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Globalisation and Higher Education

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Globalisation and Higher Education

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(Education Working Paper No. 8)

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ABSTRACT

Economic and cultural globalisation has ushered in a new era in higher education. Higher education was always more internationally open than most sectors because of its immersion in knowledge, which never showed much respect for juridical boundaries. 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.

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. For the first time in history every research university is part of a single world-wide 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. The specifically global element in academic labour markets has gained weight, especially since the advent of global university rankings.

This working paper explores the issues for national policy and for individual institutions. Part I provides an overview of globalisation and higher education and the global responses of national systems and individual institutions of higher education. Part II is focused on certain areas of policy with a strong multilateral dimension: Europeanisation, institutional rankings and typologies and cross-border mobility.

RÉSUMÉ

Avec la mondialisation économique et culturelle, l'enseignement supérieur entre dans une nouvelle ère. Jusqu'ici, l'enseignement supérieur a toujours été un secteur plus international que les autres, car plongé dans la connaissance, sans égard aux frontières juridiques. Dans les économies mondiales de la connaissance, les établissements d'enseignement supérieur sont plus importants que jamais en tant qu'intermédiaires dans une multiplicité de relations internationales et de flux continus d'individus, d'informations, de connaissances, de technologies, de produits et de capital financier.

Même si ils participent à la réinvention du monde autour d'eux, les établissements d'enseignement supérieur, et les actions politiques qui les engendrent et les soutiennent, sont aussi en train d'être repensés. Pour la première fois dans l'histoire, chaque université de recherche fait partie d'un unique réseau mondial, et les chefs de file internationaux dans le domaine sont dotés d'une visibilité et d'un pouvoir au niveau mondial sans pareil. La recherche est désormais plus internationalisée, et la mobilité des doctorants et du corps enseignant se développe. L'élément international a pris de la valeur sur les marchés du travail de la filière académique, et plus particulièrement depuis l'avènement des classements universitaires à l'échelle mondiale.

Ce document de travail étudie les problématiques pour les politiques nationales et les établissements eux-mêmes. La première partie analyse dans son ensemble la mondialisation et l'enseignement supérieur, et les actions internationales qu'entreprennent les systèmes nationaux et les établissements d'enseignement supérieur. La seconde partie observe plus spécialement certains domaines politiques à caractère très international : l'européanisation, les classements et les typologies des établissements, et la mobilité internationale.

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INTRODUCTION

Higher education systems, policies and institutions are being transformed by globalisation, which is "the widening, deepening and speeding up of world wide 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 the 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 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 system; are key policy themes; and governments and university leaders are preoccupied by strategies of cross-border cooperation 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.

At the same time, globalisation is *not* a single or universal phenomenon. It is nuanced according to locality (local area, nation, world region), language(s) of use, and academic cultures; and it plays out very differently according to the type of institution. In a networked global environment in which every university is visible to every other, and the weight of the global dimension is increasing, it is no longer possible for nations or for individual higher education institutions to completely seal themselves off from global effects. But research-intensive universities, and the smaller number of vocational universities organised as global international businesses, tend to be the most implicated in globalisation. Typically they are more internationally networked than the bulk of the societies in which they sit. Research-intensive universities that downplay global connectivity pay the price in diminished effectiveness. On the other hand, with some exceptions, predominantly teaching institutions, community colleges and traditional vocational sectors are less engaged and affected. Likewise, globalisation does not take place on a level playing field. Nations and institutions bring varying capacities and agendas to global exchange. Cross-border flows between nations are not symmetrical. Nor is every national system engaged with every other to the same extent or intensity. For example the higher education institutions of the United States exercise a profound global influence, yet in some ways seem less affected than others. 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.

In any consideration of the future of higher education, the international and global aspects must be taken into account. This working paper explores the issues for national policy and for individual institutions. As such it complements and builds on recent OECD work on *Internationalisation and Trade in Higher Education* (OECD, 2004a) and *E-learning in Tertiary Education* (OECD, 2005b). It should be read alongside the concurrent OECD papers on future scenarios for higher education, the future of research, and the implications of demographic changes and technological changes.

The paper lays out the issues as follows. Part I provides an overview of globalisation and higher education and the global responses of national systems and individual institutions of higher education. Section 1 discusses the factors shaping policy interpretations of globalisation, and argues for a neutral approach to definitions. Section 2 summarises the global strategic environment and the variations between national systems and institutions in experiences of globalisation. Sections 3 and 4 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. Sections 5-6 focus on national policy implications of globalisation in three parts of higher education: research-intensive universities (Section 5), the cross-border markets in vocational degrees and non-university institutions (Section 6).

Part II is focused on certain areas of policy with a strong multilateral dimension: Europeanisation (Section 7), institutional rankings and typologies (Section 8) and cross-border mobility (Section 9). A fourth area that might have been included in Part II is cross-border issues in accreditation and quality assurance, but this has been addressed separately in *Quality and Recognition in Higher Education: The Cross-border Challenge* (OECD, 2004b).

The concluding section reviews the main variables at play.

PART I. THE NEW GLOBAL LANDSCAPE OF NATIONS AND INSTITUTIONS

1. Interpretations of globalisation in higher education

In this era globalisation combines economic and cultural change. On one hand globalisation entails the formation of world-wide 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 world-wide 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 key dividing line in shaping relations of power and inequality (Castells, 2000; Giddens, 2001).

Higher education and globalisation

Higher education is implicated in all these changes. 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. Teichler (2004) remarks that "it is surprising to note how much the debate on global phenomena in higher education suddenly focuses on marketisation, competition and management in higher education. Other terms, such as knowledge society, global village, global understanding or global learning,

[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; by mid-2006 100 million people in India will subscribe to a mobile phone service; 70% of households in Korea already have broad-band Internet connections (Drache and Froese, 2005, pp. 16 and 22).

are hardly taken into consideration" (Teichler, 2004, p. 23). It is surprising because while higher education is 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. "The size, speed and complexity of information increasingly penetrate the daily life of scientists" (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).

Neutral approach to definitions

The term "globalisation" as used in this paper 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 in higher education as in many sectors. But the generative potentials of the Internet, air travel and research are not confined to the Anglophone zone. We can imagine a more plural environment with European, Chinese, Islamic and other globalisations, as illustrated by the emergence of a world-wide network of Islamic financial institutions and 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. Globalisation is not always understood in a neutral manner. Touching many interests as it does, interpretations of globalisation are coloured by different agendas; and its reception is affected by other contemporary tendencies, phenomena that intersect with globalisation but cannot be wholly ascribed to it.

Globalisation and the new public management

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 (NPM). 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. In the last two decades these reforms have been the strongest single driver of change.

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 where reforms in higher education are often generated in World Bank loans-financed programmes. 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. 147-149). 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 "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 encompasses markets and competition between institutions and between nations, but it is also much more than that. The new public management and marketisation (Marginson, 1997) pre-date the Internet and are not reducible to a function of globalisation *per se*. One can occur without the other. Nevertheless, 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. And the new public management reforms have become a medium for importing 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. 152-153; AAUP, 2006). The drivers of this trend are domestic to American higher education: it is not driven by labour markets in other nations and nor does it derive from the global role of American institutions. Yet because the trend is American, it is readily imported into other national systems as a norm for imitation. It is not surprising that some analysts see globalisation, an imperial Anglo-Americanisation and the new public management as simply one process (Currie, 2005). It is as if policy makers almost everywhere believe that to succeed like US universities, it is necessary *be* like US universities (regardless of the fact American higher education is less reflective of new public management templates than is higher education in many other nations). But the new public management cannot deliver American outcomes in other systems, operating without the national/global position and resources enjoyed by US institutions.

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, as in many nations Finland has adopted institutional devolution, quasi-market competition in the system, and performance-managed staffing (Valimaa, 2004b, p. 118). Like most nations 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), it determines its own templates and there is little brain drain. Perhaps Finland's unique language, and its distinctive social policy tradition, 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 much smaller systems than the American (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.

WTO/GATS

Policies supporting quasi-markets and commercial markets in higher education are expressed globally in the World Trade Organisation (WTO) negotiations in the General Agreement on Trade in Services (GATS). WTO/GATS (2005) focuses on liberalising the regulatory conditions governing trade in services, including higher education, in each nation. It is seen as a driver of change and national benefit by governments that have an interest in educational trade or see the GATS agenda as potentially helpful in implementing reforms along new public management lines. Critical responses to WTO/GATS range from concerns about vulnerable systems in developing nations, to the effects of foreign competition in established systems, to opposition to globalisation as such. There is no doubt that in conjunction with the new public management, the WTO/GATS round has encouraged the interpretation of globalisation as world-wide markets and global competitiveness. Nevertheless, after a decade of WTO, it appears that the transformative potential of WTO/GATS within national systems has often been exaggerated. First, GATS is concerned with commercial cross-border activity in higher education, whereas most cross-border activity is largely non commercial in nature; for example research cooperation, faculty exchange and doctoral mobility. Second, under WTO/GATS, governments choose the degree to which they open up their systems to foreign competitors, for example whether they create equal rights for foreign institutions within the funding and regulatory structures. Some nations have been more vigorous in demanding the opening up of foreign systems than in liberalising their own. In the outcome most nations have opted for little formal change to the status quo, except to open up to foreign e-learning (which in any case none can fully exclude). At the same time, in many nations the entry of foreign providers is proceeding without reference to WTO/GATS.[3] The study by Vlk (2006) finds little evidence for loss of government control of the higher education sector as an effect of GATS. The failure of negotiations to bring the Doha round of trade liberalisation to completion suggests that in the foreseeable future, the liberalisation of trade in higher education will occur more on a bi-lateral or regional basis than through global multilateralism. This does not negate the potential for multilateralism in higher education as such, but suggests multilateralism is unlikely to be limited to a deregulatory trade agenda in which the nation-state reduces its role in the sector.

An example: European discussion of "globalisation"

The long-standing policy focus in Europe was on "internationalisation" and "Europeanisation". The concept of "globalisation" entered the high education policy context in the second half of the 1990s gaining ground from 2000 onwards. The setting in which "globalisation" emerged shaped its policy meanings and uses. First, discussion of "globalisation" coincided with the expanding role of new technologies, including cross-border electronic delivery. Second, the same period saw the political emergence of the notion of the "knowledge economy" (the concept itself was originally launched in the 1960s) which emphasised the importance of knowledge in creating economic growth and global competitiveness. Third, there was a renewed policy emphasis on the need to expand participation in higher education, related not only to the knowledge economy notion but also to demographic factors in some countries, with cross-border education seen as one way to provide more diversified, flexible higher education including lifelong learning for ageing populations. The same time period saw the creation of the WTO in 1995 and the GATS negotiations. The idea that the cross-border matching of supply and demand

[3] In few countries in Europe has GATS been systematically addressed.

in higher education was a subject of trade negotiations evoked, and continues to evoke, strong and mostly defensive responses from higher education communities in Europe (as in many Canadian and US institutions and in developing countries). Concerns were and are often expressed that trade liberalisation would undermine government policy commitment to higher education as a public good (Singh, 2001; Taskforce, 2000), for example by fostering public disinvestment. Thus the economic notion of globalisation took on two apparently opposing meanings. On the one hand trade liberalisation, commodification and global economic competition is understood in terms of new opportunities for higher education systems that find themselves under pressure through decreased public funding (in developed nations) or inadequate funds to build the system (in transition nations). On the other hand, many see notions of economic globalisation and educational trade as alien to the values of higher education. This policy context helps to explain why globalisation was and is understood primarily in terms of the growing pressures of global economic competition while "internationalisation" continued to be synonymous with a more cooperative approach to higher education, or at least to carry less political or ideological baggage. This distinctive and contrasting use of the terms persists in many policy circles in Europe.

"Globalisation" and "internationalisation"

This kind of distinction between globalisation and internationalisation, grounded in ideal policy types, has obvious functionalities for different parties in policy debate. However the use of normative rather than neutral definitions sacrifices analytical clarity, making it more difficult to grasp the actual changes taking place. For example, when the global dimension is interpreted as essentially the domain of imperial economic markets, this downplays the communicative and knowledge-based elements in world-wide convergence, much of which is sustained by free or subsidised public knowledge goods; it misses the complexity of phenomena such as brain drain/circulation; it misses the fuller global implications of the emergence of new Asian powers in higher education; and it obviates the potential for more reciprocal exchange within global systems. Further, much of what is held to be non-pejorative "international" exchange is in fact culturally loaded and one-way in character. Arguably, the normative distinction between ideal forms of globalisation and internationalisation is a dualistic over-simplification, that obscures from view both the differences between the two processes and the manner in which they feed each other.

Definitions requiring less *a priori* agreement are more helpful. In this paper "internationalisation" is understood in the literal sense, as inter-national. 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 world-wide 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 has a long history in higher education as a relatively safe method of broadening one's horizons through intellectual sampling and reflective comparison (Teichler, 2004, p. 11). As long as the zones of difference are not brought closely together, scholars can selectively appropriate what they will from other realms without placing their own identities in question. 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.

Europeanisation

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 cooperation 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 cooperation 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, in 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 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 it is drawn willy-nilly 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.

2. The global strategic 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 world-wide 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. 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. 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. Parallel reforms by the different autonomous national governments, 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 Anglo-American 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, type 3 transformations, can lead to a tipping point that facilitates global transformations of types 1 and 2. Likewise transformations of type 2 can establish favourable conditions for type 1 transformations. Europeanisation, combining transformations of type 2 and 3, is opening higher education to larger changes than originally envisaged.

Global "relativisation"

As transformations type 1 and 2 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 (see Section 8) 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 world-wide 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 transformations of type 1 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 entitities) 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 4), magnifying their freedom to operate outside the nation while limiting the wash-back effects at home engendered by global transformation.

[4] Teichler (2004, pp. 18-19) discusses this in more detail.

The nation still matters

The implications of the partial "disembedding" of institutions from their national locations is explored in Sections 3 and 4 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, cooperation 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 cooperation, 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

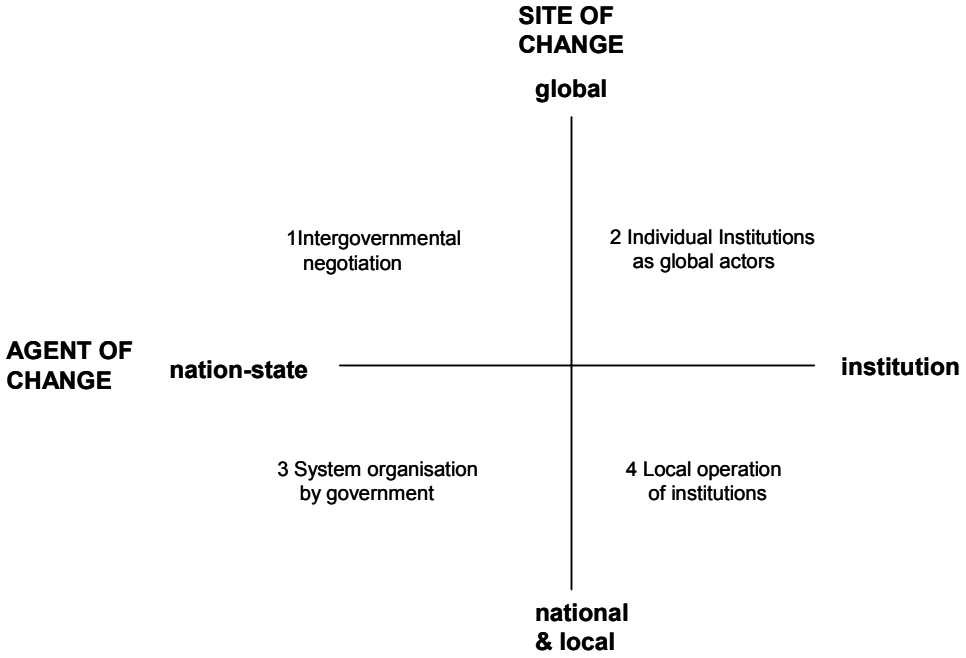
Likewise the rise of global referencing does not obviate the national identity of institutions. Studies of international student choice-making indicate that except for a small group of institutions, the Harvards, Berkeleys and Oxfords, that are household names in many nations, the national identity of 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 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).

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).

Figure 1. Four zones of strategy making by nations and higher education institutions



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 differences in kind that in themselves have no necessary implications for hierarchies of power. 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. 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 and 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 affect, which are sometimes but not always mutual in character. Again, the cross-border flows are partly accessible to observation and calculation, [5] 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.

[5] 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. 250-273); albeit subject to caveats.

The global implications of national system size and of language of use, especially the global role of English, are discussed below. Meanwhile Table 1 provides a small number of indicators of material global potential and capacity in the OECD nations, in areas open to data gathering.

