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Chapter 1

The New Global Landscape of Nations and Institutions

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This chapter provides a conceptual framework for understanding the dynamics between higher education and globalisation. It then reviews a range of related strategic elements relevant to both countries and higher education institutions. Against this background, the chapter reflects the relative global positions of different higher education systems, with a particular focus on research capacity and performance. The chapter concludes by reflecting on how globalisation is altering the traditional relationship between higher education and national environment.

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1.1. Introduction

Higher education systems, policies and institutions are being transformed by globalisation, which is "the widening, deepening and speeding up of worldwide interconnectedness" (Held *et al.*, 1999, p. 2). Higher education was always more internationally open than most sectors because of its immersion in knowledge, which never showed much respect for juridical boundaries. Higher education has now become central to the changes sweeping through OECD and emerging nations, in which worldwide networking and exchange are reshaping social, economic and cultural life. In global knowledge economies, higher education institutions are more important than ever as mediums for a wide range of cross-border relationships and continuous global flows of people, information, knowledge, technologies, products and financial capital. "Not all universities are (particularly) international, but all are subject to the same processes of globalisation – partly as objects, victims even, of these processes, but partly as subjects, or key agents, of globalisation" (Scott, 1998, p. 122). Even as they share in the reinvention of the world around them, higher education institutions, and the policies that produce and support them, are also being reinvented.

A generation ago, international relations were largely marginal to the day-to-day operations of higher education institutions and systems, except in scientific research. Now the growing impact of the global environment is inescapable. In many nations international mobility, global comparison, bench-marking and ranking, and the internationalisation of institutions and systems are key policy themes, and governments and university leaders are preoccupied by strategies of cross-border co-operation and competition. For certain institutions, especially in the English-speaking world, international operations have become the primary mode of development. In Europe, the negotiation of the common Higher Education Area and European Research Area has made explicit the processes whereby a large section of the global higher education environment is being formed. Global research circuits have been wired into the rapidly developing higher education systems of China, Singapore and Korea; and the first two are already players in the global degree markets.

This chapter lays out the multitude of higher education and globalisation issues as follows: Section 1.2 discusses the factors shaping definitions and policy interpretations of globalisation; Sections 1.3 and 1.4 examine the global strategic environment for higher education and the variations between national systems and institutions in experiences of globalisation; finally, Sections 1.5 and 1.6 draw out the meta-policy implications of globalisation in two areas: the partial disembedding of institutions from their national contexts, and the growing role of global public and private goods in education and research.

1.2. Interpretations of globalisation in higher education

In this era globalisation combines economic and cultural change. On one hand globalisation entails the formation of worldwide markets operating in real time in common

financial systems, and unprecedented levels of foreign direct investment and cross-border mobility of production. On the other hand it rests on the first worldwide systems of communications, information, knowledge and culture, tending towards a single world community as Marshall McLuhan (1964) predicted.[1] Continuously extending networks based on travel, mobile phones, broad-band Internet and other information and communications technologies (ICTs), are creating new forms of inter-subjective human association, of unprecedented scale and flexibility; spanning cities and nations with varied cultures and levels of economic development;[2] and enable the complex data transfers essential to knowledge-intensive production. It is the processes of communications and information, where the economic and cultural aspects are drawn together, that above all constitute what is new about globalisation; and inclusion/exclusion in relation to ICT networks and knowledge have become a key dividing line in shaping relations of power and inequality (Castells, 2000; Giddens, 2001).

In this chapter the term "globalisation" is designed to be neutral as far as possible and free of ideological baggage or particular national associations. "The widening, deepening and speeding up of worldwide interconnectedness" is here understood as a geo-spatial process of growing inter-dependence and convergence, in which worldwide or pan-regional (for example European) spheres of action are enhanced. This takes different forms and contains many projects. Globalisation can be variously understood as the roll-out of worldwide markets; the globalisation "from below" of environmental, consumer rights and human rights activists; and the exchange of knowledge and cultural artefacts within a common space (Torres and Rhoads, 2006). Hitherto Anglo American economic and cultural contents have tended to dominate, but we can today imagine an increasingly plural environment with American, European, Chinese, Islamic and other globalisations, as illustrated for example by the impact of the Arabic TV network Al-Jazeera. Nevertheless, like any process on-going and incomplete, the fuller possibilities of globalisation are difficult to grasp; and the English-language content of global convergence is more obvious than the convergence itself with its potential for reciprocal forms.

Higher education and globalisation

Higher education is implicated in all the changes related to globalisation. Education and research are key elements in the formation of the global environment, being foundational to knowledge, the take-up of technologies, cross-border association and sustaining complex communities. Though higher education institutions often see themselves as objects of globalisation they are also its agents (Scott, 1998). Research universities are intensively linked within and between the global cities that constitute the major nodes of a networked world (Castells, 2001; McCarney, 2005). Characteristically global cities have a high density of participation in higher education; there is a strong positive correlation between the higher education enrolment ratio of a nation or a region, and its global competitive performance (Bloom, 2005, pp. 23-24). Correspondingly, nations and regions that are relatively decoupled from the globally networked economy are typified by a low density of higher education.

Being deeply immersed in global transformations, higher education is itself being transformed on both sides of the economy/culture symbiosis. Higher education is swept up in global marketisation. It trains the executives and technicians of global businesses; the main student growth is in globally mobile degrees in business studies and computing; the

sector is shaped by economic policies undergoing partial global convergence, and the first global university market has emerged.

Even larger changes are happening on the cultural side (*e.g.* Teichler, 2004, p. 23). While higher education may be a second level player in the circuits of capital and direct creation of economic wealth, it is pivotal to research and knowledge, constitutive in language, information and cross-cultural encounters, and has many connections with media and communications. Information and knowledge are highly mobile, readily slipping across borders, so that the cultural sphere of higher education, in which research and information are produced, is actually more globalised than the economic sphere. Above all there is the ever-extending Internet, supporting intellectual goods whose use value far exceeds the cost of their distribution and consumption. Advanced higher education is now unimaginable without it (Smeby and Trondal, 2005, p. 453). The Internet facilitates world wide databases and collaboration between academic faculty, stimulating more face-to-face and electronic meetings. Cross-border e-learning, combining ICTs and teaching, has not displaced existing educational institutions as some expected but continues to grow, with open potential for new kinds of pedagogy and access (OECD, 2005b).

At the same time, globalisation in higher education is *not* a single or universal phenomenon; it plays out very differently according to the type of institution. While it is no longer possible for nations or for individual higher education institutions to completely seal themselves off from global effects, research-intensive universities, and the smaller number of vocational universities organised as global international businesses, tend to be the most implicated in globalisation. Likewise, nor is every national system engaged with every other to the same extent or intensity. Globalisation can also vary according to policy, governance and management. Nations, and institutions, have space in which to pilot their own global engagement. But this self-determination operates within limits, that constrain some nations and institutions more than others, and complete abstention by national systems of higher education is no longer a strategic choice.

A good example of the globalisation process lies in the spread of new public management (NMP) in higher education. In nations throughout the world the responses of systems and institutions to globalisation have been conditioned by on-going reforms to national systems, and related reforms in the organisation and management of the institutions themselves, that draw on the techniques of the new public management.[3] In the last two decades these reforms have been the strongest single driver of change in many countries.

The new public management tends towards universality in the United Kingdom, Australia and New Zealand, in much of eastern Europe and Asia, and in parts of the developing world. In developed nations and the relatively robust policy systems of emerging nations such as China, Singapore and Malaysia, the reforms are often motivated by desires for global competitiveness but generated from within the nation. The new public management has been applied less completely in western Europe and North America. But it has influence everywhere. Numerous studies attest to its impact (Marginson and Considine, 2000). For example Musselin (2005) finds that in Europe, universities are moving away from the Humboldt model in which the idea of the university was more important than the material linkages between its components. Institutional regulation is becoming stronger and professional regulation weaker. Closer managerial control is associated with

tensions between faculty links to the institution and faculty responsiveness to the global discipline (Musselin, 2005, pp. 147-49). In many European nations "higher education institutions are more and more involved in the management of their faculty staff, developing new tools and making decisions about position creations, suppression or transformations: their intervention in faculty careers is more and more frequent" (p. 143). Performance reporting and assessment cements a "stronger link between each academic and his/her institution" (p. 145). Academic self-regulation is partly preserved but overall faculty autonomy is reduced and "they must cope with 'external' constraints" (p. 146).

Globalisation is much more than a phenomenon encompassing markets and competition between institutions and between nations. Yet, while the new public management and marketisation (Marginson, 1997) are not reducible to a function of globalisation *per se*, in important ways reforms based on new public management have become generatively joined to a particular kind of globalisation. The transmission of reform templates is global in scale, and has rendered the different national systems more similar to each other in form and organisational language. One justification for reform is that competition, performance funding and transparency render institutions and systems more prepared for the global challenge. In the United Kingdom, Australia and New Zealand the new public management has undoubtedly facilitated an entrepreneurial, revenue-directed approach to cross-border relations. The new public management reforms have also facilitated the spread of selected Anglo-American practices elsewhere. For example, the academic profession in the United States is undergoing the partial replacement of tenured labour by part-time teaching and non-faculty functions (Rhoades, 1998; Altbach, 2005, pp. 152-53; AAUP, 2009). The same trend is observable elsewhere (Enders and Musselin, 2008) and can to some extent be attributed to the imitation of a dominant model.

However, because the new public management is nationally nuanced and nationally controlled its implications for globalisation, and globalisation's implications for it, vary from nation to nation, much as do the implications of globalisation itself. Nations use the new public management reform template selectively, filtering it through their own history and mechanisms. For example Finland has adopted institutional devolution, quasi-market competition in the system, and performance-managed staffing (Valimaa, 2004b, p. 118). It is focused on global research excellence and performance and compares the performance of its universities with those of other nations (Valimaa, 2005, p. 9). But the Finnish state "is not willing to relinquish its authority and power upwards or downwards" (p. 8), and there is little brain drain. Perhaps it is Finland's unique language, and its distinctive social policy tradition, that provides partial cultural insulation from global effects. In the Nordic countries, moves to greater internal system differentiation have relatively modest implications, playing out as they do in the context of strong egalitarian traditions in small systems (Valimaa, 2004a; Valimaa, 2005, p. 11). Nevertheless, in the Nordic nations as elsewhere, the new public management is associated with some loosening of traditional academic practices and a stronger executive steering capacity. This has facilitated a quickened global engagement, and routed some cross-border activity via institutions as institutions rather than their several academic faculty.

"Globalisation" and "internationalisation"

In this chapter "internationalisation" is understood in the literal sense, as international. The term refers to any relationship across borders between nations, or between single institutions situated within different national systems. This contrasts with

globalisation, the processes of worldwide engagement and convergence associated with the growing role of global systems that criss-cross many national borders. Internationalisation can involve as few as two units, whereas globalisation takes in many nations and is a dynamic process drawing the local, national and global dimensions more closely together (Marginson and Rhoades, 2002). Globalisation is more obviously transformative than internationalisation. Globalisation goes directly to the communication hubs and to the economic, cultural and political core of nations; remaking the heartlands where national and local identities are formed and reproduced; while also refashioning the larger higher education environment across and between the nations. Internationalisation is an older, more limited practice. It assumes that societies defined as nation-states continue to function as bounded economic, social and cultural systems even when they become more interconnected. "Conceptually, internationalisation was for a long time mainly seen as concentrating on the cross-border mobility of individual students and scholars and not as a strategy that affected higher education institutions or systems" (van der Wende, 2001, p. 432). Internationalisation allows scholars to selectively appropriate what they will from other realms without placing their own identities in question (Teichler, 2004, p. 11). Internationalisation in this sense takes place in the borderlands between nations and leaves the heart of those nations largely untouched. In contrast globalisation has a fecund potential to remake the daily practices of people working in higher education, expressed mostly in the research universities and in the most globalised areas such as research, science, policy and executive leadership.

Globalisation cannot be regarded simply as a higher form of internationalisation. Scott (1998) suggests that globalisation transcends national identities and carries the potential to be actively hostile to nation-states. In some respects globalisation in higher education is an alternative to the old internationalisation, even a rival to it. Yet they do not necessarily exclude each other. Internationalisation is by no means obsolete and it continues and multiplies greatly in a more global age. It is fostered within inter-dependent global systems and encourages their extension and development. Much of what begins as internationalisation has implications for globalisation, and adds to the accumulation of challenges to national policy autarky. One difference between globalisation and internationalisation is whether national systems become more *integrated* as suggested by globalisation, or more *interconnected* as with internationalisation (Beerkens, 2004). But thickening connections readily spill over into the evolution of common systems.

A case in point is Europeanisation in higher education. It has one set of origins in the growth of international mobility of people and ideas; another set of origins in the international co-operation between EU countries in their economic, social and cultural activities; and a third set of origins in the explicit commitment to a common European higher education zone in order to facilitate such international activities within Europe. At the same time international co-operation in higher education is expected to enhance the global competitiveness of Europe as a whole (van der Wende, 2004). This might appear to leave unchallenged the role of nation states, their control over higher education systems, and nation-centred assumptions about the public good role of higher education. But reality has become more complex. Competition in higher education and research is starting to play a more important role within the EU; and some elements of the Bologna and Lisbon processes, reinforced by supra-national political mechanisms such as the EU itself, constitute a partial integration across European nations. It is becoming difficult to distinguish between the notions of "interconnectedness" (the inter-governmentalist view)

and "integration" (the supra-nationalist view). As the inter-governmentalist sees it, the multilateral Bologna countries participate for their own benefit and remain in full control, although larger countries may hold stronger and more influential positions in the process. As the supra-nationalist sees it, the Bologna Process is about spill-overs and collective goods facilitated by the common system architecture, such as common degree structures. Just as the growth of cross-border trade within Europe has fed economic integration, constituting a form of globalisation (Fligstein and Merand, 2002) so it is in higher education. Though member states remain distinguishable entities, Europeanisation implies a gradual de-nationalisation and integration of certain regulatory systems (Beerkens, 2004). Europeanisation in higher education, which began in internationalisation and continues to be sustained by it, has led to a form of globalisation on a regional scale with consequences yet to be fully manifest. Trends to internationalisation and to globalisation continually reinforce each other.

