



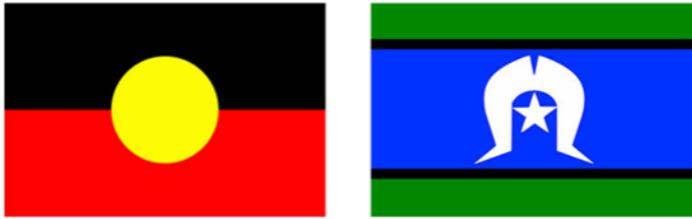
Needs-based funding: Lessons from the school sector

POLICY BRIEF

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Acknowledgement of Country



The Mitchell Institute at Victoria University acknowledges, recognises and respects the Ancestors, Elders and families of the Bunurong/Boonwurrung, Wadawurrung and Wurundjeri/Woiwurrung of the Kulin who are the traditional owners of University land in Victoria, the Gadigal and Guring-gai of the Eora Nation who are the traditional owners of University land in Sydney, and the Yulara/YUgarapul people and Turrbal people living in Meanjin (Brisbane).

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The Mitchell Institute at Victoria University is one of Australia's leading policy research think tanks and trusted thought leaders. Our focus is on improving Australia's education systems so that more Australians can access and benefit from them, supporting a fairer and more productive society.

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Introduction

The Australian Universities Accord has identified a needs-based funding model for higher education as a possible policy direction. But it is unclear what this funding model might look like, the rationale for its introduction, and what it might cost.

Needs-based funding models already exist in Australia and the Schooling Resourcing Standard (SRS) is a prominent example. The SRS is an equity-based model used to allocate additional funds to schools with the greatest needs, determined by socioeconomic composition, location, the size of the school, and other factors. They have been shown to be an effective method to direct resources to institutions and students who need them the most.

In this paper we analyse needs-based funding models. We examine the evidence behind their use, and their application in Australia's school sector. We also explore what would happen if a model like the SRS was introduced in Australia's higher education sector.

Our results are promising. We find that the introduction of a needs-based funding model, using the same parameters as the SRS, would result in about an 11% increase in base funding amounts. Importantly, universities with large enrolments of students from low socioeconomic backgrounds will gain the most.

A sophisticated funding regime that uses needs-based funding could be implemented with minimum cost. It could also help address other policy challenges. For instance, international student income could be used to adjust funding using a concept like the 'Capacity to Contribute' mechanism in the school sector.

The analysis in this brief shows the Australian Universities Accord was right to identify a needs-based funding model as a possible approach. But more research is needed to make sure the settings are right.

Key points

- Needs-based funding usually refers to the allocation of additional resources or funding to address the educational needs of students facing various challenges.
- Equity loadings have been used in other countries and systems although their use is limited, especially at higher education level.
- It is the concentration of need at an institutional level that provides the strongest rationale for equity loadings in the higher education system.
- The greatest level of international evidence on the efficacy of equity loadings comes from the secondary school system. For instance, studies have shown that a targeted 25% increase in school funding would close the average attainment gaps between children from low-income families and children from more affluent families.
- Consideration should be given to whether some loadings are targeted at a course, campus or institutional level.
- Disadvantage does not stop when students leave the secondary school system and can persist throughout life. However, the measures used to identify and target disadvantage need to reflect the different context.
- The ongoing review of funding and loadings can help ensure funding systems are targeted and utilise the most appropriate measures.

The Schooling Resourcing Standard (SRS) model

The SRS is a base funding model with loadings calculated on the equity profile of students and institutions. We modelled what would happen if a needs-based funding model was introduced in Australia's higher education sector. We used the same weightings and formula used in the SRS, where possible, and applied it to Universities Australia data and current funding amounts. We found the following:

- A needs-based funding model using the same parameters as the SRS would result in a 11% increase in base funding amounts. This figure does not consider any other funding, such as the Higher Education Partnership and Participation Program (HEPPP).
- The percentage of equity loadings in the higher education system would be less than in the school system. This is because of the different equity profile in school students and higher education students. For instance, higher education students are more likely to be from more advantaged socioeconomic backgrounds compared to school students.
- The biggest contributors to loadings are students from low socioeconomic backgrounds.
- Regional and rural weightings were relatively small as university campuses are normally located in major regional areas, which in the SRS calculations attract relatively low weightings. However, regional universities usually receive higher loadings as they also have a greater proportion of students from low SES backgrounds.
- Some measures may not be appropriate for use in the university sector. An example is students from a non-English speaking background, which may signal greater disadvantage in the school sector compared to the university sector.
- There is scope to use other concepts from the school sector and apply them to university funding approaches. This includes the 'Capacity to Contribute' measure which could be adapted to international student revenue to offset the cost of introducing a needs-based funding model. In the private school sector, a 'Capacity to Contribute' score is calculated from parents' income, so that non-government schools with students from more advantaged backgrounds receive less funding from the Australian government. These schools usually charge higher fees to families. This model could be applied in higher education so that universities with higher international student revenue relative to domestic student revenue receive less government funding.

What is the background to equity policy in Australian higher education?

Improving student equity has been an increasing focus of higher education policy. But despite this, outcomes for equity cohorts remain below that of more advantaged cohorts.

Equity and inclusion have been a focus of the Australian Universities Accord. The interim report of the Australian Universities Accord stated that “the overall goal of reform must be growth for skills through greater equity” [1].

Student equity has been a key issue in higher education policy, with widening participation to non-traditional students an important driver throughout higher education’s expansion in Australia [2].

Under a national piece of work commissioned during the same period as the Dawkins reforms of the late 1980s, called ‘A Fair Chance for All’, the national student equity framework was established, identifying six targeted equity groups:

- Indigenous students
- Low socio-economic status (SES) students
- Students with disabilities
- Students from regional and remote (RR) areas
- Non-English-speaking background (NESB) students
- Women studying in non-traditional areas [3]

Eighteen years after the Fair Chance for All, the landmark review led by Denise Bradley [4] again tried to address issues of persistent disadvantage. Arising from that report, equity programs have largely focused on three areas: equity support, disability support, and Indigenous support [4, 5].

There are also other ways of identifying students who are under-represented in higher education. These include groups such as care-leavers (an adult who has spent time as a child in the care system), students who are parents, students from refugee backgrounds and first in family students [5].

University students from equity backgrounds are less likely to complete a degree than their more advantaged peers [6, 7]. One study that examined the completion rate of all university students who commenced in 2005 and completed by 2013 found that the average completion rate across all cohorts was 73.6%. Equity group completions were much lower than this average: 68.9% for low SES students (compared to 78 per cent of students from high-SES backgrounds), 59.5% for remote students, and 46.7% for Indigenous students [6].

The participation of students from equity groups in higher education fundamentally relies on support from government programs [5]. This support can take many forms. For instance, at the individual level, Australia’s social security system plays a major role in enabling access.