Table 1. Selected indicators of global potential, capacity and engagement, OECD nations and comparator nations, 2002/2005

Nation	Gross National Product (GNP) PPP	Gross National Income (GNI) per head PPP	% of GDP spent on tertiary education institutions, from:		Mean PISA maths score	Total research persons	Ratio of research degree graduates to total population	Broad-band Internet per 100 persons	Foreign tertiary students as % of students	Tertiary students abroad* as % of students
			public	private						
	2005	2005	2002	2002	2003	2004	2003	2005	2003	2003
	USD (billion)	USD	%	%			%		%	%
United States	12409.5	41950	1.2	1.4	483	1334628	1.2	16.8	3.5	0.2
Japan	3943.8	31410	0.3	0.6	534	677206	0.8	17.6	2.2	1.6
Germany	2417.5	29210	1.0	0.1	503	268942	2.0	13.0	10.7	2.8
United Kingdom	1926.8	32690	0.8	0.3	n.a.	157662	1.8	15.9	11.3	1.2
France	1829.6	30540	1.0	0.1	511	192790	1.2	15.2	10.5	2.5
Italy	1667.8	28840	0.8	0.2	466	70332	0.5	11.9	1.9	2.2
Spain	1133.5	25820	1.0	0.3	485	100994	1.1	11.7	2.9	1.5
Canada	1061.2	32220	n.a.	n.a.	532	112624	n.a.	21.9	n.a.	n.a.
Korea	1056.1	21850	0.3	1.9	542	156220	0.9	25.4	0.2	2.8
Mexico	1052.4	10030	1.0	0.4	385	33484	0.1	2.2	n.a.	0.9
Australia	643.1	30610	0.8	0.8	524	73344	1.5	13.8	18.7	0.6
Turkey	612.3	8420	0.8	0.1	423	23995	0.2	2.1	0.8	2.5
Netherlands	536.7	32480	1.0	0.3	538	37282	1.3	25.3	3.9	2.4
Poland	533.6	13490	1.1	0.5	490	60994	1.0	2.4	0.4	1.3
Belgium	337.1	32640	1.2	0.1	529	31880	1.0	18.3	11.2	3.1
Sweden	280.3	31420	1.6	0.2	509	47836	2.8	20.3	7.8	3.6
Austria	276.4	33140	1.1	-	506	24124	1.9	14.1	13.5	5.5
Greece	261.6	23620	1.2	-	445	15390	n.a.	1.4	2.2	8.4
Switzerland	255.6	37080	1.4	n.a.	527	25400	2.5	23.1	17.7	4.7
Czech Republic	217.4	20140	0.8	0.1	516	16300	1.0	6.4	4.3	2.4
Portugal	212.4	19730	0.9	0.1	466	20242	2.4	11.5	3.9	3.0
Norway	185.7	40420	1.4	0.1	495	20989	1.0	21.9	5.2	7.1
Denmark	182.7	33570	1.9	-	514	26167	1.1	25.0	9.0	3.3
Hungary	182.5	16940	1.0	0.3	490	14904	0.8	6.3	3.1	2.1
Ireland	169.9	34720	1.1	0.2	503	10910	1.1	6.7	5.6	8.7
Finland	163.9	31170	1.7	-	544	41004	1.9	22.5	2.5	3.5
New Zealand	92.5	23030	0.9	0.6	523	15568	0.9	8.1	13.5	3.5
Slovak Rep.	88.7	15760	0.7	0.1	498	10718	2.5	2.5	1.0	9.1
Luxembourg	34.1	65340	0.8	n.a.	493	2149	n.a.	14.9	n.a.	211.6
Iceland	10.5	34760	1.9	-	515	1917	0.1	26.7	4.3	22.3
OECD total	-	-	1.0	0.8	489	3559133	n.a.	13.6	n.a	n.a.
Country mean	-	-	1.1	0.3	500	-	1.3	-	6.4	4.0
China	8572.7	6600	n.a.	n.a.	n.a.	926252	n.a.	n.a.	n.a.	1.8
India	3815.6	3460	0.7	0.2	n.a.	n.a.	n.a.	n.a.	0.1	0.9
Brazil	1627.3	8230	0.8	n.a.	n.a.	n.a.	n.a.	n.a.	-	0.5
Russian Fed.	1559.9	10640	0.6	n.a.	n.a.	477647	n.a.	n.a.	0.8	0.3
Indonesia	847.4	3720	0.3	0.4	n.a.	n.a.	n.a.	n.a.	-	1.0
Argentina	558.8	13920	0.7	0.4	n.a.	29471	n.a.	n.a.	0.2	0.4
Egypt	329.8	4440	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.3
Malaysia	274.8	10320	2.7	0.9	n.a.	n.a.	n.a.	n.a.	4.4	6.5
Chile	205.9	11470	0.4	1.8	n.a.	n.a.	n.a.	n.a.	0.9	1.1
Israel	177.4	25280	1.2	0.8	n.a.	n.a.	1.2	n.a.	n.a.	3.3

p. = per n.a. = data not available * students enrolled in nations that report to the OECD (the OECD members plus selected comparators, which include China, India and Indonesia).

Sources: OECD (2005a), pp. 70, 240, 37, 55, 185, 174, 267; OECD (2005d); OECD (2006a); World Bank (2006).

Columns 2 and 3 illustrate the differences in economic resources. Total GDP varies from USD 12 409.5 billion in the United States to USD 10.5 billion in Iceland. Gross National Income per head, a rough measure of wealth intensity within each nation (though one that neglects distributional factors and

fails to distinguish between investment and unproductive consumption) varies from USD 41 950 in the United States[6] to a low of USD 8 420 in Turkey. There is much variation in investment in tertiary educational capacity, from 2.6% of GDP in the United States to 0.8% in the Slovak Republic. These data show that private sources of funding play a large role in some countries: Korea (1.9% of GDP), the United States (1.4%), Australia (0.8%), New Zealand (0.6%) and Japan (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,[7] 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 (1.2%) is lower than Sweden (2.8%), Switzerland (2.5%) and several other European nations. (Differences in the global landscape in research capacity and outputs are discussed further in section 5 below). Table 1 also provides data on China's GDP 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 person, 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 26.7 in Iceland to only 1.4 in Greece. Turkey, Mexico, Poland and the Slovak Republic 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 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. Foreign enrolment exceeds 10% of tertiary students in Australia, Switzerland, New Zealand, Austria, the United Kingdom, Belgium, Germany and France but is negligible in Korea, Poland and Turkey. The outward movement of student nationals exceeds 5% in Luxembourg, Iceland, the Slovak Republic, Ireland, Greece, Norway and Austria but is 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 Iceland, Ireland, Norway, Switzerland and Austria.

[6] Leaving aside the idiosyncratic case of Luxembourg with a per capita GNI of USD 65 340.

[7] For example the United States does poorly on measures of school mathematical competence despite its very high level of national economic resources.

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 world-wide roles of Latin, French, German and Russian have declined. French remains important in Francophone Africa, and German continues to be quite widely known in university circles in Japan and Korea; 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 Anglophone 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 in the past were colonised by English-speaking nations. In Malaysia, it 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 1998-1999 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 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 over 200 million people: Russian, Bengali and Arabic. Another four languages have more than

100 million speakers. These languages are too large to disappear; and if China develops Putonghua as a language of scientific research it is likely that it will become globally significant. If regionalisation looms larger, some world regions (Latin America, nations using Arabic, perhaps East and Southeast Asia, and Francophone Africa) may assume a distinctive linguistic base, with one other language being used alongside English as a medium of exchange and marker of identity. It is possible also that English will stay dominant in the sciences while greater global plurality develops in the social sciences and humanities.

Table 2. Spoken languages with more than 100 million voices world-wide

Language/language group	Number of voices
English	1000
Putonghua ("Mandarin")	1000
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).

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 54% of the top 100 (SJTUIHE, 2006) and draws and holds talented doctoral students, postdoctoral researchers and established faculty from everywhere. The norms that institutions from the United States take into 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 world-wide 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.[8] It is not surprising that for many in higher education around the world, globalisation appears as an American or Anglo-American process, especially in the research university domain where in many ways national identity is shaped. Yet there are no lines of policy accountability for "Americanisation". It is not managed by the US 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, inevitably generates in other nations the mix of admiration, opportunism and resentment that often puzzles Americans. The unregulated practices of American institutions are consistent with the broad thrust of US foreign policy and in the interface between American institutions and the rest of the world there is a high degree of cultural coherence. Nevertheless "Americanisation" in

[8] Arguably the core ideas of the new public management are a British rather than US creation though the idealised templates in higher education reflect the norms of the American non-profit and for-profit sectors.

higher education is a very different process from "Europeanisation". Like Americanisation, Europeanisation has global effects. Unlike Americanisation it is an explicitly political process.

The United States as a magnet for talented researchers

The fact that key elements of American global interaction are not regulated on a national basis retards the potential of multilateral forums in relation to global mobility, recognition protocols and other common goods. But in other national systems the effects of Americanisation *are* a policy matter for governments to consider. For them the key problem is 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 2003 just 4.7% of foreign students in Australia and 9.4% of those in the United Kingdom were doctoral students, in the United States in 2004-2005, 18.1% of all foreign students in higher education were enrolled at doctoral level, and 30.8% in research-intensive universities. Thus whereas in 2003 the United Kingdom had 23 871 foreign doctoral students, Spain 11 765, Australia 8 855, Switzerland 6 028 and Sweden 3 205, in 2004-2005 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 (OECD, 2005a, p. 272; IIE, 2006). As in many other nations[9] 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). 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).[10] Though not all work in higher education, between 1975 and 2001 there was a sharp rise in foreign born with US doctoral degrees as a proportion of faculty labour, from 12 to 21% (NSB, 2006, p. A5-45). Since 2001 the recruitment of research students has been more robust than the recruitment of other foreign students. In 2004-2005 the total foreign enrolment in American higher education fell by 1.3% but the number of doctoral students rose by 2.0% (IIE, 2006).

At 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. 146-147) in the United States a high and increasing proportion of postdoctoral personnel holding US 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 1994-1994 and 2004-2005 international scholarly visitors to the United States rose from 59 981 to 89 634, 49.0% (IIE, 2006),[11]

[9] 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, 2004b, p. 156).

[10] 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, 2002a, p. 49).

[11] Notably however the number of visiting scholars faltered in the first two years after 11 September 2001, falling from 86 015 in 2001-2002 to 82 905 in 2003-2004. 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. 3.37).

two thirds 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 2003-2004 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, 2006c, p. 30). Its hegemony 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, or migrate elsewhere, most of them 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 type 3 global transformations in the national implementation of new public management reforms.[12] The outcome is that American knowledge goods and models of higher education and research have continuous effects in most other national systems. However the reverse is not the case.

Uneven global knowledge flows

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, but even so an aids-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 monocultural and mono-linguistic environments than their counterparts elsewhere. In one sense this is readily explained: given the worldwide dominance of US and UK 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, or as a limited multiculturalism within a dominant monoculture, for example the access of non dominant groups to higher education. A fuller global diversity is not seen as an essential goal in itself. This facilitates uniform systems. 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 EU 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 EU, 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).

[12] The United States is also formative of the academic profession in other nations in another way. 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. 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. 78-79). Most nations are net importers of academic labour however.

One outcome is that most American institutions are not very globablised 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. 148-149). 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.

New powers in higher education?

In its hegemonic global power and in its uni-directed flows the position of American higher education is almost akin to that of the American creative industries in film, TV, music, books and software. Just as the American film industry has a positive balance of trade with every other nation in the world, so personnel from American universities have a positive citation balance and a positive revenue balance (OECD, 2004a) with other university systems. On the other hand there are signs of pluralisation in film that "nobody could have foreseen a few decades ago". One sign is the rise of India's Bollywood, producing 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. Other signs are 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. Between 1988 and 2001 the output of South Korean papers in science and engineering, including social science, increased from 771 to 11 037, from 0.2 to 1.7% of world output. Over the same time papers from China grew from 4 619 (1.0%) to 20 978 (3.2%), Taiwan's share rose from 0.3 to 1.2%, Singapore's share from 0.1 to 0.4% (see Table 3).

Emerging economies outside the OECD now produce half of the world's economic wealth. China has 1.3 billion people and according to some projections will overtake US PPP GDP by 2025.[13] India has 1.2 billion people and its economy is also growing significantly. In both nations tertiary participation is expanding rapidly: between 1990-1991 and 2002-2003 the gross enrolment ratio rose from 3 to 13% in China and 6 to 11% in India (World Bank, 2006). The emergence of two more national systems on the American scale, plus the European Higher Education Area has profound implications for the worldwide landscape, more so if the new systems are culturally coherent on a global scale and become major producers of basic research.

[13] 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).

Table 3. Nations in which the number of scientific papers grew particularly sharply between 1988 and 2001

	1988	2001	change from 1988-2001
			1988 = 100
Korea	771	11 037	1 431.5
Turkey	507	4 098	808.3
Singapore	410	2 603	634.9
Portugal	429	2 142	499.3
China*	4 619	20 978	454.2
Brazil	1 766	7 205	408.0
Mexico	884	3 209	363.0

* The number of papers produced in Taiwan increased from 1 414 to 8 082 (634.9)

Source: NSF (2006).

China looks likely to fulfil these conditions. Higher education in China is undergoing a major state-driven development in quantity and quality terms, in extraordinarily rapid time, while engaging with curiosity and vigour with systems and institutions throughout the world. 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. China now accounts for half the R&D expenditure of the non-OECD nations (Vincent-Lancrin, 2006, p. 16) and was the seventh largest producer of scientific papers in the world in 2001, compared to its fourteenth position in 1988 (NSF, 2006). The number of doctoral degrees awarded by universities in China rose from 19 in 1983 to 18 625 in 2003. A doctoral admission of 54 000 was planned for 2005, signalling the prospect of further rapid growth in PhD graduates. This will 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).[14] While many foreign educational providers are active in China, as in the Internet and television the Chinese government prefers a partnership model to open competition between local and foreign providers. This strengthens the element of national steering 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 11 076, constituting a decline from 1.9 to 1.7% of world output (NSF, 2006). Nevertheless tertiary education in India has three global advantages: communicative competence via ICT systems and the widespread use of English, flexibility in cross-border dealings via local autonomy, which facilitates engagement (the upside of non centralisation), and alongside a rather conservative orthodox university sector 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

[14] 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).

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. 156-157). 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.[15] 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 (Section 5) 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 (see final section). 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 Garret (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 high 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 dependant 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. The potency of Americanisation in national systems also suggests regionalisation strategies in response. Only European nations have established a common higher education area; but Southeast Asian nations in ASEAN are working on mobility and recognition arrangements, and have established joint cross-border programmes; and Argentina, Brazil, Paraguay, and Uruguay are extending their educational cooperation within MERCUSOR to other South American nations.

[15] As discussed in Section 5, the *Times* indicators are more useful as a measure of reputation than of performance, though the two sets of factors may coincide in particular cases.

Conclusions on the global strategic environment

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 B), though mapping the global landscape on a comprehensive basis would greatly assist national policy makers and institutions.

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; (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.

3. 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 cooperation 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".[16] 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 Unites 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, 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 would 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 by 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 (see Section 4).

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

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

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. A fourth example is cross-border accreditation. There are many cases of institutions seeking accreditation outside their national context (Altbach, 2003; OECD, 2004b), 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; 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 transformations of type 2 and 3, 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 type 1 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 is 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. World-wide 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 HEIs have a much stronger global orientation than the Universidad Autonoma Nacional de Mexico (UNAM), which is the leading public sector research university and the dominant provider in Mexico overall. 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 (Section 4 below) 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.

4. 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 A). 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.[17] Knowledge, especially basic research, is an almost pure public good (Stiglitz, 1999). As Samuelson also noted, public and part-public goods tend to be under-provided 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. Arguably, in higher education there has been an undue focus on creating commercialisable contents, given the public good character of most of the knowledge goods produced. 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

[17] 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.

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.[18] This highlights the importance of open source models of ICT use, enabling 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.[19]

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; such as the Washington Accords in Engineering, and the Bologna Declaration's higher education space. 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 under-provided in markets. Multilateral forums can directly create such global public goods, for example collective world-wide 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 under-developed.

The creation of new global public goods in higher education occurs both in the space created by the partial disembedding of HEIs, 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 one 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

[18] The fact that this work of higher education institutions is both relatively global in character *and* subject to market failure and public subsidy contradicts assumptions that globalisation is directly market driven.

[19] 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).

is another example of the jurisdictional gap between global effects, especially type 1 effects, and national policy framework. Here the difficulty is not that the new public management suppresses global public goods: on the contrary, there has been a major expansion of global public goods in the global era. The difficulty is that they are unrecognised. "In the international sphere, where there is no government, how are public goods produced?" (Kaul *et al.*, 1999, p. 12; Marginson, forthcoming A).

Cross-border student security as a global public good

One set of practical examples lies in the absence of full 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. In nations such as the United Kingdom and Australia many cross-border students enter the lower sub-strata of the workforce and can experience discriminatory or exploitative work practices. 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 do not "own" those issues and they normally face limited 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 bi-lateral negotiation with the nation(s) of education. For nations that receive students for the purposes of education, these are not their own citizens. The rights of these 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 type 3 global effects; but not the externalities they are subjected to by higher education in other nations which are type 1 global effects. National governments can secure regulatory control over type 1 externalities and collective global goods only in the framework of

multilateral negotiations. But though the regulation of private trading goods 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.