This suggests that instead of the relationship between globalisation and internationalisation being mutually exclusive, linear or cumulative; it is better understood as dialectical. Arguably the dialectic between the two different kinds of cross-border relations, international and global, is foundational to the contemporary university as an institution. The university was originally normed by pan-European mobility and scholarly Latin; that is, by global forms and relationships. Today worldwide disciplinary networks often constitute stronger academic identities than do domestic locations (Kaulisch and Enders 2005, p. 132). But from the beginning, each university was also locally idiosyncratic and was open to other powers; and in the 19th and 20th centuries higher education became a primary instrument of nation-building and population management (Scott, 1998). Today higher education is subject to national culture and government, while it is also imagined as a primary instrument of the "competition state" in the global setting (Beerkens, 2004), and is drawn haphazardly into the formal and informal processes of globalisation.

Conclusions on interpretations of globalisation

The new public management has helped to frame the context of globalisation in higher education, in shaping and colouring the growing convergences between national systems, but there remains considerable scope for national and institutional variations in organisational techniques, to achieve local and international policy objectives. Globalisation and internationalisation in higher education are potentially conflicting, while at the same time interactive and mutually generative. For example in higher education policy, one possible response to the globalisation of societies, cultures, economies and labour markets is to take measures encouraging a more controlled internationalisation of higher education, rendering institutions more effective in response to the global challenge; as by definition, internationalisation is a process more readily steerable by governments than is globalisation. By the same token, single governments have only a partial purchase on global developments through the medium of internationalisation. This poses policy questions about the multi-lateral ordering of higher education, and highlights the strategic importance of regional forms of association as in Europe.

1.3. Mapping the global environment of nations and institutions

National higher education systems and institutions across the world do not experience global flows and relationships in a uniform, even, consistent or entirely predictable manner. Nations and institutions have varying potentials to absorb, modify and resist

global elements at home and to engage and act across borders in a global setting which affects them in different ways. Vaira (2004) discusses the filtering of global effects in national higher education systems. Douglas (2005) makes the point that "all globalisation is local" in that global convergences are subject to local, sub-national and national influences and countervailing forces, including governmental regulation and academic cultures. Hence the effects of globalisation are also differentiated by institutional type. Accordingly, national policy makers and the executive leaders of institutions now face a complex strategic environment. They pursue their own pathways, articulated through national tradition and open to their own strategy making, yet they no longer have full command over their destinies. A base level of global flows and forces in higher education is inescapable. Some impact institutions directly, others are mediated. The old policy-making circuit linking national/state government to institution has been partly broken open. Institutions and nations vary in the extent to which they are engaged with and open to global flows. Again, the extent of engagement is partly (but only partly) under their control. Nevertheless, the nation remains the major influence in the sector. International agencies play a minor role, multilateral negotiation in higher education is still unusual except in Europe, and a single worldwide policy setting in higher education is a distant prospect.

Global transformations

In higher education there are three kinds of potential global transformation, with varying implications for nation-states and for government/institution relations:

1. *Integrationist global transformation*. Global processes of an integrationist type that are distinct from national ones, that once established are difficult for national agents to block or modify, for example the development of Internet publishing; the formation of a global market in high value scientific labour, distinguishable from and to some extent over-determining the separate national labour markets.
2. *Nationally-convergent global transformation*. Global systems and relationships that engender a pattern of common changes in national higher education systems, leading again towards convergence and integration. Examples include the use of English as the language of academic exchange, and the convergence of approaches to PhD training. The question here is not just whether cross-border effects are manifest at the national level but whether these effects lead to global homogenisation.
3. *Nationally-parallel global transformation*. Parallel reforms by the different autonomous national governments, again, following common ideas and templates, which tend to produce some convergence and also facilitate inter-connectivity between different national higher education systems. One example is the selective changes inspired by the templates of the new public management, though as noted there is much scope for national and local nuancing. Note that this cross border "parallelisation" is facilitated by homogeneity in a national system and retarded by intra-system diversity.[4]

Changes generated under national auspices, nationally-parallel transformations, can lead to a tipping point that facilitates global integrationist or nationally-convergent transformations. Likewise nationally-convergent transformations can establish favourable conditions for integrationist transformations. Europeanisation, combining some integrationist and more nationally-parallel transformations, is opening higher education to larger changes than originally envisaged, as the element of convergence seems to be increasing over time.

Global "relativisation"

Integrationist and nationally-convergent transformations suggest globalisation has "relativised" nations and higher education institutions (Waters, 1995). They are referenced to the requirements and measures of informal global standards facilitated by worldwide publication and by the uneven tendencies to convergence and harmonisation in degree structures, recognition and quality assurance. International trade and market competition, for example in the education of foreign students and online programmes (OECD, 2004a; 2005b), encourages cross-border comparison between systems and institutions. International benchmarking of institutions and disciplines is ubiquitous. Performance counts in research and global university rankings take global relativisation further and centre it at the institutional level. In each nation governments, media and public are fascinated by the comparative global performance of "their" institutions, which becomes treated as a matter of significant national interest. But in locating institutions this way, government and public are complicit in modelling higher education as a worldwide competition of individual institutions in which differences in national context and potential are obscured. This model has a material grounding in a networked world in which the larger institutions in each nation have discrete websites, and direct faculty-to-faculty and leader-to-leader relationships, as expressed in messaging, knowledge transfers, trade and people mobility, have moved partly beyond the ken and control of national regulation. In this domain global integrationist transformations are working their way across the higher education world.

In turn this has transformative implications for relations between institutions and government. Nation-states cannot fully comprehend all the cross-border linkages of institutions and are unwise to try. As noted, the more autonomous evolution of institutions has been encouraged also by corporatisation and partial devolution under the auspices of the new public management, characterised by steering from the middle distance and more plural income raising. Some institutions operate relatively independently across borders. Here there is considerable variation by nation, and by institutional type. Research-intensive universities (especially major ones) and private institutions (especially commercial entities) normally enjoy the most global autonomy. Some non-profit institutions become differentiated between a publicly regulated segment at home and their commercial segment abroad (see Section 1.4), magnifying their freedom to operate outside the nation while limiting the wash-back effects at home engendered by global transformation.

The nation still matters

The implications of the partial "disembedding" of institutions from their national locations is explored below. Still, at this time the implications are more in the realm of the potential than the actual. The degree of separation from the nation should not be overstated. The great majority of institutions continue to be nationally embedded and dependent on governmental legitimation and resource support. The nation-state is not fading away: it remains the main site of economic activity. Fligstein (2001) estimates that about 80% of production is nation-bound, and the site of policy making in higher education and other sectors. Most governments devolve, and some deregulate, but none legislate themselves out of higher education. The fact that global economic competition is seen as knowledge-driven has magnified national policy interest in the sector. In most, though not all, nations, government remains the principal financer and the national public sector the

main provider, though the role of the private sector is growing (Altbach and Levy, 2006). In some nations the cross-border relations of institutions continue to be largely administered by the national authorities, though this approach may tend to inhibit global responsiveness; and in all nations governments indirectly affect the cross-border dealings of institutions via resource levels and incentives and the frames for communication, co-operation and mobility (Teichler, 2004, p. 21). The concerns of policy makers are to render higher education more competent for the global era, to leverage its benefits for national development, to lift performance and value for money and to devise an appropriate set of steering instruments and behavioural incentives, with balances between competition and co-operation, to achieve these ends.

Recent European studies of the impact of multilateral processes and agreements in higher education confirm the continued autonomy of national policy-making and viability of national steering. Vlk's (2006) findings support the claim that it is still the nation-state, whether directly via domestic policy or by participation in international agreements such as GATS or supranational structures such as the EU, which ultimately decides how the national higher education systems will function; though the increasing interconnectedness of various policy levels, especially in Europe, means that state steering is more complex and driving forces not always so transparent. In a comparison of the Bologna Process in England, France, the Netherlands, and Germany, Witte (2006) found that from 1998 to 2004 there was a weak convergence between the four nations towards the English system. Although the changes leading to convergence all occurred within the framework of the Bologna Process, this does not necessarily mean that they were caused by it. Rather, the Bologna Process often serves to enable, sustain and amplify developments with larger historical momentum or serving particular interests at the national level. This suggests that actors align themselves with the global context and international perceptions when those perceptions are consistent with nationally-grounded preferences. At the same time, the global referencing reflex now inbuilt into higher education mentalities means that when they support national preferences, international perceptions have a considerable legitimating power. Even in cases where those international perceptions are selective and biased, or wrong in fact, they are rarely questioned. In his study of global university consortia Beerkens (2004) finds that despite the high expectations of, and strong focus on, the role of these consortia as entities in their own right, whether they are successful or not seems to be largely defined by the extent to which the institutions concerned are embedded in their national systems. National regulation and requirements might hinder institutions in their global operations, yet the national resource environment and national identity remain vital to them. Likewise a major European study on institutional strategies for internationalisation concludes that:

> Despite all the research demonstrating the growing importance of internationalisation, and even more the rhetoric in this respect, higher education institutions' behaviour (including their internationalisation strategies) are (still) mostly guided by national regulatory and funding frameworks. For internationalisation in particular, historical, geographic, cultural and linguistic aspects of the national framework are of great importance (Luijten-Lub, 2005, p. 239).

Not all higher education institutions are globally active

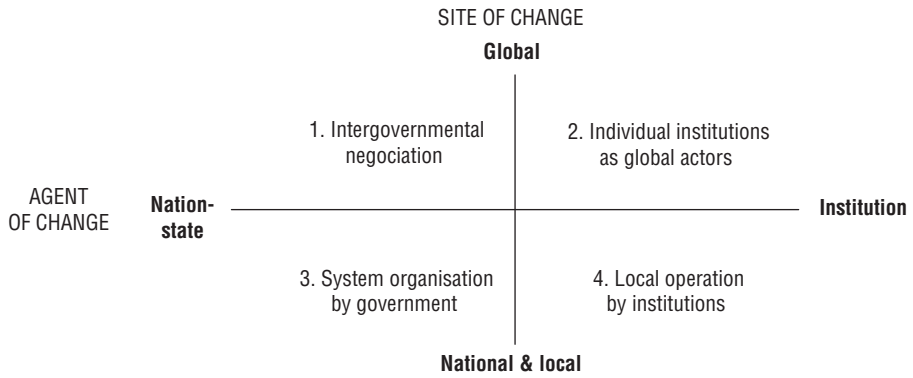
Likewise the rise of global referencing does not obviate the national identity of institutions. Studies of international student choice-making indicate that except for a

small group of institutions, the Harvards, Berkeleys and Oxfords, that are household names in many nations, the national identity of institutions remains more important in determining their reputation than their individual identity (OECD, 2004a, p. 266). The degree of global engagement of institutions should not be overstated either. Research and doctoral training are the quintessential international and global fields and this continually reinforces the global orientation of networked research-intensive universities. But many first degree, sub-degree and vocational training institutions have no active global agenda as such. Though the populations they serve are directly or indirectly affected by global economic and cultural flows, for them their local or sub-national regional mission is a logical strategy within the global setting. On the other hand, not all sub-university institutions confine themselves to local operations. Many North American public community colleges (Levin, 2001) and Australian vocational education and training institutions sell places to international students. Some have established offshore operations in Asian nations. A significant proportion of international training in business studies, computing and English language learning is provided in private commercial non-university institutions.

Global strategy making

Figure 1.1 identifies four distinct but overlapping zones in which strategies and policies are formed, by governments, institutions and both. These are inter-governmental negotiations (quadrant 1 top left), institutions' global dealings (2 top right), national system setting by governments (3 bottom left), and local institutional agendas (4 bottom right).

Figure 1.1. **Four zones of strategy making by nations and higher education institutions**



Two decades ago nearly all the action was in the bottom half of the diagram. That is no longer the case: global strategy making has become important to many nations and institutions. Here they share the global higher education landscape with international and regional agencies, educational corporations, non-government organisations, and other groups and individuals with an active interest in cross-border relationships. Within the global higher education landscape, nations and institutions are both "positioned" and "position-taking" (Bourdieu, 1993). Nations and institutions are positioned by their inherited geographies, histories, economies, polities and cultures, including their education and research systems. In the longer term nations and institutions can augment their global capacity in some of these areas by their own efforts. In the short term they

must make do with what they have. Every "position" within the global landscape suggests global "position-taking" moves corresponding to it. Nations with a strong research base can more develop themselves as providers of international doctoral education: high quality vocational institutions in Germany or Finland can readily play an international role in industry training; English-language nations can readily create an education export industry, and so on. Nevertheless, within and beyond these correspondences, there is much scope for imaginative strategy and for capacity building that will open up future strategic options. There are a host of possible networks and other global strategic permutations. Arguably, outcomes are less determined in the global setting, where the possibilities are more open, than the national setting. For example, national institutional hierarchies tend to be fairly stable with little room for upward mobility especially at the top. However second level institutions can build a new role through global production and alliances. In turn these institutions can leverage their global role to elevate their standing in the nation of origin (again indicating how the openness of the global environment has the potential to destabilise inherited certainties).

For governments and globally active institutions, there are two related objectives of global strategy: 1) to maximise capacity and performance within the global landscape, and 2) to optimise the benefits of global flows, linkages and offshore operations back home in the national and local settings. The achievement of these policy objectives depends on a realistic understanding of the global landscape, of the location of nation and institution within it, and of the possibilities for strategy. It also rests on the potential and capacity of system and institutions to operate in cross-border settings, and the degree of effective global engagement. These elements are now considered.