There are also supplementary funding programs specifically allocated for individual students from equity backgrounds while enrolled [4, 8]. This includes Higher Education Participation and Partnerships Program (HEPPP) [9]. HEPPP provides funding to universities to implement

strategies that improve access to undergraduate courses for people from regional and remote Australia, low socio-economic status (SES) backgrounds, and Indigenous persons. HEPPP also helps to improve the retention and completion rates of those students.

Along with recurrent funding programs, performance funding has been launched and allocated to higher education institutions. One of the four core measures includes equity group participation by Indigenous, low socio-economic status and regional/remote students effective in supporting and graduating students [10, 11].

Is the higher education system equitably accessed by different student groups?

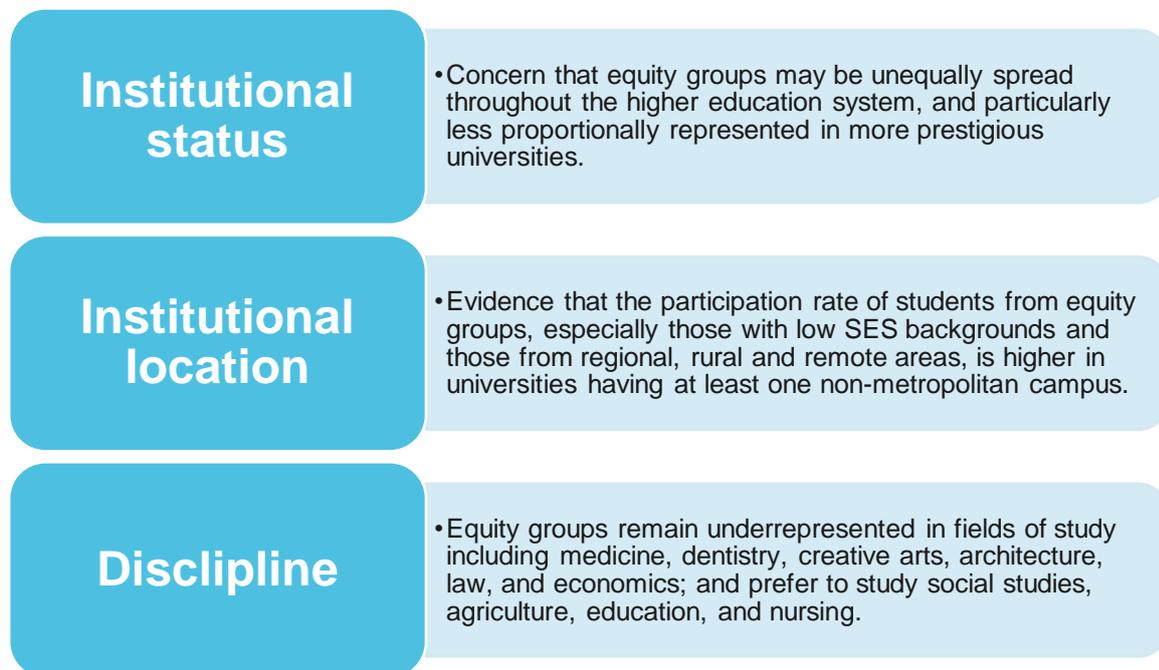
Participation in higher education has expanded, especially since the Bradley Review. But there are concerns that policies have not been successful in widening access to equity groups. Many equity groups remain under-represented as a proportion of the student cohort.

Students who identify as belonging to the Bradley equity categories remain underrepresented in higher education [4, 12, 13]. While gross numbers of students have risen across the last 15 years, there are significant differences in the spread of enrolments in the sector.

Since 2008, the number of undergraduate students with disability, indigenous, low SES, and regional and remote backgrounds increased 169%, 135%, 63%, and 43% respectively. But as a share of the total domestic undergraduate student cohort, enrolments of undergraduate students with disability, Indigenous, and low SES backgrounds increased only 3.7%, 0.8%, and 2%, while that of regional and remote students decreased 0.4% [9].

This is differentiated by institutional status/type, institutional location (especially for multi-campus institutions) and even by discipline.

Figure 1: Overview of different features of equity cohorts



These concerns about the differential spread of students who identify as from one or more of the six main equity categories raises questions about fairness, access to opportunities and barriers to successfully entering higher education. There is evidence that to achieve success in higher education, equity groups perhaps rely more heavily on supportive pathways due to previous learning losses and cumulative disadvantage [14, 15], and therefore use academic

and personal support services from universities including skills development, counselling, and financial services [4, 12].

Policy analysis [10] suggests there are also significant implications for institutions in managing and supporting student progression within institutions that have high levels of students identified by equity categories. That is, where there is a concentration of need (or disadvantage) this causes a stretching of services to support students under current funding arrangements. In the UK, there has been concern that a stratified higher education system could cause 'sink universities' [16] (borrowing from the term 'sink estates' which are housing estates associated with higher levels of social problems) causing strained resources and a struggle to recruit students.

Burke [17] suggests that under-representation is characterised by persistent patterns and an institutional response including mobilising pedagogic engagement from tutors is required. However, this holistic approach may support student success but the incorporation of academic supports within the curriculum, along with a more pastoral role for institutions would incur greater costs.

What is the rationale for the use of equity loadings?

The evidence for equity loadings comes from the literature on school resourcing. This research shows that equity loadings can help remove gaps in educational outcomes.

There are two main lines of inquiry that underpin the study of equity loadings: whether resources matter or whether institutions matter. It is the literature from the school system that is most advanced in exploring these topics.

In terms of whether resources matter, or more bluntly whether money matters, the issue has been a source of debate. Early analysis of school reforms in the 1980s suggested that factors external to an institution such as parental income, parental education level and resources in the home were the biggest determinants of achievement, which some have used to imply that the level of resources at an institutional level did not matter [18]. Since that time, further and more detailed analysis has disputed this conclusion.

The short answer is that, yes, resources do matter. Many studies have shown that aggregate measures of per-student spending are positively associated with improved or higher student outcomes. The size of this effect differs by study. It is also important to note that how resources are allocated and used is also important. An increase in spending must be allocated appropriately to yield benefits [18].

The other important rationale for using equity loadings is that they are targeted at institutions. There are many policy responses to combat disadvantage that impact educational outcomes, with the social security system being a prominent example. But equity loadings are specifically targeted to help counter disadvantage and to assist in meeting the extra needs that occur in an institutional and learning context.

For instance, peer effects have an impact on learning outcomes [19]. These peer effects occur when students' academic performance is influenced by the characteristics and composition of others in their student cohort [19, 20].

Indeed, students who perform at lower academic levels are more likely to gain benefits from being part of a high-achieving cohort [19, 21]. This is part of the reason why 'residualisation' the severe concentration of socioeconomic disadvantage within schools or classrooms, can be so impactful upon students' achievement. The segregation of student cohorts by achievement levels, which can effectively reflect equity groupings, can make it difficult for education systems to perform their important function to provide equal opportunity to all.

