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World-Class Universities or World Class Systems?: Rankings and Higher Education Policy Choices

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In today's world, it has become all too familiar for policymakers and higher education leaders to identify and define their ambitions and strategies in terms of a favourable global ranking for their universities/university. But, is it always a good thing for a university to rise up the rankings and break into the top 100? How much do we really know and understand about rankings and what they measure? Do rankings raise standards by encouraging competition or do they undermine the broader mission of universities to provide education? Can rankings measure the quality of higher education? Should students use rankings to help them choose where to study? Should rankings be used to help decide education policies and the allocation of scarce resources? Are rankings an appropriate guide for employers to use when recruiting new employees? Should higher education policies aim to develop world-class universities or to make the system world-class?

This chapter discusses the rising attention accorded to global rankings and their implications for higher education. It is divided into five parts. Part one explores the growing importance accorded to rankings; part two discusses what rankings measure; part three asks whether rankings measure what counts; and part four reflects on how the use and abuse of rankings are influencing policy choices. Finally, part five addresses a key policy question: should governments focus on building the capacity of a few world-class universities or on the capacity of the higher education system-as-whole, in other words, building a world-class higher education system?

Growing Attention to Rankings

It is a common saying, but nonetheless true, that higher education is changing rapidly. There are probably four main drivers:

- First, is the rapid creation of new knowledge creation and its application which have become a foundation for individual and social prosperity, be it cultural or economic. People who complete a high-school education tend to enjoy better health and quality of life than those who finish at the minimum leaving age. Those completing a university degree can look forward to a significantly greater gross earnings premium over his/her lifetime compared with someone who only completes secondary school.

Graduates are also more likely to be engaged with their community and participate in civil society. Successful societies are those with the capacity to ensure its citizens have the knowledge and skills to contribute to society throughout their lives, and that new knowledge can be developed and exploited for competitive and public advantage. Because higher education institutions (HEIs) are the principal base for human capital development, and new knowledge creation and dissemination, investment and performance matters. For all these reasons, higher education is now at the centre of policymaking.

- Second, the capacity to participate in "world science" depends on the ability of countries to develop, attract and retain talent. But many countries face demographic pressures. While the world population is increasing, the population of more developed regions is dependent on net migration with a converse impact on the developing world. Despite global population growth, the availability of skilled labour is actually declining. In 2005, young people represented 13.7 percent of the population in developed countries but their share is expected to fall to 10.5 percent by 2050 (Bremner et al., 2009, 2, 6). Together, these demographic dynamics presents a major challenge for all national strategies based on growing knowledge-intensive industries. In response, governments around the world are introducing policies to attract the most talented migrants and internationally mobile students, especially postgraduate students in science and technology.

- Third, because higher education is considered an essential component of the productive economy, how higher education is governed and managed has become a major policy issue. The quality of individual higher education institutions (HEI) and the system-as-a-whole, e.g. teaching and learning excellence, research and knowledge creation, commercialisation and knowledge transfer, graduate employability and academic productivity, provide a good indication of a country's ability to compete successfully in the global economy. Accordingly, the trend for greater transparency and accountability has been supplemented by an increasing need to demonstrate value-for-money and (public) investor confidence.

- Fourth, students (and their parents) have become very savvy consumers, especially as evidence continues to show that graduate outcomes and lifestyle are strongly correlated with education qualifications and career opportunities. Students are now much more focused on employability as opposed to employment. They assess their choice of an institution and education programmes as an opportunity-cost – balancing the cost of tuition fee and/or cost-of-living and the career and salary opportunities. As the traditional student market declines, competition for high achieving students is rising. The balance of consumer power is shifting in favour of discerning talented students.

In this environment, the arrival of higher education rankings is not surprising. They may beperceived as being an independent assessment of individual institutions, meeting wider policy goals for greater transparency and accountability, and assessing value-for-money and return-on-investment. Rankings are seen to provide a clue, for a wide range of stakeholders, about the quality of the educational product. For students, they indicate the potential monetary or private benefits that university attainment might provide vis-à-vis future occupation and salary premium; for employers, they signal what can be expected from the graduates of a particular HEI; for government and policymakers they can suggest the level of quality and international standards, and their impact on national economic capacity and capability; and for HEIs they provide a means to benchmark their own performance. For the public, rankings provide valuable information about the performance and productivity of HEIs in a simple and easily understood way.