Mapping the global landscape

The global higher education landscape is a relational landscape. Continually moving, it is constituted by two elements: by the pattern of similarities and differences between nations and institutions; and by the cross-border flows of people, messages, knowledge, ideas, technologies and capital between them. For the most part global differences and global flows in higher education can be observed on an empirical basis, though the tools for doing this are only partly developed. *Differences* between nations and institutions are both horizontal and vertical in character. Vertical differences are differences in capacities, resources and status. Horizontal differences are institutional, organisational and systemic differences in kind that in themselves have no necessary implications for hierarchies of power.[5] Under certain historical circumstances horizontal differences have vertical implications, such as the advantages accruing to English-language nations in this era. Some but not all vertical and horizontal differences are calculable, for example in Tables 1.1 and 1.2. Horizontal and vertical differences are significant because they translate into variations in the outcomes from higher education, and the cross-border effects that one nation or institution generates in other nations or institutions. This pattern of differences forms the set of global power relations in higher education. These power relations are determining but not fixed, being open to change over time.

Cross-border *flows* constitute both lines of communication and also lines of influence and effect, which are sometimes but not always mutual in character. Again, the cross-border flows are partly accessible to observation and calculation,[6] though to make sense of these flows they need to be placed in their real world contexts, including the pattern of horizontal and vertical differences. Global flows in higher education are affected by global relations of

power. Global traffic often flows in a-reciprocal fashion, benefiting some nations and institutions more than others. For example, strong nations and hegemonic research universities have a gravitational power of attraction, pulling towards them cross-border flows of faculty talent and doctoral students, tuition fees and research and philanthropic funding. In weaker systems global brain circulation becomes a brain drain transferring long-term academic capacity to the strong nations. At the same time, as the fluid metaphor of "flows" suggests (Marginson and Sawir, 2005), cross-border flows are continually undergoing and generating change. Global flows tends to loosen global relations of power; they contribute to the innovative and transformative character of globalisation, and impart to the global higher education landscape a certain openness, dynamism, instability and unpredictability.

Differences in global potential and capacity

As noted, global capacity is a function of both global "position" and of "position-taking" strategies. The capacity of nations and institutions to operate globally depends on both their absolute potential to do so, and the voluntary decisions they take to optimise raw potential as the ability (capacity) to operate globally. Raw national and institutional *potential* in higher education is framed by such elements as the size and wealth of the economy; the systems, resources and techniques of government; cultures and languages; the skills and talents of people; and the inherited educational system itself and its academic cultures including the size and resources of the national system and of institutions, research capacity in the different fields of inquiry. National and institutional *capacity* to operate globally is also shaped by such factors as on-going investment in higher education; the communications infrastructure sustaining global connectivity; the size and shape of research programmes; the qualities of steering instruments, organisational cultures and incentives; the subsidies allocated to cross-border programmes such as research training, academic visits and research collaborations; the entrepreneurial spirit in institutions; the character of institutional autonomy and academic freedom, which are necessary conditions for identifying and maximising the full range of global opportunities. The level and type of national funding is crucial, particularly in basic research which cannot be sustained by market forces and depends on the public funding of academically determined priorities. There is also an element difficult to define and measure but often key to developing imaginative global strategies: the spirit of sympathetic global engagement, a spirit grounded in a strong sense of one's own national identity and institutional project but also characterised by a vigorous curiosity about other cultures and nations and instinctive empathy for their higher education institutions and personnel.

The global implications of national system size and of language of use, especially the global role of English, are discussed below. Meanwhile Table 1.1 (see below) provides a small number of indicators of material global potential and capacity in the OECD nations, in areas open to data gathering. Columns 2 and 3 illustrate the differences in economic resources. In 2006, Gross National Income (GNI) varied from USD 13 195.7 billion in the United States to USD 10.2 billion in Iceland in power purchasing parities (PPPs). Gross National Income per head, a rough measure of wealth intensity within each nation,[7] varied from USD 50 070 in Norway, USD 40 840 in Switzerland and USD 44 070 in the United States[8] to an OECD low of USD 8 410 in Turkey. There is much variation in investment in tertiary educational capacity, from 2.9% of Gross Domestic Product (GDP) in the United States in 2005 to 0.9% in Slovak Republic and Italy. These data show that private sources of funding play a large role in some countries: the United States (1.9% of GDP),

Korea (1.8%), Canada (1.1%), Japan (0.9%), Australia (0.8%) and New Zealand (0.6%). It cannot be assumed that nations with high private investment in tertiary education are either more or less well equipped to engage globally, but high private spending suggests that cross-border relations might be affected by a more plural group of actors.

The differences between nations in the material base are associated also with differences in the competence of school students in mathematics (column 6), though the correlation is loose,[9] and in national research capacity as measured in quantitative terms by the number and intensity of researchers within the population (columns 7 and 8). Research capacity is particularly significant in global terms because of the key role played by research in attracting inward flows of faculty and doctoral students, and underpinning both outward flows of knowledge and ideas, and the ability to make use of knowledge flowing into the country. The United States has more than a third of all researchers in the OECD nations, though its proportion of research degree graduates within the population (1.3%) was in 2005 lower than Switzerland (3.1%), Portugal (2.6%), Germany (2.4%), Sweden (2.2%) and several other nations. Table 1.1 also provides data on China's GNI and the size of its research workforce. On both measures China is now second only to the United States.

Column 9 provides data on the number of broadband subscriptions per 100 persons, in all categories of broadband access. This is one indicator of global connectivity, the capacity for global engagement, as broadband is essential to full utilisation of the Internet. Within the OECD group this ratio varies from a high of 35.1 in Denmark to only 4.3 in Mexico (where the price of broadband is very high). Turkey, Poland, the Slovak Republic and Greece also have relatively low levels of broadband Internet access.

Differences in the level of global engagement

Global *engagement* includes elements such as the short-term and longer-term movement of faculty, students and other personnel in and out of the nation and its individual institutions for educational purposes; the pattern of research collaborations across borders; the volume of messaging and data transfer; the flows of financial capital in the form of investments offshore and revenues for cross-border educational services; and so on. The final two columns of Table 1.1 provide partial data in one of these domains: cross-border student mobility, incorporating foreign students as a proportion of total enrolment (albeit an imperfect measure of mobility because it includes resident foreigners), and the outward movement of student nationals.

There are marked variations between OECD nations in this form of global engagement (Table 1.1). Foreign enrolment exceeds 10% of tertiary students in Luxembourg, New Zealand, Australia, Switzerland, the United Kingdom, Austria, Canada, Belgium, Germany and France but is negligible in Poland, Korea, Turkey, and the Slovak Republic. In 2003, the outward movement of student nationals exceeded 5% in Luxembourg, Iceland, the Slovak Republic, Ireland, Greece, Norway and Austria but was low in the United States, Australia and Mexico. In part this is because these nations do not share in the European mobility schemes. However that is not the full explanation. The English-speaking nations of the United States, the United Kingdom and Australia are relatively attractive to foreign students but have largely one-way student flows with limited external engagement by nationals. Foreign student enrolment is more than ten times the level of outward movement. In the outcome few nations support sizeable student movement each way, with both columns showing more than 4% only in Austria, Norway, Switzerland, Luxembourg and Iceland.

Table 1.1. **Selected indicators of global potential, capacity and engagement, OECD countries and selected other countries**

	Gross National Income (GNI)	Gross National Income (GNI) per head	Share of GDP spent on tertiary education institutions		Mean PISA maths score	Total research persons	Ratio of research degree graduates to total population	Broadband Internet	Foreign tertiary students as share of students	Tertiary students abroad* as share of students
			Public	Private						
	2006	2006	2005	2005	2003	2006	2005	2007	2006	2003
	USD, PPP (billion)	USD, PPP	%	%		FTE	%	Per 100 persons	%	%
United States	13 195.7	44 070	1.0	1.9	483	1 334 628**	1.3	23.3	3.5**	0.2
Japan	4 195.9	32 840	0.5	0.9	534	709 691	0.9	22.1	3.2	1.6
Germany	2 692.3	32 680	0.9	0.2	503	282 063	2.4	23.8	11.4	2.8
United Kingdom	2 037.2	33 650	0.9	0.4	m	183 535	2.0	25.8	17.9	1.2
France	1 974.9	32 240	1.1	0.2	511	192 790**	1.1**	24.6	11.2	2.5
Italy	1 704.9	28 970	0.6	0.3	466	70 332**	1.0	17.2	2.4	2.2
Spain	1 244.2	28 200	0.9	0.2	485	115 798	1.0	18.0	2.9	1.5
Canada	1 184.4	36 280	1.4	1.1	532	112 624**	0.8**	26.6	14.6	m
Korea	1 113.0	22 990	0.6	1.8	542	199 990	1.1	30.5	0.7	2.8
Mexico	1 249.2	11 990	0.9	0.4	385	33 484**	0.1	4.3	m	0.9
Australia	702.5	33 940	0.8	0.8	524	73 344**	1.7	23.3	20.9	0.6
Turkey	61.7	8 410	m	m	423	42 663	0.2	6.0	0.8	2.5
Netherlands	620.0	37 940	1.0	0.3	538	45 852	1.5	34.8	6.1	2.4
Poland	543.4	14 250	1.2	0.4	490	59 573	0.9	8.8	0.5	1.3
Belgium	357.0	33 860	1.2	0.1	529	33 924	1.2	25.7	12.1	3.1
Sweden	311.7	34 310	1.5	0.2	509	55 729	2.2	30.3	9.8	3.6
Austria	298.4	36 040	1.2	0.1	506	30 452	2.0	19.6	15.5	5.5
Greece	344.1	30 870	1.4	n	445	19 907	0.7	9.1	2.5	8.4
Switzerland	305.9	40 840	1.4	m	527	25 400**	3.1	31.0	19.2	4.7
Czech Republic	214.9	20 920	0.8	0.2	516	26 267	1.2	14.6	6.3	2.4
Portugal	211.3	19 960	0.9	0.4	466	20 242**	2.6	14.4	4.6	3.0
Norway	233.3	50 070	1.3	m	495	20 989**	1.2	31.2	6.7	7.1
Denmark	196.7	36 190	1.6	0.1	514	28 653	1.2	35.1	8.4	3.3
Hungary	170.8	16 970	0.9	0.2	490	17 547	0.7	13.6	3.3	2.1
Ireland	148.2	34 730	1.0	0.1	503	12 167	1.2	18.1	m	8.7
Finland	174.7	33 170	1.7	0.1	544	40 411	2.0**	30.7	2.9	3.5
New Zealand	107.7	25 750	0.9	0.6	523	15 568**	1.1	18.3	28.5	3.5
Slovak Republic	92.0	17 060	0.7	0.2	498	11 776	1.3	7.6	0.9	9.1
Luxembourg	28.1	60 870	0.8**	m	493	2 346	m	26.7	42.2	211.6
Iceland	10.2	33 740	1.1	0.1	515	1 917**	0.3	32.2	4.5	22.3
OECD total	**–**	**–**	**0.9**	**1.0**	**489**	**3 791 009**	**m**	**20.0**	**–**	**–**
Country mean	**–**	**–**	**1.1**	**0.4**	**500**	**–**	**1.3**	**–**	**9.6**	**4.0**
China	6 119.1	4 660	m	m	m	1 223 756	m	m	m	1.8
India	2 726.3	2 460	0.7	0.2**	m	m	m	m	0.1**	0.9
Brazil	1 647.5	8 700	0.8	m	m	m	1.3	m	m	0.5
Russian Federation	1 814.9	12 740	0.8	m	m	464 357	m	m	0.9	0.3
Indonesia	737.2	3 310	0.3**	0.4**	m	m	m	m	m	1.0
Argentina	456.8	11 670	0.7**	0.4**	m	35 040	m	m	0.2**	0.4
Egypt	366.5	4 940	m	m	m	m	m	m	m	0.3
Malaysia	317.4	12 160	2.7**	0.9**	m	m	m	m	4.4**	6.5
Chile	185.6	11 300	0.3***	1.5***	m	m	m	m	0.3**	1.1
Israel	168.1	23 840	1.0	0.9	m	m	1.3	m	m	3.3

m = missing data
* Students enrolled in countries that report to the OECD (the OECD members plus selected comparators, which include China, India and Indonesia).
** Earlier year used
*** Year of reference 2006

Sources: OECD (2005a, 2005d, 2006a, 2007a, 2007b, 2008a and 2008c); World Bank (2006 and 2008).

Conclusions on mapping the global environment of nations and institutions

Globalisation in higher education is articulated in national and local contexts and is highly variable. The nation-state remains the site of policy making and is essential to the global capacity of non-profit institutions. At the same time globalisation has relativised the national and local settings: in an open information environment and global research system, some global effects are inevitable; and global comparisons and connections are now essential to national governments and research-intensive universities (though not to all other institutions). Here there is a disjunction between on one hand the worldwide character of cultural and economic relations, with instant mobility of messages and data, and the greater (albeit variable) ease of movement of people, institutions and programmes; and on the other hand the predominantly national character of policy and governance, and the nationally shaped academic labour markets and career structures (Enders and de Weert, 2004a, 2004b; Musselin, 2005). There is a "jurisdictional gap", a "discrepancy between a globalised world and national, separate units of policy making" (Kaul *et al.*, 1999, p. xxvi). One effect of this jurisdictional gap is to restrict the policy imagination. It is perhaps not surprising that nation-bound policy agencies have failed to compile all the data needed to understand cross-border differences, flows and effects in global higher education (Kelo *et al.*, 2006; Marginson, forthcoming A), though mapping the global landscape on a comprehensive basis would greatly assist national policy makers and institutions.

1.4. Global power relations in higher education and research

Global English

Many students from non-English-speaking nations want to acquire English and degrees from English-speaking systems, while comparatively few English-speaking students want to acquire other languages and degrees from non-English-speaking nations. The driver here is the vertical patterning of language and degree status. English is the premier language of business and the professions and the only global language of science, research and academic publication. The erstwhile worldwide roles of Latin, French, German and Russian have declined. French remains important in Francophone Africa, and German continues to be widely known in Central Europe and relatively well known in university circles in Japan; Arabic is a common medium of academic discussion in many nations; and Spanish an important regional language in Central and South America with a growing importance in the United States; nevertheless, in an increasing number of institutions throughout the world faculty have formal or informal incentives to publish in English-speaking journals. "It is English that stands at the very centre of the global knowledge system. It has become the *lingua franca par excellence* and continues to entrench that dominance in a self-reinforcing process" (Held *et al.*, 1999, p. 346; Crystal, 2003). The global academic role of English is as much driven by the weight of the Anglo-American bloc within the world economy, the cultural industries and the Internet, as by specific developments in higher education. The special status of English extends beyond the language itself to the works generated in it. Books prepared originally in English are much more likely to be translated into other languages than the other way round (Held *et al.*, 1999, p. 346).