Peer effects are found to be stronger in size as students get older [22]. While the bulk of evidence is at the school level, in higher education, there is evidence of peer effects on grade point averages (GPAs) [23].

Whilst this evidence originates in the school system, research in Australia suggests that funding higher education institutions by students who identify as belonging to an equity category may be an effective way to improve education outcomes. Bennett, Naylor [5] and Harvey, Cakitaki [10] suggest that there have been effective equity initiatives launched by higher education institutions, but the performance at institutional level is variable, especially among non-university higher education providers.

There is significant evidence that funding loadings based on the composition of cohorts can improve educational outcomes. The concentration of need at an institutional level, for instance where there are larger cohorts of students from equity groups, provides a strong rationale for the introduction of an equity-based model.

This is particularly relevant for Australia’s higher education sector as it seeks to broaden participation from equity groups.

It is possible to highlight the impact that concentrations of disadvantage have on educational outcomes. The figure below shows the eight-year completion rate for students who commenced a bachelor’s degree in 2010 by university. Also shown is the percentage of the student cohort who are classified as coming from the lowest quartile of socio-economic backgrounds.

Figure 2: Universities with higher concentrations of low SES students also have lower completion rates

Domestic undergraduate completion rate (2010 to 2018) by per cent of enrolment that is low SES



This figure highlights the relationship between completion rates and concentrations of disadvantage. Institutions where the enrolment share of students from low SES backgrounds is relatively small, such as those from the Group of Eight universities, have higher completion rates. Universities with a higher proportion of the student cohort from low SES backgrounds have poorer completion rates.

There are many factors that influence completion rates. Older student studying part-time have some of the lowest completion rates. However, the figure above does suggest that more support may be needed for institutions where there are greater levels of equity groups in the student cohort. Without it, institutions will struggle to meet the aims of expanded provision to equity groups which was highlighted as a priority in the Australian Universities Accord Interim Report.

How much funding is needed to close the achievement gap?

It is well established that students from more disadvantaged backgrounds perform worse on various education measures. This phenomenon starts from a very early age and continues throughout young people's journey through the education system. The aim of funding loadings is to help equalise this difference by ensuring that resources are allocated where they are needed most.

But how much funding can make a difference?

One study that examined changes in school funding across the United States since 1966 found greater levels of school resourcing increased educational attainment and improved adult labour market outcomes for children from low-income families. The effects of increased funding were relatively small for children from more affluent families. But for students from low-income families, a 10% increase in per student funding for all 12 years of school was associated with 0.46 additional years of completed education, 9.6% higher adult earnings, and a 6.1 percentage point reduction in the annual incidence of poverty. The results of this study implied that a 25% increase in per student funding would remove the average attainment gaps between children from low-income families and children from more affluent families.

How is concentration of need addressed in Australia’s school system?

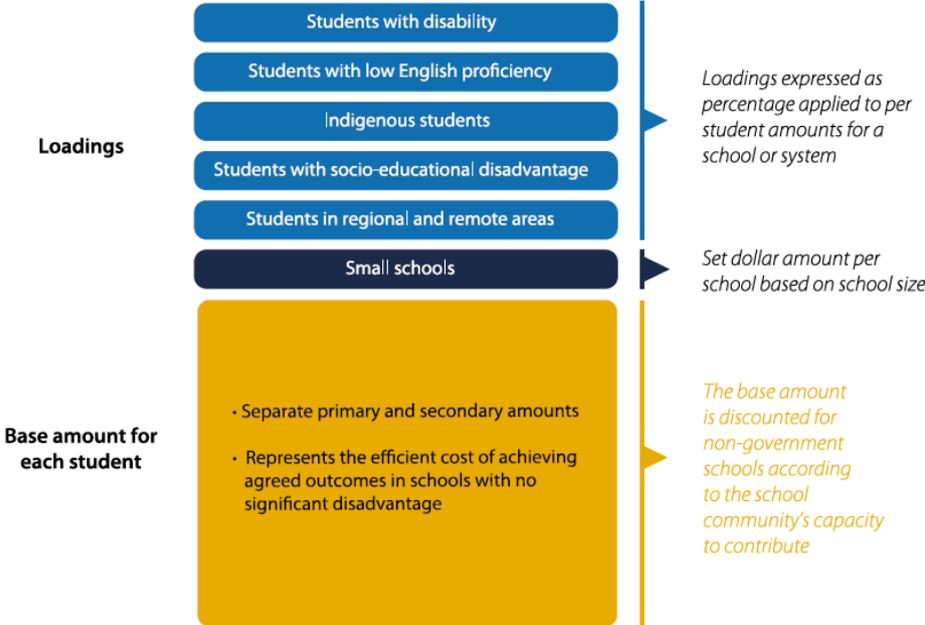
Australia’s school system follows an equity loading funding model. This funding model uses sophisticated and detailed measures to target concentrations of need. These measures can also be used in the higher education system, with some adjustment.

While there is little existing policy or academic literature about how to address concentration of need which impacts higher education institutions, Australia’s school system does follow such a model. The basis for school funding is known as the Student Resource Standard (SRS).

The SRS comprises a base amount for every primary and secondary student and six equity loadings. The aim of the equity loadings is to provide additional financial support to schools with higher concentrations of need so that all students can achieve good outcomes. The equity loadings are for: students with disabilities, students with low English language proficiency, Indigenous students, students with socio-educational disadvantage, students in regional and remote areas and small schools. Figure 3 below shows an overview of the SRS.

The type of loadings and the method of calculating funding amounts varies across the six equity loadings. School size is based on a sliding scale of set amounts derived from student enrolments. Students with disabilities is based on teacher’s professional judgements of the adjustments required for students. The other four loadings are calculated as a percentage of the SRS base [24]. This summary will outline a brief rationale behind each of the loading components and how the loadings are calculated.

Figure 3: Model of the Schooling Resourcing Standard for Australian schools [24]



Students with Disability

Schools are required to make reasonable adjustments to enable students with disability to access the curriculum and participate in teaching and learning. Additional funding is provided to schools that enrol students with disabilities to purchase goods or services to ensure that students with disabilities are able to achieve their full potential.

The Nationally Consistent Collection of Data on School Students with Disability (NCCD) has been used to calculate a school's Australian Government funding allocation. There are three loading amounts differentiated by level of adjustment: supplementary, substantial and extensive.

The loading for students with disability is unique from the other loadings because it is based on teacher's professional judgements - teachers determine which of the three levels of adjustment are relevant to each student with disability [24].

The loadings also differ by need. The table below outlines the different equity loadings applied in the school system according to the level of assessed disability.

Student	Supplementary	Substantial	Extensive
Primary School	42%	146%	312%
Secondary School	33%	116%	248%

As this table shows, the equity loadings can be significant. Primary school children that are identified as having extensive disabilities attract a loading of 312%. The level of need, however, that extensive disabilities signify is very high.

In the higher education sector, enrolment data shows that about 9% of domestic students identify as having a disability.