5. Globalisation and research universities

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, forthcoming). 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 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 lift its reputation. All are focused on policies to lift capacity and performance.

Internationalisation and globalisation of research

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 collaborations to accumulate foreign knowledge and researchers at home. Between 1988 and 2001 the annual number of scientific articles, which are mostly produced in universities, rose from 466 419 to 649 795. At the same time 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%.[20] The incidence of citation of foreign articles also increased (Vincent-Lancrin, 2006, p. 14; 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, forthcoming D). There has also been a growth of cross-national research projects and some pluralisation of funding sources across borders.

World-wide distribution of research outputs

In 2001 scientists and social scientists in the United States published 200 870 papers in recognised international journals, almost a third of world output, and the United States "accounted for 44% of citations in the world scientific literature" (Vincent-Lancrin, 2006, p. 16). The volume of the papers from Japan was 57 420, the United Kingdom 47 660, Germany 43 623, France 31 317 and Switzerland 8 107. By contrast, in Indonesia, a middle level developing nation with two thirds of the population of the United States, there were 207 papers. There were 11 076 from India and 20 978 from China (NSF, 2006). Table 4 has full country data for the OECD nations, plus data for all other nations producing more than 1 000 papers in 2001 and four emerging nations with populations of more than 100 million but little scientific infrastructure.

In 2001, OECD Europe excluding the United Kingdom published 29.4% of the world's scientific papers in 2001, compared to 44.6% in the English-speaking countries. Table 4 also compares country outputs in 2001 with those of 1988 and indicates a pattern of pluralisation. Between 1988 and 2001 the number of articles from North America rose by 13% compared to 59% in Western Europe and 119% in Asia. In 1999 the total output of scientific papers from Western Europe moved past that of North America. The table also shows a dramatic increase in the number of papers from certain nations including Korea, China, Singapore and Turkey. The United States' share of world scientific papers fell from 38.1 to 30.9%[21] (Vincent-Lancrin, 2006, p. 16; NSF, 2006).

[20] In the United States the share of internationally co-authored articles doubled, rising to 23%. In Western Europe collaboration, much of it with a regional flavour, rose from 17 to 33%; in Asia the movement was from 11 to 21%.

[21] Since 1992 in the USA 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 2004 the number of books produced by American university presses rose by 21%. For an extended discussion of these trends see Vincent-Lancrin, 2006, pp. 1-6.

Table 4. Output of published articles in science and engineering (including medicine and social sciences), OECD nations and selected comparators, 1988 and 2001

Nation	Total population	Number of published science and engineering articles		Proportion of total world output of S&E articles		Change in number of articles
	2003	1988	2001	1988	2001	1988-2001
	millions			%	%	1988 = 100
United States	290.8	177682	200870	38.1	30.9	113.1
Japan	127.6	34435	57420	7.4	8.8	166.7
United Kingdom	59.3	36509	47660	7.8	7.3	130.5
Germany	82.5	29292	43623	6.3	6.7	148.9
France	59.8	21409	31317	4.6	4.8	146.3
Canada	31.6	21391	22626	4.6	3.5	105.8
Italy	57.6	11229	22313	2.4	3.4	198.7
Spain	41.1	5432	15570	1.2	2.4	286.6
Australia	19.9	9896	14788	2.1	2.3	149.4
Netherlands	16.2	8581	12602	1.8	1.9	146.9
Korea	47.9	771	11037	0.2	1.7	1431.5
Sweden	9.0	7573	10314	1.6	1.6	136.2
Switzerland	7.4	5316	8107	1.1	1.2	152.5
Belgium	10.4	3586	5984	0.8	0.9	166.9
Poland	38.2	4030	5686	0.9	0.9	141.1
Finland	5.2	2789	5098	0.6	0.8	182.8
Denmark	5.4	3445	4988	0.7	0.8	144.8
Austria	8.1	2241	4526	0.5	0.7	202.0
Turkey	70.7	507	4098	0.1	0.6	808.3
Greece	11.0	1239	3329	0.3	0.5	268.7
Norway	4.6	2192	3252	0.5	0.5	148.4
Mexico	102.3	884	3209	0.2	0.5	363.0
New Zealand	4.0	2075	2903	0.4	0.4	139.9
Czech Republic	10.2	2746	2622	0.6	0.4	95.5
Hungary	10.1	1714	2479	0.4	0.4	144.6
Portugal	10.4	429	2142	0.1	0.3	499.3
Ireland	4.0	790	1665	0.2	0.3	210.8
Slovak Republic	5.4	n.a.	955	n.a.	0.1	n.a.
Iceland	n.a.	69	174	n.a.	-	252.2
Luxembourg	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
China	1295.2	4619	20978	1.0	3.2	454.2
Russian Fed*	143.4	n.a.	15846	n.a.	2.4	n.a.
India	1064.4	8882	11076	1.9	1.7	124.7
Taiwan	n.a.	1414	8082	0.3	1.2	571.6
Brazil	176.6	1766	7205	0.4	1.1	408.0
Israel	6.7	4916	6487	1.1	1.0	132.0
Argentina	36.8	1423	2930	0.3	0.5	205.9
Singapore	4.3	410	2603	0.1	0.4	634.9
South Africa	45.8	2523	2327	0.5	0.4	92.2
Chile	15.8	682	1203	0.1	1.9	176.4
Egypt	67.6	1130	1548	0.2	0.2	137.0
Indonesia	214.7	59	207	-	-	350.8
Pakistan	148.4	235	282	0.1	-	120.0
Bangladesh	138.1	95	177	-	-	186.3
Nigeria	136.5	886	332	0.2	0.1	37.5
World total	6272.5	466419	649795	100.0	100.0	139.3

* The number of articles from the USSR 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 15 846 (2.4%) in 2001. n.a. = data not available.

Source: NSF (2006); World Bank (2006).

Distribution of the leading research universities

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 are comprised by 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. American research universities house 3 614 of the HighCI researchers, compared to 224 in Germany, 221 in Japan, 162 in Canada, 138 in France, 101 in Australia, 94 in Switzerland, 55 in Sweden, 20 in China and none in Indonesia (ISI, 2006). Section 8 further considers the SJTUIHE data in their role as university rankings. Here they will be used objectively, to assess the comparative standing of each national higher education system as measured by its share of the leading research universities. The SJTUIHE data 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 2006 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 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.[22] Leading European nations are Germany (five), Sweden (four), France and Switzerland (three each) and the Netherlands (two). China and India have none of the top 100. China including Hong Kong has 18 of the top 500; four are in Taiwan. India has just three of the top 500.[23]

Table 5 maps each nation's share of global economic capacity against its share of the SJTUIHE 2005 top 100 and top 500 research universities. National economic capacity is calculated by multiplying National Income with 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 economic capacity to the global total. The nations whose university systems are above average performers in research terms, relative to national economic capacity in order are Israel, Sweden, Switzerland, the United Kingdom, the Netherlands, Canada, Finland, Denmark, Australia 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 under-perform 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, given the public good character of research (Stiglitz, 1999). The United States performs very well in its share of the top 100 research universities but under-performs in its share of the top 500, suggesting that resources and status have been concentrated in globally leading research universities 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.

[22] There are 101 universities in the "top 100" group: using the SJTUIHE metrics there is a tie for 100th place.

[23] Other measures of research outcomes confirm this picture. Nobel prizes go to the developed nations (Section 8), 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).

Table 5. Nations' share of the top 500 and 100 research universities as measured by Shanghai Jiao Tong U, compared to their share of world economic capacity, 2003/2005

Nation	Gross National Income 2003	Population 2003	GNI per head 2003	Share of world economic capacity	Share of top 500 research universities 2005	Share of top 100 research universities 2005
	USD (billion) PPP		USD PPP	%	%	%
United States	10978	290.8	37750	41.8	33.6	53.0
United Kingdom	1643	59.3	27690	4.6	8.0	11.0
Germany	2279	82.5	27610	6.3	8.0	5.0
Japan	3629	127.6	28450	10.4	6.8	5.0
Canada	950	31.6	30040	2.9	4.6	4.0
France	1652	59.8	27640	4.6	4.2	4.0
Sweden	239	9.0	26710	0.6	2.2	4.0
Switzerland	237	7.4	32220	0.8	1.6	3.0
Australia	572	19.9	28780	1.7	2.8	2.0
Netherlands	463	16.2	28560	1.3	2.4	2.0
Italy	1546	57.6	26830	4.2	4.6	1.0
Israel	130	6.7	19440	0.3	1.4	1.0
Austria	241	8.1	29740	0.7	1.2	1.0
Finland	143	5.2	27460	0.4	1.0	1.0
Denmark	167	5.4	31050	0.5	1.0	1.0
Norway	173	4.6	37910	0.7	0.8	1.0
Russian Federation	1284	143.4	8950	1.3	0.4	1.0
China*	6410	1288.4	4980	3.2	6.5	0.0
Spain	910	41.1	22150	2.0	4.5	0.0
Korea	862	47.9	18000	1.6	4.0	0.0
Belgium	300	10.4	28920	0.9	3.5	0.0
China Hong Kong	195	6.8	28860	0.6	2.5	0.0
Taiwan	n.a	n.a.	n.a.	n.a.	2.5	0.0
New Zealand	86	4.0	21350	0.2	2.5	0.0
Brazil	1326	176.6	7510	1.0	2.0	0.0
South Africa	464	45.8	10130	0.5	2.0	0.0
India	3062	1064.4	2880	0.9	1.5	0.0
Ireland	123	4.0	30910	0.4	1.5	0.0
Poland	428	38.2	11210	0.5	1.5	0.0
Singapore	103	4.3	24180	0.3	1.0	0.0
Hungary	140	10.1	13840	0.2	1.0	0.0
Turkey	475	70.7	6710	0.3	1.0	0.0
Greece	220	11.0	19900	0.4	1.0	0.0
Mexico	919	102.3	8980	0.8	0.5	0.0
Argentina	420	36.8	11410	0.5	0.5	0.0
Chile	155	15.8	9810	0.2	0.5	0.0
Czech Republic	159	10.2	15600	0.3	0.5	0.0
Portugal	185	10.4	17710	0.3	0.5	0.0
All other nations**	8219	2338.2	3456	2.9	0.0	0.0
World total	51401	6272.5	8190	100.0	100.0	100.0

* China Hong Kong is listed separately ** Population and GDP data include Taiwan

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 (2006); SJTUIHE (2006).

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 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 Taiwan 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 Unites 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 Unites States is a live policy also in many developed nations. These matters are further discussed in Section 9.

Conclusions on globalisation and research universities

Certain well defined conditions are essential to research universities in order for them to be globally effective: a strong resource base underpinned by state support for academically controlled basic research; an executive steering capacity able to concentrate resources in key strategic fields and projects; a mass of established and emerging researchers of high calibre across a range of fields of research, including emerging areas of strategic significance; conditions of institutional autonomy and academic freedom including the license to develop cross-border collaborations; communications capacity in terms of both ICT systems and English language competence; conditions of work and life sufficiently attractive to foreign staff and students; and extensive global engagement with universities abroad, ideally with strong people flows of faculty and students in both directions.

6. Cross-border student markets

Issues related to the cross-border markets in international education and online education were discussed in the OECD's *Internationalisation and Trade in Higher Education* (2004a) and *Quality and Recognition in Higher Education: The Cross-border Challenge* (2004b), and will not be fully canvassed again here. In 2003 there were 2.117 million designated foreign students in the OECD area (1.976 million) and other nations providing data, about 2% of all higher education students worldwide (OECD; 2005a, pp. 273 and 254). Most but not all of those foreign students crossed national borders for study or received their education in their own country from a cross-border provider, either in distance mode and/or by attending classes at a foreign campus. However, some of these designated "foreign students" are resident non-citizens, for example the descendants of guest workers in Germany.[24] Cross-border student movement is an important driver also of other forms of internationalisation and globalisation. It has fostered global markets and competition between institutions. It has brought the regulatory frameworks, educational systems and cultures of exporting and importing nations closer together, and hastened the global transmission of new

[24] Only a minority of OECD nations collect data on cross-border movement for educational purposes (Kelo *et al.*, 2006, p. 3).

public management models and educational English. Particularly in the form of on-shore education in the exporting nation, it also has transformative implications for the students undergoing it and the nations of education. Students absorb into their identities the cosmopolitan experience and the norms of mobility and some remain globally mobile later in their careers. The nations of education gain a more diverse student population some of whom later migrate. Though in English-speaking and Western European nations providing places to foreign students there is as yet little evidence of a diversification of curricula and pedagogy, export nations have developed a closer familiarity with higher education in importing nations in order to facilitate recruitment and to align programmes and recognition arrangements. International education creates organisational conditions favouring other forms of cooperation in research collaboration, student and faculty exchange, quality assurance and benchmarking. And financial dependence on foreign student fees in Australia, the United Kingdom and New Zealand has fostered enterprise university cultures and the growth of business functions.

Trends in cross-border markets

In those nations in which foreign students are an important source of revenue education institutions have a strong incentive to expand enrolments. This includes the English-speaking providers – the United Kingdom, Australia, New Zealand; some institutions in the United States and Canada, mostly outside the doctoral universities, such as community colleges; the growing Malaysian private sector, and certain other Asian and European nations. In the first half of the 2000s the main changes in the cross-border markets were further pluralisation of the exporting nations and a slowing of entry into nations such as the United States and Australia due to both supply and demand factors. Pluralisation has occurred in relation to both institutional type and provider nation. There has been growth in commercial teaching-only degree programmes and in sub-university vocational programmes, as well as programmes provided by research universities. As noted in Section 2 Western European providers of higher education are making increasing use of English as a language of instruction, partly to attract more students from Asian nations. Within Asia, Malaysia and Singapore are growing providers of foreign education and China enrols about 80 000 foreign students, some in English language programmes. Though this is marginal for a national system of this size it is likely that the development of research universities in China (Section 9), in conjunction with opportunities for graduates in that country, will enhance the attractiveness of China as a study destination. The Asian provider nations offer an English language education significantly cheaper than do the United States, the United Kingdom, Australia and New Zealand. In 2004-2005 there was a further drop of 1.3% in foreign students enrolled in the United States after a decline of 2.4% the previous year. The foreign enrolment in 2004-2005 was 565 039 students compared to a peak of 586 323 in 2002-2003. Asia remained much the largest source region. There were small increases in students from India, China, Korea and Japan but continued declines from Muslim Pakistan (14%), Indonesia (13%), Malaysia (5%) and also Thailand; and further declines from the Middle East, though enrolments from Turkey rose by 9%. Foreign students in the United States constituted just 3.5% of higher education students in 2003[25] but nevertheless this was 28% of the total global market in cross-border degrees (OECD, 2005a, p. 254). According to the American Institute of International Education:

> The slight overall decline in international students enrolled in U.S. colleges and universities has been attributed to several factors, including real and perceived difficulties in obtaining student visas (especially in scientific and technical fields), rising U.S. tuition costs, vigorous recruitment activities by other English-speaking nations, and perceptions abroad that it is more difficult for international students to come to the United States. In addition, universities in students' home countries and other regional host countries have been increasing their capacity to provide a high

[25] This is the OECD figure. According to the Institute of International Education the foreign share of enrolments was 4.0% in 2004-2005 after peaking at 4.6% in 2002-2003.

quality education to a greater number of students, at both the undergraduate and graduate levels (IIE, 2006).

No doubt military conflict in the Middle East, the "war on terror" and the associated retardation of mobility from selected regions have affected international education in the English-speaking countries. In Australia, which has expanded its share of the world market from 1 to 9% since 1990, and where foreign students constituted 24.2% of all students in 2004 (DEST, 2006), the rate of growth has slowed sharply and students from neighbouring Indonesia, Thailand and Singapore have declined, though numbers from Malaysia appear stable (DEST, 2006). China is now Australia's principal source nation, with the total number of students from China and Hong Kong China attending Australian institutions almost as great as the number going to the United States.

Mobility of programmes and institutions

Programmes and institutions cross national borders in several ways (OECD, 2004a, p. 215ff.). Some institutions establish their own campuses in foreign nations and there are an increasing number in China, Southeast Asia (especially Malaysia and Singapore), India, the Netherlands and other nations of both Western and Eastern Europe, Mexico and other parts of Latin America, and a handful in Africa. Most are operated by US, UK and Australian providers, with some French and other European presence. A December 2003 survey found that Australian institutions offered 1 600 programmes abroad, 57% solely through offshore programmes and 16% in mixed mode including offshore centres (Hatekenaka, 2004, p. 12). For exporting institutions their offshore operations are often loss leaders facilitating marketing, recruitment and throughput into the more profitable on-shore international education programmes, while helping to establish a longer term presence, with an open-ended potential, in importing nations. Programme and institutional mobility continues to grow and to pluralise rapidly. A definitive list of offshore operations has yet to be compiled, in part because most governments in the provider nations do not systematically regulate the offshore operations of their institutions. Foreign campuses are found in nations in which local capacity is inadequate in relation to needs, and also in some well provided systems. For example, Charles Sturt University in Australia operates a campus on the outskirts of Toronto in Canada although the province of Ontario is well provided in the quality, quantity and diversity of institutions and has high participation rates.[26] The Apollo Group through the University of Phoenix has now opened campuses in India, Mexico and Latin America and in Eastern and Western Europe. To be successful the Phoenix model requires investment capital, executive steering, well developed courseware and business systems, and sufficient local knowledge. Being a teaching-only form of higher education it does not require research capacity or a highly qualified and relatively expensive academic staff operating under conditions of academic freedom.