Because knowledge conceived and discussed in English enjoys a privileged status *vis-à-vis* all other knowledge, much academic work of great social and scientific

importance, originating in languages other than English, is excluded from the common global knowledge circuits, with incalculable consequences for economic and social development and for human rights. This is especially serious in relation to the study of society and the humanities, given the global impacts of works in French, German and Spanish (to name only three European languages) in the modern era alone.

English is also spreading as a medium of instruction in non English-speaking nations, particularly in programmes designed to attract foreign students. It is widely used in India and the Philippines, and in Singapore and Hong Kong (China), which have close historical links with English-speaking nations. In Malaysia, English has been reintroduced in the school sector and is dominant in the growing private tertiary college sector. It is also in growing use as a medium of instruction in the education export industry in China. Within Europe, English is increasingly used as the language of instruction in selected programmes, especially at Masters level and those targeting students from Asia. Nations where English is widely used include the Netherlands, Finland, Iceland, Sweden and Denmark, and also Singapore and Hong Kong China. German institutions are also extending the facility to prepare doctoral theses in English, and Japan provides about 80 English language programmes (OECD, 2005a, p. 255), but the spread of English as a medium of instruction and/or examination is more significant in the smaller European nations. As a second language English is much more widely used throughout the academic world. For example a survey of 1998-99 ERASMUS teachers and coordinators found that almost 90% of those from non-English-speaking countries spoke English; while the second language, French, was spoken by less than half of the respondents (Enders and Teichler 2005, p. 101). The second language use of English provides the benefits of a common global language without the cultural lacunae. At the same time English is itself becoming more diverse, with distinctive "Englishes" inflected by local language and culture, especially in Asian nations, though whether this finds its way into the research literature remains to be seen.

At this point in history, national and institutional capacity in English, especially in the sciences, is essential to global effectiveness in higher education. But the dominance of English is not guaranteed forever. As Table 1.2 shows, English is only one of the languages spoken by one billion people; the other is Putonghua ("Mandarin" Chinese). Two pairings of related and mutually intelligible languages are spoken by more than half a billion people: Hindi/Urdu, and Spanish/Portuguese. Another three languages are spoken by over 200 million people: Russian, Arabic and Bengali. Another four languages have more than 100 million speakers. These languages are too large to disappear. From this perspective, providing that China develops Putonghua as a language of scientific research it could become globally significant. Another possibility lies in the accumulation of China's economic role. It may be that Putonghua becomes used widely as a medium of transactions in many fields. In this case it could well become a normal part of higher education for students all over the world, enhancing its potential as a vehicle for common knowledge.

In addition to the number of speakers, the geographic spread or concentration of a language across countries may be important to its global significance. In that respect, Spanish, Arabic or French may have more assets than Putonghua, Hindi or Urdu to reach global significance. If regionalisation looms larger, some world regions (Latin America, nations using Arabic, and Francophone Africa) may assume a distinctive linguistic base, with one other language being used alongside English as a medium of exchange and

Table 1.2. **Spoken languages with more than 100 million voices worldwide**

Language/language group	Number of voices (millions)
English	1 000
Putonghua ("Mandarin")	1 000
Hindi/Urdu	900
Spanish/Portuguese	450/200
Russian	320
Arabic	250
Bengali	250
Malay-Indonesian	160
Japanese	130
French	125
German	125

Source: Linguasphere Observatory (2006).

marker of identity. It is possible also that English will stay dominant in the sciences while greater global plurality is maintained in the social sciences and humanities.

An Americanised global sector?

The most striking vertical difference in the global landscape is the special and hegemonic role played by American higher education, led by the powerful American doctoral sector. The United States constitutes 17 of the world's top 20 research universities in terms of research performance, and 53% of the top 100 (SJTUIHE, 2007) and draws and holds talented doctoral students, postdoctoral researchers and established faculty from everywhere. The norms diffusing from the United States to the global field reflect a distinctive American approach to competition and social markets in higher education: a high fee high aid mixed public/private system segmented by institutional type in which the public sector commands three quarters of enrolments but non-profit and for-profit private sector models are important. American tradition is different to that of the other English-speaking nations but in the last two decades changes in system-organisation and financing have brought Australia, New Zealand and the United Kingdom closer to United States' practice. To worldwide American power in the research universities is joined the secondary global role of the United Kingdom, especially through Oxford, Cambridge and the rest of the Russell Group of universities and through continued British authority in matters of culture, language and in developing governmental techniques.[10] In this context, for many in higher education around the world, globalisation appears as an American or Anglo-American process (Altbach, 2006; Rhoads and Torres, 2006), especially in the research university domain where in many ways national identity is shaped.

The concentration of research, resources and prestige in major universities constitutes institutions of key importance in their nations and powerful engines of globalisation on the world scale. The research performance of universities signifies their capacity to produce global knowledge goods and their status in the eyes of other institutions, prospective students and financial capital. The research performance of nations underpins their flexibility and innovative capability as networked global economies and helps them to attract highly skilled migrants, helping to determine the direction, volume and intensity of people flows in the global environment. Every nation

wants strong research universities. Every research university wants to boost its reputation. All are focused on policies to elevate capacity and performance.

The comprehensive research-intensive university evolved in western Europe, the United Kingdom and the British foundations including those in North America. Combining teaching functions with research and scholarly activities, often though not always carried out by the same personnel, it has become globally hegemonic as the most powerful and imitated form of higher education, though there are many other models of university, of higher education and of research organisation (Marginson and Ordorika, 2007). The most prestigious universities concentrate research activities on a large scale. Research and doctoral training are also the most globalised higher education activities, particularly in the scientific disciplines which have long functioned on a worldwide basis. The research standing of institutions is a key marker in the global higher education landscape, more so since the advent of global research rankings in 2003. To the public and policy-makers global higher education often appears as a global market of research-intensive universities, in which the map of producers is highly stratified and institutions from the United States are dominant. Though in reality, only a small proportion of worldwide higher education institutions falls within this description. Research and scholarly activities are both collaborative and competitive, and innovative (even iconoclastic) as well as authoritative. Global comparisons of measured research performance, especially when the unit of measurement is the whole institution rather than the discipline, tend to strengthen the element of competition and the status of the established institutions. It is a radical over-simplification of higher education, but no less influential for that, and reflects an important reality of the sector.

The Shanghai Jiao Tong University Institute of Higher Education (SJTUIHE) has published annual data comparing research in the world's 500 leading universities since 2003. The SJTUIHE data comprise Nobel Prizes, Fields Medals in Mathematics, measures of publication in global journals, citations, the number of high citation ("HiCi") researchers located in the top 250-300 persons in each scientific field as classified by the Thomson ISI database, and per faculty output. In 2005, American research universities housed 4 031 of the HiCi researchers, compared to 260 in Germany, 258 in Japan, 185 in Canada, 159 in France, 113 in Switzerland, 111 in Australia, 61 in Sweden, 21 in China, 11 in India and none for example in Indonesia (ISI, 2008). The SJTUIHE data, illustrated in Table 1.3, show that the United States enjoys a global role in terms of institutional power that far exceeds its share of scientific output and unlike the latter shows no sign of relative decline. In 2007 the United States housed 54 of the SJTIHE world's top 100 research universities, led by Harvard. The United Kingdom provides the University of Cambridge at number two and is the second strongest nation with eleven of the top 100. With Canada (four) and Australia (two) the English-speaking nations constitute 71% of this group. A further 22 are in western Europe, six in Japan and one in each of Israel and Russia.[11] Leading European nations are Germany (six), France and Sweden (four each) and Switzerland (three) and the Netherlands (two). China and India have none of the top 100. China including Hong Kong has 25 of the top 500; five are in Chinese Taipei. India has just two of the top 500.[12]

Table 1.3 also maps each nation's share of global economic capacity against its share of the SJTUIHE 2007 top 100 and top 500 research universities. National economic capacity is calculated by multiplying Gross National Income with Gross National Income per head, thereby taking into account both quantitative economic weight and the intensity of wealth. Each nation's share of global economic capacity is calculated by comparing its national

Table 1.3. **Countries' share of the top 500 and 100 research universities as measured by Shanghai Jiao Tong University, compared to their share of world economic capacity**

	Gross National Income (GNI)	Population	Gross National Income (GNI) per head	Share of world economic capacity	Share of top 500 research universities	Share of top 100 research universities
	2006	2006	2006	2006	2007	2007
	USD, PPP (billion)	Millions	USD, PPP	%	%	%
United States	13 195.7	299.4	44 070	41.1	32.9	53.5
United Kingdom	2 037.2	60.6	33 650	4.8	8.3	10.9
Germany	2 692.3	82.4	32 680	6.2	7.9	5.9
Japan	4 195.9	127.8	32 840	9.7	6.5	5.9
Canada	1 184.4	32.6	36 280	3.0	4.4	4.0
France	1 974.9	61.3	32 240	4.5	4.6	4.0
Sweden	311.7	9.1	34 310	0.8	2.2	4.0
Switzerland	305.9	7.5	40 840	0.9	1.6	3.0
Australia	702.5	20.7	33 940	1.7	3.4	2.0
Netherlands	620.0	16.3	37 940	1.7	2.4	2.0
Italy	1 704.9	58.8	28 970	3.5	4.0	0.0
Israel	168.1	7.0	23 840	0.3	1.4	1.0
Austria	298.4	8.3	36 040	0.8	1.4	0.0
Finland	174.7	5.3	33 170	0.4	1.0	1.0
Denmark	196.7	5.4	36 190	0.5	0.8	1.0
Norway	233.3	4.7	50 070	0.8	0.8	1.0
Russian Federation	1 814.9	142.5	12 740	1.6	0.4	1.0
China*	6 119.1	1 311.8	4 660	2.0	2.8	0.0
Spain	1 244.2	44.1	28 200	2.5	1.8	0.0
Korea	1 113.0	48.4	22 990	1.8	1.6	0.0
Belgium	357	10.5	33 860	0.9	1.4	0.0
China Hong Kong	268.9	6.9	39 200	0.7	1.0	0.0
Chinese Taipei	x	x	x	0.0	1.2	0.0
New Zealand	107.7	4.2	25 750	0.2	1.0	0.0
Brazil	1 647.5	189.3	8 700	1.0	1.0	0.0
South Africa	421.7	47.4	8 900	0.3	0.8	0.0
India	2 726.3	1 109.8	2 460	0.5	0.4	0.0
Ireland	148.2	4.3	34 730	0.4	0.6	0.0
Poland	543.4	38.1	14 250	0.5	0.4	0.0
Singapore	194.1	4.5	43 300	0.6	0.0	0.0
Hungary	170.8	10.1	16 970	0.2	0.4	0.0
Turkey	61.7	73.0	8 410	0.0	0.2	0.0
Greece	344.1	11.1	30 870	0.8	0.4	0.0
Mexico	1 249.2	104.2	11 990	1.1	0.2	0.0
Argentina	456.8	39.1	11 670	0.4	0.2	0.0
Chile	185.6	16.4	11 300	0.1	0.4	0.0
Czech Republic	214.9	10.3	20 920	0.3	0.2	0.0
Portugal	211.3	10.6	19 960	0.3	0.4	0.0
All other nations**	10 613.0	2 494.3	4 255	3.2	0.0	0.0
World total	**60 209.9**	**6 538.1**	**9 209**	**100.0**	**100.0**	**100.0**

x = included in another row.

* China Hong Kong is listed separately.

** Population and GNI data include Chinese Taipei.

World economic capacity is measured as an aggregate of the individual nations' economic capacity, defined as GNI multiplied by GNI per head. All nations without any top 500 research universities are treated as one unit.

Source: World Bank (2008); SJTUIHE (2007).

economic capacity to the global total. The nations whose university systems are above average performers in research terms, relative to national economic capacity are Israel, Sweden, Switzerland, the United Kingdom, the Netherlands, Canada, Finland, Denmark, Australia, Norway, the United Kingdom and the United States. In nearly all cases, superior national performance relative to economic capacity is correlated to relatively high public investment in research in higher education. Further, except in the United States, the private sector plays a relatively minor role in the nations in the high performance group, while several nations that underperform relative to economic capacity have large private sectors and a highly stratified research effort, including Japan, Korea, Poland, Brazil and Mexico. This underlines the dependence of research capacity on public investment.

The United States performs very well in its share of the top 100 research universities but underperforms in its share of the top 500, suggesting that resources and status have been concentrated in globally leading research universities, possibly at the expense of the potential of regional knowledge economies. Germany does well in its share of the top 500, indicating a broad-based research capacity across the national system, but not so well in its share of the top 100 research universities relative to economic capacity. Japan underperforms at both levels. The Americanisation in higher education may thus be driven by a small segment of the United States system and does not necessarily reflect its average performance.

It is noteworthy that there are no lines of policy accountability for "Americanisation". It is not managed by the United States government. It is constituted by the sum of the on-going cross-border dealings of American institutions and faculty, interacting as they do with institutions and personnel in other nations. American global engagement in higher education, underpinned by material power and cultural authority and the sense of right project they bring, mixing profit-taking with gratuitousness and gift economy, generates in other nations a mix of admiration, opportunism and resentment. Like Europeanisation, Americanisation has global effects. However, unlike Europeanisation, Americanisation it is not an explicitly political process.

The United States as a magnet for talented researchers

The effects of Americanisation can be a policy matter for some non-United States governments to consider. For them the key problem is often that Americanisation is sustained by highly unbalanced global flows of people and cultural transfer. The United States is an overwhelming "brain-gainer" in relation to the rest of the world, whereas most other nations face a net loss of research personnel to the United States. There is high foreign mobility into the United States' research system at every stage: doctoral training, postdoctoral posts and established faculty involved in both short-term visits and longer-term migration into the United States. The United States plays a particularly significant global role in drawing researchers from East Asia and South Asia.

