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Jung Cheol Shin
Barbara M. Kehm *Editors*

Institutionalization of World-Class University in Global Competition

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Chapter 4
World-Class Universities: The Sector Requirements

Stephen P. Heyneman and Jeongwoo Lee

4.1 Background

Over the past decades, there have been some significant changes in higher education globally. First of all, entry rates in higher education in the OECD countries were approximately 10% around 1960 (OECD 2003), but by 2008, the enrollment rate in many OECD countries had expanded to over one half of the relevant university age group. In Germany, for example, the enrollment rate had reached 46%; in the United Kingdom, it was 57%; in Australia, it was 77%; and in Korea, it was 98% (UIS 2011). Accordingly, the portion of the adult working population in OECD countries with university degrees expanded in the 30 years between the 1960s and the 1990s from 10% to approximately 30% (OECD 2001). For instance, the rate of college-educated people in the work force in 1960 was 13% for Germany and 8.7% for Japan (Perkins 1991); in 1999, it was 26% for Germany, 33% for Japan, and 39% for the United States in 1999 (OECD 2001).

Second, in many cases, the expansion depended largely on the nongovernmental sector. For instance, approximately 28% of the higher education student population in the USA is enrolled in private universities (OECD 2010). In Poland and Mexico, private universities account for approximately one student in three; in Korea, it is eight out of ten (Shin and Harman 2009). Third, in the OECD countries except for Korea, Turkey, and Switzerland, over half of the student population is now female – a segment once traditionally underrepresented. Both the UK and the US females

S.P. Heyneman (✉)
Peabody College of Education, Vanderbilt University, Tennessee, USA
e-mail: s.heyneman@Vanderbilt.edu

J. Lee
International Education Policy and Management, Peabody College,
Vanderbilt University, Tennessee, USA
e-mail: Jeongwoo.lee@vanderbilt.edu

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accounted for 57 and 56% in Australia in 2009 (UIS 2011). Their overrepresentation now extends to many professional programs including medical and law schools, engineering, and even computer sciences.

Fourth, higher education is no longer available only to traditional college-age students who enroll full-time right after high school. In both the UK and the USA, 39% of the students attended part-time in 2008 and overage enrollment rate was 6% in Australia and 7% in the USA in 2008 (UIS 2011). Fifth, in the 1990s, higher education finance had not kept pace with the expansion of students. Per-student expenditures declined in such countries as France, Ireland, Spain, the USA, Switzerland, Italy, and Japan. However, by 2006, this trend had reversed. Per-student expenditures increased in every OECD country with the exception of Germany, Greece, Ireland, and Norway (OECD 2010). Once again, the source of expenditure was not always public. The portion of higher education expenditures from public sources declined in the USA from 34% in 2000 to 31.6% in 2007, in Japan from 45 to 32.5%, in Australia from 51 to 44.3%, and even in Germany expenditures from public sources declined from 92 to 84.7% (OECD 2003, 2010). By the end of the first decade of the twenty-first century, many higher education problems remained, but considering these changes in higher education, for the first time in history, the quantity of access to higher education was not among them.

With the publication of the first cross-national assessment of university ranking in quality known as the Academic Ranking of World Universities (ARWU), undertaken annually by the Shanghai Jiao Tong University in China since 2003, what had been suspected was made explicit. Though highly ranked world-class universities were located in 16 countries, one country (the USA) accounted for 53% of the top 100 according the ARWU in 2011. And though many additional sources of cross-national university ranking emerged including the US News and World Report, Washington Monthly, Forbes, Kiplinger, and the Times Higher Education Supplement, each emphasizing different criteria,[1] all ranking systems identified world-class universities in the same few countries such as the USA, the UK, Japan, and Canada, leaving many countries without many or in some cases even one world-class university.

Attention has turned to the quality indicators of world-class universities. One of the first characteristics to be noted was the salaries of university presidents. The president of Harvard University, for instance, earns $US 800,000 a year (Hechinger and Lauerman 2010), although that salary is lower than the presidents of some public universities. The president of the University of Virginia earned over $US 800,000, and the president of Ohio State University earned almost $US 1.4 million in the 2007–2008 school year (Gibson 2009). However, there does not appear to be a correlation between the ranking of universities and the salary of their presidents. The salaries of researchers are also among the characteristics of note. But in terms of

[1] In measuring the quality of higher education institutions, these raters choose different, in some cases overlapping, measures from a total of 30 measures. See Richards and Coddington (2010) for more information.

country averages, researcher salaries are of little help. Whether measured in euros or purchasing power parity (PPP), the typical salaries of researchers in the USA, Australia, Japan, Germany, and Austria are approximately the same and do not explain the large national differences in the number of world-class universities in those countries. In this context, the salaries of university presidents and researchers have limited value as indicators of the quality of world-class universities. Then what are appropriate indicators of the quality of world-class universities? We will address this question in the next section.