Modes of cross-border mobility vary from short-term leasing of premises in the nation of education in order to offer episodic programmes, to sequential "twinning" programmes in fields such as Medicine based on partnerships between local and foreign providers sustained over many years. Some foreign universities provide entire degrees in the importing nation via a local for-profit partner, supervising curricula and standards with varying intensity, a practice known as "franchising". Many franchisees are not established educators: they have little reputational stake and their sole concern is to maximise net revenues. At worst franchising is a means of renting out the foreign degree crest for a standard unit revenue for each graduation certificate. Twinning arrangements are more likely to involve for-profit or non-profit specialists for whom education is an end in itself, providing a better framework for assuring quality on the basis of homogeneity in practices and standards.

[26] There are of course also cases where foreign campuses have faltered because of saturation provision. The university of phoenix was unable to generate major growth on its Netherlands campus because arguably, the nation was well provided with vocational education already.

Online distance education

Distance education in post/print and broadcast forms is increasingly supplemented by or replaced by ICT-based forms, principally interactive Internet-based delivery. Mixed modes have become common: the majority of cross-border distance programmes involve some form of face-to-face pedagogical or administrative contact, for example visits to study centres located in the capital city of the nation of education. E-learning is discussed in the OECD's *E-learning in Tertiary Education* (2005b). Educational technologies are in a constant state of development because of their many utilities in both face-to-face programmes and administration. In the late 1990s many institutions and for-profit e-learning specialists saw great commercial potential in the development of global e-learning courseware in English with delivery into nations such as China where demand for tertiary education is outstripping supply. But while the extent of cross-border online learning is difficult to assess because the medium eludes comprehensive scrutiny and regulation, the online medium failed to fulfil the expectations of the first e-U's (Marginson, 2004; OECD, 2005b, p. 12). The study by Garrett (2005a; 2005b) noted a higher incidence of failure among virtual institutions than brick-and-mortar institutions. A number of reasons have been advanced. Distinctive high quality interactive models of online pedagogy that explore the potentials of the medium have yet to emerge (OECD, 2005b, p. 14); early prototypes rested on unit cost savings, with uniform courseware and low intensity communication in place of face-to-face teaching; producers from English-speaking nations failed to design learning materials and methods sensitive to cultural and linguistic variations (OECD, 2005b, p. 66); and status is a vital commodity in higher education markets, and online programmes were handicapped by perceptions that the degree had less status than a face-to-face programme even when offered by leading brands such as New York University or the University of Chicago business school. It may be that in future providers in multi-lingual nations like Singapore will design more culturally-variant courseware; and that the further evolution of non-proprietary open source models and systems (OECD, 2005b, pp. 134-135) will enable the interactive social and pedagogical potentials of online education to be more effectively developed than in commercial learning systems such as Blackboard/WebCT or the global e-U's.

There are still questions about the viability of online programmes for different kinds of student. The natural constituencies for distance education are people in remote locations and working adult students who benefit from the flexibility of time and place. In the United States the Apollo Group, the parent company of the University of Phoenix, specialises in career-building vocational programmes for adult learner employees many of whom who missed out on completing tertiary programmes as younger people. Enrolments in the University of Phoenix online programmes, which are teaching intensive and charge higher fees than the face-to-face programmes, are growing faster than the latter. Most of the other growth of online programmes in the United States is in the same market niche, adult vocational learners. It remains to be seen whether predominantly online education in its own right can attract the traditional clients of higher education, younger people enrolled in a range of vocational and generalist degrees, on a scale sufficient for market growth.

Harmonisation of regulation

There are lacunae in regulating the quality of foreign education on local soil. 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 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 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. 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 to mass degrees. In some other importing countries regulation of the quality of foreign providers is under-developed. 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. In March 2006 only two had been accredited and legislation covering foreign providers was still in preparation. Meanwhile in the last decade a wide range of commercial foreign provision has taken root in partnership with local agents, mostly from the United States and the United Kingdom with a small number from each of Canada, Australia, Switzerland and France, and in hotel management, MBA programmes and medical technology. 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.[27] 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).

In bilateral negotiations between exporter and importer the parties have heterogeneous interests. The exporter nation is concerned to safeguard reputation but has a strong incentive to minimise commercial constraints on its institution. The concerns of the importing nation are the implications for national citizens and the policy objectives of the national education system. All nations have a collective public good interest in sound and transparent business and educational practices but in the absence of a multilateral approach to quality this global public good is largely unexpressed.

Tertiary education with lesser global connectivity

Many community colleges in the United States and Canada recruit fee paying foreign students. The commercial form of vocational education developed by the Apollo Group, DeVry and others in the United States has proven to be exportable. In Australia, commercial institutions offering business studies, computing and English programmes are heavily dependent on exports, and some public vocational Technical and Further Education Institutions are active in offshore delivery. Nevertheless, among tertiary education institutions without advanced research functions these globally explicit forms are on the whole exceptional. For the most part the localised missions of such institutions exclude strong global connectivity. There is nothing wrong with this. After all, when schools are included the great majority of educational institutions work exclusively in the local dimension, connecting to the larger metropolitan, national and global systems of education and society via the articulation and transition arrangements for students and the training of teachers and other personnel, and through the location of the institution within a division of labour managed by public authorities.

This is not to say that vocational and community-oriented institutions are largely unaffected by globalisation. First, in certain national systems reforms to non research institutions have been influenced by policies and models of provision drawn from other nations, especially German vocational training and

[27] 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).

American community colleges. Second, few systems are immune from the globally transmitted templates of the new public management. Third, in many cases the student clientele of non research institutions, and the industries served by predominantly vocational institutions are closely affected by global flows and effects. A case in point is the HBO sector in the Netherlands, which is analogous to the former polytechnic institutions in the United Kingdom. A significantly larger proportion of the HBO student body is drawn from immigrant communities from North Africa and the Middle East than is the case in the research universities. It is important that agendas of research-intensive globally networked universities are supplemented by institutions committed to foundational programmes and to the self-realisation of people for whom globalisation is more a force pressing in from outside than a relationship in which they are active protagonists. Local vocational and access programmes play a vital role for smaller enterprises and workers affected by industry restructuring, newly arrived migrants and displaced persons. Some North American community colleges specifically tailor their programmes to local communities economically and culturally affected by globalisation, making this part of their core mission (Levin, 2001).

Conclusions on cross-border student markets

There is a need for stronger and standardised international data in three areas: students enrolled in face-to-face cross-border education as distinct from foreign students; the map of online educational provision, and the estimated number of enrolled students by nation (areas where data are almost absent); and the map of foreign site activities by exporter nations. In relation to policy objectives, the chief need is to advance the coordination of national regulation between exporter and importer nations, with exporter nations taking comprehensive responsibility for the actions of their institutions. There are clear benefits of a multilateral approach to quality assurance and its coordination. Franchising arrangements should be closely scrutinised and consideration given to altogether eliminating this mode of provision.

PART II. POLICY DEVELOPMENTS

7. Europeanisation

In Europe, responses to globalisation are increasingly shaping policies and setting the agenda for the future of higher education. However, there is no single trend or strategy that can be readily identified. As well as different perceptions of globalisation and the related challenges there are also different levels (European, national, institutional) at which responses are formulated and implemented. For the European Union as a whole, with the European Commission (EC) being a major policy actor, we can distinguish different phases and approaches (Huisman and van der Wende, 2004). Yet the way in which individual countries respond to these policy initiatives can be quite diverse. After the EC of the then European Economic Community became active in higher education, in the mid-1970s, its initiatives were for a long period restricted to stimulating cooperation and mobility between "closed" national systems in which the controlling power entirely lay with the member states (the "subsidiarity principle"). Such initiatives were successfully extended across levels and countries until the end of the 1990s. Beginning with an initiative to stimulate action at the level of individual academics and students, the first ERASMUS programme; gradually through the SOCRATES programme the curriculum and the institutional level were included. With the enlargement of the EU, especially after 1992 with preparations for the joining of ten new central and eastern European member states, the activities underwent a substantial geographic expansion. The rationales for these activities were seen as mainly academic and cultural, for example scholarly exchange, mutual learning processes and the role of foreign languages. The agenda was strongly focused on the European integration process, and consequently on intra-European cooperation. Yet it is also undeniable that the process of European integration, cemented by the completion of the European internal market in 1992, was driven by an important economic agenda. Mindful of this the EC launched in 1991 a Memorandum on Higher Education underlining the role of higher education in the economic and social cohesion of the EU. The response of the higher education community was particularly negative and critical of this use of an economic rationale for higher education.[28] It was ten years before the EC was able to come back with another message on the role of higher education in economic growth and competitiveness.

Two major vehicles: the Bologna Process and the Lisbon Strategy

In the late 1990s in European higher education, awareness of global competition was raised. It was realised that despite all the success that had been achieved in enhancing intra-European mobility, the picture in relation to extra-European mobility was a less successful one. Europe had lost its position as the number one destination for foreign students to the United States, was losing too many of its own graduates and researchers to R&D positions in the United States, and had substantially less efficient degree structures than the United States because its graduates entered the labour market at an older age than did American graduates. Awareness of these factors led to initiatives at various levels. First, in 1998 the ministers of four countries (the United Kingdom, Germany, France and Italy), called for the harmonisation of degree structures. This was the initiative that triggered the "Bologna Process", launched in the signing of the Bologna Declaration by 29 countries one year later. This was an important bottom-up initiative towards

[28] On a larger international scale (including notably developing countries) and later in time, the same type of response emerged from the 1998 UNESCO World Conference on Higher Education, which also strongly rejected the competitive, market-driven model and stressed that appropriate [national] planning must be based on cooperation and coordination between institutions of higher education and responsible state authorities.

system convergence – the EC joined the process only later – with a view to enhancing the international competitiveness of European higher education. The EC itself was able to become more active after 2000, which was the year that the heads of state and government declared in Lisbon that the EU should become by 2010 the most competitive and dynamic knowledge economy in the world. Shortly after that, education was defined as one of the key areas in achieving this goal. This provided the EC with an important political mandate in the area of education policy (though this mandate was not supported by any extended legal power). The EC quickly developed a wide range of initiatives under what became the "Lisbon Strategy".

The Bologna Process and the Lisbon Strategy are the main vehicles or frameworks guiding the European response to globalisation in higher education. Although they emerged in very different ways (bottom-up versus top-down) and could be characterised as intergovernmental (Bologna) versus supra-national (Lisbon), they seemed to converge slowly into one over-arching approach.

Patterns of convergence

The Bologna Process represents the totality of commitments freely taken by each signatory country (45 nations since 2005)[29] to reform its own higher education system in order to create overall convergence at European level, as a way to enhance international/global competitiveness. Its non-binding character was a crucial facilitator, given the need to overcome reluctance in Europe towards standardisation and harmonisation. Its bottom-up character should be understood in terms of the limited competencies of the EC in the field of higher education policy. The achievements of the Bologna Process have been substantial and influential. The range of policy issues included in the Bologna Process was extended, throughout the medium of ministerial meetings that took place every two years to follow up on the implementation of the process. The initial focus on a change of degree structures into a two-cycle (undergraduate-graduate) system, and the wider implementation of ECTS (European Credit Transfer System) with the aim of enhancing the readability and recognition of degrees, extended into the development of a European Qualifications Framework, the description and "tuning" of competences and learning outcomes at curriculum level, and substantial initiatives in the areas of quality assurance and accreditation (Reinalda and Kulesza, 2005). Since the 2005 ministerial meeting in Bergen the work programme has been extended to the "third cycle" *i.e.* the reform of studies at the doctoral/PhD level. Reforms would focus on length and structure of these programmes, interdisciplinarity, supervision, assessment, etc. A series of bi-annual studies have demonstrated that the implementation of the two-cycle degree structure was established in almost all countries by 2005, although in various modes and at a varying speed of introduction (Reichert and Tauch, 2005).

Despite such achievements as the convergence of degree structures and the introduction of common frameworks for quality assurance and for qualifications, certain tensions between harmonisation and diversity have continued. In-depth studies and comparisons between countries show that the actual implementation of the new structures can vary significantly. Lub *et al.* (2003) find substantial differences between the Netherlands, where the new two-cycle system replaced the existing long first-cycle degree system, and Germany, where the new system was implemented in parallel to the existing system and despite quick growth in the number of new degree programmes, only a small fraction of the total student population actually participates in these programmes.[30] Alesi *et al.* (2005) find in a comparison between six countries that there is no unified logic of the system of new degree programmes. This point applies both to the breadth of the introduction – in each country different groups of subjects are excluded from the new structure, and different time-frames set for the introduction – and to the duration of the new programmes.

[29] Membership of the EU is not required for joining the process, which explains the fact that the number of Bologna signatory countries exceeds the number of EU member countries (25).

[30] In 2001, 10% of the total number of study programmes was structured in bachelor-master, with 1% of the student population enrolled in them. In 2003, this had increased to 23% of programmes, catering for 3.5% of the student population.

The 3+2 year model, a bachelor degree followed by a master degree, is the basic model; but there are many variations from this model. For example the United Kingdom is a notable exception: in that nation masters degrees mostly take one year. Likewise Witte (2006), in a comparison of England, France, the Netherlands, and Germany, finds that there is variation in the degree of change following from the Bologna process, especially if one looks at implementation. She concludes that the four countries under study weakly converged between 1998 and 2004, in the direction of the English system, but although the changes leading to that convergence all occurred within the framework of the Bologna Process, this does not necessarily mean that they have been caused by it. Rather, the Bologna Process has often served to enable, sustain and amplify developments that have been driven by deeper underlying forces or particular interests at the national level; for example to the pressures to reduce study length, the time within which a student must complete a degree or drop out. Sometimes the Bologna Process has simply provided a mental frame for developments that were unrelated to degree structures as such. This illustrates that actors align themselves with the international context and international perceptions only when those perceptions are consistent with nationally-grounded preferences. At the same time, international perceptions have a very high legitimating power when they support national preferences; even though those international perceptions may be selective and biased, sometimes even wrong, and are rarely questioned.

Diversification trends and policies

Apart from the fact that the Bologna Process is implemented quite differently *across* countries, weakening its harmonising or convergence effects, parallel to it, divergent trends can be observed. This is especially the case *within* countries. Examples are Germany and France, where there is increased diversity in each case. This is partly due to the parallel existence of different degree structures in the transition phase, but also derives from the increased curricular autonomy of HEIs (Witte, 2006). In a number of countries, among the trends in governmental policies are increased autonomy and a push for more diversity in the system. This is especially the case in those national systems which aim to enhance participation in higher education; for example the United Kingdom, Sweden, Finland and the Netherlands, where participation targets of 50% have been formulated. More diversity is seen as a necessary condition to achieving these aims. The EC also advocates increased diversity, as a condition for excellence and greater access (EC, 2005). At the same time, another process of convergence can be observed. As both academic and professionally oriented higher education institutions offer bachelor and master programmes, there are frequent and increasing instances of functional overlap. This convergence of the two main types of higher education may lead to a change in those nations with such binary systems. But again, in response to this situation, nations exhibit diversity and an overall trend towards a unitary system cannot be confirmed. In Hungary it has been decided to abolish the binary system and to replace it with a more varied range of programmes, especially at masters level. In contrast the Netherlands intends to maintain the binary system and wants more institutional types to emerge. In Finland and Austria, binary systems were established only over the last decade. The United Kingdom, which abolished its binary system in the early 1990s, is now looking to re-establish more diversity with the above-mentioned aim of thereby enhancing participation. These trends raise questions about the level at which diversity is defined and pursued, and whether it is systemic, institutional, or programmatic diversity (Birnbaum, 1983). A more contemporary point is that "there has been a gradual shift in the meaning of "diversity" – from diversity among national systems of higher education to a European-wide diversification in institutions and programmes with different profiles" (Hackl in Olsen, 2005, p. 20). In this scenario the questions are whether and how diversification can lead to an effective division of labour at European level; whether a cooperation or rather a competition-based process would be the most appropriate way to achieve this; and how individual countries will balance such a division of labour at European level with their national priorities. A Delphi-based study on the future European higher education and research landscape (CHEPS, 2005) shows a strong belief among actors in the field that the division of labour will imply research-intensive doctoral-granting institutions that will become concentrated in the North-west of Europe. All scenarios presented in the study are consistent in this respect, which raises crucial questions on the involvement of countries in other parts of Europe.