American research universities are unique in the extent to which they focus on the doctoral level in recruiting foreign students. Whereas in 2006, just 4.2% of international students in Australia and 11.6% of those in the United Kingdom were doctoral students, in the United States in 2006, 15.7% of all international students in higher education were enrolled at doctoral level, and, in 2005, 30.8% in research-intensive universities. Thus whereas in 2006 the United Kingdom had 40 193 foreign students enrolled in advance research programmes, Spain 14 783, Australia 11 988, Switzerland 7 626 and Sweden 4 414, in 2005 the American doctoral sector enrolled 102 084 foreign doctoral students. Three

quarters of the foreign doctoral students in the United States receive scholarships or other subsidies, mostly from their American universities, which is not the case in other countries (OECD, 2007a; IIE, 2007; *OECD Education Database*). As in many other nations,[13] the proportion of doctoral graduates who are foreign-born has grown. Between 1977 and 1997 the foreign share of American PhDs rose from 13.5 to 28.3%. In mathematics and computer science it rose from 20.2 to 43.9%, in engineering from 32.1 to 45.8% (Guellec and Cervantes, 2002, pp. 77-78). In 2006, the share of international students graduating from advanced research programmes was 28% in the United States (OECD, 2008c).

During their studies foreign students make a key contribution to American universities as research and/or graduate teaching assistants. And growth in the foreign student proportion of American PhDs has been matched by their propensity to stay. From 1987 to 2001 the stay rate for foreign doctoral graduates rose from 49 to 71% (OECD, 2004c, p. 159).[14] Though not all work in higher education, between 1975 and 2001 there was a sharp rise in foreign born with United States doctoral degrees as a proportion of faculty labour, from 12 to 21% (NSB, 2006, p. A5-45).

At the postdoctoral stage the United States offers the majority of posts worldwide. Whereas recent studies in Europe suggest that postdoctoral mobility is stable (Enders and de Weert, 2004a, pp. 146-47) in the United States a high and increasing proportion of postdoctoral personnel holding United States doctoral degree are foreign born: 41% in 2001 compared to 21% in 1985 (NSB, 2006, p. A5-47). The United States followed by the United Kingdom also draws the largest number of visiting faculty. Between 1994-95 and 2004-05 international scholarly visitors to the United States rose from 59 981 to 89 634, by 49.0% (IIE, 2006),[15] two-thirds of them in science and engineering. For most OECD countries two to four scholars and researchers hold positions in the United States for every 100 at home. In 2003-04 the ratio of visiting scholars to those at home was highest for Korea (13 per 100) and the Russian Federation (8). Between 1995 and 2004 the number of visiting scholars rose by annual rates of 9% from Korea, 6% from India and 4% from China (OECD, 2006b, p. 30).

The advantage of the United States in global doctoral and postdoctoral markets creates many long term benefits for the United States. For example between 1985 and 1996 the number of foreign students primarily supported as research assistants rose from 2000 to 7600 (Guellec and Cervantes, 2002, p. 89). About half the foreign doctoral graduates stay in the United States after graduation, many in faculty positions, augmenting the capacity of the United States as a global knowledge economy. Other doctoral graduates return to their nations of origin, making their countries of origin benefit of their newly acquired knowledge (OECD, 2006a), or migrate elsewhere, but also probably carrying with them some degree of commitment to American norms in higher education. Many eventually find themselves in positions of governmental or institutional leadership, no doubt easing global nationally-parallel transformations whereby nations implement different and parallel reforms following common ideas and templates. Also, with regard to academic profession in particular, for example the 1992 Carnegie survey of the academic profession in fourteen nations identified the United States as the main exporter of academic labour, supplying three of the nations surveyed – Hong Kong, Korea and Israel – with more than 18% of their staff (Welch, 2005, pp. 78-79).[16] The outcome is that American knowledge goods and models of higher education and research may have continuous effects in other national systems.

Uneven global knowledge flows

Because research is highly globalised, one of the measures of performance is the extent to which systems and institutions make effective use of cross-border collaboration to accumulate foreign knowledge and researchers at home. Between 1988 and 2005 the annual number of science and engineering articles, which are mostly produced in universities, rose from 466 419 to 709 541. The number of joint patent applications by researchers residing in two different countries doubled between the mid-1980s and mid-1990s (Guellec and Cervantes, 2002, p. 85). Between 1988 and 2001 the incidence of scientific articles published by authors of more than one nationality rose from 8 to 18%.[17] The incidence of citation of foreign articles also increased (Vincent-Lancrin, 2009; Laudel, 2005). A significant proportion of these collaborations are founded on the pairing of American faculty with foreign doctoral students and their growth reflects the expansion of foreign study in the United States. These trends are also sustained by the growing role of disciplinary publications with world reach *via* the Internet, often at the expense of local and national publication in non-English speaking countries (Bensimon and Ordorika, 2006; Marginson, 2007b). There has also been a growth of cross-national research projects and some pluralisation of funding sources across borders.

Some American universities are committed to working with partner universities in emerging nations to build capacity, for example by facilitating access to journals, databases, equipment and research training, partly counter-balancing the brain drain. However, an aid-based approach does not create a reciprocal global engagement. Anglo-American practices are underpinned by a distinctive approach to language and cultural diversity. Anglo-American universities, except in Canada and the indigenous institutions in New Zealand, are more sanguine about mono-cultural and mono-linguistic environments than their counterparts elsewhere (*e.g.* OECD, 2008b). In one sense this is readily explained: given the worldwide dominance of United States and United Kingdom universities in a networked sector, while institutions in other nations have little choice but to acknowledge English-language outputs, English-language institutions do not face an equivalent imperative. But there are also philosophical differences: in the United States and the United Kingdom "diversity" is understood in social rather than cultural terms for example as the access of non dominant groups to higher education. A fuller global diversity is not seen as an essential goal in itself. Daniel Drache and Marc Froese (2005) summarise the differences between Anglo-American and European outlooks as follows:

> The European Union looks to build linkages and networks between state regulatory policy, Brussels and cultural producers. This tripartite approach is difficult at the best of times, but it has been quite effective nonetheless. The European Union is linguistically and socially diverse and its internal stability depends on a pluralistic approach to the global commons. It regards freedom of expression as important to protect as part of its commitment to the social market.... The Anglo-American model is sharply contrasting in its regulatory and market dimensions. It should be noted that despite the fact that Britain is a member of the European Union, its elites share many ideas with their American counterparts. Simply put, this model values diversity as a function of competition and not the other way round. Consumers choose their cultural diet from a buffet of options. And just like many buffets, portion size is more important than quality and breadth (Drache and Froese, 2005, pp. 26-27).

One outcome is that most American institutions are not very globalised except at the point of entry into the research ranks. The Carnegie survey of the academic profession found that whereas more than 90% of scholars from other nations believed that it was necessary to read foreign books and journals, only 62% of American scholars agreed (Altbach, 2005, pp. 148-49). American scholars and students cross borders less than most of their counterparts. Altbach remarks that though American scholars are "at the centre of the world academic system", and this "imposes special responsibilities on them" (p. 150), and despite the fact that American universities are relatively sophisticated in data retrieval technologies with the United States constituting the world's largest single pool of broadband Internet subscribers (Drache and Froese 2005, p. 16), "American academics do not often cite works by scholars in other countries in their research. The American research system is remarkably insular, especially when compared to scientific communities in other countries… The American system accepts scholars and scientists from abroad, but only if they conform to American academic and scientific norms" (Altbach, 2005, p. 149). Though there are many individual exceptions to these generalisations, and though scholarly parochialism is by no means confined to the United States, what makes this pattern of insular globalisation and one way cross-border flows troublesome in many nations is the global weight of American higher education.

In 2005 scientists and social scientists in the United States published a number of papers in recognised international journals accounting almost a third of world output, and the United States "accounted for 41% of citations in the world scientific literature" (Vincent-Lancrin, 2009). In 2005, the volume of the science and engineering papers from the United States was 205 320, while from Japan it was 55 471, the United Kingdom 45 572, Germany 44 145, France 30 309 and Switzerland 8 749. By contrast, in Indonesia, a middle level developing nation with two thirds of the population of the United States, there were 207 papers in 2001. There were 14 608 from India and 41 596 from China (NSF, 2006 and 2008). Table 1.4 has full country data for the OECD nations, plus data for all other nations producing more than 1 000 papers in 2005 and four emerging nations with populations of more than 100 million but little scientific infrastructure.

Improving global research university performance

Longstanding policy means of leveraging international activity to develop national research capacity include scholarships, living allowances and travel support for the doctoral training of nationals abroad, the funding of short-term academic visits and exchanges; academic incentives to publish in leading journals which are now largely English-language journals; and the subsidisation of national researcher participation in cross-border research partnerships, networks and other kinds of collaborative projects.

In doctoral training, it is necessary to maintain a balance between augmenting the intellectual experience of student nationals and the potential for knowledge transfer from other nations via doctoral study and the pattern of longer-term collaborations, and nurturing local research capacity given that in many nations doctoral students are responsible for a large share of the total research effort: for example in Australia in 2004 research students carried out 57.2% of all funded research in higher education (ABS, 2006). The optimum national research system uses a multi-locational approach to doctoral training, concentrating students both at home and in several major locations of research activity abroad. The United Kingdom and a number of western European nations achieve this. Emerging nations face the uphill climb to establish a national research infrastructure

Table 1.4. **Output of published articles in science and engineering (including medicine and social sciences), OECD countries and selected other countries**

	Total population	Published S&E articles		Proportion of total world output of S&E articles		Change in number of articles
	2006	1988	2005	1988	2005	1988-2005
	Millions	Number	Number	%	%	1988 = 100
United States	299.4	177 682	205 320	38.1	28.9	115.6
Japan	127.8	34 435	55 471	7.4	7.8	161.1
United Kingdom	60.6	36 509	45 572	7.8	6.4	124.8
Germany	82.4	29 292	44 145	6.3	6.2	150.7
France	61.3	21 409	30 309	4.6	4.3	141.6
Canada	32.6	21 391	25 836	4.6	3.6	120.8
Italy	58.8	11 229	24 645	2.4	3.5	219.5
Spain	44.1	5 432	18 336	1.2	2.6	337.6
Australia	20.7	9 896	15 957	2.1	2.2	161.2
Netherlands	16.3	8 581	13 885	1.8	2.0	161.8
Korea	48.4	771	16 396	0.2	2.3	2 126.6
Sweden	9.1	7 573	10 012	1.6	1.4	132.2
Switzerland	7.5	5 316	8 749	1.1	1.2	164.6
Belgium	10.5	3 586	6 841	0.8	1.0	190.8
Poland	38.1	4 030	6 844	0.9	1.0	169.8
Finland	5.3	2 789	4 811	0.6	0.7	172.5
Denmark	5.4	3 445	5 040	0.7	0.7	146.3
Austria	8.3	2 241	4 566	0.5	0.6	203.7
Turkey	73.0	507	7 815	0.1	1.1	1 541.4
Greece	11.1	1 239	4 291	0.3	0.5	346.3
Norway	4.7	2 192	3 644	0.5	0.5	166.2
Mexico	104.2	884	3 902	0.2	0.5	441.4
New Zealand	4.2	2 075	2 983	0.4	0.4	143.8
Czech Republic	10.3	2 746	3 169	0.6	0.4	115.4
Hungary	10.1	1 714	2 614	0.4	0.4	152.5
Portugal	10.6	429	2 910	0.1	0.4	678.3
Ireland	4.3	790	2 120	0.2	0.3	268.4
Slovak Republic	5.4	m	955**	m	0.1**	m
Iceland	0.3	69	174**	m	m	252.2
Luxembourg	0.5	m	m	m	m	m
China	1 311.8	4 619	41 596	1.0	5.9	900.5
Russian Federation*	142.5	m	14 412	m	2.0	m
India	1 109.8	8 882	14 608	1.9	2.1	164.5
Chinese Taipei	22.8	1 414	10 841	0.3	1.5	766.7
Brazil	189.3	1 766	9 889	0.4	1.4	560.0
Israel	7.0	4 916	6 309	1.1	0.9	128.3
Argentina	39.1	1 423	2 930**	0.3	0.5**	205.9
Singapore	4.5	410	3 609	0.1	0.5	880.2
South Africa	47.4	2 523	2 392	0.5	0.3	94.8
Chile	16.4	682	1 203**	0.1	1.9**	176.4
Egypt	74.2	1 130	1 658	0.2	0.2	146.7
Indonesia	223.0	59	207**	m	m	350.8
Pakistan	159.0	235	282**	0.1	m	120.0
Bangladesh	156.0	95	177**	m	m	186.3
Nigeria	144.7	886	332**	0.2	0.1**	37.5
World total	**6 538.1**	**466 419**	**709 541**	**100.0**	**100.0**	**152.1**

m = missing data

* The number of articles from the Russian Federation was 31 625 in 1988, 6.8% of world output. The number of articles from Russia declined from 21 612 (3.8%) in 1994 to 14 412 (2.0%) in 2005.

** 2001 instead of 2005

Sources: NSF (2006 and 2008); World Bank (2008).

with depth and breadth sufficient to reproduce national research cadre. Achieving this generates many long term benefits as it augments research capacity in corporations and government agencies as well as universities; while optimising the diversity of inputs into the universities and the national knowledge economy. But returns are slow and the sunk costs appear expensive. The easier course is continued reliance on foreign universities for doctoral places. Arguably Chinese Taipei and Singapore (and before that Korea) have succeeded in moving to a multi-locational system, and China appears likely to do so, whereas Malaysia and Thailand remain overly dependent on foreign training.

The complication however is that research careers are exceptionally global and transferable and national research capacity readily slips through the policy grasp. With the gravitational pull of the research-strong American universities and the vast array of career opportunities that the United States provides for foreign talent, there is no certainty that doctoral students engaged in foreign training will return to the fledgling research system back home. As noted, "brain drain" to the United States is a live policy issue also in many developed nations.

New powers in higher education?