National rankings have existed in many countries, most notably the United States for decades. Since 2003, with the publication of the Shanghai Jiao Tong *Academic Ranking of World Universities (ARWU*), global rankings have become very popular. Knowledge about and use of rankings has continued apace in the aftermath of the 2008 Global Financial Crisis (GFC), reflecting the realization that in a global knowledge economy, national pre-eminence is no longer enough. Today, rankings exist in every part of the world. There are 10 global rankings – albeit some are more popular than others (see Box 1). Over 60 countries have introduced national rankings especially in emerging economies (Hazelkorn, 2012b), and there are a number of regional, specialist and professional rankings. While undergraduate, domestic students and their parents were the initial target audience for rankings, today, they are used by a myriad of stakeholders, e.g. governments and policymakers; employers and industrial partners; sponsors, philanthropists and private investors; academic partners and academic organisations; the media and public opinion. Postgraduate students, especially those seeking to pursue a qualification in another country, are the most common target audience and user.

Box 1: Main Global Rankings

- Academic Ranking of World Universities [ARWU](Shanghai Jiao Tong University), 2003;
- Webometrics (Spanish National Research Council), 2003;
- World University Ranking (Times Higher Education/Quacquarelli Symonds), 2004-2009;
- Performance Ranking of Scientific Papers for Research Universities (HEEACT), 2007;
- Leiden Ranking (Centre for Science & Technology Studies, University of Leiden), 2008;
- World's Best Colleges and Universities (US News and World Report), 2008;
- SCImago Institutional Rankings, 2009;
- Global University Rankings, RatER (Rating of Educational Resources, Russia), 2009;
- Top University Rankings (Quacquarelli Symonds), 2010;
- World University Ranking (Times Higher Education/Thomson Reuters [THE-TR]), 2010 ;
- U-Multirank (European Commission) 2011.

Note. Date indicates date of origin.

What do Rankings Measure?

Rankings compare different HEIs using a range of indicators to measure different aspects of higher education (see Part I of this book). The choice of indicators is decided by the promoters of each system, with each indicator acting as a proxy for the real object. This is because there is often no direct measurement; for example, there is no agreed way to measure the quality of teaching and learning. Each indicator is considered independently from each other, while in reality there is an interactive element to them or at least collinearity; for example, older well-endowed private universities are more likely to have better faculty/student ratios and per student expenditure compared with newer public institutions or institutions in developing countries. Each indicator is also assigned a weight or percentage of the total score, with research usually assigned the highest weight. A final score is aggregated to a single digit and ranked sequentially. Rankings usually concentrate on whole institutions, although there is an increasing focus on sub-institutional rankings at the field of science level (e.g. natural science, mathematics, engineering, computer science, social sciences) or by discipline or profession (e.g. business, law, medicine, graduate schools, etc.).

Regardless of ranking system, there has been considerable criticism of the methodology, the choice of indicators and weightings, the quality of the data and its reliability as an international or institutional comparator of performance, and whether it is possible to measure and compare complex and diverse HEIs possessing different missions and contexts (cf. Dill and Soo, 2005; Usher and Savino, 2006; Usher and Savino, 2007; Sadlak and Liu, 2007a; Saisana and D'Hombres 2008; Usher and Medow, 2009; Rauhvargers, 2011). Over the years, and in response to commentary and analysis,

various changes to the methodology have been made but the overarching criticisms remain.

Rankings use information from four main sources: independent third party, such as government databases; bibliometric and citation data gathered through proprietary, electronic or web-based sources; institutional data; and student, peer, employer or other stakeholder surveys. The absence of internationally meaningful and available data continues to present a considerable problem for any reliable comparisons. Similarly, the lack of consistency in data definition, sets, collection, and reporting makes it difficult to make simple and easy comparisons across jurisdictions and between different rankings. National rankings are usually able to capture data across a wide range of dimensions while global rankings are inevitably more narrowly proscribed. Peer or stakeholder surveys were issued in only a few languages until recently; THE-TR have now expanded to nine languages. Webometrics measures the size and quality of university internet presence, but this can disadvantage developing countries with poor internet connectivity (Ortega, 2009).

The data sources are also susceptible to bias, self-perpetuating views of quality, and allegations of "gaming" – or manipulating the data in order to influence the outcome. To get around these problems, measurements usually consist of proxies. For example, research data is used to measure of academic quality; student entry levels or student selectivity gauge institutional selectivity; faculty/student ratio measure educational quality; and an institution's budget measures the quality of the infrastructure, e.g. the buildings and laboratories. In addition, different rankings assign different weightings to the indicators, and thus a HEI's position can change considerably depending upon the weight ascribed to the particular criteria. Aggregating the scores into a final rank ignores the fact that some institutions might score higher in some domain than others, or vice versa. This can lead to inconsistency across different rankings but it also highlights the arbitrariness of the weightings.

