In order to succeed in China’s ARWU rankings system, Go8 universities have poured Chinese student revenues into the recruitment of star academics from a limited global list of ‘Highly Cited Researchers’ (HCRs). As they now face massive revenue shortfalls, Go8 universities hope for a quick return to business as usual for international student recruitment. They should instead refocus their ambitions toward the education of Australian students.
EXECUTIVE SUMMARY

Australian universities are always keen to tout their international rankings success, but the Academic Ranking of World Universities (ARWU) released August 15 was explicitly designed to meet the policy priorities of the Chinese government:

- It includes Nobel Prizes, but excludes those in Literature or Peace
- It gives credit for Scientific research, but excludes the Arts and Humanities
- It focuses entirely on research, with credit for teaching or service

Australia’s Group of Eight (Go8) universities have risen on the ARWU rankings mainly through the recruitment of a small number of 'Highly Cited Researchers' (HCRs), with circumstantial evidence suggesting that many of them have been recruited from overseas:

- Australia’s proportion of the world’s HCRs has risen from 1.71% in 2004 to 4.36% in 2019
- The company that produces the HCR list specifically notes that "Australian research institutions appear to have recruited a significant number of Highly Cited Researchers since 2014"
- Only 4 of the Go8’s 162 HCRs are in the social sciences, and none in the humanities (which are not included in the list)

The recruitment of overseas HCRs has been made possible by excess revenues extracted from international (primarily Chinese) students, whose numbers have increased dramatically at Go8 universities since the turn of the millennium:

- Since 2001, international student enrolments at Go8 universities have increased 272%, from 34,185 in 2001 to 127,176 in 2018
- Throughout the 2010s, an average of 37.3% of Australia’s international students have come from China
- Chinese students account for approximately 68% of international students and 26% of all students at Go8 universities

Since 2012, the five Go8 universities that have experienced high and expanding Chinese student enrolments have rapidly improved their ARWU rankings:

- Monash
- Melbourne
- Sydney
Queensland
UNSW

Meanwhile the three Go8 universities that experienced more modest growth in international student enrolments saw their ARWU rankings fall, or didn’t make it into the global Top 100 at all (ANU, Adelaide, UWA).

In order to succeed in China’s ARWU rankings system, Go8 universities have relied heavily on pulling one specific lever: the recruitment of star academics from a limited global list of HCRs. The five universities that have been particularly successful in doing so are the same five universities that, before the coronavirus crisis, became most reliant on Chinese student fee income: Monash, Melbourne, Sydney, Queensland, and UNSW. As they now face massive revenue shortfalls, Go8 universities are aggressively lobbying for a financial bailout -- and a quick return to business as usual for international student recruitment. They should instead refocus their ambitions away from the pursuit of Chinese rankings and toward the education of Australian students.

1. INTRODUCTION: THE CHINESE SHADOWS BEHIND AUSTRALIA’S UNIVERSITY RANKINGS

Australia is the 54th largest country in the world by population, the 14th in the size of its economy, and the 10th by income per capita. But it is a heavy hitter in the university sweepstakes, home to six, seven, or even eight of the world’s ‘Top 100’ universities, depending which of the four major international ranking systems you choose. On all four, that performance puts Australia firmly in 3rd place in the world for the number of Top 100 universities, trailing only the United States and the United Kingdom. Taken at face value, that sounds like a good news story, one that should put paid the ‘cultural cringe’ forever.

Dig a little deeper, and questions arise. When the first international rankings came out in 2003, the Academic Ranking of World Universities (ARWU), Australia had only two universities in the global Top 100: the Australian National University (#49) and the University of Melbourne (#92). Australia as a whole ranked a distant ninth in the world, tied with France and trailing the United States (with 58 universities in the global Top 100), the United Kingdom (9), Germany (5), Japan (5), Canada (4), the Netherlands (3), Sweden (3), and Switzerland (3).

How did Australia climb from tied-ninth to third in the world in less than two decades in the world’s premier research-based university rankings? In two words: Chinese students. Until the coronavirus struck, they were the ‘cash cows’ that funded Australian universities’ charge up the research rankings.¹ Now that international student flows have been suspended, those same universities face financial crises as they struggle to maintain their outsized research ambitions in an environment of reduced revenues. Unsurprisingly, they have asked the taxpayer to fund the gap, as my Centre for Independent Studies (CIS) analysis paper The China Student Boom and the Risks It Poses to Australian Universities said they would exactly one year ago.

