such as clinical medicine, training in STEM is conducted by those who are actively working in their discipline, in this case as researchers. Any depletion of the research workforce would therefore also directly impact the universities capacity to deliver high-quality STEM education.

We ask the Committee to carefully consider the impact of the Job-Ready Graduates Package on university teaching and research staff, and the ability of universities to conduct research over the coming decade if the legislation is passed in its current form. The EMCR Forum supports measures that provide certainty to the tertiary sector, EMCRs/teachers, and the Australian community. Allowing some more time to analyse and consider the impacts of this reform is encouraged.

Issue 3: The impact of this legislation on EMCRs

As highlighted above, the reforms would reduce the funding available to universities per student across the board. The most likely impact of this change will be to place additional pressures on teaching staff - who will likely pick up further responsibilities in order to manage increased student numbers. As EMCR Forum Executive members have previously written,⁹ the majority of this **burden is expected to fall on EMCRs**, who in many cases are already facing significant insecurity in long term employment. This has been driven by a growing trend of casualisation and the use of fixed-term contracts (particularly for early-career researchers).

If this package is passed, universities will have to do more with less, with the burden falling on an already stressed and overworked group of people. Given the importance of the EMCR workforce for research, if they have an increased teaching load, this will also have significant flow-through impacts on our research productivity, which is discussed further in Issue 4.

Issue 4: The impact of this legislation on the short- and longer-term strength of the R&D sector

The Bill will affect one of the largest sectors of Australia's economy.

The tertiary education sector is worth A\$91 billion¹⁰ a year while costing state and federal governments A\$38.4 billion a year¹¹. When combined with the A\$98 billion added from the "professional, scientific, and technical services" sector¹² (which tertiary education trains the workforce for), this comprises a significant portion of our economy. Australia's research output is 14th¹³ or 10th¹⁴ in the world (depending on the metric), in spite of its modest population and

relatively low expenditure on research (1.79% of GDP compared to the OECD average of 2.37%).

Our ability to provide a workforce for this thriving research sector is dependent on our capacity to train that workforce. A high-quality scientist lecturer cannot be readily replaced, costing hundreds of thousands of dollars and 10 – 15 years to train^{15, 16, 17}. The Forum is concerned that this Bill, and its proposed implementation in the absence of a roadmap for research funding, will risk Australia's research sector, its efficient research output, and capacity to provide high quality training for the STEM workforce of the future.

If the research sector contracts, there will be a brain drain - either to outside the research sector or outside the country. Given they are in the most unstable positions within this sector, the sector is most likely to lose EMCRs, who, as the future leaders of our STEM workforce, we can least afford to lose.

Beyond the direct benefits of research to Australia, Research outcomes and rankings is what allows Australia to be attractive to the international student market. The potential loss of more EMCRs (on top of the ongoing redundancies and losses in the university sector) could cripple our university industry, making the return of international students more unlikely.

The Bill in its current form will likely lead to further job losses in the university sector, at the same time significant losses are already being incurred by COVID-19. With private investment unlikely to cover the resulting shortfall in revenue, there is an existential threat to Australia's current and future R&D sector. The impact of COVID-19 unfolds with a degree of uncertainty that cannot be controlled, the timing of this Bill alongside what is already a significant threat to the sector, should perhaps be reconsidered.

These are issues that the Minister of Education's Research Sustainability Working Group can address and we recommend that an expanded Working Group - which includes EMCR representatives - identify solutions and report by the end of January 2021 in time for the next Senate sitting in February 2021.

Final considerations

As put forward by the Australian Academy of Science, the EMCR Forum also wishes to encourage the Government to turn its attention to safeguarding the future of Australian science research post the pandemic, including encouraging new partnerships and cultural change to reverse a decade of decline in business investment in research and innovation.

Of immediate concern is the lack of actions to prevent the retrenchment of up to 7,000 researchers as a result of short term COVID-19 revenue losses. Policies to ensure that

essential scientific capability is safeguarded, or measures to redeploy highly talented Australians from the higher education sector to other areas of national interest, are needed.

The full impacts of such damage to the research workforce may not be completely apparent until our next national emergency. Still, they will be the difference in the way Australia can adapt and respond.

As Australia comes to grips with the recovery from the pandemic, the science and research system that has served the nation well must be placed on a more sustainable, and secure basis.