Rankings focus disproportionately on research. This is due to the fact that research data is widely available but more importantly it reflects a view that research is the most important indicator of higher education quality. Research is assessed on the basis of bibliometric and citation data usually provided by Thomson Reuter's Web of Science or Elsevier's Scopus. However, this data is most accurate only for bio- and medical sciences research; it is less reliable for the arts, humanities and social science disciplines. By focusing on research output as the primary measure of higher education quality and productivity, rankings ignore the full breadth of higher education activity, such as: teaching and learning, the quality of the student experience or the "added value" a HEI contributes to a student's learning over-and-beyond the student's entry level. No attention is given to the social and economic impact of knowledge and technology transfer, or the contribution of regional or civic engagement or "third mission" activities to communities and student learning outcomes – despite these aspects being a major policy objective for many governments and the mission focus for many HEIs. Nonetheless, research accounts of 100% of the marks of the *ARWU* compared with 62.5% for THE-TR and 20% for QS. *ARWU* also collects information on publications in

Nature or *Science*, albeit it's not clear why these two journals have been singled out for such attention. Table 1 below provides a simple comparison of what rankings measure and what they do not measure.

Table 1. What Rankings Measure

Rankings Measure	Rankings Do Not Measure
• Bio- and medical sciences Research • Publications in *Nature* and *Science* • Student and Faculty Characteristics (e.g. productivity, entry criteria, faculty/student ratio) • Internationalization • Reputation – amongst peers, employers, students	• Teaching and Learning, incl. "added value", impact of research on teaching • Arts, Humanities and Social Science Research • Technology/Knowledge Transfer or Impact and Benefit of Research • Regional or Civic Engagement • Student Experience

Despite the huge diversity in national context and institutional missions, existing rankings compare complex HEIs using a common set of indicators. Nonetheless, the results of major global rankings are often similar; according to Usher and Medow (2009, p. 13), this commonality arises from the fact that rankings measure socio-economic advantage, and the benefits of age, size and money which help large institutions and countries. They attach greatest importance to HEIs which are roughly 200 years old with approximately 25,000 students and 2,500 faculty, and an annual budget of around €2bn plus considerable endowment earnings (Usher, 2006; Sadlak and Liu, 2007b). These HEIs operate highly selective entry criteria for students and faculty. Accordingly, they have been able to amass significant competitive advantage. Of the world's more than 16,000 HEIs, research performance is concentrated in the top 500 and is virtually undetectable (on that index) beyond 2,000. Because age and size matters, there is a super-league of approximately 25 universities, usually with medical schools and in English-language countries, which tend to dominate the top strata of all rankings (Sheil, 2009).

There are over 16,000 HEIs worldwide, according to the International Association of Universities (IAU). However, rankings generally publish data for only a fraction of this number with some exceptions, e.g. QS publishes data for 700, and Webometrics for over 2000 HEIs. Nonetheless, statements by politicians and policy-makers, university leaders, other HE stakeholder, and the media regularly focus on the achievements of the top 100. This represents less than 1 percent of the world's higher education institutions!

Do Rankings Measure What Counts?

Considerable attention has been given to commenting on what rankings measure and identifying methodological flaws. However, the key question is: do rankings measure

what counts or, to paraphrase Einstein, do they simply count what is easily measured? Because rankings, like other performance indicators, can incentivise opinions, decisions and behaviour, it is important to understand more fully what is measured and the possible perverse incentives or unintended consequences that can be encouraged by their usage (cf. Martin and Sauvageot, 2011). The following discussion briefly examines six different dimensions (see Table 2; fuller discussion in Hazelkorn, 2011a, chap. 2).

Table 2. Summary of Advantages and Disadvantages of Commonly Used Indicators

Indicator	*Advantage*	*Disadvantage*
Student Entry Levels	• Strong correlation between academic tests and future achievement, especially for literacy and mathematics;	• No statistically significant relationship between "leaning and cognitive growth" and admissions selectivity;
Faculty/Student Ratio	• Assesses "commitment to teaching"; • Smaller ratio creates a better learning environment	• Quality depends on interaction of many factors, e.g. faculty, pedagogy, laboratories and other facilities,
Resources	• Correlation between budget and quality of learning environment, programme choice and services	• No correlation direct between budget and usage, or between value, cost and efficiency
Student satisfaction	• Used to understand quality of learning environment	• Useful to help improve performance but difficult to use for comparisons or ranking
Education Outputs	• Completion, graduation and employability measures educational success and failure • Links education with careers, salaries and lifestyle	• Lower socio-economic and ethnically disadvantaged groups or mature students can have different study patterns • Employability and salary are linked to market forces
Research	• Measures research and scholarly activity, impact and faculty productivity	• Bibliometric and citation practices are inaccurate measures of research activity
Reputation	• Value and regard as measured by academic peers or key stakeholders	• Subject to rater bias, halo effect and "gaming"

Source: Adapted Hazelkorn, 2011a, 60.