The main message of my August 2019 paper was that:

Australia’s universities are taking a multi-billion-dollar gamble with taxpayer money to pursue a high-risk, high-reward international growth strategy that may ultimately prove incompatible with their public service mission. Their revenues are booming as they enrol record numbers of
international students, particularly from China. As long as the China boom continues, the universities’ gamble will look like a success. If and when the China bubble bursts, taxpayers may be forced to step in to clean up the mess.2

The paper highlighted the fact that Australian universities’ international rankings “have risen in lockstep with their revenues” -- with those revenue increases being driven largely by increased numbers of Chinese students.3 Commentators ranging from Bob Birrell and Katharine Betts of The Australian Population Research Bureau (TAPRI)4 to the ANU’s higher education authority Andrew Norton5 to former University of Queensland vice chancellor Peter Høj6 agree that Go8 universities focus on rankings success, at least in part, because they believe it is necessary in order to attract Chinese students. Høj in particular was very frank: "The privilege our research activities give us is a global ranking which allows us to derive a much higher fee from international students."

Yet it is not at all clear that international rankings success should be so central to university goal-setting. In fact, the most important international rankings being pursued by Australian universities, the ARWU, reflect the Chinese government’s vision for university success. Unlike its main global competitors, the ARWU rankings have no place for the humanities, teaching quality, or international linkages. The ARWU does not count books. It gives great weight to Nobel Prizes, but specifically excludes the prizes for literature and peace. These biases reflect those of the Chinese government, which set up the ARWU primarily as a tool for benchmarking the success of China’s own universities. To the extent that Australian universities seek to achieve high ARWU rankings, they are incentivised to internalise the Chinese government’s priorities for what a university should be and do.

All Australians want to see their universities succeed on international comparisons, and university rankings can play a useful role in benchmarking management performance. But when those rankings are determined by the priorities of a deeply illiberal and potentially hostile foreign government, extreme care should be taken in their use. Since the early 2000s, all Swinburn University’s John Fitzgerald has written of the ARWU that:

Universities that continue to participate [in] or to reference the Shanghai rankings should be tasked by their faculty and alumni to explain why they are failing to uphold the principles of free inquiry and institutional autonomy as fiercely as Xi Jinping is undermining them.7

This paper traces the circuitous path that connects Chinese government priorities to Australian university practices. It exposes the biases introduced into the ARWU rankings system by the Chinese government and identifies the levers that have driven the Go8 up the rankings. There are no ‘smoking guns’ that link Go8 university behavior directly to the pursuit of ARWU rankings, but the cumulative weight of the evidence presented here strongly suggests that they are now facing financial pressure precisely because of their overinvestment in ARWU success over the last ten years. The paper concludes with specific recommendations for how Go8 universities can reform their research ambitions and refocus on their core mission of educating Australian students.

2. THE FOUR MAJOR UNIVERSITY RANKING SYSTEMS AND HOW THEY WORK

Universities are large, complex organisations. They among the country’s largest employers, often generating more than $1 billion in annual revenues. They are also leaders in research, both pure and applied. And of course, they enrol roughly 1 million Australian students annually. Politicians, administrators,
parents, students, and the taxpaying public all have legitimate reasons for wanting to evaluate universities, to know just how well they are doing. They also want to know how Australian universities compare to those in other countries. International university rankings thus fill -- or purport to fill -- an important informational role in social policy formulation and evaluation.

Considering that context, it can seem strange now to reflect on just how new international university rankings are. At the turn of the millennium, there were no comprehensive international university rankings. The four major international university ranking systems in use today are all less than two decades old:

- Shanghai Rankings’ Academic Ranking of World Universities (ARWU) -- founded 2003
- Times Higher Education’s World University Rankings (THE) -- founded 2004/2010*
- Quacquarelli Symonds’ World University Rankings (QS) -- founded 2004/2010*

* Note: from 2004-2010, THE and QS partnered to produce the THE-QS World University Rankings.

The first organisation to produce a comprehensive international university ranking was the Center for World-Class Universities of the Institute of Higher Education (later the Graduate School of Education) at Shanghai Jiao Tong University (SJTU). The SJTU or "Shanghai" rankings were commercialised in 2009 into the ShanghaiRanking Consultancy, which claims to be a "fully independent organization dedicating to research on higher education intelligence and consultation". ShanghaiRanking Consultancy seems primarily to offer advisory services to Chinese universities on how to improve their management and rankings performance. The exact continuing relationship between ShanghaiRanking and the SJTU Center for World-Class Universities is unclear. They co-sponsor many events, although ShanghaiRanking is at pains to emphasise that it is "not legally subordinated to any universities or government agencies".

ShanghaiRanking acknowledges on its website that "the initial purpose of ARWU was to find the global standing of top Chinese universities". In a short 2015 article telling "The Story of Academic Ranking of World Universities", the long-serving dean of the SJTU Graduate School of Education and director of the Center for World-Class Universities, Liu Niancai, explained that the original purpose of the ARWU was to "to benchmark top Chinese universities with world-class universities" in the rest of the world. This focus on Chinese self-benchmarking is confirmed by ShanghaiRanking’s current commercial materials. The company’s China-facing website and public communications are much better developed than its international-facing ones, and although ShanghaiRanking does offer the ARWU results in English, the Chinese ARWU website is more modern and responsive. The ShanghaiRanking commercial consulting website is even more sophisticated, and is only available in Chinese. ShanghaiRanking does not seem to advertise its consultancy services in English.