Students with low English language proficiency

Students with low proficiency of the English language can face challenges in accessing the curriculum and may experience linguistic barriers to learning, negatively impacting their academic achievement. Extra funding is provided to schools if they enrol students from a language background other than English with at least one parent having completed Year 9 (or equivalent) or below. New migrants may be eligible for this loading. The loading equates to 10 per cent of the SRS funding amount.

In the higher education sector, about 3% of domestic students are identified as from a non-English speaking background.

Indigenous students

To address learning gaps between Aboriginal and Torres Strait Islander students and non-Indigenous students, extra funding is provided to schools. The amount increases in line with the proportion of Indigenous students enrolled into a school. If there is one Indigenous student in a school, there is a 20 per cent loading applied to the SRS base. If all students are Indigenous then there is a 120 per cent loading [25].

In the higher education sector, about 2% of students are identified as Indigenous.

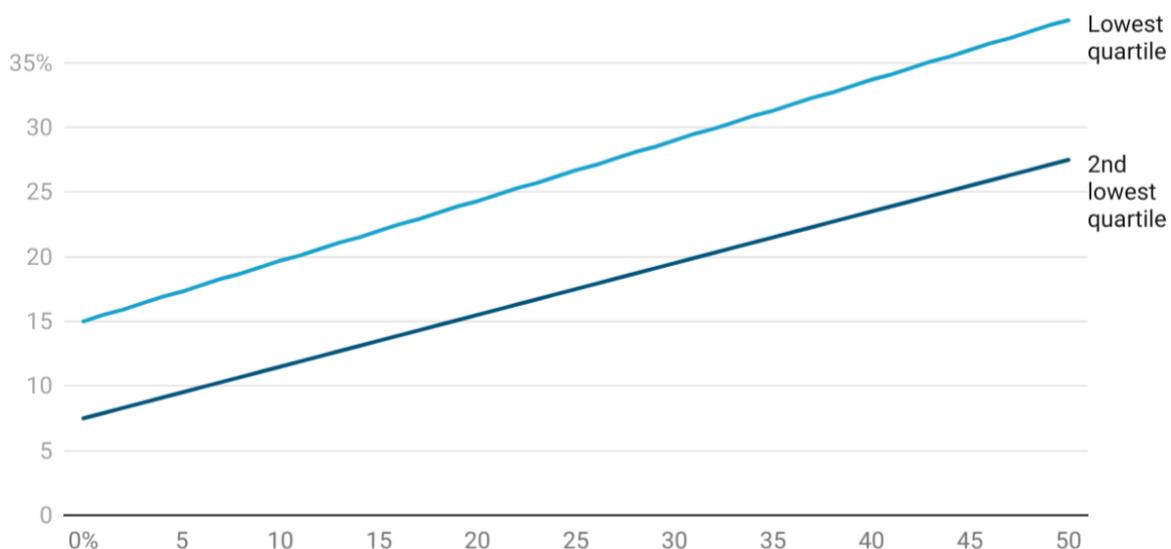
Students with socio-educational disadvantage

Students who are socio-educationally disadvantaged often perform worse than students from more advantaged backgrounds. Parental occupation and highest level of educational attainment are used to determine the school's socio-educational advantage (SEA). The SEA for a school is expressed as proportions across four quartiles of disadvantage [26]. For example, a high socioeconomic school may have 10 per cent in the bottom two quartiles and 90 per cent of students in the top two quartiles. The greater the percentage of a school's students in each of the bottom 2 quartiles of the SEA, the higher the equity loading. Schools can receive up to a maximum of 50% of the SRS funding amount for Quartile 1 and 37.5% for Quartile 2 [25].

The figure below shows how the greater the proportion of students from lower SES backgrounds, the greater the equity weighting.

Figure 4: Higher concentrations of low SES students result in higher funding

SRS funding weightings by per cent of enrolment that is in the lowest or second lowest SES quartile



In the higher education sector, about 16% of students are from the lowest SES quartile. This varies significantly by institution.

Students in regional and remote areas

Schools located in rural and remote areas can incur additional costs associated with the transportation of goods and services. Compared to schools in major cities, rural and remote schools may also have fewer opportunities to share resources and to collaborate with other schools. These factors can influence the ability of rural and remote schools to deliver the same scope of course subjects to the same level of quality as metropolitan schools. To address these challenges, additional loadings are applied to funding allocations for rural and remote schools.

Loadings are determined using the Accessibility and Remoteness Index of Australia (ARIA+), which is a continuous index devised by the University of Adelaide. The ARIA+ score for a school is based on the road distance between the school and the boundary of the nearest service centre or populated locality where health, education or retail services can be accessed.

Schools with an ARIA+ scores of less than or equal to 1 are categorised as major city schools and do not receive a location loading. Non-major city schools are classified as follows based on their ARIA+ scores:

- Inner regional have ARIA+ scores of greater than 1 and less than 2.4
- Outer regional schools have ARIA+ scores greater or equal to 2.4 and less than 6
- Remote schools have ARIA+ scores greater or equal to 6 and less than 10
- Very remote schools have ARIA+ scores greater or equal to 10 and less than or equal to 15

In the higher education sector, about 18% of domestic students live in regional areas. However, there are two important caveats when using the SRS to calculate regional loadings.

The first is that the SRS calculates the regional loading based on the location of the school, not the student. This means that it is the campus location that needs to be used in a higher education setting.

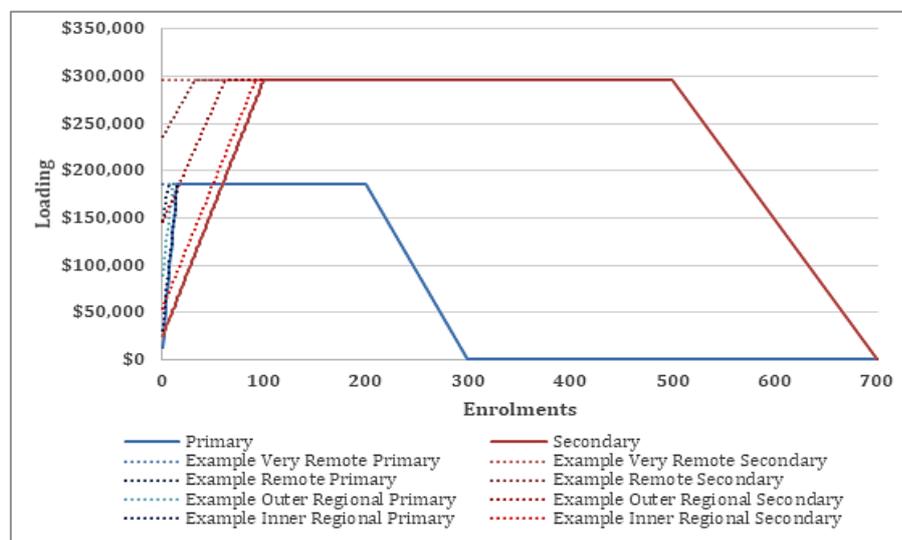
The second is that regional loadings will not apply to all regional areas. An area needs to have an ARIA + score of greater than 1 for a loading to be applied. Most regional university campuses are in locations that are score lower than 1. For instance, Ballarat has an ARIA + score of about 0.3. Bathurst and Wagga Wagga have an ARIA + score of just over 1 and would receive a small regional loading. Darwin has an ARIA + score of 3 and would receive a more substantial loading.