Although mobility and networking could engage individual researchers from these countries, consequences for national capacity and linguistic and cultural diversity could still be serious.

Here also, an important distinction needs to be made between changes at the undergraduate and the graduate levels. Increasing participation rates require diversity to be enhanced especially at the undergraduate level, thereby enabling non-traditional students to enrol. In terms of programmatic diversity, the introduction of the associate or foundation degree, awarded after two years higher education, is important here, but often this is seen to contradict the spirit of the Bologna Declaration.[31] At the graduate level, where the patterns of activity are closely related to research strengths, there is a trend towards greater concentration and specialisation. As has been reported also from other parts of the world (Patterson, 2005) what is envisaged here is a concentration of academic strengths, collaboration and networking, with specific activities allocated to particular institutions, rather than the current, even frenetic, expansion of each institution's activities (p. 356).

These various trends indicate that the current dynamics in European higher education are at one and the same time characterised by trends of convergence, aiming for harmonisation; and divergence, searching for more diversity. In understanding this, the distinctions between different levels of education (undergraduate and graduate/research) and the different types of diversity (institutional and programmatic) are important. Ironically perhaps, both kinds of trend – convergence and diversification – have been instigated in order to enhance competitiveness in the global context. Higher participation rates among a larger number of domestic students, fostered by diversity of provision, are seen to enhance the potential of each country as a knowledge economy. Allowing more cross-border mobility within Europe, and attracting more students from other regions, objectives fostered by harmonisation and convergence, are seen to enhance the performance of the European knowledge economy as a whole. At the same time, this implies patterns that to an extent are confusing, and it raises questions about the further direction of the process of Europeanisation in higher education. Given that multi-level actions and interactions are involved, these questions are not easy to answer, and future directions are not easy to predict. The afore mentioned study on the future of European higher education (CHEPS, 2005) indicates that more diversity is indeed expected, but presents quite different scenarios with respect to its consequences. They may range from a "centrally organised diversity", the transparency of which would be based on the "Bologna logic" and primarily ensured by a single European quality assurance (accreditation) system; through great variation existing in more hybrid and networked structures, but still ensured by European frameworks for quality assurance (accreditation); to a truly "anarchic or unclassifiable" diversity, leading to public concern regarding quality of provision. As noted, though supranational frameworks may enable developments at national level, and perceptions of the international context may support national policy changes, actual national preferences and implementation modes and options may differ from nation to nation. Combined with the trends towards increasing institutional autonomy and diversity, this may be the reason why many actors are expecting an increase in vertical differentiation with respect to quality and reputation, despite efforts to achieve convergence and harmonisation. This expectation and the trends and policies in favour of autonomy and diversity, have prompted the initiatives to introduce systems for typologies and ranking within Europe, as discussed in Section 8 below.

Coordinating policies for a European knowledge economy

As noted, whereas the Bologna Process emerged bottom-up and the role of the EC in the process was initially limited but over time gradually developed into a leading one, the initiative for the Lisbon strategy was taken by the EC at supra-national level, and in its implementation it exhibits a more top-down

[31] Because the Bologna Declaration required minimum three years for the first degree. This has been solved by considering this type of "short cycle higher education" as integrated into or linked to the first degree (MSTI, 2005).

character.[32] In 2001, the EC published a first report setting out the steps to be taken in response to the challenges of global competition in higher education (EC, 2001). The report explicitly referred to market-oriented approaches to internationalisation in the United Kingdom, Germany, France, and the Netherlands and stressed the need to attract more students from other regions to the European Union. This laid the foundation for the establishment of the ERASMUS MUNDUS programme in 2004. This programme includes a global scholarship scheme for third country nationals, linked to the creation of "European Unions Masters Courses", based on inter-university cooperation networks. The programme has enrolled more than 800 students and 130 scholars, about 40% from Asia, in 60 master programmes in the academic year 2005-2006,[33] and is expected to grow further. These figures can be compared to the 1 300 foreigners that enter the United States every year as fellows of the Fulbright programme, on which ERASMUS MUNDUS was largely modelled.

Following up the Lisbon summit of 2000, in 2002 the EC published a detailed work programme on the future objectives of education and training systems in the EU (EC, 2002), emphasising the central role of those systems in achieving the aim of Europe becoming the world's most competitive and dynamic knowledge society by 2010. The general goals of improving quality, enhancing access and opening up the education and training systems to the wider world were worked through in a set of more specific objectives for the various education sectors. Those most relevant to higher education were the objective of increasing graduates in mathematics, science and technology by 15% while improving gender balance, to ensure that more than 85% of all 22-year-olds had achieved at least upper-secondary education level, and to ensure that 12.5% of the 25-64-year-old adult working population participated in lifelong learning. In 2003, the EC launched a large-scale consultation on the role of higher education institutions in the European knowledge economy (EC, 2003a). It showed a particular concern about the funding of higher education. The increasing under-funding of European higher education institutions was seen to be jeopardising their capacity to attract and keep the best talent and to strengthen the excellence of their research and teaching activities. The consultation round took two years, and was paralleled by a series of critical messages on growth and innovation. Two important reports published in 2003 (EC, 2003b, 2003c) revealed that the objective of boosting EU spending on R&D from 1.9% to 3% of GDP – the principal target for research expressed in the Lisbon strategy – was far from being met; that the R&D investment gap between the European Union and the United States increasingly favoured the United States;[34] and that brain drain out of Europe and notably to the United States was still on the rise. It was clear that the EU was hindered in catching up with its main global competitors by a lack of investment in human resources,[35] by not producing enough higher education graduates,[36] and by attracting less talent than its competitors.[37]

[32] Yet this strategy cannot be characterised completely as top-down, since the formal competences of the EC in the area of education policy have not been enlarged. Instruments used are thus not (legally binding) EU directives, but take the form of recommendations, communications, consultations, or other working documents. This "open method of coordination", based on common objectives, is translated into national action plans and implemented through sets of indicators, consultative follow-up and peer review (pressure). (See also Gornitzka, 2005).

[33] See: *http://europa.eu.int/comm/education/programmes/mundus/index_en.html*

[34] 80% of this comes from the difference in domestic business R&D expenditure between the EU and the United States. Further analysis showed that the United States attract one third more R&D expenditure from EU companies than US companies allocate to the EU (a net outflow of EUR 5 Billion in 2000) (EC, 2003b).

[35] Especially private investments in education in the EU (0.6% of GDP) lag behind the United States (2.2%) and Japan (1.2%). The biggest difference is in higher education: the United States spends between two and five times more per student than EU countries (EC, 2004).

[36] On average in the EU, 21% of the EU working-age population holds a higher education qualification, compared to 38% in the US, 43% in Canada, 36% in Japan and 26% in South Korea. (EC 2005).

[37] The EU produces more higher education graduates and doctors in science and technology (25.7%) than the United States (17.2%) and Japan (21.9%) but the percentage of them at work as researchers is much lower in the EU (5.4 per 1 000 population in 1999), than in the United States (8.7) and Japan (9.7). This is due to career changes, a limited European labour market for researchers, and better opportunities and working conditions in the United States (EC, 2004).

Furthermore the EU had too few women in scientific and technological fields; rates of early school leaving were still too high and rates of completion of upper secondary education still too low, with nearly 20% of young people failing to acquire key competences; there were too few adults participating in lifelong learning; and there was a looming shortage of qualified teachers and trainers (EC, 2004).

Brain drain

Another common problem addressed by the EU was net brain drain out of national systems; which is significant both in terms of loss of researchers to the English-speaking world (especially the United States), out of Europe altogether; and also the internal transfer of research capacity from Eastern Europe to the Northwestern European nations. These dimensions can also intersect in unpredictable and varying ways. Sometimes Eastern European talent substitutes for West European talent, sometimes not. In the case of Germany, which is losing many doctoral graduates in the United States and the United Kingdom, its own standing as an attractor of foreign faculty and doctoral students has diminished. Berning (2004, p. 177) remarks that while German research universities are seen as uniformly good there is a lack of the highest prestige "centres of excellence" found in the United States, and

> German study courses and degrees have lost part of their former international reputation. This is mainly due to the worldwide expansion and adoption of the Anglo-American HE system, its courses and degrees, but not to a lack of scientific quality in Germany. The consequence is a loss of foreign students from countries close to Germany but now following the Anglo-American mainstream (*e.g.* East Asia, Turkey). The loss of foreign students may cause a loss of young scientists from abroad too. Within the frame of the Bologna process HE institutions in Germany try to gain back that intellectual power by introducing new study courses and degrees, sometimes by English as a teaching language, and by internationalising all academic activities (Berning, 2004, p. 177).

These problems are less immediate and severe in France. In France, as in Germany and the United Kingdom, the French system is large enough to ensure that most of its needs for academic labour can be met from internal sources (Musselin, 2004a, p. 73) while at the same time France is less troubled than Germany by the loss of its talented researchers into the American institutions. There is a relatively low level of outward mobility (Martinelli, 2002, p. 126ff.) and high return rates. However there is greater brain drain in disciplines such as life sciences where foreign opportunities are much more favorable, especially in the United States (Musselin, 2004b, p. 151); that is, in the market sensitive areas. The EC took rapid initiatives to stem the brain drain, launching the European researcher's charter, and a code of conduct for the recruitment of researchers; initiating the European year of researchers; establishing a mobility portal and networks, and extending options in the Framework Programme for Research in order to encourage EU-born researchers to return home, and to attract non-EU scientists to the EU (EC, 2003d).

Extension of the European policy agenda

Early in 2005 a new stage of the Lisbon Strategy was announced. Major EU conferences on higher education and research were organised, and in a follow-up communication on the contribution of universities to the Lisbon strategy (2005), further and wider measures were announced. These initiatives were focused on achieving world-class quality,[38] improving governance, and increasing and diversifying funding. The European Commission stated that "while most of Europe sees higher education as a 'public good', tertiary enrolments have been stronger and faster in other parts of the world, mainly thanks to much higher private funding" (EC, 2005, p. 3). This contrasted with the strong emphasis that many in the higher

[38] It was explicitly stated as a problem that apart from some British universities there were no European universities in the top 20 of the world and relatively few in the top 50 as ranked by the Shanghai Jiao Tong University.

education community have placed on "higher education as a public good" and on the role of universities with respect to social and cultural objectives rather than economic purposes, especially in the context of the Bologna Process (van Vught *et al.*, 2002). The EC identified the main bottlenecks retarding access and excellence as uniformity in provision, due to a tendency to egalitarianism and a lack of differentiation; insularity, in that systems remained fragmented between and even within countries, and higher education as a whole remained insulated from industry; over-regulation, in that a strong dependence on the state inhibited reform, modernisation, efficiency; and under-funding.[39] The pathways to more access and excellence were seen to be more diversity and enhanced flexibility. At this point the Lisbon Strategy absorbed the Bologna objectives of coherent structures, compatibility and transparency, designed to improve the readability and attractiveness of European higher education internationally. Likewise the Bologna instruments such as the European Credit Transfer System (ECTS), the International Diploma Supplement (IDS) and the European Qualification Framework (EQF) were taken into the Lisbon agenda.[40] The EC also spoke out for the first time on issues such as the governance and funding of higher education, arguing for greater institutional autonomy, deregulation and professionalised management, combined with competition-based funding in research and more output-related funding in education, supported by more contributions from industry and from students via tuition fees.

These statements related to what was seen as "good practice" in certain member states; notably the United Kingdom, where a risky political initiative to raise higher ("top-up") tuition fees in order to provide the university sector with sufficient capital to counteract global competition had succeeded by a narrow political margin; and also systems such as the Netherlands where deregulation and institutional autonomy had been advanced. At the same time there had been a more open debate in the Nordic countries about tuition fees for domestic students and differential fees for foreign (non-EU) students. These issues remained highly controversial in other parts of Europe, however. As well as pushing for the more widespread adoption of these practices, the EU added new instruments and initiatives to its own toolkit of policy mechanisms. A notable effort was made to enhance investments in research, innovation and excellence. In the context of the EU budget for 2007-2013, it was planned to introduce major budget growth in order to enable investment in the new Framework Programme for R&D (FP7) and an integrated programme for education (the Lifelong Learning Programme). Furthermore, the establishment of the European Research Council (ERC), set up to fund innovative, ground-breaking basic research, not linked to any political priorities, with competitive funding awarded based on peer review (as with the National Science Foundation allocations in the United States). The establishment of a European Institute of Technology (EIT) to become a European equivalent of the US Massachusetts Institute of Technology (MIT) and extra funding for networks and centres of excellence for studies at the doctoral level.[41]

Mid-term concerns and challenges

During 2005 these ambitions were seriously constrained by severe obstacles in achieving a political agreement on the new EU Treaty (the so-called "European Constitution"), a process that was temporarily halted after French and Dutch referenda failed to gain a majority in favour of the new Treaty, and on the new EU budget. Under the UK presidency of the European Union, the Hampton Court Summit failed to

[39] EU spending on research (1.9% of GDP) compared badly with the United States, Japan and South Korea (all close to 3% thanks to much higher investments from industry). Higher education spending in the EU (1.1% of GDP) also compared badly with the United States and South Korea (both 2.7%, again related to differences in private investments). It was calculated that in order to match the US figure, the EU would need to spend an additional EUR 150 billion a year on higher education. It was suggested to set a 2% of GDP aim for funding of higher education (EC, 2005).

[40] The EC stated even that: "The Education and Training 2010 work programme, recognising the extreme importance of modernisation of higher education, *over and above* the reforms called for in the Bologna process which, *a fortiori*, are also important for achieving the Lisbon objectives" (EC, 2005, p. 11).

[41] Called "the third cycle" in the context of the Bologna Process. This is an important area where the European Higher Education Area (EHEA) and the European Research Area (ERA) effectively intersect.

make the intended budget shift from an "agricultural" to a "knowledge" Union. Instead of the originally planned EUR 132 billion, a total of EUR 72 billion is attributed to all activities under the heading of competitiveness, growth and employment. Despite these disappointments positive points can be reported. First, the role of the EC, especially in the higher education policy area, has expanded and become less controversial. This is a gain in terms of both legitimacy and coordinating capacity. The establishment of the ERC (start in 2007) and of the EIT top technology institute (planned to be operational in 2009/10) are major examples. However, in the original form of a new single-site institution the EIT was heavily criticised and it has been revised to a network of "knowledge communities" (teams put together by universities, research organisations and industry) headed by a governing board that would identify strategic scientific challenges in interdisciplinary areas. The knowledge communities will be selected on a competitive basis, set a medium to long-term (10-15 year) research, education and innovation agenda, and have a fair amount of flexibility to determine their own organisational structure. The EIT will be able to award its own degrees (EC, 2006) The EU asserts that the EIT will be a high-quality "brand" and institutions will compete to join.

Second, individual countries have started to respond to the wider EU agenda on global competitiveness. Although the overall targets for investments in R&D and higher education have not been reached, many countries do not as yet reach their individual targets, and in some cases investments have even decreased, with the expected additional contributions from private sources proving especially problematic; as noted several nations have developed initiatives to strive for more excellence and to widen access, notably the Nordic countries, the United Kingdom, and the Netherlands. Comparable to the EU-level initiative of creating the EIT, various countries are concentrating extra investments in selected institutions, for example the creation of a group of top universities in Germany and in Austria, the creation of centres of excellence (Agence nationale de recherche, ANR) in France, and the formation of a federation of the three technical universities in the Netherlands. Also in Denmark the government recently announced mergers between higher education institutions in order to achieve a better international position. In an even more radical way, the Centre for European Reform stated in a pamphlet on university reform (Lambert and Butler, 2006) that "Bad universities should be closed with resources spread too thinly around the EU's 2 000 higher education establishments…". Network formations are also occurring across borders, supported by both national and European regional funding; for example the formation of a "top-technology region" through cooperation between the universities of Aachen (Germany), Eindhoven (Netherlands), and Leuven (Belgium) with commitments from major companies such as Philips.

Third, there is awareness of global competition, particularly from Asia:

> Alarming for Europe is not only that China regards the United States and Japan, and not Europe, as its potential peers to be matched in research and higher education. As announced officially, China aims at matching the United States and Japan with respect to innovations by 2020. Given Europe's stagnation and the dynamics in East Asia, one can easily predict the day when East Asia – and not Europe – will possess "the world's leading knowledge-based economy" (EUA, 2006).

Institutions have also underlined weaknesses in their collective profile compared to the United States:

> It is evident that the European university system needs to broaden access on a more equitable basis, that it has to reach out to increased excellence and that it must allow for more diversification within the system. The American university system is, as the President of the American Council of Education, David Ward, put it, "elitist at the top, and democratic at the base; the European university system seems to be neither (EUA, 2006).

At the same time there are constructive responses in relation to collaboration with industry, for example the EUA's Responsible Partnering Initiative, presented at the European Business Summit; and

also elite-networks have been set up to pull excellence and research capacity together, for example the League of European Research Universities (LERU).