The Times Higher Education–Quacquarelli Symonds World University Rankings (THE-QS) were first published in 2004 by what was then the Times Higher Education Supplement in cooperation with the educational consultancy Quacquarelli Symonds, which provided the underlying data. The two organisations parted ways after publishing their last joint rankings in 2009, and since 2010 have published separate rankings. Both THE and QS operate educational consultancy businesses, but THE’s core audience is academics, while QS’s core audience is students. These differing emphases are reflected in their rankings approaches, with THE giving greater weight to research and QS giving greater weight to teaching.
The Best Global Universities from US News & World Report (US News) came late to the international rankings game, releasing its first rankings in 2014. Ironically, US News is the publication that founded the entire practice of university rankings in 1983 with a special issue of the then-weekly magazine. The magazine ceased publication in 2010, but US News survives as a lifestyle website that provides highly respected domestic (US) rankings of universities, hospitals, law firms, and metropolitan areas. Although US News publishes the dominant American domestic university rankings (the U.S. News & World Report Best Colleges Ranking), its international Best Global Universities offering is less well-known.

Table 1 breaks down each of the four major ranking systems by component, aggregating the specific components under four broad rubrics: teaching, research, internationalisation, and size adjustments. The four ranking systems differ widely in their composition, yet produce broadly similar results. World-famous universities like Harvard, Stanford, Oxford, Cambridge, and MIT figure in the global Top 10 on all four rankings, although their specific positions differ. Below the Top 10, however, individual universities are separated by relatively small differences in the raw scores that underlie each of the ranking systems. This can produce a wide variability in results across systems and over time. To take just one famous university as an example, rankings for the Johns Hopkins University range from #11 on the US News ranking to #25 on the QS. The variability for non-US universities can be even greater. For example, the University of Tokyo is tied for #25 with Johns Hopkins on the QS, but is #74 on the US News ranking.

Table 1. Composition of the four major international ranking systems (2019)

<table>
<thead>
<tr>
<th>Area</th>
<th>Component</th>
<th>ARWU</th>
<th>THE</th>
<th>QS</th>
<th>US News</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>Teaching reputation</td>
<td>15.00%</td>
<td>20.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employability reputation</td>
<td></td>
<td>10.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher / student ratio</td>
<td>4.50%</td>
<td>20.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staff with doctoral degrees</td>
<td>6.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doctoral degrees granted</td>
<td>2.25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nobel prizes - alumni</td>
<td>10.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total teaching</td>
<td>10.00%</td>
<td>27.75%</td>
<td>50.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Research</td>
<td>Research reputation</td>
<td>18.00%</td>
<td>20.00%</td>
<td>25.00%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Citation metrics</td>
<td>20.00%</td>
<td>30.00%</td>
<td>20.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td></td>
<td>Research grant income</td>
<td>8.50%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Article publications</td>
<td>20.00%</td>
<td>6.00%</td>
<td>10.00%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Articles in Nature / Science</td>
<td>20.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conference papers</td>
<td></td>
<td></td>
<td></td>
<td>2.50%</td>
</tr>
<tr>
<td></td>
<td>Book publications</td>
<td></td>
<td></td>
<td>2.50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nobel prizes - staff</td>
<td>20.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total research</td>
<td>80.00%</td>
<td>62.50%</td>
<td>40.00%</td>
<td>90.00%</td>
</tr>
<tr>
<td>Internationalisation</td>
<td>International collaborations</td>
<td>2.50%</td>
<td></td>
<td></td>
<td>10.00%</td>
</tr>
<tr>
<td></td>
<td>International faculty</td>
<td>2.50%</td>
<td>5.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>International students</td>
<td>2.50%</td>
<td>5.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total internationalisation</td>
<td>0.00%</td>
<td>7.50%</td>
<td>10.00%</td>
<td>10.00%</td>
</tr>
<tr>
<td>Size adjustments</td>
<td>Per capita output</td>
<td>10.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>University revenues</td>
<td>2.25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total size adjustments</td>
<td>10.00%</td>
<td>2.25%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
The Chinese ARWU ranking system has several distinctive features. The first is its extraordinary focus on prizes. It gives credit for the Nobel Prizes in chemistry, physics, medicine, and economics, plus the Fields Medal in mathematics. It does not count Nobel Prizes in literature or peace. The ARWU evaluates teaching effectiveness solely in terms of the number of these prizes won by a university’s former students. Prizes also account for a quarter of the research evaluation. Altogether, prizes make up one-third of the ARWU, since they account for 30/90 substantive points (the additional 10 points come from a size adjustment for smaller universities). In a similar spirit to the focus on prizes, 20% of the ARWU (plus size adjustment) is awarded to the home institutions of the 6216 academics identified as 'highly cited researchers' in science and the social sciences. A further 20% derives from publications in just two prestigious scientific journals: Nature (published in the UK) and Science (published in the US). The remaining 20% comes from science and social science publications. The humanities are not covered at all.