There is an opportunity for the Government to develop a holistic response to the funding of Australian research and a sustainable path forward. Without such a plan, this Bill will likely not achieve the objective of placing Australia's higher education and research sector on a more sustainable footing for the recovery from the pandemic and beyond.

References

¹ Deloitte, 'Transparency in Higher Education Expenditure' (Report, January 2019) <https://docs.education.gov.au/system/files/doc/other/transparency_in_higher_education_expenditure_2019_final_report.pdf>.

² Without the underlying data itself we were unable to perform our own data analysis, a cursory view of the above graph however suggests that the elimination of a few significant outliers at the upper end of cost may have led to a graph with a significantly flatter line. Even accepting the Deloitte trendline, a rough estimation shows that for a Bachelor's Degree the unit cost decreases by \$2 for each student added to the program (23,000 - 7000)/8000. With science courses facing a loss of up to \$9341 per student universities would need to each recruit thousands of additional students **within that subject area** to recoup this cost.

³ Casual staff contributing little to the full-time equivalent staffing count being used in Deloitte's analysis.

⁴ Science and Technology Australia, 'Uni students in STEM degrees to pay less' (online, 19 June 2020) <<https://scienceandtechnologyaustralia.org.au/uni-students-in-stem-degrees-to-pay-less/>>.

⁵ Ibid. For a detailed breakdown of these changes please view the Submission authored by the Australian Academy of Science.

⁶ Ibid 2. The Academy submission highlights that in some science areas funding is dropping by 38.6% per student.

⁷ Fergus Hunter, 'Uni fee overhaul won't change demand or affordability: HECS architect', *The Sydney Morning Herald* (online, 19 June 2020) <<https://www.smh.com.au/politics/federal/uni-fee-overhaul-won-t-change-demand-or-affordability-hecs-architect-20200619-p5549a.html>>.

⁸ Robert Bolton, 'Universities face bleak research outlook as rescue group is launched', *The Australian Financial Review* (online, 30 June 2020) <<https://www.afr.com/work-and-careers/education/university-research-outlook-bleak-as-rescue-group-is-launched-20200630-p557kp>>.

⁹ Alexie Papanicolaou and Andrew Ray, 'Job-ready graduates changes loom as last straw for emerging researchers', The Conversation (online, 27 August 2020) <<https://theconversation.com/job-ready-graduates-changes-loom-as-last-straw-for-emerging-researchers-144853>>.

¹⁰ See Australian Bureau of Statistics, '5204.0 Australian System of National Accounts Table 5. Gross Value Added (GVA) by Industry' (Data Workbook, 2019) <https://www.abs.gov.au/AUSSTATS/ABS@Archive.nsf/log?openagent&5204005_gva_by_industry.xls&5204.0&Time%20Series%20Spreadsheet&FA94764FE6C47AE1CA25849D00108391&0&2018-19&25.10.2019&Latest>.

¹¹ See Australian Bureau of Statistics, '5518.0.55.001 - Government Finance Statistics, Education, Australia, 2018-19' (Web Page, 28 April 2020) <<https://www.abs.gov.au/ausstats/abs@.nsf/mf/5518.0.55.001>>.

¹² See Australian Bureau of Statistics, 'Table 5' (n 10).

¹³ World Bank, 'Scientific and technical journal articles' (Graph, 2018) <https://data.worldbank.org/indicator/IP.JRN.ARTC.SC?most_recent_value_desc=true>

¹⁴ See Scimago Institutions Rankings, 'Scimago Journal & Country rank' <<https://www.scimagojr.com/countryrank.php>>

¹⁵ See Department of Education and Training, 'Total resourcing for a Commonwealth supported place by discipline – 2019' (Report, 2019) <https://docs.education.gov.au/system/files/doc/other/2019_indexed_rates_0.pdf>.

¹⁶ Department of Innovation, Industry, Science and Research, 'Examining the Full Cost of Research Training' (Report, July 2011) <https://docs.education.gov.au/system/files/doc/other/examining_the_full_cost_of_research_training.pdf>.

¹⁷ Department of Education, Skills and Employment, 'Research Training Program' (Web Page, 24 July 2020) <<https://www.education.gov.au/research-training-program>>.