Personnel from American universities have a positive citation balance and a positive revenue balance (OECD, 2004a) with other university systems, just as the American film industry has a positive balance of trade with every other nation in the world. However, there are signs of pluralisation in film that "nobody could have foreseen a few decades ago", as demonstrated for example by the rise of India's Bollywood[18] as well as the animation industry in Japan, film in China and television production in Mexico, Venezuela and Brazil (Drache and Froese, 2005, pp. 7-8 and 24). In film, in both China and India the size and scope of the domestic market provides the platform for a future global role. Likewise, the growing importance of Korea, China and India in research and higher education and the development of the European research area, may herald a more diversified research environment.

As shown in Table 1.5, OECD Europe excluding the United Kingdom published 28.9% of the world's scientific papers in science and engineering in 2005, compared to 41.5% in the English-speaking countries (excluding Ireland). Table 1.4 also compares country outputs in 2005 with those of 1988 and indicates a pattern of pluralisation. Between 1988 and 2005 the number of articles from North America rose by 18% compared to 62% in western Europe and 181% in Asia. In 1999 the total output of scientific papers from western Europe moved

Table 1.5. **Countries in which the number of scientific papers in science and engineering grew particularly sharply between 1988 and 2005**

	1988	2005	Change from 1988-2005 1988 = 100
Korea	771	16 396	2 126.6
Turkey	507	7 815	1 541.4
China*	4 619	41 596	900.5
Singapore	410	3 609	880.2
Portugal	429	2 910	678.3
Brazil	1 766	9 889	560.0
Mexico	884	3 902	441.4

* The number of papers produced in Chinese Taipei increased from 1 414 to 10 841 (766.7).

Source: NSF (2008).

past that of North America. The United States' share of world scientific papers in science and engineering fell from 38.1 to 28.9%[19] (Vincent-Lancrin, 2009, p. 16; NSF, 2006 and 2008).

There has also been a dramatic increase in the number of papers from certain nations including Korea, China, Singapore and Turkey. Between 1988 and 2005 the output of South Korean papers in science and engineering, including social science, increased from 771 to 16 396, from 0.2 to 2.3% of world output. Over the same time papers from China grew from 4 619 (1.0%) to 41 596 (5.9%), Chinese Taipei's share rose from 0.3 to 1.5%, Singapore's share from 0.1 to 0.5% (see Table 1.5).

The emergence of two more national systems on the American scale, as illustrated in Table 1.6, plus the European Higher Education Area, could have profound implications for the worldwide higher education landscape. This may be even more so if the new systems are culturally coherent on a global scale and are major producers of basic research. Emerging economies outside the OECD now produce half of the world's economic wealth. China has 1.3 billion people and GNI of 6 119 billion in USD (PPP) with annual GDP growth rate of 10.7 in 2006. According to some projections, China's GDP will overtake United States PPP GDP by 2015 (Maddison, 2007). In 2003, the rate of Internet use in China was 63 per 1 000 people which is average for "lower middle income" as classified by the World Bank (2006). The same year China had 8.6 million broadband subscribers (Drache and Froese, 2005, p. 16). India has 1.1 billion people and its economy is also growing significantly, with Gross Domestic Product (GDP) growth rate of 9.2 in 2006. In both nations tertiary participation is expanding rapidly: the gross enrolment ratio rose from 3.0% in 1991 to 21.6% in 2006 in China and from 6.1% to 11.8% in India.

Table 1.6. **Selected indicators on selected countries and regions**

				United States	China	India	OECD Europe
Economic capacity	Gross National Income (GNI)	USD PPP (billions)	2006	13 196	6 119	2 726	13 976
	Gross National Income (GNI) per head	USD PPP	2006	44 070	4 660	2 460	25 977
	Annual Gross Domestic Product (GDP) growth	%	2006	2.9	10.7	9.2	4.0*
	Share of GDP spent on tertiary education	%	2006	2.9	m	0.9	1.3*
Demographic capacity	Total population	Millions	2006	299.4	1 311.8	1 109.8	538
	Annual Growth	%	2006	1.0	0.6	1.4	0.7
Participation in higher education	Gross enrolment ratio (GER)	%	2006	81.8	21.6	11.8	63.9*
	Change in GER	(1991 = 100)	1991-2006	111.5	729.1	194.1	207.0*
Research capacity	Research Persons (FTE)	Number	2006	1 334 628	1 223 756	m	1 340 333
	Share of top 500 research universities	%	2007	32.9	2.8	0.4	40.8
	Share of published science and engineering (S&E) articles	%	2005	28.9	5.9	2.1	35.3
	Change in number of published S&E articles	(1988 = 100)	1988-2005	115.6	900.5	164.5	166.4
Linguistic potential	Majority language	Speakers in the world (millions)	2006	1 000	1 000	900	n.a.
	Spread of majority language	Worldwide use	Current	Strong	Limited	Limited	n.a.
International mobility	Foreign tertiary students	% of students	2005	3.5***	m	0.1***	8.7**
	Tertiary students abroad	% of students	2003	0.2	1.8	0.9	13.7**

m = missing data
n.a. = not applicable
* Country mean
** Includes intra-European mobility
*** Earlier year used

Sources: Linguasphere Observatory (2006); NSF (2008); OECD (2007a and 2008a); SJTUIHE (2007); UIS (2008); World Bank (2008).

China looks likely to fulfil the conditions of becoming a new higher education power. Higher education in China is undergoing a major state-driven development in quantity and quality terms, in extraordinarily rapid time. From 1998 and 2004, a period of only six years, the total number of undergraduate admissions in China multiplied by *four times*, and in 2004 total enrolments in higher education reached 20 million, rendering Chinese higher education the largest system in the world. A further 8% increase was planned for 2005 (Liu, 2006, p. 1). China is committed to lifting the quality and global competitiveness of its leading research universities and a large-scale programme of state investment in universities is underway, led by the special programmes of state assistance under the 211 Project involving the leading 100 universities and the 985 Project which supports 38 universities. Both programmes provide block funding on the basis mainly of universities' strategic plans. Private higher education is also growing rapidly and in 2004 enrolled 1.4 million students, about 10% of the national total, although "private higher education still has a long way to go in terms of quality when compared with the public institutions" (Liu, 2006, p. 6).

China now accounts for half the R&D expenditure of the non-OECD nations (Vincent-Lancrin, 2009) and was the fifth largest producer of scientific papers in science and engineering in the world in 2005, compared to its fourteenth position in 1988 (NSF, 2008). The number of doctoral degrees awarded by universities in China rose from 19 in 1983 to 18 625 in 2003. Recent years have seen sharp annual growth in PhD intakes signalling the prospect of further rapid growth in domestic graduates. This would lessen China's intrinsic dependence on PhD training abroad, without necessarily reducing doctoral mobility per se, while reinforcing China's own role as a global centre of research activity: graduate students are first authors of about half of all journal articles published (Liu, 2006, pp. 2-6). While many foreign educational providers are active in China, a public-private partnership model instead of an open competition between local and foreign providers is preferred by the Chinese government. This strengthens the element of national steering also in the formation of global relationships.

India does not share the cultural integration of regional diversity that imparts national coherence in China and the United States, and has a lesser global economic and technological integration than China (Vicziany, 2004, pp. 93-96). Despite India's concentrations of technology-intensive industry and its global role as supplier of ICT labour, government dependent basic research has been slower to develop than in East Asia and Singapore. Between 1988 and 2001 the number of scientific papers increased from 8 882 to 14 608, constituting an increase from 1.9 to 2.1% of world output (NSF, 2008). Nevertheless tertiary education in India has three global advantages: 1) communicative competence via ICT systems and the widespread use of English, 2) flexibility in cross-border dealings via local autonomy, which facilitates engagement (the upside of non-centralisation), and, alongside a rather conservative orthodox university sector, 3) a technical education sector with 774 072 students in 2002 and a high degree of flexibility in provision. Technical education ranges from higher technological institutions (HTIs), some with autonomy and "deemed-to-be university status", and engineering colleges that grant doctoral degrees, to polytechnic diploma programmes and certificate programmes in industrial training institutes (ITIs) (Natarajan, 2005, pp. 156-57). The best vocational education in India is highly innovative. Among the autonomous institutions the research-intensive commercialised Indian Institutes of Technology (IITs) have attracted much attention. At least 40% of IIT graduates seek employment overseas (Bhushan, 2006, p. 6).

System size and regionalisation

Though the dominance of the United States and the emerging potential of China suggest that system size is a vector of global strategy there is no simple correlation between system size and research performance. Smaller European nations such as Sweden, Switzerland and Finland have outstanding research universities relative to national economic capacity and can attract international researchers and funds. China as yet has failed to translate national system size into a high quantity or quality of research, though this may change. Nor is there a simple correlation between size and global connectivity. The motivation and ability to connect is impacted also by factors other than size such as the national resource environment. In a study of conditions affecting the export and import of cross-border education Garrett (OBHE, 2005) notes that scarce government funding can push institutions into cross-border entrepreneurship as happened in the United Kingdom and Australia. Despite these considerations, all else being equal system size is one important factor shaping the strategic options and imperatives for systems and institutions.

Size affects the potential for global autonomy and the necessity for engagement and alliances. Larger nations are less dependent on cross-border provision to reproduce personnel and sustain a critical mass of activity; and have more scope to design a complex internal division of labour on the basis of institutional mission. Musselin (2005) notes that in larger European nations such as France and Germany academic labour markets tend to be more self-sufficient and the inward movement of foreign staff is more a policy choice than absolute necessity. This does not mean that larger nations can ignore the global dimension but it enables a broader range of possible global strategies and readier movement from reactive to proactive mode. The extreme case is the United States, where the size of the system and the professional labour markets underpins the attraction of foreign talent but institutions are under little pressure to adopt foreign perspectives. Middle sized and smaller nations, especially nations where national higher education capacity is incomplete in relation to needs, face different imperatives. They can scarcely afford to abstain from global engagement, yet must struggle to maintain their policy identity and autonomy *vis-à-vis* the larger players. This does not mean that smaller size signifies absolute global weakness or no strategic options. Singapore, Switzerland and the enclave of Hong Kong in China (Postiglione, 2005) have specialised in knowledge-intensive industries and cross-border services; in all three cases higher education capacity is both relatively strong and characterised by high rates of two-way mobility.

Globally successful middle-sized and smaller nations tend to be more dependent on global linkages than are their larger counterparts. Smaller nations must be ahead of the field to retain individual control over their own destiny. The alternative or additional strategy is to develop strong regional networks, which could create aggregate system size large enough to allow a potentially similar scope of activities to that of the larger countries. For example European OECD countries as an entity have a GNI and research personnel equivalent to that of the United States and a population almost twice the size of the US population (see Table 1.6). Furthermore, more than 40% of the world's top 500 research universities are located in the OECD European countries, which produced 35% of world's science and engineering articles in 2005. This is not to say that the knowledge economy in Europe is suddenly in a position to surpass that of the United States as the Lisbon Strategy imagined. The knowledge economy in the United States is underpinned not only by front rank universities that are integrated informally but effectively into a common system, but

by American economic, technological, cultural, political and military advantage. Nevertheless, the global position of higher education and research in Europe is advancing (see Marginson and Van Der Wende, 2009).

The potency of Americanisation in national systems suggests regionalisation strategies in response. So far only European nations have established a common higher education area; but Southeast Asian nations in ASEAN (Association of Southeast Asian Nations) are working on mobility and recognition arrangements, and have established joint cross-border programmes; and Argentina, Brazil, Paraguay, and Uruguay are extending their educational co-operation within MERCOSUR (Mercado Común del Sur – southern Common Market) to other South American nations.

Conclusions on global power relations

In the global higher education setting there is significant scope for strategy making, more so than in many national settings. The distribution of capacities and resources between nations and institutions in many respects determines their global position and potential but the possibilities are not closed. Though higher education in the United States plays a hegemonic role there is space for national self-determination, albeit a space that varies from case to case, and there are some signs of global pluralisation. In sum, six interacting elements frame the possible global trajectories of systems, and individual institutions, and the potential benefits they gain from global operations: 1) the geographical and economic position of nations and institutions; 2) national history, system organisation, regulation, policy and resourcing in higher education; 3) institutional history, resources and academic and organisational cultures; 4) the global capacities of institutions and of agents such as governmental personnel; 5) national positioning-taking strategies in the global setting; and 6) institutional positioning-taking. All else being equal higher education capacity in the global environment is positively correlated to national wealth, the quality and quantity of constructive government support for higher education institutions, system size and competence in English. The intensity of global engagement is also affected by resource incentives. Some smaller nations are notably successful in their global strategies but at the price of high dependence on global flows. Outside the United States strategies of regionalisation have potential strategic benefits.

1.5. Tendencies to "disembedding" from national governance

Notions of the governance of higher education were long based on theories about the interplay of identified actors: the state, the market and the academic oligarchy (Clark, 1983). This interplay was typically, although not explicitly, conceptualised and framed in a national context. However various authors (van der Wende, 1997; Cloete *et al.*, 2002; Verhoeven, 2005) now argue that this classic interplay of actors and forces is increasingly affected by internationalisation and globalisation, suggesting new theoretical questions (van der Wende, 2002). How does the fact that the State engages in cross-border or even supra-national co-operation affect its coordination of national higher education systems? What are the implications of the fact that competition and "the market" are now defined at an international or global level? Does the fact that the "academic oligarchy", in terms of both individual academics (disciplinary networks) and their institutions (university consortia), engage in international or global networks, impact governance? Many of these questions have yet to be answered in a comprehensive way. But it is possible to make observations on changing patterns of governance in the more global era. Beerkens (2004)

defines globalisation as "a process in which basic social arrangements within and around the university become disembedded from their national context due to the intensification of transnational flows of people, information and resources".[20] One hypothesis posed by the changing patterns and forces is that higher education institutions are becoming and will become "disembedded" from their national contexts because some driving forces of globalisation exceed the strength of national factors. The disembedding hypothesis characterises the relationship between global and national elements not as symbiotic (as in the notion of the national domain as a filter of global effects) but as zero-sum.

Potential for mission shift

There is evidence of the potential for disembedding in several areas.