The British THE ranking system is a more balanced instrument. It evaluates teaching through a reputational survey, supplemented by teacher/student ratios (used as a broad indicator of average class size) and doctoral degree statistics. It evaluates research using a mix of reputation, citations, grant income, and numbers of papers published. Books and book chapters are included in its citation counts, as well as contributing indirectly to the overall reputations of universities. The humanities are included on an equal basis with all other disciplines. The THE rankings also give a modest weighting (7.5%) to internationalisation, measured by numbers of international students, staff members, and collaborations.

The structure of the QS resembles that of the THE (reflecting their common origin), but places more emphasis on teaching and the student experience, which together account for a full 50% of a university’s score. The QS gives the teacher/student ratio an outsized 20% weighting on the reasoning that it "is the most effective proxy metric for teaching quality". Research performance is measured via a reputational survey (20%) and citation metrics (20%), both of which cover the full spectrum of disciplines, including the humanities. Again reflecting its student focus, the QS gives a relatively high weighting to the numbers of international staff (5%) and students (5%).

The US News ranking system is in many ways the odd one out. It makes no attempt to rate teaching, focusing entirely on research and international research collaborations. A research reputation survey accounts for 25% of each university’s score, with a variety of closely related citation metrics together contributing a further 50%. The remainder of the US News rankings comes from publication counts (15%) and research collaborations (10%). Strangely, this research-led approach is markedly different from that taken by the company’s domestic (US) Best Colleges Ranking, which includes detailed metrics on retention rates, educational equity, student admissions scores, class sizes, staff salaries, and other indicators. These data are provided privately to US News by US colleges and universities for the express purpose of producing the rankings, which play a key role in many American students’ application decisions. For its international rankings, US News seems to have relied on indicators that could be readily purchased from data vendors.

Table 2 reports the most recent rankings of Australian universities that are included in the global Top 100 on any of the three major ranking systems. No non-Go8 Australian university is ranked in the Top 100 on any of the four rankings. The University of Adelaide and University of Western Australia are on the margins of the rankings, appearing in some but not others, while the other six Go8 universities make the global Top 100 in all four ranking systems. The best-performing university on the ARWU (and the only one in the global Top 50) is the University of Melbourne. An examination of its ARWU performance in detail
reveals that its relatively high ranking is driven mostly by a concentration of so-called 'highly cited researchers' at the university.

Table 2. Australian Group of Eight (Go8) University Rankings

<table>
<thead>
<tr>
<th>University</th>
<th>ARWU</th>
<th>THE</th>
<th>QS</th>
<th>US News</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelaide</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>ANU</td>
<td>67</td>
<td>50</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Melbourne</td>
<td>35</td>
<td>32</td>
<td>41</td>
<td>26</td>
</tr>
<tr>
<td>Monash</td>
<td>85</td>
<td>75</td>
<td>55</td>
<td>59</td>
</tr>
<tr>
<td>Queensland</td>
<td>54</td>
<td>66</td>
<td>46</td>
<td>42</td>
</tr>
<tr>
<td>Sydney</td>
<td>74</td>
<td>60</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>UNSW</td>
<td>74</td>
<td>71</td>
<td>44</td>
<td>64</td>
</tr>
<tr>
<td>UWA</td>
<td>85</td>
<td>-</td>
<td>92</td>
<td>86</td>
</tr>
</tbody>
</table>

Release date | Aug-20 | Sep-19 | Jun-20 | Oct-19

The US News rankings are idiosyncratic, relatively new, and not widely followed outside the United States. Australian universities report their results on these rankings, but they probably do not formulate their research strategies specifically to target them. The THE and QS rankings have longer histories, and on account of their UK origins are more closely followed in Australia. They are, however, quite broad-based and thus difficult to 'game' by making strategic investments in specific areas. Their heavy reliance on reputational surveys, while potentially raising questions about their reliability, makes them particularly resistant to strategic tampering. They seem legitimately to do what they are designed to do: to inform academics (THE) and students (QS) about the relative quality of universities as seen from the perspectives of these particular constituents.