Measuring Student Entry

Many national rankings, such as the *US News and World Report Best College* rankings (*USN&WR)*, measure student entry levels on the basis that high entry scores are a proxy for academic quality. This is based on the view that student grades can be used to predict future achievement, and hence, more high-achieving students equate with higher quality. But as Hawkins (2008) says, "many colleges recruit great students and then graduate great students [but is] that because of the institution, or the students?" International evidence repeatedly shows that student learning outcomes are

attributable to many factors which influence prior learning. Kuh and Pascarella (2004, 56) warn that failure to control for student pre-college characteristics can lead to the conclusion that differences in reported student experiences are institutional effects when, in fact, they may simply be the result of differences in the characteristics of the students enrolled at the different institutions. The US National Study of Student Learning (NSSL) and National Survey of Student Engagement (NSSE) "found no statistically significant relationship between effective teaching practices and admissions selectivity…." (Carey, 2006a) To get a more accurate picture of the quality of teaching and learning, it would be better to assess "value added" – in other words, what an institution has contributed to a student's knowledge and skills rather than measuring students at entry. Ultimately, entry scores simply reflect socio-economic advantage.

1. Measuring Faculty/Student Ratio

Because measuring the quality of teaching and learning is highly complex, rankings such as the *THE-QS, QS* and U-Multirank use faculty/student ratio as a proxy for teaching quality. A smaller ratio is viewed as equivalent to better teaching on the basis that small classes create the optimum learning environment. This is an issue of discussion at primary and secondary level, but even here the OECD (2010, 72) has warned that: "While smaller classes are often perceived as enabling a higher quality of education, evidence on the impact of class size on student performance is mixed." Education quality is influenced by the whole learning environment; for example, the balance across the quality of the academics, seminars, laboratories, tutorials, etc. and different pedagogical formats and learning resources. If a university

> hired full-time lecturers, at lower salaries, to do more of its undergraduate teaching and devoted the resources that it saved from doing so to increasing the average salaries of its tenure-track faculty would...its students be disadvantaged by having a smaller share of their classes taught by tenure and tenure-track faculty? (Ehrenberg, 2005, 32)

Faculty/staff ratio also has very different meanings for public and private institutions and systems, and may say more about the funding or efficiency level. Class size in and of itself can be a hollow indicator especially when used to measure the learning environment for high achieving students. Ultimately, the simplicity of the indicator does not tell us very much about what affect the faculty/student ratio has on actual teaching quality or the student experience (Brittingham, 2011).

2. Measuring Resources

The level of expenditure or resources is often used as a proxy for the quality of the learning environment. This is captured, inter alia, by the total amount of the HEI budget or by the size of the library collection. *USN&WR* says that "generous per-student spending indicates that a college can offer a wide variety of programs and services" (*US News* Staff, 2010); this is sometimes interpreted as expenditure per student. For example, Aghion et al. (2007) argue there is a strong positive correlation between the

university budget per student and its research performance as demonstrated in the *ARWU* ranking. However, many HEIs are competing on the basis of substantial resources spent on dormitories, sports and leisure facilities, etc.; it is not clear what impact these developments – worthy as they are – have on the actual quality of the educational or learning experience. This approach can also penalize "institutions that attempt to hold down their expenditures" (Ehrenberg, 2005, 33) and it provides "little or no information about how often and how beneficially students *use* these resources" (Webster, 1986, 152). For example, because the costs associated with building a new library for a developing country or new HEI can be very significant (Oni, 2010), many institutions have switched to electronic access or sharing resources with neighbouring institutions. There is a danger that looking simply at the budget ignores the question of value vs. cost vs. efficiency (Badescu, 2010), and that the indicator is essentially a measure of wealth (Carey, 2006b). Indeed, while many policy observers look to the US, "if value for money is the most important consideration, especially in an age of austerity, the American model might well be the last one... [to] be emulating" (Hotson, 2011).

3. Measuring Education Outputs

In recent years, performance and quality assessment have shifted from focusing on input factors to looking at outputs and outcomes. Rather than simply comparing the number of students in a particular HEI or the number of students entering the first year of a programme, emphasis has turned increasingly to looking at successful completion or graduation rates, as determined by the appropriate time-frame, e.g. a BA degree is usually completed in three/four years, a Master in one/two years, and a PhD in three/four years. Employability is also a focus of increasing attention. There is little doubt these are critical issues, as it places a responsibility on HEIs to ensure that students successfully complete their programme of study within a reasonable timeframe and can find sustainable employment afterwards.