The first is funding. Pressure on national public funding for higher education in certain countries has encouraged or forced institutions to seek additional income from cross-border sources. This includes most institutions in the United Kingdom, Australia and New Zealand, and some four-year institutions and community colleges in the United States affected by state budget cuts. Australian universities have increased their revenue from full-fee paying international students from 5.8% of university income in 1995 to 14.5% in 2004 (DEST, 2006). In the United Kingdom between 1995 and 2000, income from full-fee paying students increased by 27.9%, compared to an increase in total income of 8.6%. International student revenues provided 9.9% of all income in the United Kingdom in 2002 (OECD, 2004a). Although these percentages are not yet overwhelming, the growth of cross-border education has the potential to place in doubt institutions' national missions. An interesting example is Oxford University. In early 2005 it was reported that "Oxford University is planning to cut the number of home and EU undergraduates from 10 400 to 8 500 and to expand its non-EU overseas undergraduates from 825 to 1 400 in order to improve its financial situation and at the same time to provide a more multi-cultural learning environment". In the same source the more general shift from national mission to cross-border activity was confirmed: "international students are quite simply what makes it possible for the academic enterprise to continue… public investment and fees do not cover the cost of teaching UK and EU undergraduates" (ACA Newsletter, March 2005).

In the case of Oxford the international mission threatens to reduce opportunities for domestic students. Alternately, a lack of domestic students may lead to an enhanced international mission, as both rest on zero-sum disembedding. In a period of demographic decline in the population of young people in some countries in Europe, such instances could multiply. For example, an agricultural university located in an EU country where the agricultural sector has lost its significance and domestic student numbers are low might survive by catering for students from other EU member countries, especially by adapting its programmes to food production and safety. Would the national tax payer agree to keep funding this university, and on what basis? One answer could be that the European higher education area constitutes a single public domain. Another answer could be that there is a continuing national interest in contributing to the quality of food production, by training students for work countries from which the nation imports agricultural products. A third answer could be that continuing to operate the university helps to sustain a national research capacity in such a critical area as food quality and safety. As well as pointing to the potential for disembedding, these examples also suggest that notions of the "public interest" and "public good" exceed traditional national territory, in two different ways: by drawing cross-border factors including trade into the scope of the national public interest;

and more radically, by extending the zone of public interest beyond national borders themselves.

A second set of examples of potential disembedding lies in research, where funding is becoming more available and accessible at international and supranational levels, such as EU Framework programmes. Research themes and teams are more often internationally defined and composed.

Beyond national jurisdiction

A third example is again related to cross-border education. By operating either virtually or physically across national borders, institutions exceed the boundaries of their enabling legislation. Governmental powers to regulate services performed abroad by their national institutions, and services performed by foreign institutions at home, tend to be undeveloped or limited; partly because of inadequate regulatory reach, and partly because institutions that are public providers in their national context tend to operate as private entities abroad and are thereby complicit in "disembedding" themselves from the national context. The resulting lacuna in regulation raises many issues in areas such as quality assurance, funding and the recognition of qualifications. Regulation by both exporter and importer nations is partial, and though there is much variation from case to case the two regulatory systems do not always synchronise effectively. The nations which are most active in cross-border locations, the United Kingdom and Australia, have both moved to scrutinise the offshore operations of their own institutions, but surveillance is incomplete and it is not always clear where foreign institution stops and local partner begins: in this respect effective scrutiny of quality rests on a close understanding between importer nation and exporter nation.

The regulation of foreign providers by importing governments varies. Hong Kong, Malaysia and Singapore treat foreign provision as part of national higher education effort and scrutinise it accordingly. The Malaysian government has brought in a small number of foreign institutions to provide market stimulus for local providers in the full fee private sector, the main venue for capacity expansion and a significant export earner in its own right. Singapore aims to be a "global hub" for education and is using supervised foreign partnerships both to import educational expertise and to assist in structuring a differentiated map of institutions and programmes, ranging from elite research and business courses[21] to mass degrees. In some other importing countries regulation of the quality of foreign providers is underdeveloped. In India selected private institutions are accorded the status of "deemed universities", enabling them to offer degrees, and foreign providers are formally eligible for accreditation by the All India Council for Technical Education. Meanwhile in the last decade a wide range of commercial foreign provision has taken root in partnership with local agents. Foreign institutions range from prestige providers such as the US Wharton Business School and the London School of Economics, to professional associations in the hotel industry. No bricks and mortar foreign campuses have been established and there is little franchising: twinning predominates, though the UK Oxford Brookes University in Kolkata and the US Fairfax University at Pune provide full degree programmes on a partnership basis.[22] The growth of foreign provision is sustained by the strong demand for transnational education. However, in a largely unregulated environment with *de facto* free entry there are significant risks for students (Bhushan, 2006).

A fourth example is cross-border accreditation. There are many cases of institutions seeking accreditation outside their national context (Altbach, 2003; OECD, 2004b: OECD/World Bank, 2007), for several reasons: an absolute lack of accreditation opportunities at home; using international accreditation to enhance relative national position; using international accreditation to evade the requirements or prohibitions of national accreditation; or enhancing global recognition *via* accreditation by a reputable foreign accreditation body. National accreditation agencies also have various motivations for "exporting" their services (Eaton, 2003). The small group of would-be global accreditation agencies has a vested interest in expanding the role of global referencing in accreditation, thereby fostering a global space and encouraging more radical disembedding.

Disembedding varies by function and by institution

The disembedding of institutions from their national context often begins in nationally-convergent and nationally-parallel transformations, such as the creation of funding incentives to raise monies from international students, but has the potential to partly transfer the institution into the global dimension, generating integrationist effects that are difficult to control or reverse at the national level. At the same time, in order to assess the extent to which institutions are disembedded from their national contexts, the scale and magnitude of these developments should be considered. At this time in most nations, the education of foreign students plays a marginal role in relation to nationally based institutions and it has rarely been a driver of new missions or pedagogical orientations even in the United Kingdom and Australia. On the other hand, in most nations the global market plays a larger and potentially more transformative role in doctoral education, through the exit of their own nationals to doctoral programmes abroad and/or the doctoral education of foreign students on home soil. Worldwide doctoral education, like research more generally, is one area that has been clearly globalised and where the disembedding potential is particularly obvious.

The potential for disembedding is also a function of the role of particular institutions within diversified national systems. Despite some shifts in resource sources and student composition, elite institutions continue to be the national standard bearers of prestige and high quality. Globalisation has often had a greater direct impact on second tier institutions. They might have to merge or otherwise reorganise in order to address new forms of competition, for example from foreign for-profit institutions; and being locked out of the elite segment in the nation, as noted they might leverage globalisation to improve their strategic options at home. One case in point is Mexico where several private sector higher education institutions have a much stronger global orientation in undergraduate studies than the Universidad Autonoma Nacional de Mexico (UNAM), which is the leading public sector research university and the dominant provider in Mexico overall. (In post-graduate studies, UNAM is one of the most globally oriented institutions in Latin America though.) In many nations private sector institutions have more freedom to vary their mission, clientele and global engagement.

Conclusions on disembedding from national governance

When some institutions are more disembedded than others, a national system of higher education becomes a more complex amalgam in which institutions have varying degrees of national accountability, which stretches the capacity of existing steering instruments. Moreover, if policy and governance do not keep pace with shifting missions

and expanding cross-border activities, institutions will be *de facto* disembedded to the extent that significant parts of their operations fall altogether outside national governance structures and regulatory frameworks. Here governments and institutions are in uncharted waters. Few means of international or global governance have developed. One of the small number of examples is the UNESCO/OECD *Guidelines for Quality Provision in Cross-border Higher Education* (OECD, 2005c). As well as the fact that national policy, funding, regulatory and quality frameworks are falling short in their reach, there are larger questions at stake. Where are the partly disembedded institutions accountable for their international activities and outreach? Should the creation of global public goods be seen as part of their public service remit? But who are their global stakeholders; and why and how should they be held accountable to them? These challenges are more than technical, they are conceptual and political. National public higher education systems were always held to coincide with national priorities, legislation and territory. In the wake of the trends to more extensive and intensive cross-border activities, the very notion of "public" education, and related to that notions of priority, responsibility and accountability, are in question. The traditional responsibilities and roles of national governments have to be reconsidered. "Public sphere", "public interest" and "public good(s)" are obtaining new dimensions and meanings.

1.6. Global private and public goods

In industries focused solely on cross-border trade the global setting is imagined naturally as a trading environment and national and cross-national regulation assessed in terms of their potential to affect flows of goods and capital. Matters are more complicated in higher education, where global trade is part but not the sum of cross-border relations and much of the decision making takes place in governments or is otherwise framed by public interest. In higher education cross-border flows of people, technologies, communications, ideas and knowledge are important in their own right, as well as significant in relation to trade. In many nations and institutions the non trading global flows are more significant than the trade flows. Higher education produces a complex mix of private and public goods in both national and global dimensions (Marginson, forthcoming B). The global private goods include the degrees obtained when crossing national borders and those outcomes of commercial research traded across borders prior to their entry into the public domain. These private goods pose new problems of quality assurance and consumer protection across nations. However, a more far-reaching challenge to national policy is posed by global public goods.

The nature of public goods

This plurality in the goods produced in higher education derives in part from the intrinsic nature of information and knowledge, which constitute "public goods" in the technical economic sense whether produced in public sector institutions or not. As defined by Paul Samuelson (1954) "public goods" (including services) are goods that are non-rivalrous and non-excludable.[23] Knowledge, especially basic research, is an almost pure public good (Stiglitz, 1999). As Samuelson also noted, public and part-public goods tend to be underprovided in economic markets. Yet such goods are also central to the workings of advanced economies, societies and polities.

An immense array of information and knowledge generated in higher education, notably the outcomes of basic research, is openly accessible and subject to nominal

charges well below its use value and below its costs of production. Once research findings and online courseware are released they can be copied many times without losing further value and their broadest distribution optimises the common good. The essential private goods in teaching and learning are not the content of courseware (which once the product is out there becomes a natural public good) but the brands, positional advantages, networking and high quality teaching (if provided) in elite institutions. Likewise, in research the volume of freely exchanged knowledge in the public domain far exceeds that of tradable intellectual property; though many public knowledge goods enter the chain of value-creation in other industrial sectors. This highlights the importance of open source models of ICT use in order for these national and global public goods to become universally accessible, and thereby maximising their utility, to industry and to national and global society, as public goods.[24]

Global public goods

Global public goods are goods that have a significant element of non-rivalry and/or non-excludability and are available across populations on a global scale. They affect more than one group of countries, are broadly available within countries, and are inter-generational; that is, they meet needs in the present generation without jeopardising future generations (Kaul *et al.*, 1999, pp. 2-3). Global public goods in higher education include collective global goods, and also positive or negative global externalities. Collective global goods are obtained by nations and/or institutions from cross-border systems common to the world or a meta-national region, for example regulation, systems and protocols that improve cross-border recognition and mobility. One example is the Washington Accords in Engineering, whereby each member of a group of nations have agreed to recognise the vocational qualifications of all the others' Engineering graduates and professionals, enhancing the potential of individual Engineers to move freely between workplaces across borders, and expanding the pool of labour available to each nation. Thus a low-cost informal global system of Engineering credentialing, regulated by common documentation and process, is to have benefits in each participant nation. Global externalities arise when education in one nation significantly affects people in other nations; for better, such as the positive contribution of research flowing across national borders; or for worse, such as the net "brain drain" of national faculty. In their positive form, like other public goods, global public goods tend to be underprovided in markets. The process of WTO-GATS negotiation, that has been designed to facilitate trade also in education, is a not a spontaneous development out of the market itself but has proceeded from the different policy spheres on a multi-lateral basis. This kind of regulatory systems, and the creation of interfaces between national regulatory spaces on the global scale, are classic public goods.

However, multilateral forums can directly create global higher education public goods, for example collective worldwide recognition systems and academic freedom protocols, and UNESCO, the OECD (2004b) and EU have all advanced the discussion of these elements. Cross-border externalities are more difficult to regulate. There is no agreed basis for identifying, measuring, costing and financing "downstream effects" between one nation and another even in the sphere of the environment where such effects are acknowledged. Only brain drain is an active issue and policy tools for measuring and redressing it are as yet underdeveloped and even then, it is sometimes difficult to know whether we face brain drain or brain circulation.

The creation of new global public goods in higher education occurs both in the space created by the partial disembedding of higher education institutions, and alongside the more traditional creation of public outcomes at the national level. In one respect it bypasses national governments and brings new non-government actors into play; in another respect it is dependent on national and regional authorities and on inter-governmental negotiation. Like globalisation itself, global private and public goods are at the same time *substitutes* for nation-states and traditional practices in higher education, *supplementary*, and also *complementary* in that they are associated symbiotically with the governmental and institutional frameworks that are the vehicles for global transformations. Again, the relationship between national and global elements is ambiguous, with both zero-sum and positive-sum aspects.

However the strategic possibilities and problems of global public goods are largely unexplored. The absence of an agreed analytical and policy framework for operationalising global public goods (especially externalities) in the national interest, let alone the mutual interest, predisposes national policy makers to neglect those goods (Kaul *et al*., 1999; Kaul *et al*., 2003). It is another example of the jurisdictional gap between global effects, especially integrationist effects, and national policy framework. While there has been a major expansion of global public goods in the global era, the difficulty is that most of the time they are underrecognised. Kaul and colleagues pose the problem as follows: "In the international sphere, where there is no government, how are public goods produced?" (Kaul *et al*., 1999, p. 12; Marginson, 2007a). The answer is, either spontaneously through the operations of human activities such as research or travel, or deliberately by inter-national and multi-lateral negotiation, often (but not always) involving international organisations. However, international organisations have little instrumental power and the notion of a single global sphere of interest is little developed, so that multi-lateral negotiations are mostly read by the participant nations in terms of national public goods, not global public goods. It is likely that negotiations concerning responses to climate change and global warning will encourage a more explicit recognition of global public goods but whether this will become associated with global state-like structures, and the possible longer-term implications for global public goods in higher education and research, all remain to be seen.