The ARWU rankings similarly 'do what they are designed to do'. The problem, from an Australian perspective, is that they are designed to guide Chinese universities toward meeting educational goals set by the Communist Party of China. They were never intended as management tools to drive the strategic plans of Western universities, and to be fair to the Chinese, the ShanghaiRanking Consultancy makes no public claims that they should be. Yet they are. The unreflective use of the ARWU as a management tool seriously threatens the integrity of Australian universities because:

1. ARWU rankings are designed to reflect the priorities of a deeply illiberal and potentially hostile foreign government
2. ARWU rankings are based on specific levers that can be pulled to achieve higher rankings (for a price)

Since the early 2000s, all eight Go8 universities have fallen on the relatively balanced THE rankings produced by the UK’s respected Times Higher Education magazine (see Appendix Table A). But seven out of the eight Go8 universities have risen on the Chinese ARWU rankings (the ANU being the lone exception). By targeting success in the ARWU rankings -- or, more surreptitiously, targeting those levers that they know will lead to success in the ARWU rankings -- many of Australia’s Go8 universities are unwittingly or unwittingly buying into the research priorities of the Chinese government. They may also be doing so at the expense of teaching quality, which is effectively ignored in the ARWU. This is not some kind of plot or conspiracy originating in China. It is an own-goal by Australian institutions that are so eager to embrace rankings success that they risk compromising what should be their main objective: providing quality education for Australian students.
3. HOW CHINESE STUDENTS FINANCED THE GROUP OF EIGHT’S CLIMB UP THE ARWU RANKINGS

When the first ARWU rankings were published in 2003, only two Australian universities figured in the global Top 100: the ANU (#49) and Melbourne (#92). In 2020, every Go8 university except Adelaide was in the Top 100, with Adelaide dropping from the 101-150 range in 2019 to the 151-200 range in 2020. No non-Go8 university was ranked in the top 200 places. The race to secure top ARWU rankings has thus been exclusively a Go8 phenomenon. Other Australian universities don’t even come close, although seven non-Go8 universities fall into the 200-300 range: Curtin, Deakin, Macquarie, Swinburne, Tasmania, UTS, and Wollongong.

Yet despite their success in the research-intensive ARWU rankings, the Go8 routinely decry the inadequacy of Australian government funding for research. A 2019 Go8 media release boasted ‘Australia’s Research Excellence confirmed – against the funding odds’.18 A 2018 Go8 media release labeled government funding cuts “destructive, self-defeating and damaging”.19 Nor, in the Go8 world-view, are such disastrous government funding cuts something new. In 2017, Peter Høj, speaking in his capacity as then-chair of the Go8, told the National Press Club20 that:

> Until now, universities have been sufficiently adept at adjusting their business models in order to survive the withdrawal of public funding. However we are now staring in the face of the real danger that the government is tilting the funding balance to the extreme.21

Given the supposedly dire research funding situation under which Go8 universities apparently believe they are chronically forced to operate, how is it possible that seven of them have been able to achieve ARWU rankings in the global Top 100? Høj told the Press Club, in a somewhat circular fashion, that:

> our high rankings ... enable us to attract a disproportionately large number of students ... but these rankings depend on our research performance, which ... increasingly is funded by teaching-related fee income, much of which comes from international students.

Figure 1 charts equivalent full-time student load (EFTSL) for international students at Go8 universities for the period 2001-2018 (the most recent year for which data are available).22 Five universities stand out for dramatically rising international student numbers: Monash23, Melbourne, Sydney, Queensland, and UNSW. The expansion in international student enrolments has been so pervasive that it is actually easier to say which Go8 universities stand out for having relatively modest, although still large and rapidly growing, international student numbers: the ANU, Adelaide, and UWA, which cluster at the bottom of the chart.

Throughout the 2010s, an average of 37.3% of Australia’s international students have come from China, up from just 13.9% in 2002 (the earliest year for which data are readily available).24 It is also widely understood within the higher education industry that Chinese students are strongly over-represented in those degree programs that generate the highest tuition fees, although the universities and their regulators do not publish the systematic data that would be needed to verify this claim.25 Although Go8 universities do not routinely break down their international student numbers and revenues by country, there is a broad consensus that the lion’s share of their international student revenues are generated from Chinese students.
Figure 1. International student counts (EFTSL) for Go8 universities, 2001-2018

This was amply confirmed in February, when the federal government placed restrictions on travel from China. On February 2, just one day after the restrictions were announced, the Go8 revealed that its members are “home to 63 per cent of the Chinese university students who we are pleased have chosen to study in Australia”. On February 13, it provided the further insight that its members enrol 105,833 Chinese students. Combining this figure with publicly available 2018 data from the Department of Education, Skills and Employment’s uCube database suggests that (PRC) Chinese students account for approximately 68% of international students and 26% of all students at Go8 universities.

Rising Chinese student enrolments seem to be correlated with ARWU rankings success. The ARWU ranks of Go8 universities over the period 2003-2019 are charted in Figure 2. After around 2012-2013, the five universities that experienced high and expanding Chinese student enrolments began a rapid ascent up the ARWU rankings:

- Monash
- Melbourne
- Sydney
- Queensland
- UNSW

The three Go8 universities that experienced more modest growth in international student enrolments saw their ARWU rankings fall, or didn’t make it into the global Top 100 at all: the ANU, Adelaide, and UWA.
Figure 2. ARWU rankings for Go8 universities in the global Top 100 (2003-2019)