The remainder of this chapter is organized as follows. In the first section, world-class universities will be defined, focusing on three categories. In the second section, ten sector requirements for world-class universities will be discussed. Finally, a cross-national assessment of public policies that are necessary for world-class universities will be presented.

4.2 Definition of World-Class Universities

World-class universities are thought to build a productive human capital base and elevate national development. Many have pointed out the characteristics they have in common (e.g., Altbach 2004; Levin et al. 2006; Niland 2007; Salmi 2009). These characteristics fall into three categories. First is the concentration of talent in students and faculty researchers. For instance, the student acceptance rate at Harvard University in 1940 was 85%. By the 1970s, this had dropped to 20%, and in 2010, it was 6%. At three other top-ranked universities, Columbia, Yale, and Stanford University, the acceptance rate was less than 8% in 2010 (Menand 2011). This trend is also true in some of the top universities in Britain. For instance, at Oxford University, the acceptance rate was 18%, and at Cambridge University, it was 21% in 2010 (Menand 2011). This suggests that student demand to enter high-quality universities has increased in spite of the increasing private cost. It also implies that a world-class university has an extraordinary amount of choice in those applying to study there. Faculty are similar to students. Instead of hiring its own graduates,[2] a world-class university will consider the world as its source of faculty. That is, world-class universities globally compete for high-quality faculty in professional labor markets beyond national borders. To illustrate, the proportion of foreign born faculty positions in all science and engineering at universities in the USA was 21% in 2001, with even larger percentages, about 39% in computer science and 35% in engineering (National Science Board 2004).

Similarly, a student body at a world-class university is valued not because it comes from wealthy and privileged backgrounds but for its diversity of background

[2]Universities in the former Soviet Union, the Middle East, and North African regions often hire only from their own graduates, thus ensuring lower quality.

since world-class universities are expected to prepare students to work and live effectively and cooperatively with people who differ from themselves (Smith and Schonfeld 2000). For the purpose of illustrating diversity in universities in the USA, two dimensions are briefly included here. First, foreign students who are enrolled in universities in the USA accounted for about 3.5% of total US higher education enrollment in the 2008–2009 school year (NCES 2010). More specifically, ten universities in the USA hosted more than 5,000 foreign students in the 2009–2010 school year. The top three universities enrolling foreign students were the University of Southern California (7,987 students, which amounts to about 21.6% of its total students enrolled), the University of Illinois (Urbana-Champaign) (7,287 students, about 17.6%), and New York University (7,276 students, about 16.8%)[3] (IIE 2010). The second dimension is the high percentage of undergraduates receiving need-based financial aid, which is a proxy for the percentage of lower middle and working class students in an institution. The portion of the student population coming from lower income backgrounds is pronounced in such institutions as the University of Southern California (66%), the University of Illinois (Urbana-Champaign) (72%), and New York University (53%) (The Princeton Review 2011). Another good indicator of diversity is the percentage of enrolled undergraduate students who receive Pell grants that are given to low-income students with family income under $20,000 (Morse 2009). The University of California (Los Angeles) (33%) appeared to best serve low-income students, followed by the University of California (Berkeley) (32%), the University of Southern California (17%), and Columbia University (16%). These are indicative of the efforts made by these universities to promote social and economic diversity by attracting talented students from a variety of backgrounds.

The second category of factors concerns resources. They are abundant and come from a wide variety of sources. On average, a university in the USA annually spends over $20,000 per student for educational services, about twice the average for OECD countries (OECD 2010). However, the absolute level of resources spent, although it provides the groundwork for a rich learning environment, is but one indication of potential excellence. Another is the diversity of resources which may stem from public taxes (government budget funding), private gifts, an endowment, tuition, and rewards for research contracts from both public organizations and private firms. For instance, Vanderbilt University, which is private, earns 31% of its income from its investments, 11% from private gifts and contracts, 3% from cost recovery for use of its facilities, and 8% for room and board charges. Although the tuition is $45,000 a year, this provides only 20% of its income (Vanderbilt University 2010). For Vanderbilt and other world-class universities, there is little incentive to increase enrollment because 80% of its income comes from sources other than enrollment. This means the enrollment at world-class universities will likely be