Cross-border student security as a universal global public good

One set of practical examples lies in the absence of universal social and economic protections for temporarily mobile populations such as students, executives and administrators, and faculty. People travelling across borders for education purposes may not exercise the full rights enjoyed by local citizens, such as access to government services and legal representation, and economic freedoms such as maintaining bank accounts, securing loans or purchasing property; and their opportunities for redress in relation to injury may be restricted. For example, a recent study suggests that in Australia many cross-border students enter the lower sub-strata of the workforce and can experience discriminatory or exploitative work practices during the period of study in excess of the difficulties experienced by local students (Nyland, forthcoming). Questions of the economic and social security of cross-border populations in higher education can extend also to social welfare, health care, housing rights, and freedom from discrimination.

These issues invoke problems of national and international law, policy and governance that have immediate practical importance for many people, but are inherently

difficult to address because they push beyond nation-state frameworks. Precisely because such issues of cross-border security are generated in cross-border movement, single national governments normally face limited "ownership" and domestic political pressure to address them. For the nations sending students abroad for education, the problems of their citizen-students tend to be addressed only in exceptional circumstances by foreign missions and through bilateral negotiation with the nation(s) of education. For nations that receive students for the purposes of education, these are not their own citizens, though in Europe, in effect some benefits of citizenship are extended to students from other European nations. The rights of these non-citizen students are sometimes treated as consumer rights, for example in Australian legislation; or rights to pastoral care during their education as in New Zealand; but not as the full range of human and civil rights; though foreign students and visiting faculty often contribute to social and cultural life, some pay taxes, and some later become citizens. Nor have the international agencies addressed the social and economic security of people in education and other sectors who move across national borders, except in relation to categories such as refugees. For example, while the International Labour Organisation (ILO) includes migration within its concerns, it explicitly excludes students from its definition of migrants (Deumert *et al.*, 2005).

However governments alone do not have a monopoly on global public goods, more so given the absence of global democracy and global governance. For example cross-border students draw on the support of community-based organisations, student clubs and informal networks as part of the framework of security. Non-government associations, institutions and commercial companies also have claims on people's loyalties, also operate across borders and can also be meta-national and global in effect (Sen, 1999). Higher education institutions, not to mention networks and consortia, are important global actors in their own right. A framework for enhancing global public and private goods in higher education should take this plurality of actors into account.

Conclusions on global public goods

Though globalisation enhances the potential for both global private goods and global public goods in higher education, it has proven difficult for national governments to design policies so as to optimise the flows of both kinds of good simultaneously. Global public goods receive only sporadic attention, more in their negative form as brain drain than in their positive forms. Nations can control the externalities they generate with effects on others, these are nationally-parallel global effects; but not the externalities they are subjected to by higher education in other nations which are integrationist global effects. National governments can secure regulatory control over integrationist externalities and collective global goods only in the framework of multilateral negotiations.

But though the regulation of trade in education is negotiated in WTO/GATS there is no global policy space in which to consider global public goods in higher education. There is a role here for international agencies, not as surrogate for a supra-national public interest but in setting the ring for cross-border negotiations. Ultimately, however, issues such as cross-border student security would be most effectively addressed by a multilateral commitment to an on-going common higher education space, itself a global public good and a means to enhance the production of many other private and public goods. In other words it would be beneficial to extend the logic of Europeanisation on a broader scale. This would have the potential to enhance the outcomes of higher education overall, though

arguably at the price of further advancing the disembedding of higher education from its different national contexts. In addition to governments and international agencies, such a global higher education public space could be designed so as to incorporate civil agents, autonomous institutions, disciplinary communities, professions and market actors involved in cross-border relations in the sector.

1.7. General conclusions

Economic and cultural globalisation has ushered in a new era in higher education. Cross-border dealings and strategies have become more important than before for all governments and systemic agencies, for all research universities and for some non-research institutions. For the first time in history every research university is part of a single worldwide network and the world leaders in the field have an unprecedented global visibility and power. Research is more internationalised than before and the mobility of doctoral students and faculty has increased, particularly movement into the United States and movement within Europe. In many nations and regions, especially in Europe and East Asia, governments are focusing on policies designed to concentrate research fire-power and this is likely to aggregate into an upward movement in worldwide investment in university research (see more detailed discussion in Marginson and Van Der Wende, 2009).

Global higher education is more ontologically open than are national systems, with a bewildering range of opportunities for innovations, alliances and markets. To maximise effectiveness in the global environment, on one hand it is essential to retain a strong sense of identity and purpose; on the other hand it is essential to be open to and engaged with others. One reason why American higher education is so globally successful is its particular combination of decentralisation and centralisation. Its institutions are engaged in a plethora of unregulated exchanges with institutions throughout the world, maximising the scope for American initiative and influence, and minimising the capacity of other nations to restrain them by inter-governmental negotiation. But American higher education institutions are more coordinated than it might appear. They share a resilient common culture, and a sense of national project and American way of doing, that binds them to each other without much direction.

To be effective in the global environment means being prepared to change. Global exchange is transformative and all policies and institutional habits are ripe for reconsideration in the light of the global challenge. Globalisation is often annexed to policy shifts. Governments in many nations are wrestling with the question of whether competition at home improves competitiveness abroad, and which combination of competition with collaboration will deliver the best results outside the border. At the regional level Europe is preoccupied with the same question. Yet perhaps these dilemmas are ultimately more apparent than real, and more in the realm of policy discourses than the gritty policy mechanisms. Though from time to time ideology is comforting what matters is what works. No doubt some cross-border activities of institutions need to be brought into the domain of national policy, while at the same time systems and institutions with a history of insularity or dependence need to become more autonomous, open and proactive to be globally effective. How they become engaged is a more open matter. The how is less important than the outcome. On some occasions deregulation serves; sometimes state investment in expanded capacity, and sometimes both are needed. The more difficult question is to devise coherent means of coordinating

institutions with a sufficiently light touch so as to progress their autonomous global capacities while achieving the common strategic purpose.

Another complication is that the role of national purpose itself is in doubt. Globalisation has broken open the old role of government in higher education centred on bounded nation-states. The factors at play are on one hand the new public management, on the other hand the growth of cross-border communications and activities in which institutions deal directly with parties outside the nation. Though institutions continue to be nested in national/local identity and resources, they have been partly disembedded from the national policy context and the potential of global private and public goods has increased. In other words, national government remains a key player in higher education but its negotiating space has become more complex and its reach over higher education is no longer complete. Its functions are shared with many other parties, including other national governments, multilateral agencies and institutions themselves. Some cross-border activity of institutions takes them beyond their national legislative charter into a void where global governance is little developed and where the collective global interest is unexpressed. To what extent can global research and knowledge transfer, recognition regimes and mobility of personnel be understood through the prism of national self-interest? How are downstream cross-border externalities in higher education (positive or negative) to be measured, costed and optimised?

Future developments in the globalisation of higher education are difficult to predict. There are many variables, meta-policy questions and issues. The variables include the potential for pluralisation of power in global higher education; the future mobility of people, information and ideas; language of use and the extent of cultural plurality in global exchange; and the future forms of academic labour. The meta-policy questions include the evolution of multilateralism in higher education, the development of Europeanisation and other forms of regionalism in the sector, and the extent to which policy in national and multilateral forums generates tendencies to inclusiveness on the national and global scale, in response to the tendencies to bifurcation and stratification triggered by global developments and national responses. The more immediate issues include the policy handling of university rankings and the evolution of the high priced researcher market.

Notes

1. Guy Neave's description of globalisation as "quickening exchange" is suggestive of both its economic and cultural aspects (Neave, 2002, p. 332).
2. For example in the first quarter of 2002, 24 billion text messages were sent globally; 70% of households in Korea already have broad-band Internet connections (Drache and Froese, 2005, pp. 16 and 22).
3. The templates of the new public management include the modelling of national systems as economic markets; government-steered competition between institutions, and executive-steered competition between academic units; part-devolution of responsibility for administering and often for raising finances; incentives to reduce costs per unit, and to engage in entrepreneurial behaviour; new or augmented price signals; incentives to link with business and industry; performance measures and output-based funding; and relations with funding agencies and managers based on quasi-corporate forms such as contracts, accountability and audit.
4. Teichler (2004, pp. 18-19) discusses this in more detail.
5. Such differences include variations in customary institutional sizes and configurations (single city site, multi-site, dispersed network); differences in the types of institutional specialisation on offer; differences in the segmentation between types of institutions (graduate research institutes, research-intensive universities, predominantly teaching universities, vocational universities,

training colleges); differences in the extent of vertical differentiation between institutions, and the roles of competition and market forces; differences in the balance between public and private institutions, and the cost of education for students; differences in languages of instruction and scholarship, and in disciplinary traditions and academic cultures; differences in managerial cultures (bureaucratic, administrative, entrepreneurial), in performance measures and in organisational systems.

6. For example the global flows of people in higher education include students involved in short-term exchange; first degree and professional Masters students accessing foreign degrees or involved in cross-border joint degrees; doctoral students; post-doctoral researchers; academic faculty involved in teaching, research, conferences and seminars and other forms of collaboration and exchange; administrators and executives on short-term visits for negotiating agreements with other universities, or learning about other systems, or marketing degree programmes; academic or non-academic staff involved in offshore provision, etc. Some global flows are already accessible to systematic data collection. In the case of certain flows such as the movement of students into foreign degree programmes, the data are widely collected and are accessible to comparative analysis (OECD, 2005a, pp. 250-73); albeit subject to caveats.
7. Gross National Income per head neglects, however, distributional factors and fails to distinguish between investment and unproductive consumption.
8. Leaving aside the idiosyncratic case of Luxembourg with a per capita GNI of USD 60 870.
9. For example the United States falls slightly below the PISA country mean in school mathematical competence despite its very high level of national economic resources.
10. Arguably the core ideas of the new public management (NMP) are a British rather than US creation (see for example the account of the genesis of the Thatcher reforms in the UK in Cockett, 1995) though the idealised NPM templates in higher education reflect the norms of the American non-profit and for-profit private sectors (for more discussion of the last point see among others Marginson and Ordorika, 2007; Marginson, 2008).
11. There are 101 universities in the "top 100" group: using the SJTUIHE metrics there is a tie for 100th place.
12. Other measures of research outcomes confirm this picture. Nobel prizes go to the developed nations and "rich countries, home to 15% of the world's population, are responsible for over 90% of the patents granted" (Bloom, 2005, pp. 25 and 35).
13. France is an exception. In the 1990s the proportion of doctoral graduates who were foreign declined from one third to one fifth, while the recruitment of foreigners to permanent university posts declined. On the other hand there was an increase in the proportion of the staff of the research institutes that was foreign (Musselin, 2004, p. 156).
14. Stay rates are high among the large number of graduates in engineering, computing and technologies (Gupta *et al*., 2003). While in 1985 50.0% of foreign science and engineering doctoral degree holders planned to stay, by 1995 it had reached 70.6% (OECD, 2002, p. 49).
15. Notably however the number of visiting scholars faltered in the first two years after 11 September 2001, falling from 86 015 in 2001-02 to 82 905 in 2003-04. Between 2001 and 2003 the rate of refusal of visa applications for short-term visits by high-skilled personnel rose from 7.8 to 15.9%; there was a concurrent increase in the refusal rate in relation to applications for student visas (NSB, 2006, p. 337).
16. The next largest exporter, the United Kingdom, is much less important. France and Germany also play a small role as exporters of academic labour (Welch, 2005, pp. 78-9). Most nations are net importers of academic labour however.
17. In the United States the share of internationally co-authored articles doubled since 1988, rising to 23% in 2005. In western Europe collaboration, much of it with a regional flavour, rose from 17 to 33% between 1988 and 2001; in Asia the movement was from 11 to 21%.
18. India's Bollywood produces over 800 films in 25 different Indian languages each year from many regional centres, compared to 200 films each year in the United States. Selected Bollywood and "cross-over" products are breaking into mainstream global markets (Drache and Froese, 2005, pp. 7-8 and 24).
19. Since 1992 in the United States and the late 1990s in the United Kingdom, Canada and the Netherlands the number of scientific articles has flattened (NSB 2006, A 5-35). Nevertheless, between 1993 and 2005 the number of books produced by American university presses rose by 23% (for an extended discussion of these trends see Vincent-Lancrin, 2009).

20. This definition finds some support also in the work of Held *et al.* (1999) and others.

21. Singapore is housing several foreign business schools on a partnership basis and has commissioned the University of New South Wales in Australia to establish a full-scale undergraduate campus.

22. One survey found that in 2004, 131 private institutions in India were collaborating with foreign providers (50% from the United States and 45% from the United Kingdom); the bulk of these partnerships being located in the States of Tamil Nadu, Maharashtra, Delhi and Andhra Pradesh; with 42% of programmes in hotel management, 34% offering MBAs and 15% in Medical Technology. The Apollo Group is operating in India in partnership with the K.K. Modi Group (Bhushan, 2006).

23. Goods are non-rivalrous when they can be consumed by any number of people without being depleted, for example knowledge of a mathematical theorem. Goods are non-excludable when the benefits cannot be confined to individual buyers, for example law and order, or social tolerance. Goods with neither quality are classified as private goods.

24. Strategies to maximise public goods can be pursued by institutions as well as governments. MIT moved early to use the Internet this way, providing its courseware on the basis of open access, promoting itself as the intellectual originator of learning and thereby strengthening its brand more tangibly than simply using rhetorical advocacy or images associated with desire fulfilment like any non-university advertiser. In this manner MIT aligned its strategies to the intrinsic nature of knowledge and information and to its own nature as a knowledge forming organisation. Other institutions tried and failed to make money by offering teaching light online programmes in which web-based courseware were presented as the principal private goods, even though most such contents can already be downloaded from the Internet free of charge (Marginson, 2004).

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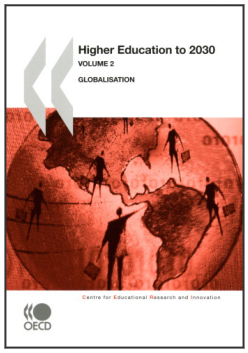

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