But as mentioned above, educational performance is influenced by myriad factors. This method may be disadvantageous to lower socio-economic and ethnically disadvantaged groups or mature students whose life or family circumstances disturb normal study patterns. These students often take longer to complete as they may need to work to supplement their income or look after family or domestic matters. While HEIs which seek to serve this particular student cohort can become dis-incentivised by such indicators (Jones, 2009), institutions which serve a large number of wealthy students can win the numbers game when graduation and retention rates are reported as averages among the entire student body. Employability can be a reflection of wider economic factors, and not necessarily a measure of educational quality. The US National Governors Association Centre for Best Practice has cautioned against relying upon methodologies which can inadvertently "exclude far too many students and track too few student milestones":

> The most commonly used measure for public higher education funding formulas is total student enrolment. This measure creates no incentive to see students through to completion….Alternatively, strict graduation rate

formulas can penalize schools that serve disadvantaged students because these schools will inevitably have lower graduation rates. Moreover, a singular emphasis on graduation can discourage open-enrolment policies, because skimming top students will improve institutional performance despite excluding students who may benefit most from postsecondary education. Graduation rate funding formulas may also pressure schools to lower their graduation standards if they are desperate for funds and are not meeting graduation targets (Limm, 2009).

4. Measuring Research

Counting academic publications and citations is the most common method to assess academic work; the former measures productivity and the latter measures quality. Rankings rely heavily upon Thomson Reuters and Scopus, which collect publication and citation data for approximately 9,000 journal articles in *Web of Science* and 18,000 in *Scopus*, respectively. The main beneficiaries of this practice are the bio- and medical sciences because these disciplines publish frequently with multiple authors. In contrast, the social sciences and humanities usually have single authors and publish in a wide range of formats (e.g. monographs, policy reports, translations, and so on), whereas the arts produce major art works, compositions, and media productions, and engineering produces conference proceedings and prototypes. These latter outputs, in addition to electronic formats or open source publications, are ignored by traditional bibliometric methods.

Bibliometric practices also disproportionately reward research which is published in English language international peer-reviewed journals. Although English is the lingua-franca of business and the academy, it can be an inhibitor. English-language articles and countries, which publish the largest number of English-language journals, tend to benefit the most. It also disadvantages the social sciences and humanities which often consider issues of national relevance and publish in the national language but can equally affect the sciences, e.g. environmental or agricultural science, for similar reasons.

Disparity across disciplines and world regions is further reflected in citation practices. Authors are most likely to reference other authors whom they know or who are from their own country. Given an intrinsic tendency to reference national colleagues or English-language publications, the reputational or halo factor means certain authors are more likely to be quoted than others. Altbach (2006) claims non-English language research is published and cited less often because researchers from US universities tend to cite colleagues they know. It is also easier says Altbach (2012, 29; also Jones, 2011) “for native English speakers to get access to the top journals and publishers and to join the informal networks that establish the pecking order in most scientific disciplines”. This may occur because of the significance of their work or because of informal networks. This can affect reputational surveys which have become the chosen methodology of both the new QS and THE-TR rankings, which assign 50% and 33%, respectively; THE-TR also publishes a reputation ranking. Because detailed familiarity with an country or institution may in reality be imperfect, peer reviewers “tend to rank

high those departments of the same type, and with the same emphases, as their own universities" (Webster, 2001, p. 44) or those with whom they are most familiar (Hazelkorn, 2011a, 74-77). The pool of peers has tended to be disproportionately weighted in favour of Anglophone countries (Baty, 2010d); while changes have been made to the peer selection process, participation levels remains limited (Usher, 2012).

There are other more consequential problems that arise from this method. By focusing only on peer-reviewed articles in particular journals, it assumes that journal quality is equivalent to article quality. Articles may be quoted because of errors not necessarily because of a break-through. This has led to the controversial practice of ranking academic journals (Hazelkorn, 2011b). Peer review, which is the cornerstone of academic practice, can also be a conservative influence; new research fields, interdisciplinary research or ideas which challenge orthodoxy can find it difficult to get published or be published in high impact journals.

Furthermore, using citations to measure "impact" suggests that its relevance and benefit is simply a phenomenon of the academy thereby ignoring the wider social and economic value and benefit of publicly-funded research and innovation. In so doing, the full spectrum from knowledge creation to technology and knowledge transfer and exchange – across all disciplines – is ignored. Furthermore, depending on the research project or the discipline, research findings and analysis may be published in a wide variety of formats or as prototypes, and its impact and benefit felt far beyond the academy. Table 3 shows what is measured above the red line by traditional bibliometric and citations practice, and what is ignored below the red line.