Small schools

Economies of scale can be challenging for small schools to achieve compared to larger schools in major cities. This loading component provides additional funding to primary schools with less than 200 students and secondary schools with less than 500 students located outside major cities.

Compared to the other loadings, the school size loading is unique because it is calculated as a set dollar amount based on the size of a school, rather than as a proportion of the base amount. In 2020, the maximum amount that a school can attract is \$185,245 for primary schools and \$296,392 for secondary schools. Combined schools receive proportional amounts based on their relative enrolments of primary and secondary students.

Figure 5: SRS funding loading amounts by total school enrolments [27]



Capacity to Contribute

The 'Capacity to Contribute' is a concept used to adjust government funding to independent schools whose community has access to significant resources. It essentially reduces the per student amount of SRS that certain schools receive. Capacity to Contribute reflects the idea that high-income parents are more able than others to contribute financially to their school's operating costs.

To calculate the Capacity to Contribute, a 'Direct Measure of Income' is used. This measure is the median income for families at the school. This amount is then standardised to produce a score that enables the identification of schools where communities have greater income. The base funding that a school receives is then reduced so that certain schools receive less government funding.

For instance, schools with the most advantaged communities have their SRS base funding reduced to 20% of the SRS. These schools usually receive much greater per student income than government schools because they charge parents tuition fees that are much higher than base SRS funding amounts.

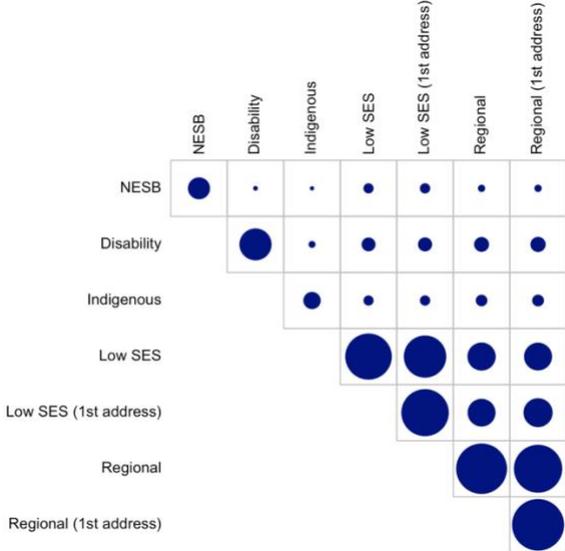
The Capacity to Contribute is a useful concept to deploy in Australia's higher education sector when exploring the impact of international student fees. Some universities receive much greater revenue for international students than others. A revised Capacity to Contribute measure that considers the high margin for international students could be used to reduce the cost of implementing a needs-based funding model and direct scarce resources where they are needed the most.

What are the different measures that could be used to identify equity loadings?

When it comes to identifying equity groups, measures are important. As indicators of need change across cohorts, so does the logic of using some measures to target funding.

Nearly 50% of Australian undergraduate students can be categorised into at least one equity group, and many of them belong to two or more groups [28]. Figure 6 shows the different sizes of equity groups in higher education. The larger the circle, the larger the student cohort. In 2021, the proportion of students in higher education from regional and remote areas was 21%, from low SES regions was 17%, from disability background was 9%, and from Indigenous background was 2.4% [12].

Figure 6: Relative size of equity groups and their relationship to other equity groups



The use and weighting of equity groups in Australia’s school funding derives from existing literature that analyses the relative impact of different measures of need on student achievement. This has been made possible through advances in assessment and measurement. For instance, large scale assessments like the Programme for International Student Assessment (PISA) and National Assessment Program – Literacy and Numeracy (NAPLAN) have enabled sophisticated quantification of learning to isolate and estimate the impact of different variables (for example gender, background and socioeconomic status) on academic achievement. Moreover, in the school system, school resourcing is subject to consistent review.

Further work is needed in this area to progress the possible use of equity loadings in the higher education context but there are some challenges that are unique to the sector.

Higher education, with its emphasis on participation and outcomes does not have the same measures of learning achievement as the school system, such large-scale assessments like NAPLAN and PISA. This can make identifying appropriate measures for equity loadings, and their relative weightings, more challenging.

It is also important to acknowledge that student need does not stop when someone finishes school. What does change are the circumstances and the manifestation of this need.

In exploring this further it is important to establish the categories of difference in a higher education context. That is, what are the categories that impact education outcomes in higher education and what is the best way to measure them.

What would a needs-based funding model in Australia’s higher education sector look like?

We modelled the introduction of a needs-based funding model using the SRS as a guide. This would increase overall funding to universities by 11 per cent. Universities will receive different amounts based on their student profile, with regional universities gaining the most.

To understand the potential impact of a needs-based funding model, we have the introduction of needs-based funding using the formulas outlined in the SRS.

There are many limitations to this modelling. It uses Universities Australia data which is aggregated. This means it can be difficult to determine exact student loadings and certain variables needed to be estimated, such as the proportion of student load that identifies as having a disability. Socioeconomic status uses postcode as a proxy, which may not be as reliable as more precise SES location measures such as SA1 area. We have used 2020 enrolment data and applied 2023 funding rates, which means results will not reflect enrolment changes since 2020. The data includes universities only and will therefore not reflect needs-based funding for non-university higher education providers (NUHEPs). We have also not accounted for maximum block grant amounts, nor other streams of funding such as HEPPP.

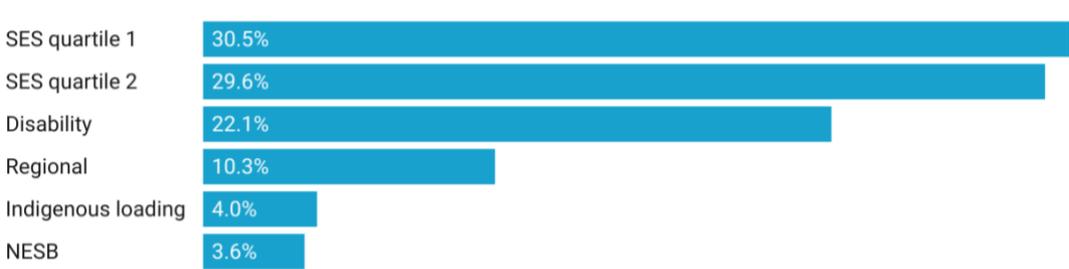
This means the results outlined below should be seen as estimates. But they do provide a good starting point for further exploration. They also provide a reasonably robust picture about what the introduction of needs-based funding might look like in a higher education setting.