The contrast between Melbourne’s long-term rise and the ANU’s relative decline (before bouncing back up in 2018) is particularly instructive. Between 2003 and 2017, Melbourne increased its performance on the ARWU component for ‘highly cited researchers’ (which constitutes 20% of the ranking) from a raw score of 14.5 to 45.0 (the ARWU does not explain the units behind these scores). The ANU went the opposite direction, declining from 44.7 to 15.4. By trading places on this one component, they effectively traded places in the overall ARWU rankings. In fact, the ANU’s rankings revival between 2017 and 2018 was almost entirely due to a sudden jump in its ‘highly cited researchers’ score, which shot back up to 23.5 (while its performance on the other components remained generally stable). Queensland’s 2016 jump from #77 to #55 was similarly driven by a bump up in its ‘highly cited researchers’ component score (from 22.0 to 34.0), as was Sydney’s jump back into the Top 100 in the same year (its component score rose from 9.6 to 25.1).

After Brian Schmidt (now ANU’s vice chancellor) shared one-quarter of the Nobel Prize for physics in 2011, his university jumped six places in the ARWU rankings. But with Nobel Prizes hard to come by and publications in Science, Nature, and other prestigious journals requiring years of hard work to improve the broad quality of research, the ARWU’s ‘highly cited researchers’ component has become the obvious target lever in Go8 universities’ efforts to improve their ARWU performance. This component is based on the previous year’s list of Highly Cited Researchers (HCRs) in the sciences and social sciences compiled by Clarivate Analytics (which was formed in 2016 through a spin-off of the Thomas ISI division of Thomson Reuters). In 2019, a total of 6216 researchers were recognised on the list.
Around 2014, Australian universities began a steady increase in their numbers of listed HCRs. Between 2014 and 2019, the proportion of the world’s HCRs based in Australia more than doubled, from 2.02% to 4.36%. Table 3 reports the numbers of HCRs in Australia and in the world as a whole over the period 2004-2019. Data from 2014 onward have been downloaded directly from Clarivate. With the exception of a difficult-to-use 2001 list, Clarivate no longer makes pre-2014 data available, and the missing years' lists do not seem to have been archived anywhere on the internet. Nonetheless, it was possible to source the 2004 and 2007 results from published research papers, allowing these two years to be included as well.28

**Table 3. Proportion of the world’s Thomson-Clarivate 'Highly Cited Researchers' based at Australian universities, 2004-2019**

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<th>Year</th>
<th>Australia</th>
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<td>2004</td>
<td>78</td>
<td>4569</td>
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<td>105</td>
<td>5790</td>
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<td>3215</td>
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<tr>
<td>2015</td>
<td>103</td>
<td>3126</td>
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<td>2016</td>
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<tr>
<td>2019</td>
<td>271</td>
<td>6216</td>
<td>4.36%</td>
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Despite gaps in the available data and changes in methodology, the absolute and relative increase in Australia’s HCR count is clear. The motive forces behind that rise can only be guessed at. Did Australian universities dramatically improve their management of research, promoting research excellence among their existing academics? Or did they simply use their increased revenues to buy in talent from overseas? In its 2018 and 2019 HCR press releases, Clarivate singled out Australia as one of only three countries (alongside China and the United States) receiving detailed commentary. Noting Australia’s peculiar rise, in both years Clarivate wrote that "Australian research institutions appear to have recruited a significant number of Highly Cited Researchers since 2014 while also increasing their number of homegrown Highly Cited Researchers“.29

Absent an unlikely self-confession from the universities involved, it would take an extensive biographical research effort to determine the extent to which Australian institutions successfully 'managed up' as opposed to simply 'buying in'. Two quotes from the highest and lowest ranked Go8 universities may, however, shed some light on the answer. In its 2019 strategic plan, the University of Adelaide promised a "significant injection of new, world-class academic talent aligned with priorities".30 Meanwhile the University of Melbourne, in its 2019 annual report, bragged that "with targeted recruitment of research leaders and fostering of in-house talent, Australia has tripled its Hi-Ci researchers since 2014" with Melbourne ranked "#1 in Australia".31 If universities lower down the ARWU rankings are looking for a model to guide their march upward, Melbourne provides it.
4. CONCLUSIONS AND RECOMMENDATIONS FOR REFORM

In 2011, the Thomson ISI (later Clarivate) Highly Cited Researchers list was at the center of an academic scandal when *Science* magazine broke the news that two Saudi universities were using the list to game their international rankings. It emerged that King Abdulaziz University (KAU) in Saudi Arabia was offering HCRs the princely sum of US $72,000 merely for adding their universities as 'secondary affiliations' on their research profiles. The HCRs were also invited to come to campus and mentor local researchers, but that was optional.32 The Cambridge University astronomer Gerry Gilmore, at the time a listed HCR and one of the $72,000 HAU affiliates, told *Science* magazine quite openly that "universities buy people's reputations all the time. In principle, this is no different from Harvard hiring a prominent researcher". The implication was that if Harvard could do it, so could KAU. And, by extension, so too could Australia's Go8 universities.