Table 3. Indicative List of Research Output and Impact

5. Measuring Reputation

To assess how prominent stakeholders view individual HEIs, rankings often use reputational surveys of academic peers, students or industry stakeholders. They usually ask respondents to identify the best universities either from memory or from a pre-

selected list. This method has led to the opinion that reputational surveys are prone to being subjective, self-referential, and self-perpetuating (Rauhvargers, 2011, 65). They benefit older institutions in developed countries and global cities with which there is an easy identification. Peer judgements may "say little or nothing about the quality of instruction, the degree of civility or humaneness, the degree to which scholarly excitement is nurtured by student-faculty interaction, and so on" (Lawrence and Green, 1980, 13). Over-estimation of a university "may be related to good performance in the past, whereas underestimation may be a problem for new institutions without long traditions" (Becher and Trowler, 2001). Van Raan (2007, 95) similarly acknowledges that

> Institutions with established reputations are strong in maintaining their position, for they simply have the best possibilities to attract the best people, and this mechanism provides these renowned institutions with a cumulative advantage to further reinforce their research performance.

The real question is: can university Presidents or any other stakeholders know sufficiently about a wide range of other institutions, around the world, in order to score them fairly? In other words, rankings are a self-replicating mechanism which reinforces the position of universities already known rather than those which are excellent.

In summary, there is no such thing as an objective ranking. The choice of indicators and weightings assigned to them reflect the value-judgements or priorities of the different ranking organisations. More importantly, the measurements are rarely direct but consist of proxies either because the issue is very complex or there is no available data. Hence, the evidence is never self-evident and does not reflect an incontestable truth. Rather, rankings measure what is easy and predictable, and concentrate on past performance which benefits older HEIs at the expense of new institutions. Quantification is used as a proxy for quality. Given all these shortcomings, it should not be surprising that rankings do not unreservedly measure the quality of education.

Policy Choices

Since the arrival of global rankings, it is not uncommon for governments to gauge national global competitiveness and positioning within the world-order in terms of the rank of their universities, or to attribute national ambitions to a position in the rankings. The ongoing global economic crisis has further highlighted the importance of "academic capital" and investment as critical indicators of competitiveness and global success. These developments have sparked a debate about the need for higher education reform. Because the price tag for achieving world-class status is so high, many governments and HEIs are questioning their commitment to mass higher education as funding comes under strain; others are concerned their universities may not be elite or selective enough.

> We want the best universities in the world....How many universities do we have? 83? We're not going to divide the money by 83 (Nicolas Sarkozy, President, France, 2009).
>
> The Higher Education Endowment Fund...[will] support the emergence of world-class institutions;...We are trying to leapfrog universities above the norm (Julie Bishop, Federal Education, Science and Training Minister, Australia, 2007).
>
> Work [is underway] on establishing the country's first "research-intensive" university... universities which earned a place in the top 500 rankings...were entitled to financial support (Jurin Laksanavisit, Education Minister, Thailand, 2009).
>
> The price tag to get **one** Nigerian university into the global top 200 is put at NGN 5.7 billion [€31m] annually for at least ten years (National Universities Commission, Nigeria).

Many governments have embarked on significant restructuring of their higher education and research systems.

The world-class university has become the panacea for ensuring success in the global economy, based on the characteristics of the top 20, 50 or 100 globally-ranked universities. France, Germany, Russia, Spain, China, South Korea, Taiwan, Malaysia, Finland, India, Japan, Singapore, Vietnam and Latvia – among many other countries – have launched initiatives to create world-class universities. Individual US states (e.g. Texas and Kentucky) have similarly sought to build or boost flagship universities, elevating them to what is known as Tier One status, a reference to *USN&WR College Rankings*. In contrast, countries such as Ireland, Australia, and Norway are emphasizing the importance of the system being "world class".

There are two basic policy models.

1. The *Neo-liberal Model* seeks to concentrate resources in a small number of elite or world class universities. This is often referred to as the "Harvard-here" model because it aims to replicate the experience of Harvard University or the Ivy League (see Figure 1). This is to be achieved by encouraging greater vertical or hierarchical (reputational) differentiation between HEIs, with greater distinction between research (elite) universities and teaching (mass) HEIs. Resource allocation may be linked to institutional profiling or other classification tools informed by rankings.