[3]These numbers and percentages include both undergraduate and graduate students.

maintained at current levels, which in turn will help increase demand and assure the level of quality indefinitely. Public universities also have a similar diversity of resources. The University of Tennessee is an example. Only 25% of its annual budget stems from appropriations from the state. Seventy-five percent derives from other sources including tuition, gifts, research contracts, and the like (University of Tennessee 2010). The declining portion of a university budget which originates from state appropriations is observed in many other countries as well. At universities in China, the proportion from nongovernment sources in the total revenue was about 25% in 1997, but it increased by about 26–51% in 2002 (Yingjie 2011). In 2010, about 70%[4] of the annual budget (800 million euros) of Aarhus University in Denmark came from state appropriations[5] and 28% came from competitive research grants (300 million euros) which included public resources, the European Union sources, private gifts, and other foreign sources (Holm-Nielsen 2011). The endowment at Aarhus was 500 million euros in 2008 (Holm-Nielsen 2008). In sum, the availability of rich and diversified sources of resources enables higher education institutions to constantly attract even more high-quality faculty and researchers (Salmi 2009), which in turn likely leads to the concentration of the best students in these institutions.

The third category of factors is related to governance structures, that is, the enabling university governance, its internal supporting regulations, autonomy from government, the maintenance of academic freedom, and its management by professional staff. These factors are conducive for higher education institutions to make decisions and to administer resources to effectively and quickly respond to the demand for high-quality higher education, without being unduly impeded by governmental bureaucracy (Salmi 2009). For this reason, higher education institutions have attempted to move toward enhancing favorable governance. For instance, public universities in Europe are moving toward more financial autonomy. In 1995, there were 12 countries with low levels of financial autonomy; by 2008, this had been reduced to four countries. By contrast, in 1995, 12 countries were described as having a high degree of financial autonomy, but by 2008, this had increased to 14 (see Table 4.1 below).

Financial autonomy, professional management, supporting internal regulations, and the other characteristics in this category overlap with the sector requirements discussed below. The reason they are discussed separately is that in many instances, universities cannot create an enabling governance internally because the national policies will not allow it. It is those national policies to which we now turn.

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[4]Public funding Aarhus University receives from the government (70%) is approximately 10% smaller than other Danish universities where state grants account for about 80% of all income. See Rogers (2009) for more information.

[5]State appropriation includes degree programs, core research funding, and government contract. It also includes competitive research grants from public sources, which means that there is some overlap between 70 and 28%. About 60% of competitive research grants come from public sources.

Table 4.1 Financial autonomy of European public universities ($N = 32$)

Level	1995	2008
Low	Austria, Cyprus, France, Germany, Greece, Hungary, Lithuania, Norway, Romania, Slovakia, Switzerland, Turkey (12)	Cyprus, Greece, Lithuania, Turkey (4)
Medium	Croatia, Denmark, Finland, Malta, Poland, Portugal, Slovenia, Sweden (8)	Denmark, Finland, France, Germany, Hungary, Latvia, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Sweden, Switzerland (14)
High	Belgium, Bulgaria, Czech Republic, Estonia, Iceland, Ireland, Italy, Latvia, Netherlands, Spain, UK (12)	Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Iceland, Ireland, Italy, Netherlands, Norway, Slovenia, Spain, UK (14)

Notes: (a) Legend: categorization based on a multiple index with average scores/country based on internal allocation of funds, borrowing on capital markets, building up reserves, and spending of operational grants. (b) Source: Jongbloed et al. (2008, Table 3.2, p. 42)

4.3 Sector Requirements for World-Class Universities

There are potentially many sector requirements that will enable the development of world-class universities, but we propose the following ten as being the most important.

4.3.1 A High Percentage of Public Income Awarded Not on the Basis of Regular Annual Institutional Allocations but Through Competition for Excellence in Performance

Linking university financing to performance as a funding method is related to improving quality assurance. As stated above, only a small percentage of income at the University of Tennessee is received from the state through annual allocations – the portion of income from public sources is considerably larger. These funds are awarded on the basis of competition in strategic planning and innovation and through proposals for research.