Using the SRS as a basis to calculate equity loadings would add about 11.2% on to current base funding levels. We estimate, based on data for total government funding for students to universities, that this would result in an increase on base funding amounts of about \$1.3 billion [29].

Figure 7 shows the relative contribution of each equity group to the total needs-based funding loading. It shows that socioeconomic status is the highest contributor to loadings, at about 60% of the total amount. This means that socioeconomic status would contribute to more than half of the 11.2% increase in base funding amounts.

Figure 7: SES is the biggest contributor to equity loadings

Contribution of equity group to total needs-based funding amount

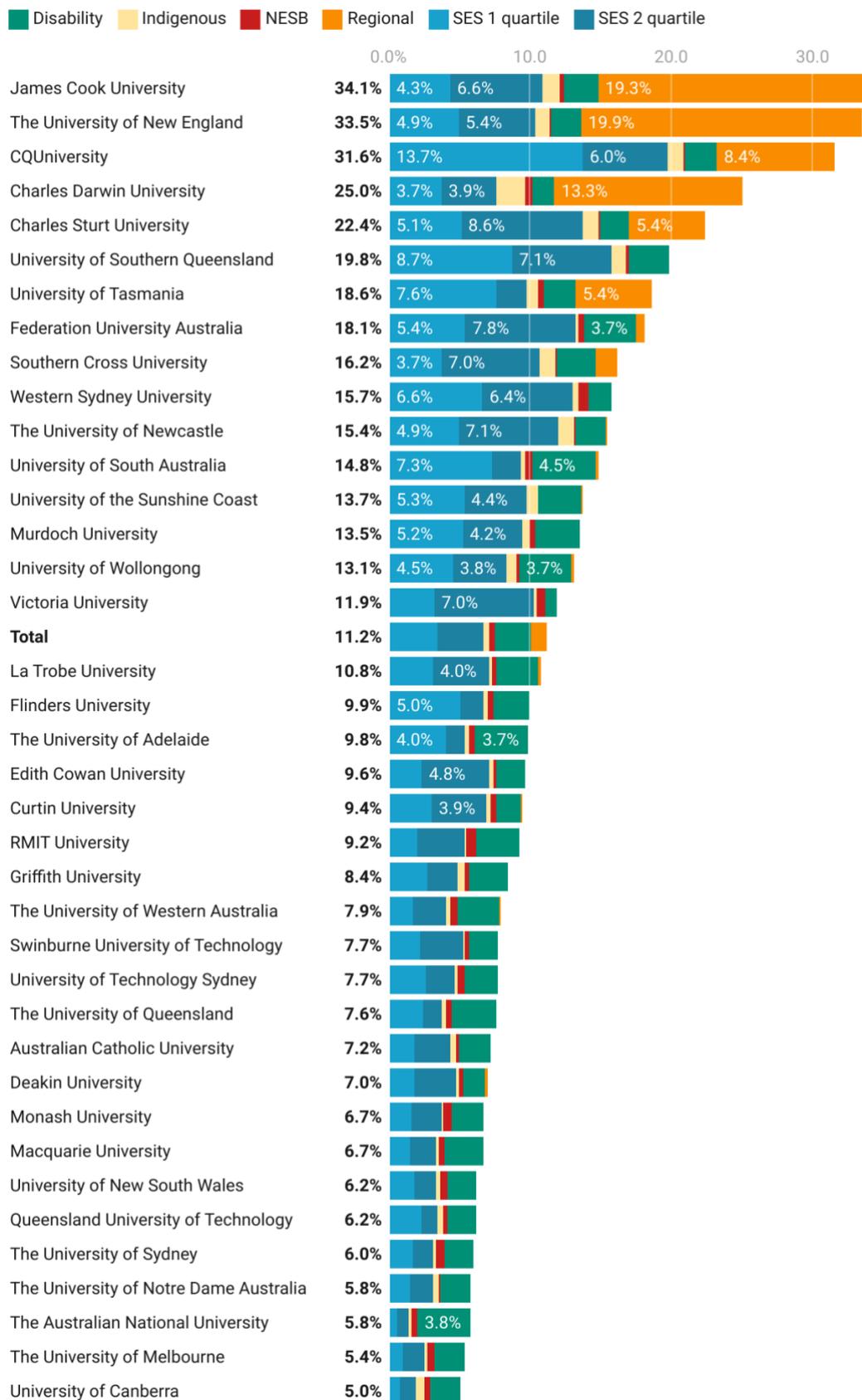


Disability is the next biggest contributor, followed by regional loadings. Indigenous and non-English speaking background groups would contribute the smallest amount.

Figure 8 below highlights the impact of the modelling on institutional base funding.

Figure 8: Student cohorts means that some universities would receive greater increases in funding

Increase in university base funding using SRS formulas



This figure shows that the amount of funding institutions would receive based on the SRS varies greatly. Regional institutions would gain the most funding. For some universities, this is due to their location. For instance, James Cook University and the University of New England have campuses in Outer Regional areas. Outer regional areas receive much greater loadings in the SRS calculations compared to inner regional areas.

However, it is the proportion of students from lower-SES backgrounds that is the biggest contributor to equity loadings at most universities. Regional institutions generally have a higher proportion of their student cohorts from lower-SES backgrounds. Some metropolitan institutions, such as Western Sydney University, also have a larger proportion of students from lower-SES backgrounds and this is reflected in their higher-than-average increase in a needs-based funding model.

While the increase in base funding using SRS formulas is significant at about 11 %, this is still less than the equity loadings in the school sector. This is because the student profile in the school sector is different to higher education. Overall, about 16% of enrolments in higher education are from the lowest SES quartile. The school sector has universal participation which means close to the entire lower socio-economic quartile is enrolled, at least until the age of sixteen.

The SRS uses a base funding plus loadings model. This is when a base amount is calculated and then a loading is added. In our modelling, we have followed a similar approach. The base amount is calculated using the funding clusters for field of education. We then add loadings, as a percentage, based on the total resourcing for a particular unit of study.

But it is not clear how this would be funded. Nor is it clear who should pay for any increase. Currently, the cost of providing funding to universities is split between an Australian government contribution and student contributions. Students are eligible to defer payment of their contribution through the income-contingent loans.

However, introducing needs-based funding can be cost neutral, or lower than the extra 11%. Two scenarios outlined below show how this could be done.

Scenario 1: Lower-base amount plus loadings

In this scenario, a lower base amount is guaranteed per student and then loadings are added. For instance, in a 90% plus loadings model, the university would receive 90% of current funding levels, with equity loadings distributed according to a similar model shown in Figure 8 above. This would result in a lower cost to funders, while at the same time providing differential funding so that institutions from a higher proportion of students from equity backgrounds receive more than institutions with a lower proportion of equity students. Some universities, however, may have their total per student funding reduced compared to the current funding arrangements.