Figure 1: The "Harvard here" model

	Field 1	Field 2	Field 3	Field . . .
PhDs and research intensive	Institution A1			
Masters and some research	Institution B1			
	Institution B2			
Baccalaureates and scholarship	Institution C1			
	Institution C2			
	Institution C3			
	Institution C4			
Diplomas and extension services	Institution D1			
	Institution D2			
	Institution D3			
	Institution D4			
	Institution D5			

Source: Gavin Moodie, correspondence 7 June 2009

2. The *Social-democratic Model* seeks to balance excellence and equity by supporting the development of a world class system of higher education across a country. This is to be achieved by strengthening horizontal (mission or functional) differentiation across a diverse portfolio of high performing HEIs, some of which may be globally or regionally focused. Emphasis is on supporting "excellence" wherever it occurs by encouraging HEIs to each specialise in specific disciplines or knowledge domain according to their expertise, competence, demand and/or mission (see Figure 2). There is a strong emphasis on a close correlation between teaching and research, and knowledge production, commercialisation and dissemination as components of an integrated process. Institutional compacts or strategic dialogues may be used as a policy tool to enforce mission specialisation and differentiation.

Figure 2: Field or Mission Specialisation model

	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10
PhDs and research intensive	Institution 1		Institution 2		Institution 3		Institution 4		Institution 5	
Masters and some research										
Baccalaureates and scholarship										
Diplomas and extension services										

Source: Gavin Moodie, correspondence 7 June 2009

Rankings have also had an influence on other aspects of government policy. Some governments, such as Romania, Jordan, Macedonia and the Czech Republic, are using rankings to help assess and/or classify HEIs within their own countries. Article 159 of the Macedonia Law on Higher Education (2008) grants automatic recognition to graduates of

the top 500 *THE-QS*, *ARWU* or *USNWR* rankings without going through a more complex recognition process. Brazil, Chile, Singapore, Saudi Arabia, Kazakhstan, Mongolia and Qatar, to name a few, restrict government scholarships for international study to students admitted to top ranking universities (Salmi & Saroyan 2007); Singapore's Foreign Specialist Institute has similar criteria for institutional collaboration. Dutch (2008) and Danish (2011) immigration laws grant special recognition to foreigners from top universities (150, and 20 respectively). And finally, several US states benchmark academic salaries (Florida and Arizona) or "fold-in" rankings into performance measurement system (Minnesota, Indiana and Texas).

World-class Universities or a World-class System?

Rankings are influencing our perceptions of and decisions about higher education policy in two major ways:

1) Rankings have highlighted the importance of quality and striving for excellence in a competitive world. As a result, international or cross-jurisdictional comparisons are likely to remain a constant feature of a globalised world. As the Australian Federal Minister for Innovation, Industry, Science and Research said more succinctly, it "isn't enough to just go around telling ourselves how good we are – we need to measure ourselves objectively against the world's best" (Carr, 2009). Thus, rankings have influenced the way we think about higher education, and have raised our collective consciousness about the necessity for greater public accountability and transparency, and to demonstrate value-for-money and return-on-public investment.

2) Rankings have highlighted the importance of investment in higher education, as a key factor determining sustainable social and economic development in the knowledge economy. In the 21st century, the capacity to compete globally is determined by the calibre of the higher education system, its graduates and its contribution to "world science"; talent and knowledge creation are the new oil. The indicators measure attributes of socio-economic advantage, age and wealth; the results are presented as a "league table" or "academic world order" which, in turn, is used for global positioning and branding in order to attract capital, talent and tourism. This is putting pressure on governments to increase or at least maintain investment in higher education in order to ensure national competitiveness.

Given this effect, many governments use rankings, inter alia, to classify and accredit HEIs, allocate resources, drive change, assess student learning and learning outcomes and/or evaluate faculty performance and productivity, at the national and institutional level. They are used as an accountability or transparency tool, especially in societies and institutions where this culture and practices are weak or immature.

Many myths are promulgated about the value of rankings for policymaking or strategic decision-making. But, rankings should be used cautiously – and **only** as part of an overall quality assurance and assessment or benchmarking system and not as a stand-alone evaluation tool. Four examples will suffice:

1. *Rankings provide useful comparative information*. It is often argued that rankings provide useful comparative information about university performance which facilitates student choice and policymaking. But HEIs are complex organisations, providing education from undergraduate to PhD level, conducting research, participating in outreach initiatives, and being a source of innovation and entrepreneurship. For many countries, they are a critical engine of nation-building, a

> regional, national and global gateway attracting highly-skilled talent and investment, actively engaging with a diverse range of stakeholders through knowledge and technology transfer, and underpinning the global competitiveness of nations and regions...As a group, they sit within vastly different national context, underpinned by different value systems, meeting the needs of demographically, ethnically and culturally diverse populations, and responding to complex and challenging political-economic environments (Hazelkorn, 2011a, 78).