Reflections on higher education dynamics in Europe

Serious challenges remain to be addressed, however. Besides the complexity of parallel trends of convergence and divergence, conceptual and political confusion continues to exist over strategies for cooperation and competition. On the one hand the EU is considered as an "area" for higher education and research, as indicated in the European Research Area (ERA) and the European Higher Education Area (EHEA), in which cooperation is seen as the pathway towards stronger global competitiveness of the EU as a whole. The EC's traditional role is to stimulate such cooperation. On the other hand the EU is seen as an internal market subject to internal competition strategies, which were likewise introduced to achieve stronger global competitiveness, for example in the ERC and notably, the Services Directive.[42] When additional funding or prestige is concerned as in the case of the proposed EIT, on one hand this may generate better performance, on the other hand it may result in the weakening of cooperation and concerted action. In the intellectual field this confusion emphasises the need for clearer concepts. In the political field it suggests the need for more coordinating power, as is proposed in the new EU Treaty. From the conceptual point of view, major efforts need to be made to better understand the dynamics of higher education systems in the light of (global) competition.

Olsen (2005) underlines the existence of competing visions in Europe, between the university as a service enterprise in competitive markets, the university as an instrument for national political agendas, and the university as a public service model based on the argument that higher education cannot be solely market-driven because the logic of the market does not apply easily to education. He regards the situation as unsettled, given the multitude of partly inconsistent criteria of success and competing understandings of what forms of organisation and governance will contribute to good performance. Jacobs and van der Ploeg (2006) acknowledge that most European higher education institutions find it difficult to compete with the best universities in the Anglo-American world, but also argue that higher education cannot be left to the market alone and that government interference may be necessary to correct for market failures. In their view, the challenge for reform of the European system is to achieve the diversity and quality for which the US system is praised without throwing out the benefits of the European system. In other words, Europe would benefit from reforms that would move European higher education in the direction of the Anglo-American system with much more choice, differentiation and competition; but Europe should not throw away the baby with the bathwater. Europe should strive to provide the possible access to the smartest students from less privileged backgrounds and charge less bright and more well-off students substantially higher tuition fees. At the same time, Europe should be careful not only to invest in top academic universities but maintain and cherish the high average quality of institutions (p. 48).

Van Vught (2006) is also concerned about the potential for simplistic market-type strategies in relation to the social dimension of higher education. The introduction through public policy of increased competition does not necessarily lead to more responsiveness of higher education institutions to the needs of the knowledge society. Rather than being driven by a competition for consumer needs, higher education institutions are driven by a competition for institutional reputation. In addition, the creation of more institutional autonomy in such a "reputation race" leads to costs explosions, related to hiring the best faculty and attracting the most talented students; institutional hierarchies; and social stratification of the

[42] The proposed EU directive on services in the internal market seeks to remove barriers to the freedom of establishment for service providers in Member States and barriers to the freedom to provide services as between Member States. Higher education (as a sector providing services) is not excluded, although it is not clear yet what exactly the impact of the new directive will be on cross-border activities in higher education. This directive was developed by the EC's directorate for internal market and can be seen as an example of wider EU-policy interfering with higher education policies and as an EU equivalent to GATS, a trade framework which also intervened with higher education, but which was dealt with by yet another EC directorate (for trade).

student body. Instead, the coordinative capacity of the market should be used, consisting of a new set of "social contracts" which lay down in higher education institutions. For the EU, however, this implies that an inverse tendency needs to be addressed. The European business community has an increasing propensity for technological alliances with US firms, while the European academic community has an increasing propensity for intra-European partnership. There is still a considerable lag in cooperation between enterprises and universities within the EU, compared to the US and Japan (Archibugi and Coco, 2004).

Internal diversity and global competitiveness

Other problems concern internal differences in performance between countries and systems, differences that are large, deep-rooted and difficult to overcome. The EU includes some of the top higher education systems in the world, performing on a par with and on some measures performing even higher than the United States and Japan, as well as a range of new member states that are at a very different overall technological level to that of the EU15 group. Effective solutions to accommodating this diversity and lack of cohesion in terms of supra-national decision making have yet to be established, though these elements are also part of the new EU Treaty. As compared to other regions and economies undergoing the transformations associated with the knowledge economy, the EU is engaged in major institutional changes as well. Finally, as discussed above, there is the continuing difficulty that the perceptions of global competitive pressure and the principle of competition vary substantially between countries and cultures; there is the complexity of parallel trends of both convergence and divergence and challenges related to effectively combining strategies for cooperation and competition.

Major policy questions and choices for national governments and higher education institutions are related to these strategic categories. Governments have to consider the best way to make their national higher education system more globally competitive: national-level cooperation or competition; European-level cooperation or competition; or (more likely) a mix of these four options? Overly simplistic or one-sided competitive models will enhance vertical differentiation by building strength in certain institutions or areas by weakening others and may in fact lead to a lack of diversity. Therefore these choices need to be guided by a vision on an effective division of labour and a good balance between global competitiveness, European excellence, and national priorities and interests (including issues of cultural and linguistic diversity). The development of such a vision is not bound to national-level actors. Also the EU as a whole has been urged to better define its priorities and opportunities for cooperation and competition in a wider international context (EURAB, 2006). Various scenario studies indicate that specialisation and concentration in the research function of the university will increase (OECD, 2006b) and, as mentioned before, this may in Europe lead to a concentration of this function and related type of HEIs in the North-West of Europe (CHEPS, 2005). It is unclear as yet, whether the ERC and the EIT will contribute to this effect or will turn out to be instruments to counterbalance it.

Conclusions on Europeanisation

National policies often demonstrate combinations of the various strategic options. For example measures to make national research funding more competitive through the national research council may be combined with policies that urge institutions to cooperate more closely within the national context, for example through mergers. At the same time institutions are stimulated to cooperate at the European level by participating in EU R&D projects and the government supports the establishment of the ERC as it beliefs that competitive funding measures are even more effective at supra-national level. Similar examples could be given for the teaching function. This illustrates how complex is the environment for institutions in terms of partners, competitors and strategic options. Consequently the outcome of the process at a meta-level is even more difficult to predict. Clearly, successful strategies depend on the right mix of competitive and cooperative options. It is a major challenge for governments to design such strategies in an effective

and coherent way, conscious of the fact that in doing so and in resourcing institutions they define to a large extent the internationalisation opportunities for higher education institutions, while at the same time those governments work in the context of wider multilateral agreements that are designed to provide distinct frameworks for competition or cooperation.

8. University rankings and typologies

University rankings simplify the complex world of higher education in two areas of great public and private interest: institutional performance, and institutional status. They emphasise vertical differences between institutions and between nations; that is, differences of power and authority. They obscure horizontal differences, in the form of differences of purpose and type. Despite the attractions of diversity – a universal value in higher education – league tables seem to have a compelling popularity regardless of questions of validity, of the uses of the data and of the effects in system organisation and the quality of higher education. Rankings are easily recalled and quickly become part of common sense knowledge of the sector. It is not surprising that media companies are often in the forefront of rankings development. Institutional rankings have long been used in different national systems and in some cases guide allocations of public funds. In the United States the annual *US News and World Report (USNWR)* survey, which commenced in 1983, has been influential in determining institutional prestige and influencing flows of students, faculty and resources and shaped institutional strategies designed to maximise *US News* scores. In China several systems of rankings are in use (Liu and Liu, 2005). Now, the advent of world rankings has launched a new more globalised era. Worldwide rankings norm higher education as a single global market of essentially similar institutions able to be arranged in a "league table" for comparative purposes. Rankings have given a powerful impetus to intranational and international competitive pressures and have the potential to change policy objectives and institutional behaviours.

Outcomes of rankings

The first and most influential listing, the annual research university rankings prepared by the Shanghai Jiao Tong University Institute of Higher Education (SJTUIHE), commenced in 2003. The annual *Times Higher* world university rankings were launched in 2004. Both sets of rankings were immediately plausible because they locked into prior perceptions of the status of names such as Harvard, Stanford, Yale, Berkeley, MIT, Cambridge and Oxford. Table 6 lists the top 20 universities as determined by each ranking system. In outcome the *Times Higher* appears as the more nationally plural, with 12 American universities in the top 20 compared to 17 in the Shanghai Jiao Tong table, four UK universities not two, and universities from four other nations (France, Japan, China and Australia) rather than the one (Japan) in the Jiao Tong listing. *Times* places 21-25 are also held by universities from nations other than the United States and the United Kingdom. One effect of this outcome is to broaden the circle of consent for the *Times* rankings.

While there has been disquiet in higher education about the impact of the rankings, and numerous instances of critique of the methods (especially in institutions and nations where performance was below self-expectation) it is notable that there have been few concerted efforts to discredit the process. It appears that global ranking has secured mainstream public and policy credibility. Given this, research universities are impelled to succeed within the terms of the measures and will adopt institutional policies and strategies which optimise their position, especially their position in the Shanghai Jiao Tong rankings which are based on credible metrics of performance. Rankings have exacerbated competition for the leading researchers and best younger talents. Within national systems, the rankings have prompted the desire for higher ranked universities both as symbols of national achievement and prestige and as engines of knowledge economy growth. There has been a growing emphasis on institutional stratification and concentration of research resources. All these responses have cemented the role of the rankings themselves and intensified competitive pressures.

Table 6. The Global Super-league: the world's leading universities as measured by the Shanghai Jiao Tong University 2006, and The Times Higher, 2005

Shanghai Jiao Tong research university rankings			
	University	Points	Nation
1	Harvard U	100.0	USA
2	U Cambridge	72.6	UK
3	Stanford U	72.5	USA
4	U California, Berkeley	72.1	USA
5	Massachusetts IT	69.7	USA
6	California IT ("Caltech")	66.0	USA
7	Columbia U	61.8	USA
8	Princeton U	58.6	USA
8	U Chicago	58.6	USA
10	U Oxford	57.6	UK
11	Yale U	55.9	USA
12	Cornell U	54.1	USA
13	U California, San Diego	50.5	USA
14	U California, Los Angeles	50.4	USA
15	U Pennsylvania	50.1	USA
16	U Wisconsin-Madison	48.8	USA
17	U Washington (Seattle)	48.5	USA
18	U Calif., San Francisco	47.7	USA
19	Tokyo U	46.7	Japan
20	Johns Hopkins U	46.6	USA

The Times Higher university rankings			
	University	Points	Nation
1	Harvard U	100.0	USA
2	Massachusetts IT	86.9	USA
3	U Cambridge	85.8	UK
4	U Oxford	83.9	UK
5	Stanford U	83.4	USA
6	U California, Berkeley	80.6	USA
7	Yale U	72.7	USA
8	California IT ("Caltech")	71.5	USA
9	Princeton U	64.8	USA
10	École Polytechnique	61.5	France
11	Duke U	59.1	USA
11	London S. of Economics	59.1	UK
13	Imperial College London	59.0	UK
14	Cornell U	58.1	USA
15	Beijing U	56.3	China
16	Tokyo U	55.1	Japan
17	U Calif., San Francisco	54.9	USA
17	U Chicago	54.9	USA
19	U Melbourne	54.5	Australia
20	Columbia U	53.9	USA

U = University; IT = Institute of Technology

Source: SJTUIHE (2006); Times Higher (2006).

Shanghai Jiao Tong University rankings

The Shanghai Jiao Tong University (SJTU) rankings do not constitute a holistic comparison of universities, though despite the efforts of the SJTUIHE group they have been widely interpreted as such. The SJTUIHE group argues that the only data sufficiently reliable for the purpose of ranking are broadly available and internationally comparable data of measurable research performance (Liu and Cheng, 2005, p. 133). It is considered impossible to compare teaching and learning worldwide "owing to the huge differences between universities and the large variety of countries, and because of the technical difficulties inherent in obtaining internationally comparable data". Further, the SJTUIHE group did not want to employ subjective measures of opinion or data sourced from universities themselves as used in some rankings systems. An additional rationale for using research performance data is that arguably research is the most important single determinant of university reputation and widely accepted as merit-based. The SJTUIHE has consulted widely throughout the higher education world on the calculation of the index and compilation of the data. The successive measures have proven to be increasingly robust.

The major part of the SJTU index is determined by publication and citation performance in the sciences, social sciences and humanities: 20% citation in leading journals; 20% articles in *Science* and *Nature*; and 20% the number of Thomson/ISI "HiCi" researchers on the basis of citation performance (Section 5; ISI, 2006). Another 30% is determined by the winners of Nobel Prizes in the sciences and economics and Fields Medals in mathematics, in relation to their training (10%) and their current employment (20%). The remaining 10% is determined by dividing the total derived from the above data by the number of staff. The SJTU rankings favour universities large and comprehensive enough to amass

strong research performance over a broad range of fields, while carrying few research inactive staff. They also favour universities particularly strong in the sciences, universities from English language nations because English is the language of research (non English language work is both published less and cited less) and universities from the large US system because Americans tend to cite Americans (Altbach, 2006). As noted 3 614 of the Thomson/ISI "HighCi" researchers are located in the United States. Harvard and its affiliated institutes alone have 168 HiCi researchers, more than the whole of France or Canada. Stanford has 132 HiCi researchers, more than all the Swiss universities together; UC Berkeley 82 and MIT 74. There are 42 at the University of Cambridge in the United Kingdom.[43]

The Nobel Prize criterion is the most controversial as prizes are submission based and claims are made that scientific merit is not the only determining factor as politicking enters the decisions. David Bloom (2005, p. 35) notes that of the 736 Nobel Prizes awarded till January 2003 670 (91.0%) went to people from high-income countries as defined by the World Bank, the majority to the United States, with 3.8% from the Russia/Soviet Union and Eastern Europe and 5.2% from emerging and developing nations. The last nations had their best prospect of winning a Nobel Prize for Literature (10.1%) or Peace (19.8%) but these are excluded from the SJTU index. Of the nine scientists from emerging or developing countries who won Nobels in Chemistry, Physics, Physiology or Medicine, four were working in the United States and two in the United Kingdom and Europe.

The Times Higher *rankings of universities*

The *Times Higher* aims to be "the best guide to the world's top universities" and a holistic ranking rather than one limited to research (*Times Higher* 2005). A high value is placed on institutional reputation and on the level of "internationalisation": these rankings appear to have been designed to service the market in cross-border degrees in which UK universities are highly active. A total of 40% of the *Times* index is comprised by an international opinion survey of academics and another 10% by a survey of "global employers". There are two internationalisation indicators: the proportion of students who are international (5%) and the proportion of staff (5%). Another 20% is determined by the student-staff ratio, a proxy for teaching "quality". The remaining 20% is comprised by research citation performance. Compared to the Jiao Tong outcome the *Times* rankings boost the number of leading British universities and reduce the US universities in the world's top 100 from 54 to 31. However the *Times Higher* rankings are open to methodological criticisms. Reputational surveys indicate the market position of different institutions but not their merits, a distinction the *Times* fails to make. The surveys are non-transparent. It is not specified who was surveyed or what questions were asked. Further, the student internationalisation indicator rewards volume building not the quality of student demand or programmes; teaching quality cannot be adequately assessed using a resource quantity indicator such as student-staff ratios; and research plays a minor role in the index. The *Times Higher* rankings reward a university's marketing division better than its researchers. This does not square well with the way higher education is seen in many nations.[44]

Limitations of university rankings

Rankings are the subject of a burgeoning research literature. The comparison of ten rankings by van Dyke (2005) concludes that although the rankings share broad principles and approaches, they differ considerably in detail related to aims, systems, cultures and availability and reliability of data. A common

[43] A limitation is that the citation data date from the second half of the 1990s, measuring past research rather than present research capacity. However, it is difficult to see how a reliable metric of present capacity could be created.

[44] Arguably, by focusing on criteria relevant to the cross-border degree market, the *Times* rankings created anomalies. For example it appears that the *Times* inflated the performance of Australian universities, which achieved a massive 12 universities in the world's top 100, compared to Canada which has a similar system in many respects but with stronger research performance and a higher participation level. Canada had only three universities in the *Times* top 100. This kind of outcome feeds into perceptions that the *Times* rankings are a rigged game.

problem is that most rankings systems purport to "evaluate universities as a whole" (Dyke, 2005, p. 106). As Rocki (2005, p. 180) notes in reflecting on the Polish experience: "The variety of methodologies, and thus of criteria used, suggest that any single, objective ranking could not exist". Dill and Soo (2005) compare five rankings system. They find that the tables vary in their validity, comprehensiveness, comprehensibility, relevance, and functionality. Usher and Savino (2006) cover 19 league tables and university rankings systems from around the world. Like van Dyke (2005) they make the point that the different rankings systems are driven by different purposes and are associated with different notions of what constitutes university quality. Usher and Savino also note the arbitrary character of the weightings used to construct composite indexes covering different aspects of quality or performance. "The fact that there may be other legitimate indicators or combinations of indicators is usually passed over in silence. To the reader, the author's judgment is in effect final" (Usher and Savino, 2006, p. 3).