Scenario 2: Funding envelope model

In this scenario, a percentage of a set funding amount is distributed according to a calculation, like the SRS. For instance, 80% of the funding could be guaranteed with 20% of the total funding envelope distributed according to the equity profile of institutional cohorts. This model would ensure that there would be no cost-blowouts in funding. It would also result in some universities having their total domestic student funding reduced.

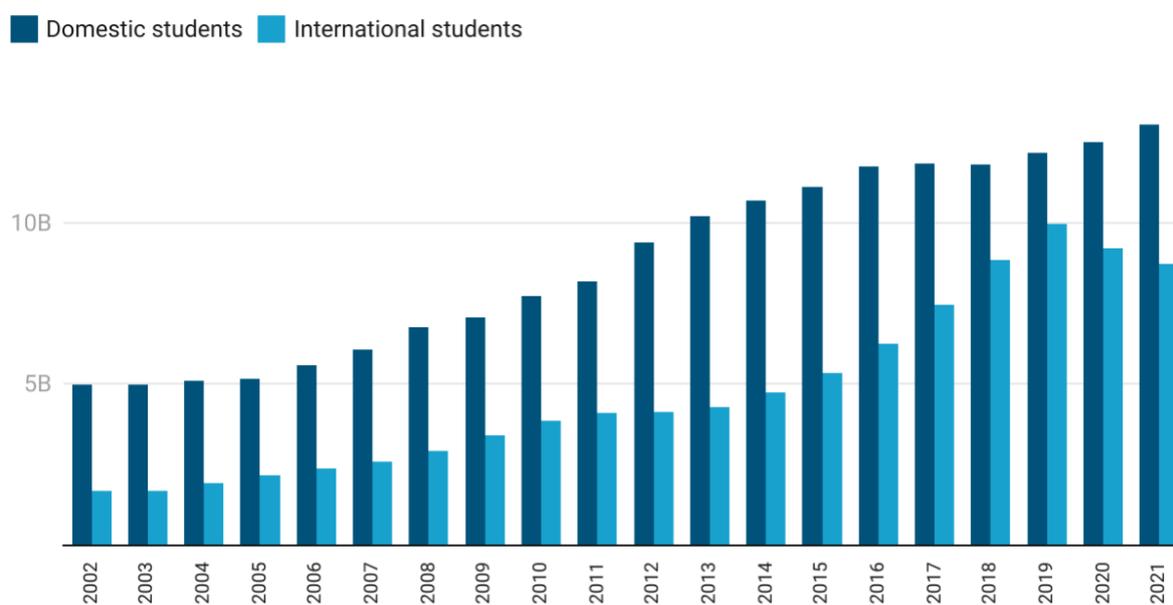
Could needs-based funding avoid the need to introduce an international student levy?

International students are an increasingly important part of Australia's higher education sector. But this revenue is concentrated at certain universities, leading to calls for an international student levy. A Capacity to Contribute measure could avoid the need to introduce a levy and ensure that more resources can go where they are needed the most.

The growth in international student revenue has been rapid. Figure 9 below shows the increase in international student revenue relative to government-funded domestic student revenue.¹ It shows that over the past twenty years, international student revenue has grown to rival that of domestic students. The pandemic and the closure of international borders has halted this growth.

Figure 9: International student revenue has grown at a faster rate than government funded-domestic student revenue

Government-funded domestic student revenue and international student revenue at Australian universities, 2002 to 2021 [29].



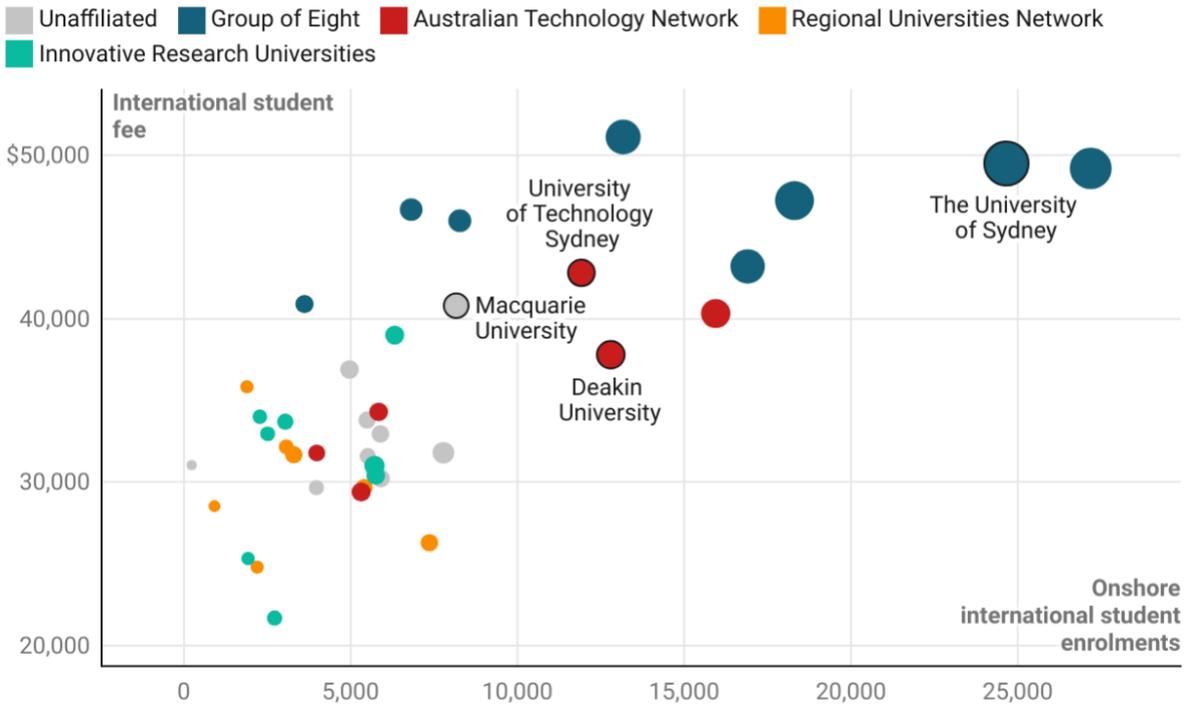
This growth in international student revenue, however, has been concentrated at certain institutions. Not only do some institutions have more international students, but they are also able to charge more.

¹ Government-funded domestic student revenue is an estimate based on the amount received by universities for Commonwealth Grants Scheme and Other Grants, HECS-HELP Australian Government Payments, and Upfront Student Contributions.

Figure 10 below shows the total number of students by the average international student fee for a business course in 2022. University affiliations are grouped by colours and the size of the dot is relative to the total amount of international student revenue recorded at each university.

Figure 10: Group of Eight universities charge more and have more international students

Onshore international enrolments and international student fees (for undergraduate business course) by university affiliation [29]



The Group of Eight universities are the most research-intensive universities in Australia, comprising the University of Melbourne, the Australian National University, the University of Sydney, the University of Queensland, the University of Western Australia, the University of Adelaide, Monash University and the University of NSW. This figure shows that not only do Group of Eight universities have more international students, but they charge more too. Compared to a domestic student, the difference can be substantial. Group of Eight universities can charge over \$50,000 for an undergraduate bachelor’s degree in business. For the same government-funded domestic student, universities receive about \$16,000.