Publicly-funded, private not-for-profit and for-profit HEIs operate in very different financial circumstances, and with different levels of governance and financial autonomy. There is a wide variance of students served by these institutions. It is difficult to compare institutions – or indeed academic departments – across different national contexts or to measure quality through measurements of quantification. But this is what rankings purport to do.

2. *Rankings provide good measures for research*. Despite criticism about the disproportionate focus on research, the choice of indicators is usually considered meaningful or "plausible". However, as discussed above, the data primarily reflects basic research in the bio- and medical sciences. As a consequence, some disciplines are valued as more important than others, and research's contribution to society and the economy is seen primarily as something which occurs only within the academy. In this way, rankings misrepresent the breadth and dynamism of the research-innovation process and higher education's role as part of the innovation eco-system, what the European Union calls the "knowledge triangle" of education/learning, research/discovery and innovation/engagement. This narrow conceptualisation of research is helping to drive a wedge between teaching and research at a time when policymakers and educators advocate the need for more research-informed teaching (Hazelkorn, 2009).

3. *Concentrating resources in a few world-class universities*. There is a strong view internationally which argues the policy priority should be to concentrate resources in a few elite universities in order to "lift all boats", using a metaphor often associated with

economic growth. This view is based on the assumption that high ranked HEIs are better quality institutions than those which are either lower ranked or not ranked. However, while top-ranked universities may produce the majority of all peer-reviewed papers, those who publish in refereed journals do not necessarily have the application of their knowledge as an objective. Nor is it obvious this kind of investment will create sufficient, patentable or transferable knowledge that can be exploited and used by society. Concentrating research in a few institutions could reduce the over-all national research capacity with perverse "knock-on consequences for regional economic performance and the capacity for technology innovation" (Lambert, 2003, p6; Adams and Gurney, 2010). Furthermore, there is no evidence that more concentrated national systems generate higher citation impact than those in which output is more evenly distributed, because concentration is most relevant in only four disciplines of "big science": biological sciences, clinical medicine, molecular biology/biochemistry, and physics (Moed, 2006). The key factor underpinning improved national research performance and competitiveness is consistent investment.

4. *Rankings measure quality*. Most (global) rankings primarily measure research which is widely interpreted as being equivalent to education quality. This has led to much confusion. The choice of indicators is based on the opinion and values of the different ranking organisations, influenced to a great extent by the available data. But, the indicators don't and can't measure how good the teaching is, how well students learn or if the facilities and resources are actually used by the students. They take no account of how well a HEI fulfils its mission or contributes to society. "Which university is best" can be asked differently depending upon who is asking the question, which question is being asked and for what purpose. Is the user a student choosing a college/university in his/her own country or abroad or a government seeking to make decisions about resource allocation?

It is time to look at alternatives (see Hazelkorn, 2012a)? Rankings encourage us to emulate the achievements of a few elite "world class universities" as the panacea for success in today's competitive world. An alternative approach says that what matters for sustainable social and economic prosperity is how governments balance the needs of all its citizens by creating a "world-class system", characterised by having:

- Coherent portfolio of horizontally differentiated high performing and actively engaged institutions – providing a breadth of educational, research and student experiences;
- Open and competitive education, offering the widest chance to the broadest number of students;

- Developing knowledge and skills that citizens need to contribute to society throughout their lives, while attracting international talent;
- Graduates able to succeed in the labour market, fuel and sustain personal, social and economic development, and underpin civil society; and
- Operating successfully in the global market, international in perspective and responsive to change.

A whole-of-system benchmarking methodology, using a sophisticated set of quantitative and qualitative accountability and transparency instruments, provides a better way to assess and ensure quality (see Salmi, 2012). This method can be used to i) Highlight and accord parity of esteem to diverse institutional profiles to facilitate public comparability, democratic decision-making and institutional benchmarking; ii) Identify what matters and assess those aspects of higher education, including improvements in performance not simply absolute performance; and iii) Enable diverse users and stakeholders to design fit-for-purpose indicators and scenarios customised to individual stakeholder requirements – but this does make international comparison difficult. Because any assessment systems can incentivise institutional and individual behaviour, it is vital that the choice of indicators recognise, support and reward the full spectrum of higher education endeavours across education/learning, research/discovery and innovation/engagement. To be meaningful, comparisons should be conducted at regular intervals. Critically, the collection and control of data and verification of the processes should not be the remit of private/commercial providers or self-appointed auditors; UNESCO might see this as a useful role for itself perhaps in collaboration with other international organisations.

Rankings are only one form of comparison; they are popular today because of their simplicity. However, their indicators of success are misleading. Rather than using definitions of excellence designed by others for other purposes, what matters most is whether HEIs fulfil the purpose and functions which governments and society want them to fulfil.

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