4.3.2 A High Percentage of Income from Nonstate Sources

In general, the wider the variety of income sources, the more likely it is that an institution can develop and translate its long-term strategic plans and visions on its own without depending on government allocations and without depending on tuition for financial security. There are two underlying rationales for this argument.

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4.4 A High Degree

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[6]Of the 4,294 institutions, only
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Statistics, 2007).

First, the diversification of income sources is of particular importance to higher education institutions, especially when governments suffer economic and financial crisis, which means that direct public funding is truly limited. Also, a world-class university incurs huge costs to operate and maintain its academic missions and roles. For instance, the total operating expenses of Harvard University in fiscal 2009 were about $3.73 billion (Harvard University 2010), which is equivalent to GDP at PPP of small, poor countries such as Gambia and Burundi. Thus, broadening the funding base that contributes to strengthening long-term financial sustainability of higher education institutions is required for reaching world-class status.

4.4 A High Degree of Institutional Differentiation

As most countries have transformed from an elite to a mass system of higher education, world-class universities are more likely to thrive when there are a wide variety of other legitimate forms of higher education institutions available. These may include community colleges, technical and professional colleges, small liberal arts colleges, teaching (as opposed to research) universities, private not-for-profit as well as for-profit institutions, institutions which teach from a single base, and others which deliver all courses from a distance. If universities attempt to fulfill all the various higher education functions identically, then the chances of being a world-class university are smaller. This handicap is particularly relevant to those countries where universities are generally public and for the most part are uniform in function. For example, higher education in the USA is characterized by institutions of multiple types. Only 20% of the higher education institutions in the USA are considered selective, and the number considered research institutions is about 6%.[6] Forty percent of the institutions are teaching universities, 15% are liberal arts colleges, and 39% are 2-year community colleges (Snyder and Dillow 2008). Volunteer State Community College in Gallatin, Tennessee, for instance, has an enrollment of 8,000 students and 750 faculty with a budget of $US 7 million. It has 70 different programs spanning the humanities, the social sciences, math, science, and training for the health and business professions. Forty-four percent of the students enrolled are in a program through which they hope to transfer to a local 4-year institution. Thus, a community college helps identify new students capable of completing a 4-year degree in spite of the fact that they were not capable of passing the normal entry requirements during the period in which entry usually occurs. This important "second chance" function played by community colleges frees world-class universities to concentrate on functions in which they have a comparative advantage.

[6]Of the 4,294 institutions, only 258 are classified as research universities, 93 of which are private. (US Government, *Digest of Education Statistics*. Washington, DC: National Center for Education Statistics, 2007).

4.4.1 Institutional Autonomy

This characteristic is associated with being public or private. However, there is a range of factors within these terms which determine the essence of what autonomy means. The mission of some institutions may be controlled by public authorities and others by private authorities. Similarly, the control of the ownership of institutions, the source of revenue, fiscal authority, faculty matters, and internal management may be in the hands of public or private authorities. The term "public" or "private" in themselves is not sufficiently meaningful to assess an institution's degree of autonomy. What is necessary to know is whether public policy allows higher education institutions to govern and finance themselves. This implies that they must control their own curriculum, admissions, and salaries. For instance, if public policies prohibit higher education institutions from setting faculty salaries and from determining those salaries on the basis of demand for particular skills and specializations, it is unlikely that they will become world class.[7] World-class status requires policies that allow universities to finance and completely manage their own affairs.

4.4.2 Ownership of Property

A world-class university must own title to its property. This is important because all world-class universities need to develop their own strategic plans, including for construction of new facilities. If a university has to depend on government allocations, their plans are in the hands of those with many other important priorities. World-class universities develop their own private capital sources for construction projects. This includes borrowing. To be eligible for loans, however, they must have adequate collateral. Universities without land ownership cannot borrow, which means they cannot develop and therefore lack competitiveness.

4.4.3 Clear Legal Distinction Between for-Profit and Not-for-Profit Institutions, and Exemption from Taxation for Nonprofit Higher Education Institutions

Nonprofit higher education institutions serve the public interest. They cannot compete in terms of excellence unless they can attract and manage their own resources. These resources are not "profits" but are sources for operating capital

[7] In many countries, faculty are treated as civil servants and may not differ in salary within seniority levels. Where this public policy pertains world-class universities are unlikely.

needed to cover expenses in performing their teaching and research functions. Because they put this income into their own operations, they should not be taxed on it. If it is public policy to tax nonprofit higher education institutions, they cannot be expected to attain world-class status.