The size and the concentration of international student revenue is part of the reason why the Australian Universities Accord has proposed the possibility of an international student levy. The Interim Report states that such a mechanism could “provide insurance against future economic, policy or other shocks, or fund national and sector priorities such as infrastructure and research.” [1]

It is a proposal that has generated some controversy [30]. It is not clear what the amount of this levy would be, or how it would be collected. It is also a proposal that puts further burdens on international students, as they will effectively be taxed.

The Capacity to Contribute concept from the school funding system offers an ability to meet the aims of an international student levy while not directly putting the burden on international students.

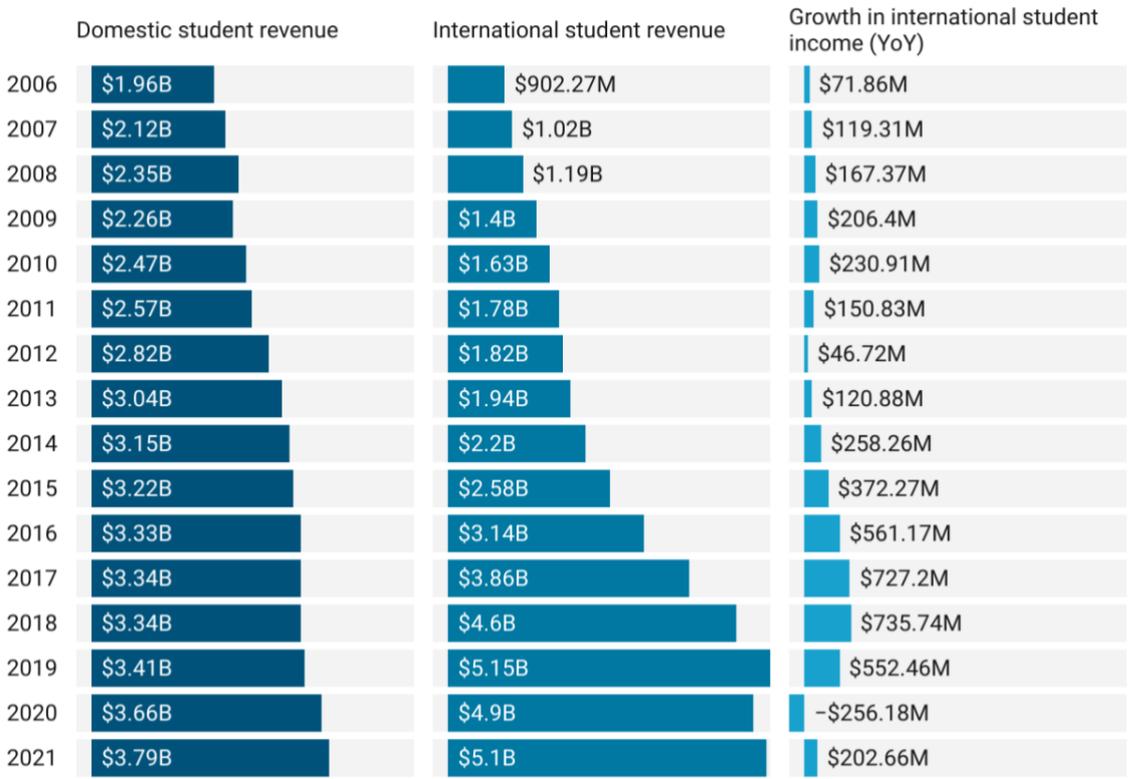
A Capacity to Contribute would diminish the income that an institution receives for domestic students based on some form of calculation relating to international student revenue. For instance, this might be a calculation based on the relationship between international student revenue and domestic student revenue, so that those institutions that have a significant margin on international students relative to domestic students would then have their domestic student funding reduced. The savings could then be used to support a needs-based funding model that effectively would work as a redistribution of funds, like the proposed international student levy.

The universities that are most likely to be affected by either an international student levy or a Capacity to Contribute measure are the larger Group of Eight universities, as these are the universities that make the most from international students relative to domestic students. A Capacity to Contribute proposal may be more attractive to these institutions because of the size and rate of increase in international student revenue relative to domestic students.

The graph below shows the amount Group of Eight universities for domestic students and the amount these universities receive from international students for the period of 2006 to 2021.

Figure 11: Group of Eight universities receive more from international students than domestic students

Domestic and international student revenue for Group of Eight universities by year [29]



This figure shows that international student revenue exceeds that of domestic student revenue in these institutions. Consequently, a 10 per cent levy on international students would be more

of a cost to Group of Eight institutions than a Capacity to Contribute measure which reduced domestic student revenue by 10 per cent.

This figure also shows that the growth in international student revenue is far outpacing the growth in domestic student income. This suggests that, for Group of Eight institutions, any redistribution measure that is targeted as a percentage of domestic student revenue is preferable to one that targets international students directly through a levy, as international student revenue, on current trends, will continue to be a greater proportion of total student revenue.

What are further avenues of research?

The Australian Universities Accord is a major review of Australia’s higher education system. Its proposals will have a huge impact on how Australia’s higher education system will function in years to come. The Interim Report identified equity and improving equity outcomes as a reform focus.

Needs-based funding is one possible mechanism to address the equity priorities central to the Australian Universities Accord process. As our research has shown, the school sector has a well-established funding model that can be adapted for use in the higher education sector.

But more research is needed. Possible areas for further research are outlined in the table below.

Table 1: Possible areas of further research

Further research questions	Possible avenues of research
What would be the impact of equity loadings on current funding levels at a cohort?	Further modelling using student unit level data that examines the impact of various loadings at a cohort, institutional and system level, including non-university higher education providers.
How should equity be measured and what should be the relative weighting of funding for each group?	Closer examination of different student equity variables and their validity for use in Australia’s higher education system.
How should equity funding loadings be managed?	Outline of governance models that examine the use and review of equity loadings.
What is the proportion of funding that students should contribute in a needs-based funding model?	Exploring the different splits between government contributions and student contributions.
If a Capacity to Contribute measure is introduced, what is the most appropriate criteria and formula for its implementation?	Exploring the relationship between international student income and student income to propose possible means to calculate a Capacity to Contribute measure.

In our research, we have found that the detail is important, and that needs-based funding models are very technical. Much more work is required to make sure that a needs-based funding model is appropriate for Australia’s higher education sector. The proposed Tertiary Education Commission would be a body that is suitable to undertake this research.

The SRS is also constantly being refined. New techniques and measurements enable the funding system to better target need and ensure that resources are going where they are having the most impact.

This also means that while the Australian Universities Accord was right to identify needs-based funding as a policy direction, it is only the first step in realising a revised funding model.

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