Since the turn of the millennium, Australia's Go8 universities have been using excess revenues derived from international (and in particular, Chinese) students to fund massive expansions in scientific research. By 2010, international student numbers at Go8 universities were already among the largest in the world. In the decade since, they have risen so much that Go8 universities occupy five of the top six places for numbers of Chinese students outside China.33 Not coincidentally, those five (in order: Sydney, Monash, Melbourne, NSW, Queensland) are precisely the five Go8 universities that have rapidly scaled the ARWU rankings. Adelaide and UWA, home to fewer Chinese students, have had more modest ARWU increases. The ANU has seen its ranking fall.

Over the last two decades, Australian government funding may or may not have met the research needs of Go8 universities, but it certainly did not satisfy their ambitions. It was apparently enough to place all Go8 universities among the top 250 in the world on the first ARWU ranking in 2003, but not enough to place them in the 'Top 100'. Countering the dominant narrative that government funding for research is always insufficient and declining, the ANU's Andrew Norton argues that:

> Profits on international students have been used to help finance a massive increase in university research expenditure this century. Growth on this scale was something universities chose to do, not a change forced on them by government policy.34

No government mandate ordered that Go8 universities should all seek Top 100 rankings on China's government-sponsored ranking system. The dean of medicine, dentistry and health sciences at the University of Melbourne, Shitij Kapur, effectively admitted this in a recent op-ed under the telling title 'Universities Need a Research Funding Model to Match Their Ambition'. He wrote that:

> Having world-class research universities is not a requirement, it is a choice. It is a choice based on our ambition for our future generations and for our role in the knowledge economy. It is a choice we cannot leave for the universities alone to make. It's a choice we need to make as a nation.35

Kapur's obvious preference is for Australia to choose the Top 100 path, to remain, as he puts it, "the world's third biggest 'university power'". But how does Australia know that it is 3rd in the world? It knows, because the ARWU results say so. And how does the ARWU measure that success? Through Nobel Prizes (but not for peace or literature), through Highly Cited Researchers (but not in the humanities, arts, law, or the traditional social sciences), and through papers in *Science* and *Nature* (but not books, artworks, public
service, or even patents). Teaching is irrelevant. Teaching Australian students is even worse than irrelevant: it is unprofitable.

Australian universities have, as Professor Kapur suggests, a choice: continue to pursue international rankings success through the recruitment of international students, or recalibrate their priorities to meet Australia’s own educational needs. It is not the purpose of this paper to say what those needs are. They are for the Australian people and their elected representatives to determine. But this paper can suggest governance reforms that would help ensure that Go8 and other Australian universities do not give undue weight to ARWU and other ranking systems in setting their institutional priorities.

As a first step, Australian universities should be required to put in place risk management reforms to ensure that they are not tempted to return to the unbalanced recruitment practices that they pursued before the coronavirus crisis. Echoing recommendations made last August in my CIS analysis paper The China Student Boom and the Risks It Poses to Australian Universities, Chinese student numbers should be brought down to levels that are consistent with universities’ educational missions. A reasonable set of international student guidelines, based on international best practice, might be along the lines of:

- No more than 15% of all students should be international
- No more than 20% of students in any course should be international
- No more than 5% of all students should come from any single foreign country

As a second step, Australian universities should refrain from from tying senior executive compensation to international rankings success. Variable compensation strategies (bonuses) should be used sparingly in not-for-profit organisations, and only to motivate managers to meet difficult goals that they can achieve through their own hard (and often unpleasant) work. For example, it is appropriate to give managers bonuses for meeting cost cutting or efficiency targets. As the Handbook of Human Resources Management emphasises: "any good variable pay system should be self-funding in that it generates more money than it costs".36 In order to ensure that vice chancellors do not misallocate university resources in the pursuit of rankings success:

- Variable compensation for university executives should never be tied to international rankings
- Variable compensation provisions of university executive contracts should be made public
- Details of unadvertised, non-competitive 'strategic hires' of specifically-targeted academics should be made public

Beyond these pressing immediate reforms, the coronavirus crisis should give Go8 universities and their governing bodies pause to consider their future directions. Instead of seeking a quick return to 'business as usual', they should treat the coronavirus-induced international student pause as an opportunity to reconsider their priorities, and in particular their troubled relationships with China. Australian universities in general, and the Go8 universities in particular, should consider:

- Rebalancing their educational priorities to better serve the needs of domestic Australian students
- Treating international student recruitment more as an opportunity for genuine cross-cultural exchange than as a way to raise revenues
- Publishing the full details of any agreements they sign with foreign entities, especially those linked to the Chinese government

If Go8 universities can only fund their global rankings ambitions by selling more than one-quarter of all of their student places to Chinese students, it is perhaps time for them to reconsider those ambitions.
5. A FINAL NOTE ON THE POLITICS OF UNIVERSITY FUNDING IN CHINA AND AUSTRALIA