4.4.4 *Open Competition for State-Sponsored Research*

Most countries sponsor research in health, pharmaceuticals, defense, social sciences, agriculture, and other fields. In the former Soviet Union and some OECD countries, this research is conducted through networks of specialized research institutions separate from universities. In these cases, university faculty are expected to teach but not be involved in pioneering research, whereas research specialists are not expected to teach. These higher education institutions are not involved in pioneering research and are therefore not competing to be recognized as world-class institutions. On the other hand, there are many countries which sponsor science projects through university competitions. In these instances, universities have the opportunity to be on the cutting edge of science, while students have the opportunity of being trained by faculty at the forefront of their fields. Concerns are raised that the incentives for research are often larger than the incentives for teaching, but it is also true that the university which lacks resources to support the competition for pioneering research is invariably relegated to second class status. In some cases, such as Germany, research monies may be allocated to specific institutions rather than through open competition. In these instances, public policy is antithetical to an enabling environment to support world-class universities. Open competition is important because of the ripple effects of the effort to compete. Even institutions which do not win the research award have learned from competing for it.

4.4.5 *Autonomous Agencies of Accreditation and for Licensing of Professionals*

If the public sector has a monopoly over institutional accreditation, it tends to favor older public institutions. If the accreditation agency is nongovernmental, there will be less bias against private institutions. An accreditation agency cannot be professional and favor any particular category. The licensing of professionals (law, medicine, architecture, and the like) can be performed by the universities which supply the training or by separate professional associations. If professional licensing is managed by universities, there will be little program innovation on the grounds that the risk to the public would be too great. Curricular and other programmatic innovations which do not work may result in incompetent doctors or lawyers. On the other hand, if the license to practice is acquired separately from the institution

which provides the training, this allows all training institutions to innovate without danger to the public. Hence, the curriculum in the law school at the University of Chicago, for instance, can be completely independent from the institution setting the bar examination. This frees a university to base its law curriculum on whatever it considers to be important. This allows for a wide latitude of law school programs and curricula without the risk of incompetent lawyers.

4.4.6 *Incentives to Diversity of Students and Faculty*

Student bodies which are insular in social background are inferior in terms of intellectual impact. To be competitive, world-class universities must select the brightest and the best from a wide diversity of student backgrounds, citizenships, and academic fields. The best institutions seek students and new faculty from a worldwide market. Public policy can stimulate this diversification and internationalization by providing the incentives to encourage and hasten it. Governments and private foundations can establish rewards such as institutional supplements for increasing the number of students and faculty from outside the country, for instance.

4.4.7 *Incentives to Improve Quality*

Intelligently designed public policy is an essential ingredient for the development of world-class universities, and there is no policy more important than the incentives to improve quality. These may include the establishment of reward structures through open competition such as the program of the Canada Excellence Research Chairs (CERC)[8] in Canada and the Brain Korea (BK) 21 project[9] in Korea. The role of government is to assist higher education institutions in developing scholarly productivity and institutional innovation.

To illustrate, we have summarized the general pattern across these dimensions in Britain, France, Germany, and the USA (see Table 4.2 below).

In terms of institutional autonomy, one element to consider is the student admission policy. In France, admission is controlled by central public authorities,

[8]The CERC is designed to award each of 20 chair holders and their research teams up to CAN$10 million over 7 years in an attempt to support Canadian universities to become world leaders in research and development through innovation. For more information, see http://www.cerc.gc.ca/hp-pa-eng.shtml.

[9]The BK21 project aims to nurture highly qualified human resources and improve the national developmental equilibrium for the twenty-first century knowledge-based society as well as to provide qualified graduate students and the next-generation scholars with financial support. For more information, see http://bnc.krf.or.kr/home/eng/ and http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan015416.pdf.

Table 4.2 Management

Access	Ce
Ownership	Pu
Budget control	Ce
Tuition	Ne
Credit transfer	Ri
Land owned	N
Curriculum control	G
Faculty control	C
Research	O
Campus administration	N
Relationship with industry	R
Endowment	N

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Table 4.2 Management and administration in four countries