Regardless of the particular methods, most rankings systems share common limitations. First, all whole of institution rankings norm one kind of higher education institution with one set of institutional qualities and purposes, and in doing so strengthen its authority at the expense of all other kinds of institution and all other qualities and purposes. It might be argued that the comprehensive research university is the only kind of institution sufficiently widespread throughout the world to underpin a single comparison, and the science disciplines are common to these institutions. However the Jiao Tong rankings not only take comprehensive research universities as the norm, their blueprint is a particular kind of science-strong university in the Anglo-American tradition. Around the world there is considerable variation in the size, scope and functions of leading research universities. The 200 000-300 000 student national universities in Mexico City and Buenos Aires combine national research leadership with professional preparation and broad-based social access and necessarily carry a large group of non-researching staff, disadvantaging them in Jiao Tong index. Further, there are no cross-national measures of the performance of vocational education systems or institutions equivalent to the SJTUIHE measures in research universities. While in most nations vocational education commands lesser status than research-based universities the German *Fachhochschulen* (vocational technical universities), relatively well resourced and with equivalent status to academic universities plus links to industry, are in high international standing. Similar comments can be made about vocational provision in Finland, Switzerland and France. Another model in high regard is the Indian Institutes of Technology (IITs).

Second, holistic institutional rankings are a chimera, no ranking system can cover all of the attributes and purposes of institutions, and all rankings are particular and limited. Thus the desire for holistic rankings, or at least the appearance of completion, leads to methodological anomalies. It is dubious to combine different purposes and the corresponding data using arbitrary weightings. Composite approaches muddy the waters and undermine validity. The links between purpose, data and numbers are lost. While reputational survey data might be an indicator of competitive position it is invalid to mix these subjective data with objective data such as resources or research outputs.

Third, rankings readily become an end in themselves without regard to exactly what they measure or whether they contribute to institutional and system improvement. Rankings foster holistic judgments about institutions that are not strictly mandated by the data used to compile the rankings and the methods used to standardise and weight the data. "League tables" become highly simplistic when treated as summative but this is *normally* the case. The desire for rank ordering overrules all other considerations. For example a common problem is that in rankings systems institutions are rank ordered even where differences in the data are not statistically significant.

Fourth, no ranking or quality assessment system has been able to generate comparative data based on measures of the "value added" during the educational process, and few comparisons focus on teaching and learning at all (Dill and Soo, 2005, pp. 503 and 505) though such data might be useful for prospective

students.[45] Instead there are various proxies for teaching "quality" such as quantity resource indicators, student selectivity and research performance. But "empirical research … suggests that the correlation between research productivity and undergraduate instruction is very small and teaching and research appear to be more or less independent activities" (Dill and Soo, 2005, p. 507); and student selectivity is simply a measure of reputation. When holistic rankings of institutions become centred on measuring and/or forming reputation, and the measures derive from selectivity of entry and research status, the terms of inter-institutional competition are being defined by credentialism rather than by the formative outcomes of higher education. The implication is that students' only concern is the status of their degrees not what they learn.[46]

Problems of reputation-based rankings

Fifth, reputational surveys not only favour universities already well known regardless of merit, degenerating into "popularity contests" (Altbach, 2006); they are open to the charge that they simply recycle and augment existing reputation (Guarino *et al.*, 2005, p. 149) regardless of whether it is grounded in the real work of institutions or not. "Raters have been found to be largely unfamiliar with as many as one third of the programmes they are asked to rate" (Brooks, 2005, p. 7). Well known university brands generate "halo" effects. For example one American survey of students ranked Princeton in the top 10 Law schools in the country, but Princeton did not have a Law school (Frank and Cook, 1995, p. 149). Moreover, regardless of the particular selection of qualities measured, any system of holistic national global rankings tends to function as a reputation maker that entrenches competition for prestige as a principal aspect of the sector and generates circular reputational effects that tend to reproduce the pre-given hierarchy.

Responses of institutions to global rankings

The incentives triggered by global rankings are likely to have powerful effects, and there may be downsides. American higher education institutions have learned to shape their organisational trajectories and behaviours so as to maximise the *US News* position. Failing to respond collectively to *US News* the sector acquiesced at the definition and norming of its purposes and values by a media company and lost partial control over its agendas. There have been perverse effects from the public interest viewpoint, for example the manipulation of student entry to maximise student scores and refusal rates, and the growth of merit-based student aid at the expense of needs-based aid (Kirp, 2004). The logical strategic response to the *Times Higher* rankings is to step up reputational marketing and international recruitment while lowering student-staff ratios, possibly at the expense of research which commands only 20% of the Times index. On the other hand the logical response of research universities to the Jiao Tong rankings is to concentrate more effort on research at the expense of other functions so as to step up research outputs across the range of disciplines and attract more HiCi researchers, if necessary with inflated salaries, and to discard faculty that do not contribute to the SJTUIHE-measured outputs. But this might be at the expense of teaching, the volume of student places, professional training and community service functions, and research not published as high science. While no hard data are yet available it does appear likely that the Jiao Tong rankings have triggered a broad-based move to increased concentration on high science outputs so as to lift ranking positions. It seems certain that intensified competition on the basis of research performance will exacerbate the global demand for high quality scientific labour with likely effects also on mobility and price (see Section 9). In turn this is likely to increase the stratification of research labour and

[45] Altbach states "there are, in fact, no widely accepted methods for measuring teaching quality, and assessing the impact of education on students is so far an unexplored area as well" (Altbach, 2006; see also Guarino *et al.*, 2005, p. 149).

[46] Research in the United States and UK research suggest that only some potential students are interested primarily in the prestige ranking of HEIs; and interestingly, these students tend to be drawn disproportionately from high achieving and socially advantaged groups (Dill and Soo, 2005, p. 513), as if these students more than others take for granted the educational benefits of participation and focus rather on the status and networking benefits of prestigious institutions. This area would benefit from further research.

the academic profession(s) both within national labour markets and between global and national labour markets.

Responses of national systems to global rankings

In some systems the emergence of national rankings systems has been accompanied by a new emphasis on competition and vertical differences among research universities, and between research universities and other types of institution, for example in China (Yang, 2005, p. 186). Likewise, given that the logical response to Jiao Tong is to focus on research performance, in some nations the advent of global rankings has been associated with a new policy emphasis on greater concentration of research effort and stratification between different grades of university. Various nations are talking about developing a small segment of higher quality research universities. For example Germany has discussed a top 10 group, and Australian policy makers have floated the possibility of a designated "world class" group of two to five institutions. If this becomes a zero-sum game in which there is little or no total increase in the investment in basic research and building the research strength of some institutions occurs by weakening others, it would seem to constitute little gain in national capacity overall, unless improved Jiao Tong rankings for particular universities opens up a broader set of global strategic options and/or generates economies of scale and scope at the national level. Another possible development is that in the absence of policy moves to shore up diversity by other means, attention to global research rankings may weaken the standing of non-research institutions and trigger the evolution of more unitary but vertically differentiated systems. There is no reason to assume that intensified competition will generate specialisation unless the incentive structure concurs. In addition conjunctural developments could favour a drift towards homogeneity: the trend to corporate autonomy provides institutions with greater freedom in determining their mission according to a market logic, while in Europe some polytechnics might seek to reshape themselves as universities to fit the new common programme structure secure. This draws attention to the importance of policy measures to sustain existing typologies or to develop new ones as required.

European higher education does not have a long standing tradition of league tables as in the United States. Global rankings have met with some scepticism and critique. But these rankings are also potent in Europe and the level of representation of European institutions (just ten in the Jiao Tong top 51 and twelve in the *Times Higher* top 50) have prompted media criticism, and reflection and action in both EU and national government circles. To policy makers it is clear a global higher education market is emerging, consistent with the introduction of market-type steering models at national level. University rankings are often cited when proposals for greater investment in the European higher education and research area are formulated, and also in relation to proposals for the further concentration of funding in networks and centres of excellence. The EU's proposed European Institute of Technology would draw together existing research bases in a mega-university or network capable of challenging the rankings of the US universities. Another widely recognised policy implication of rankings is the importance of transparent consumer information and measures to secure consumer protection. Further, there will be strong policy pressure to ensure the additional investments in higher education and R&D provided as part of the Lisbon strategy are located in successful institutions that have demonstrated the capacity to generate high dividends: this favours the continued systematic use of rankings and other kinds of comparison as a guide to policy.

A better approach to university rankings

All rankings are purpose-driven and rankings tailored to specific and transparent purposes and interpreted only in the light of those purposes can provide useful data for the purposes of students, university self-reflection and public accountability. If policy-useful rankings are to emerge, problems of methodology and issues of ownership remain to be dealt with, issues largely avoided until recently. In this respect the following minimum design requirements are suggested (van der Wende, 2006). Rather than seeking to construct spurious holistic measures, policy-related research should facilitate a broad range of

comparative measures, corresponding to the different purposes, enabling a horizontal approach to diversity and choice. Institutions should not be ranked as a whole but on their various functions taken separately including the different aspects of research and teaching, and the different disciplines, locations and discrete service functions. The system of rankings should be based on a transparent balance of facts about performance, and perceptions of performance based on peer review. Ranking methods should generate information relevant for different stakeholders and provide data and information that are internationally accessible and comparative. Because "quality is in the eye of the beholder", ranking should be interactive for users, particularly students. Users should be able to interrogate the data on institutional performance using their own chosen criteria. In terms of ownership, it is important that institutions are involved themselves and committed to maximum openness. Institutions operating on a broad basis (preferably not just national but regional) should establish an independent agent to collect, process and analyse data, and undertake publication with a designated media partner that operates as the agent of communication rather than the arbiter of values and methodologies.

The system of rankings which most nearly meets these requirements is that developed by the Centre for Higher Education Development (CHE) in Germany (*www.che.de*) and issued in conjunction with the publisher *Die Zeit* (Ischinger, 2006). This system includes data on all higher education institutions in Germany and now also encompasses Switzerland and Austria. The Netherlands and Belgium (Flanders) are preparing to join. Some Nordic institutions are also showing interest. The CHE ranking system is thus well positioned to develop into a European-wide system. It has also received positive responses from parts of the English-speaking world (Usher and Savino, 2006; van Dyke, 2005). The chief virtue of the CHE rankings, which has far-reaching implications for the form of competition in higher education, is that it dispenses with a spurious holistic (summative) rank ordering of institutions and instead provides a range of data in specific areas, including single disciplines. CHE notes that there is no "one best university" across all areas and "minimal differences produced by random fluctuations may be misinterpreted as real differences" in holistic rankings systems. Further, the CHE data provided an interactive web-enabled database permitting each student to examine and rank identified programmes and/or institutional services based on their chosen criteria (CHE, 2006) and to decide how the different objectives ought to be weighed (see also IHEP, 2006). The Commission on the Future of Higher Education in the United States is working on a comparable concept enabling consumers to rank colleges based on variables of their choosing, in contrast with the approach of *US News* (Field, 2006).

Institutional typologies

In the face of the normalising effects of holistic rankings another policy means of sustaining diversity is to systematise or strengthen institutional typologies. Moves of this kind to encourage horizontal institutional diversity have recently emerged in both the United States and Europe. In the United States the 2005 revision of the Carnegie Classification of institutions replaced the old single classification system with multiple parallel classifications. The aim was to optimise the information-producing advantages of classification while minimising the downside, its potential to be used as a ranking mechanism (Sapp and McCormick, 2006). In Europe there is early discussion about a European typology that would employ a multi-classification approach while making the heterogeneous higher education landscape more transparent. The EC states that:

> European universities have for long modelled themselves along the lines of some major models, particularly the ideal model of the university envisaged nearly two centuries ago by Alexander von Humboldt, in his reform of the German university, which sets research at the heart of the university and indeed makes it the basis of teaching. Today the trend is away from these models and towards greater differentiation (EC, 2003a, pp. 5-6).

The EC sees more diversity at the level of institutions and programmes as a condition for achieving wider access and greater excellence. The European Higher Education Area in size is comparable to the US system and is even more complex. It is organised at both national and regional levels and each unit has distinctive legislative conditions, cultural and historical frames, and a vast array of different languages in which the various forms, types and missions of higher education institutions can be expressed. It is generally agreed that this diversity should be conserved and even increased, while rendering it coherent (van Vught *et al.*, 2005). A European typology of institutions should weaken vertical stratification by making a larger range of diverse institutional profiles attractive, and facilitate alternatives to one-size fits all policies (van Vught *et al.*, 2005).[47]

Conclusions on university rankings

Global university rankings are a potent device for framing higher education on a global scale. It would seem better to take stock of them on a multilateral basis than solely to respond to them individually. There is a danger national governments will focus only on moves within the market competitive game, such as research concentration policies and self-investment, without regard for the terms of competition and its purposes and effects including better ranking systems in the student interest, typologies and other global public goods. Any system of rankings is purpose-driven and contains in-built biases so that the outcomes are shaped by the assumptions and values built into the comparisons and calculations. "The fact is that essentially all of the measures used to assess quality and construct rankings enhance the stature of the large universities in the major English-speaking centres of science and scholarship and especially the United States and the United Kingdom" (Altbach, 2006). It is important to work for "clean" rankings which are transparent, free of self interest, and methodologically coherent. For example, reputational data and outcomes data should not be combined in one scale. All rankings systems are incomplete in describing the reality of higher education. For example the performance of a nation's research-intensive universities says nothing about its specialist business schools or technical training institutes. Because institutions have different goals and missions and are internally differentiated, it is invalid to measure and compare individual institutions on a holistic basis and to compare individual institutions and whole systems in this manner across national borders. Policy should strive to correct the perverse effects arising from league tables, and to advance horizontal institutional diversity and informed student choice using typologies and customised rankings.

9. Global faculty mobility

There is a strong discursive bias in favour of academic mobility in governmental, public and higher education circles. The virtues of cross-border passage are "largely diffused and taken for granted in many higher education and research public policies, so that specific measures and devices are developed by many countries in order to promote academic mobility" (Musselin, 2004a, p. 56). The near universal enthusiasm for mobility is nested in long-standing assumptions about the internationalised character of universities, the freewheeling transferability of intellectual capacity and the contribution of knowledge transfer to national innovation and competitiveness. More recently these values have been fed also by notions of globalisation as inevitable and the concept of "borderlessness" in faculty work (Gibbons *et al.*, 1994; Nowotny *et al.*, 2001). The Bologna Declaration commits nations to "promotion of mobility by overcoming obstacles to the effective exercise of free movement with particular attention to … for students, access to study and training opportunities and to related services; [and] … for teachers, researchers and administrative staff, recognition and valorisation of periods spent in a European context researching, teaching and training, without prejudicing their statutory rights". The European Commission's

[47] In China the classification of institutions is being reconsidered using the original framework of the Carnegie Classification, now known as the "basic classification", in conjunction with the indicators developed by the SJTU to define a "world class university" (Liu, 2006).

(EU's) policy on a European Research Area stresses the need for research cooperation and more abundant and more mobile human resources. Repeatedly mobility is presented as the solution to capacity weaknesses in the developing world; and indeed it is always significant for small nations unable to support large concentrations in all research fields, and migration-based nations such as the United States, Canada, Australia and New Zealand for which migration has always been a major source of labour and ideas.

> In an increasingly international professional labour market, qualifications should be recognised internationally with as few difficulties as possible. Given the national and cultural embedding of education, national control over qualifications will remain necessary, making systems of recognition of foreign qualifications indispensable. Recognition procedures should be transparent, coherent, fair and reliable and impose as little burden as possible to mobile professionals (OECD, 2004b, p. 24).

In practice mobility is not universal, and its freedoms and extensions are not unproblematic goods. From viewpoint of both national and global goods, there are two heterogeneous policy objectives: the objective of free academic movement in and out of all national higher education systems, and the objective of strengthening the academic capacity of each national system. In a world where nation-states are the site of policy and institutional disembedding is only partial, and a world also characterised by vertical diversity and unequally directed cross-border flows of researchers, in few national situations outside the United States are these two objectives always compatible.

Policy responses to uneven people flows

An increasing number of nations are focused on the provision of scholarships, salaries and conditions of work capable of attracting foreign doctoral students and post-doctoral researchers and scholars into the national research system, and also the repatriation of their own nationals working abroad; and some are following programmes of selective investments designed to elevate individual research universities as concentrations of research talent and output (policy responses to research rankings are discussed in Section 8). South Korea and Taiwan are examples of nations that have succeeded in partly reversing an historical pattern of brain drain via policies to draw back expatriate PhD graduates and researcher nationals (*e.g.* Luo and Wang, 2002). Singapore is building research cadre in its universities by policies designed to attract foreign talent through globally competitive salaries and research infrastructure. In many nations, the highly mobile character of research labour and the importance of cross-border experience and partnerships in knowledge transfers mean that the national research diaspora is no less strategically significant than nationally-based researchers. This suggests that there is scope for more inventive cross-border strategies. Many foreign researchers working in the United States lack ways and means to contribute back to higher education in their countries of origin. It is not always recognised that in a world of plural identities (Sen, 1999), when researchers cross borders to secure a more fecund intellectual setting or better career prospects, national commitments often survive. One possibility is the creation of dual academic appointments, with the American-based foreign researcher working in the country of origin during the American summer term. Another is the formation of cross-national research groups initiated from outside the United States and involving personnel working in the United States, reversing the more common pattern of American initiation of collaborative projects. Precisely because research is highly mobile the national research diaspora working in the United States provides all nations and their universities with additional people resources and opportunities to better position themselves within the global knowledge system. These can be tapped by means such as repatriation programmes, funding short-term movements, joint appointments and joint projects. Such opportunities are more readily accessed by those nations with domestic research capability.