In November 2017, the Go8’s chief executive Vicki Thomson gave a speech at the 7th International Conference on World-Class Universities, organised by Shanghai Jiao Tong University’s Center for World-Class Universities on behalf of the ARWU’s publishers, the ShanghaiRanking Consultancy. Speaking more than two years before the beginning of the coronavirus crisis and the contemporaneous (if not concomitant) outburst of China skepticism in Australia and around the world, she contrasted China’s “powerful political settings” for university success with Australia’s “fragile” ones:

It is fair to say that from Australia, we watch with awe, and more than a little envy, at the determined prioritisation of university education and research in China. [...] In Australia, with my Board of Presidents, I am managing a leading group of research-intensive universities through what are fragile political settings. We do not allow those settings to affect the quality of what we deliver, in teaching or in research, but, it would be disingenuous to pretend that it has been, or is, simple or easy. As a group of universities we are as pragmatic as we are determined. We know we must survive and thrive despite the fragile settings.

We owe that to our students, and to Australia’s economic future, because there cannot be a knowledge economy without a thriving university sector at its core. As guests joining us today from other nations can attest, we in Australia, are, sadly, not alone. The common question is how do we withstand the fragility we are confronted with? How, in Australia’s case, does the Group of Eight set and pursue strategies to achieve excellence in shifting sands where we have had six Prime Ministers in 10 years and 9 Education Ministers in a decade, each with a different teaching and research policy agenda?37

Thomson went on to fret over the irony that “the more available to the community a university education in Australia has become, the less the community has trusted us”.

With due allowance for the natural urge to show respect for one’s hosts and with due credit to the Go8 for continuing to make its statements publicly available, we nonetheless have here the spectacle of an Australian university industry leader lauding “the determined prioritisation of university education and research in China”, lamenting the “shifting sands where we have had six Prime Ministers in 10 years and 9 Education Ministers in a decade”, and still not understanding how Australians could lose faith in their country’s universities.

If the Go8 and its member universities are serious about regaining the public’s trust, they can start by trusting the public. Instead of envying Chinese universities the lavish support they receive from a repressive communist government, they can look to North American universities for inspiration about how to engage the broader community in their intellectual life -- and through community engagement to reap the benefits of private philanthropy. Or they can embrace European models of the university as a public service organisation, with leaders who are relatively unconcerned with international rankings and accept modest public sector style pay packages.

These are just two of many ways that Go8 universities could seek to gain the trust of what should be their primary constituency: the Australian public. In a post-coronavirus world that is sure to prompt many changes in university funding and operations, it would be better for Go8 universities to evolve their own democratic agendas than to have one imposed by their Australian government funders or their state
 overseers. But either way, the Go8 universities must outgrow their unhealthy relationships with the People’s Republic of China if they want to retain their increasingly tenuous relationships with the Australian public. We all want our universities to succeed. We just want them to succeed while upholding democratic values, not by cosying up to China.
### APPENDIX TABLE A: ARWU AND THE RANKINGS TIME SERIES DATA

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### Academic Ranking of World Universities (ARWU / Shanghai Rankings)

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### World University Rankings (THE / Times Higher Education)

To be released in September
REFERENCES


8 See 'About Us', ShanghaiRanking Consultancy: http://www.shanghairanking.com/aboutus.html

9 See 'About Ruankan', ShanghaiRanking Consultancy: https://www.shanghairanking.com.cn/gyrk/index.html

10 See 'About Academic Ranking of World Universities', ShanghaiRanking Consultancy: http://www.shanghairanking.com/aboutarwu.html

11 Ibid.


14 For details, see: http://www.shanghairanking.com/ARWU-Methodology-2019.html

15 For details, see: https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2020-methodology

16 For details, see: https://www.topuniversities.com/qs-world-university-rankings/methodology

17 For details, see: https://www.usnews.com/education/best-global-universities/articles/methodology


20 Strangely, both the Group of Eight and the University of Queensland have scrubbed the links to the text of this speech from their websites. The Go8 website has a blank space where the link is supposed to be, and the UQ website had a page that has been taken down. The ABC's video of the speech has 'expired'. But UQ left an unlinked-to PDF document of the speech on its website, presumably by accident. This hard-to-find version of the speech is the one quoted here.


22 The data underlying Figure 1 are taken from the Australian Government, Department of Education, Skills and Employment, uCube, 'Equivalent FT Load by State - Institution by Year by Citizenship Category'. http://highereducationstatistics.education.gov.au/

23 The figures for Monash University include students at its international campus in Malaysia.

24 These calculations technically pertain to the 'higher education' sector, which is mainly composed of universities, and are derived from Australian Government, Department of Education, Skills and Employment,
How Rankings Obsession Drove the Group of Eight’s Chinese Students Binge

Education Data, Pivot Tables, 'Basic pivot table 2002 onwards'.

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