	France	Germany	Britain	USA
Access	Central government control	State control	University control	University control
Ownership	Public and national	Public and local	Public and national	State government only, one half private
Budget control	Central government rigid	Central government rigid	Central institution managed	University determined loans and aid
Tuition	None with students subsidy	None with students subsidy	Tuition with access to loans	University determined loans and aid
Credit transfer	Rigid tracks	Rigid tracks	Increasing university control	Total university control
Land owned	National government owned	State government owned	National government owned	University owned
Curriculum control	Government approved	State government approved	University control	University control
Faculty control	Civil servants	Civil servants	Common pay, competitive, and scales, no tenure	Market driven
Research	Outside university	In and outside university	Inside university	Inside university
Campus administration	None	None	President as CEO	President as CEO, professional
Relationship with industry	Rare	Rare	Very close	Very close
Endowment	None	None	Beginning	Yes

in Germany by state authorities, and in Britain and the USA by the individual institution. In terms of tuition (one measure of the diversity in resources), it is controlled by public authorities in France and Germany, heavily influenced by public authority in Britain, and established largely by the individual institutions within the USA. Course credit transfer is established through a series of rigid tracks in France and Germany, with increasing university control in Britain, and total university control in the USA. Other patterns can be seen in relation to land ownership, campus administration, endowments, control over faculty salaries, benefits and promotion, and control over curricula.

4.5 Assessment of Public Policy Necessary for World-Class Universities

For purposes of illustration, we have investigated the higher education policies in eight OECD countries: Denmark, Britain, France, Germany, Korea, Canada, the USA, and Japan. Each country has been assessed on the ten components necessary for world-class universities to prosper. We assigned grades ranging between 1 and 10. Components were given equal weight. The total scores represent not the existence of world-class universities, but the potential for world-class universities to develop given the public policy setting in each country.

In terms of the portion of university budgets from nonstate sources, Canada, the USA, and Korea were assigned high grades. Low grades were assigned to Japan, France, and Germany. In terms of the open competition for state-sponsored scientific research, high grades were assigned to Denmark, Britain, Korea, Canada, and the USA, and low grades to Germany and France. In terms of accreditation independence and licensing independence, high grades were assigned only to the USA and Canada. In relation to university property, high grades were assigned to Denmark, Korea, Canada, and the USA.

The grades were then summarized into a single indicator (see Table 4.3 below). High grades were assigned to the USA, Korea, and Canada with lower grades to Britain, Denmark, and Japan, and even lower grades to France and Germany. These summary grades are not indicators of higher education quality but rather of the potential for world-class universities to develop given the local public policies affecting higher education.

Table 4.3 Sector assessment of eight countries

	Denmark	Britain	France	Germany	Korea	Canada	USA	Japan
Nonstate income	6	8	1	1	10	10	10	2
Institutional differentiation	2	4	0	0	8	10	10	5
Institutional autonomy	8	6	1	4	4	10	10	5
University property	9	8	1	5	10	10	10	5
Tax exemption	9	7	8	8	8	10	10	7
Open comp. for science	10	10	0	0	10	10	10	8
Accreditation independence	3	8	0	0	7	10	10	3
Licensing independence	1	7	0	0	7	8	10	3
Diversity incentives	1	1	1	1	7	9	10	4
Quality incentives	10	8	6	8	10	10	10	10
Total	59	67	18	27	81	97	100	53

Note: Range: 1–10

4.6 Summary

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[10]Exceptions: certain Gulf st

4.6 Summary

All nations believe that high-quality universities are needed to support a competitive economy. This implies that all nations want greater higher education access, equity, and quality. Because no nation can attain all three objectives by utilizing public tax resources alone,[10] all potential world-class universities are competing to diversify resources, improve efficiency, generate greater private resources, and retrench low priority programs and functions. The successful world-class university is the one which succeeds in financing its own strategic objectives and is autonomous from government. Canadian and US universities have traditionally become leaders in this. But all nations have to respond to the same set of managerial dilemmas and challenges. In the future, there will be many rivals to Canada and the USA. This competitiveness is beneficial for higher education as a sector and is in the public good.

The "race" to establish world-class universities depends on the extent to which public policy allows potential world-class universities to compete. These policies include the characteristics discussed above. It is evident that some nations have established public policies that encourage the development of world-class universities. These include Canada, Korea, and the USA. Other countries, such as France and Germany, have yet to revise their public policies to allow world-class universities to prosper. We propose these grading criteria, but additional characteristics will no doubt be identified. The criteria could also be weighted differently. Nevertheless, the development of world-class universities in large part is a function of the public policies which encourage development or alternatively handicap their development.

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Chapter 5
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Simon Marginso

5.1 Introduct

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S. Marginson (✉)
Center for the Study of
e-mail: s.marginson@u

J.C. Shin and B.M. Kel
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