National and global career structures

Kaulisch and Enders (2005, pp. 131-132) note that faculty work is shaped by three overlapping sets of institutions: (1) the generic science system, and systems in each discipline which to a varying extent are cross-national, emphasise the autonomy and mobility of researchers, and foster competition based on scholarly merit and prestige; (2) rules about work, competition and careers, where academic work is embedded in national policy and cultural settings; and (3) the organisational operations of universities, which both reflect national and local traditions and are touched by common trends such as massification, growing expectations about social relevance and the type 3 transformations discussed in the first part of this paper. A fourth element in the mix that might be of growing importance is the impact of internationalisation and globalisation on academic careers.

For faculty mobility has long been a positive professional norm though varying by nation and field (El-Khawas, 2002, pp. 242-243), and also varying somewhat in motive. A small number of researchers have expertise and reputation that confers superior opportunities in many countries. Though their salaries and career structures vary in the different locations, they constitute a global labour force that in the context of research rankings and global competition is increasingly important to national systems. Governmental or institutional efforts to attract and retain them have transformative potential in those systems. However most faculty have primarily national careers and use cross-border experience to advance their position at home, travelling mostly at the doctoral or post-doctoral stages and for short visits. "BtA – Been to America – still plays a dominant role" (Enders and de Weert, 2004a, pp. 146-147). A third group consists of faculty with lesser opportunities at home compared to abroad, due to remuneration or conditions of work, the denial of national careers due to social or cultural closure, or an economic freeze on hiring. This group has less transformative potential than elite researchers because it does not constitute a sellers' market or leave a gap that undermines national education systems.[48] As these three categories illustrate faculty career structures remain primarily national in form. (Perhaps this is why cross-border academic mobility is associated universally with freedom.) There remain many formal and informal differences between nations in the mechanisms of training, appointment, tenure and promotion, in levels of remuneration and in conditions of work; and some systems are more open to foreign scholar appointments and careers than are others. Even within Western European with the commitment to a common research area and roughly comparable levels of remuneration in research-intensive institutions cross-border academic employment is still inhibited to a surprising degree (Guellec and Cervantes, 2002, p. 85). Musselin finds that "one of the most striking national patterns of each system is its academic labour market, salaries, status, recruitment procedures, workloads, career patterns, promotion rules being very different from one country to another" (Musselin, 2005, p. 135). There are continuing differences in relation to the legal status of faculty, remuneration and its regulation, language, and procedures for appointment and promotion (Musselin, 2004a, pp. 56-62). And again, "the proportion of staff with and without tenure is highly variable… each country defines its own career requirements for the profession… the various stages of a career do not obey the same rules" (Musselin, 2003).

An emerging global labour market?

Despite the largely national patterning of career structures, it is often argued both that global mobility is increasing and the global element in faculty careers is becoming more significant. For example Altbach finds that "the most visible impact of globalisation is the emergence of a worldwide market for academic talent, stimulated in part by the large numbers of students who study abroad". He also remarks that the global faculty labour market and doctoral student flows "are overwhelmingly a South-to-North

[48] Another factor encouraging mobility is cross-national differences in academic autonomy, which may be especially important in the social sciences and humanities. Historically the code of academic freedom has made the United States attractive to doctoral students and faculty from many developing nations (Altbach, 2002, p. 16).

phenomenon" (Altbach, 2002, pp. 7-9). The OECD's *Science, Technology and Industry Scoreboard* (2004) concludes that intensified global competition for scientific labour feeds the evolution of a distinctively global market that in some research fields is beginning to subsume national labour markets (OECD, 2004c, p. 39. See also p. 22; Gayathri, 2002, p. 201). But has cross-border academic mobility of all kinds *increased* and has it *also* reached a "tipping point" that constitutes a qualitative increase in the role of global elements, that is, a type 1 global transformation? Perhaps assumptions that mobility is desirable tend to readily generate perceptions that mobility is increasing. The evidence is more uneven.

Up to 2001 the American data indicate that foreign faculty mobility into the United States was increasing at all levels from doctoral training to mid career short visits and longer term migration and since 2001 doctoral numbers and faculty exchange have continued to grow though more unevenly and at a slower rate. These flows have not changed the character of the American faculty labour market itself except to increase the foreign element in its composition; and elsewhere the picture is different. The outward flow of researchers to the United States is common to all most nations, developed and developing. While Western Europe and the English-speaking nations benefit from brain gain from developing nations, in net terms they lose researchers to the United States. In other words the global flows are not simply a "North-South phenomenon".

The pattern of internal change in national markets outside the United States is not uniform or clearcut. The evidence is fragmented, particularly longitudinal data (Mahroum, 2001, p. 220); and the trends are mixed, with few obvious changes taking place in the rules governing national labour markets. On one hand there is a general increase in cross-border mobility at doctoral stage, facilitated by a partial convergence of structures for doctoral training. For example many higher education systems across Europe have shifted their paradigms for doctoral training towards the "professional model" (Enders, 2005, p. 120). This type 2 global transformation may be the first step toward world-wide convergence in faculty labour markets. Its implications extend beyond the standardisation of doctoral training itself to the standardisation of career structures at the point of entry, while facilitating cross-border recognition of qualifications and broadening employability.[49] Data from many nations record a pattern of increase in cross-border research collaborations and in travel for conferences and short exchange visits. In relation to China, Guochu and Wenjun (2002, p. 198) note that the number of foreign experts working in China's institutions of higher education rose from 1 255 in 1980 to 14 020 in 1999. Within Europe, between 1997 and 2000 intra-European mobility under the Socrates programme grew by 71% (Vincent-Lancrin, 2006, p. 14; see also Smeby and Trondal, 2005, pp. 456-457).[50] On the other hand it is less clear that postdoctoral mobility and longer term academic migration are increasing except one way into the United States.

Within the OECD there is considerable variation in the extent to which those holding higher education are foreign-born (OECD, 2006c, p. 29). This exceeds 10% only in Switzerland, Australia, New Zealand, Ireland and Canada. Typically faculty ranks are more internationalised than the population as a whole but again there is much national variation. In a European collection on the international aspects of faculty careers Enders and de Weert (2004c, pp. 25-26) note "there is much agreement" in surveys of staff "on the proposition that recruitment and selection procedures which recognise international and intercultural experience is growing"; and that "particularly in the top scientific fields, international experience especially on the postdoc level is increasingly becoming an important factor in recruitment and selection of staff". On the other hand there is doubt about whether the composition of entrants into national professions

[49] Note, however, that the social and economic role of PhD training varies among nations at the high end of educational spending and participation (Enders and de Weert 2004a, p. 139). In the OECD group the average rate of PhD graduation relative to total population is 1.3%. It ranges from 2.8% in Sweden to 0.1% in Iceland and Mexico. In France and the United States the rate is 1.2%, in Germany 2.0% (OECD, 2005a, p. 55).

[50] In Italy data on participation in the two European mobility programmes, Socrates and Erasmus, show a rapid increase, with growth of 48% between 1998-1999 and 2001-2002 (Boffo *et al.*, 2004, pp. 260-261).

has changed, or the career arrangements themselves have loosened or are converging between nations. The authors of several national chapters find that survey respondents are sceptical about the positive effects of long stays abroad on one's career, noting it is difficult to re-enter European nations with closed career systems (Enders and de Weert, 2004c, p. 26). In Spain university to university movement is blocked and the cessation of growth in the academic workforce has compounded barriers to foreigners and foreign-trained Spanish seeking to re-enter. "The internationalisation of academic staff in Spanish universities is extremely limited" (Mora, 2004, p. 413). Musselin (2004a, 2005) finds no sign of a process of Europeanisation in academic recruitment and careers paralleling the common higher education space (Musselin, 2004a, p. 72). There is also continued variation in the degree of academic globalisation by field of study with researchers science, engineering and technology more prone to cross-border movement than those in other fields.

Nevertheless, there are signs of cross-field convergence in the degree of international movement in some but not all nations;[51] and in Europe the broadening recognition of professional qualifications and the European Research Area encourage convergence in academic labour markets. These effects will take time to show. Specific measures such as the coordinated EC approach to the brain drain to the United States and recruiting non-European researchers (Section 7) also have integrative potentials.

Global competition for mobile researchers

Stratification of personnel in higher education has many roots; epistemic, economic, social and regulatory. It is affected by market competition within systems, funding regimes, performance management and the growth of commercial science. It is not determined solely by globalisation, and global factors interact with the other elements. But in the wake of global rankings, high performing researchers find themselves in a stronger bargaining position. It is significant that the main driver of elite researcher mobility is the large open American system characterised by a relatively high degree of labour deregulation, individual bargaining and variation in salaries and remuneration. In some countries governments, institutions and faculty unions will find themselves under pressure to facilitate the differentiation of salaries previously held in a roughly equal position across fields and between individuals at the same level regardless of merit. Global competition will increase the impetus for the introduction or enhancement of techniques enabling greater flexibility in reward structures such as performance-related pay. If so, one option will be to differentiate the national system along American lines between research-intensive universities and the others, facilitating the differentiation of status and rewards within systems, without creating a major increase in the fiscal cost of higher education. Another option will be to deregulate or regulate faculty salaries and conditions of work sufficiently so as to enable a more pronounced differentiation within individual universities. Where such moves tend to undermine national egalitarianism and professional traditions there will be policy conflict.

In 2003-2004 the average salary at American doctoral universities for full professors for 9-10 months of the year was USD 100 682, and average total compensation was USD 125 644, rising to USD 152 540 in the independent private universities. US academic faculty also have earning opportunities during the summer break. There are greater rewards at the peak of the American system: 6% of full professors earned more than USD 200 000 in salary alone in 2003-2004 (Academe 2006). By comparison Enders and de Weert (2004c, p. 18) note that the annual income of European professors typically ranged from EUR 55 000-60 000 in the Netherlands and Germany to EUR 40 000-50 000 in France, Finland, Spain and

[51] In relation to France Musselin (2003) emphasises that "the academic system developed around individual disciplines" with distinctive cultures. Fields such as medicine, law and some humanities remain partly *sui generis* in many nations, more so when the national language is not shared beyond the border. But Smeby and Trondal (2005, pp. 459ff) note in relation to Sweden that between 1981 and 2000 there was a tendency to convergence between disciplines in relation to indicators such as cross-border collaboration and publication in English.

Italy, down to EUR 13 000-20 000 in Greece and Eastern Europe.[52] A number of Asian nations approach or exceed European salary levels. In relation to Singapore, Lee (2002a) remarks that "the recently revised salary scales are internationally competitive and rank among the highest in the region". Professors earn from USD 82 800 to USD 117 000 per annum and are on par with the United States except at the top end of the American profession. Singapore has set out to create a cosmopolitan globally competitive higher education system. Almost half of its faculty are expatriates from other nations. In Korea the gap with American salaries has narrowed. In Korea in 2000 the average annual salary for a full professor in a public university was USD 39 037; in a private university USD 42 628 (Lee, 2002b, p. 182). After PPP conversion Korea is on par with OECD Europe. By contrast, in Argentina in 2001, the annual salary of the small minority of full professors paid full-time varied from USD 12 492 to USD 27 084 depending on seniority (Marquis, 2002, p. 69). In many emerging nations salaries are lower than this and a full-time academic salary cannot support a middle class standard of living. Working in two jobs is common, reducing the time for original research (Altbach, 2002, pp. 18-19).

While salaries, opportunities for non salary earnings, good research infrastructure and American career opportunities are not the only factors that determine work satisfaction[53] all else being equal they constitute a significant set of incentives particularly for younger researchers. Eventually, perhaps, all national systems that aspire to front rank research performance will have little choice but to offer competitive salaries and conditions of work or face the loss of too many personnel to institutions in the United States and in other systems such as Singapore that are prepared to offer quasi-American salaries and research infrastructure. The growing role of the global pool of researchers centred primarily on American higher education and privileged vis-a-vis both other national systems and the majority of faculty whose work is centred on teaching, may also encourage fragmentation of the teaching-research nexus and the relative expansion of research-only positions. There are signs of this already, for example in the United Kingdom (Enders and de Weert, 2004c, 24).

Conclusions on global faculty mobility

The United States higher education system constitutes the main global force shaping academic mobility in a still predominantly nation-bounded academic world, though its global effects are generated by the national dynamics of the large American market rather than by subsuming all national labour markets into a common structure. In the last 15 years there has been a significant increase in shorter-term movement across borders for academic purposes, varying by nation and academic field; but except in the United States there is as yet no clear-cut evidence of a generalised increase in foreign entry into national academic labour markets that would suggest the broad substitution of non-national labour for national labour. Research rankings and the formation of global higher education markets have intensified competition for globally mobile scientists, and increased the salience of global salary standards (quasi-US salaries) for that group. Though such effects are playing out on a relatively small scale at the top end of the academic labour markets they are strategically significant for national governments, which need to monitor "brain circulation" closely and ensure sufficient flexibility in reward structures. In the absence of a policy-driven convergence of career structures, which at this stage seems to be a possibility only in Europe, an increase in the mobility of the highest calibre researchers, instead of transforming national labour markets and career structures holistically, is more likely to generate segmentation effects. In other words the global labour market may both grow and tend to become further decoupled from national labour markets. This could only square with a universal trend to globalisation of the sector if within national systems there is an

[52] Note that these are not Purchasing Power Parity (PPP) comparisons. Accounting for differences in the cost of living in the respective nations narrows the cross-border differentials.

[53] "The perspective of obtaining a tenured position early, may be decisive for a young foreign academic to apply in a foreign country" (Musselin, 2004a, p. 58). Here both American and German tenure tracks are prolonged, especially the latter. France and Australia offer shorter routes to permanency.

increase in the vertical stratification of career structures and of resource distribution between research-intensive and other institutions.

For the foreseeable future, developments in academic labour will be determined primarily by the large national systems. There are significant obstacles to the development of a fully integrated labour market across the whole of the EU given the degree of material inequality between the national higher education systems of Western Europe on one hand and those in Greece, Eastern Europe (and Turkey) on the other. An integrated labour market common to Western European nations could be viable. Given the pulling power of the American academic labour market, a robust European market could develop only if it was bounded by coherent regulatory structures broadly consistent across the European region in the framing of careers (permitting some local and national idiosyncrasies), and economically viable. In other words there would need to be a progressive convergence towards a common approach to the main career markers such as procedures for initial selection and the granting of tenure and promotion; the customary time spans and the scope for variation of career norms. If no such regional convergence emerges, then it is likely that in the long run the different national labour markets will become more stratified within the global environment. Within and beyond Europe, unless corrective action is taken national systems operating at lower than OECD average resource levels are likely to experience a worsened brain drain to resource strong nations. From the national point of view mobility ceases to be a universal good when it is associated with largely one way movement out of the country. The global public good requires expansion of higher education capacity throughout the world. Education is a crucial element in the building of democratic agency and economy (Sen, 2000; Taskforce, 2000). Given the vertical differences between national systems, including the inability of poorer nations to pay globally competitive salaries, an unregulated global free market in academic labour does not optimise the global public good. One possibility is that aid policies could be targeted to the subsidisation of academic salary structures and retention in developing and transition nations. There are a number of issues at stake: the future of academic independence which is affected by the tenure and security of work as well as whether governments or managers intervene directly; the degree to which national systems facilitate cross-border careers; the extent to which a common labour pool of high calibre researchers becomes translated into a common set of conditions of work across different national systems; and the evolution of the teaching-research nexus. Given the growth of global research competition, the pressures to divide teaching and research functions are likely to intensify but whether this will translate into a new norm of faculty work is less clear.

POSSIBLE FUTURE DEVELOPMENTS

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 world-wide 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. Though academic labour markets are nationally embedded and career structures remain heterogenous, it appears that the specifically global element in labour markets has gained weight, especially since the advent of global university rankings. 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.

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. When federal government intervenes directly, as in interruption of people mobility by the Patriot Act, this threatens to undo one constituent of American hegemony. This can also create opportunities in other nations, though restraint of mobility is never a common good.

At the same time to be effective in the global environment, especially in nations without American advantages, 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. But perhaps these dilemmas are ultimately more apparent than real, and more in the realm of policy discourses (still framed by the classical distinctions between public and private foundational to nation-building political liberalism) 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, including market steering, more plural funding, and the corporatisation of more autonomous institutions; 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.

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