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Education, economic globalisation and national qualifications frameworks

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In this paper, several key trends that appear to be emerging as a result of economic globalisation will be discussed. When these trends are considered together they raise some fundamental questions for NQFs.

The aims of NQFs

There are many aims that have been articulated with respect toNQFs. Among them are them are those concerned with transparency, which is to say, that it is assumed that once employers understand the competencies of employees, as defined by their education credentials, then the mismatch between what employers are looking for and what potential employees can offer is reduced. A further aim is that in an era of economic globalisation the certificates that frameworks issue should be transferable across nations because they should itemise the competencies that potential employees have demonstrated. These are laudable aims but even if these aims were achieved, something which is considered in the papers that follow, that in turn raises fundamental questions about the nature of knowledge and skills required in the global economy and whether NQFs have a role to play in the light of the new global realities: it also suggests a fundamental misreading of the key trends in the global economy.

Key trends in the global economy

There are four trends that we can identify with respect to education, skill formation and the global economy. These are:

- The global rise in the supply of graduates. And with the increase in the supply of graduates many from low-wage countries, the possibility

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of reducing the cost of knowledge work. Hence, we are now in an era where knowledge work is no longer at a premium earned by western system of innovations. Hence,

- Quality = Price
- The rise of digitalTaylorism. One of the fundamental misconceptions embodied in the concept of the knowledge economy is that that capitalism has fundamentally changed in the light of the assumed importance of knowledge. However, noCEO would willingly pay the premium for intellectual work that can beroutinised and hence made cheaper. All economic revolutions are ultimately revolutions instandardisation (Tate 2001). However, not all knowledge work can be standardised; some are given permission to think and these are graduates who are seen as 'talented' and the future leaders of multinational companies. Hence:
- The war for talent.

Combined these trends serve to shift demand for higher skilled work towards East Asia, while changes in the labour process through digitalTaylorism are reducing the demand for high-skilled workers. In turn, these changes should alert us to the fundamental shifts in economic power that are now under way. When taken together, these processes imply a global auction for high-skilled work but a Dutch or reverse auction where jobs go to the lowest priced.

The global rise in the supply of graduates

The global auction has been made possible by the rapid expansion of high-quality universities and graduates in Russia, India and China. In turn, this has led to the rapid expansion in the global supply of high-skilled workers that also has major implications for the future of high-skilled, high-waged work in Western nations. Table 1 shows that China had six times as many university students as the UK and almost as many as the US in 2001. It also has plans to increase the university numbers to 16 million by 2005, including 600,000 engaged in postgraduate studies. This amounts to 15% of the age cohort. Even more ambitious is the plan to increase enrolment to Chinese senior high schools from 27 million in 2000 to 46 million in 2005.[1] The expansion of higher education in India is following a similar path. There are plans to increase the participation rate of 18–23 yearolds in higher education from 6% in 2002 to 10% in 2007.[2]

While a degree of scepticism is required with respect to the accuracy of these statistics, they show that in six years higher education numbers in China, India and Russia have almost doubled from a combined total of 15.8–30 million students. This is almost double the combined total for the US and the UK at 15.7 million. There is therefore a good supply of highly qualified Indian, Chinese and Russian workers entering the global labour market.

Table 1. The expansion of tertiary education in Selected Emerging and Developed Economies.
Tertiary Education (ISCED 5&6): total enrolment (thousands)

	1970	1980	1990	1995	1999/2000	2000/2001
United States	8498	12097	13710	14261	13202	13596
France	801	1077	1699	2092	2015	2032
United Kingdom	601	827	1258	1821	2024	2067
India	2472	3545	4951	5696	9404	9834
Brazil	430	1409	1540	1869	2457	2781
China	48	1663	3822	5622	9399	12148
Russia	NA	5700	5100	4458*	NA	8030

*1994.
See Brown et al. (2005). Derived from the following sources: UNESCO, Enrolment in tertiary education for the academic years 1999/2000, 2000/2001.

Quality = Price

Rather than a magnetic attraction to a specific location or country, global economic integration has enabled companies to create a new spatial division of labour for high-skilled activities including research, innovation and product development, as well as for low skilled, low-waged work.

In the 1960s and 1970s companies such as Ford, IBM or Siemens were characterised as 'national champions' as they not only paid taxes that contributed to the public exchequer, but also offered mass employment within the home nation. However, the IBMs and Siemens of the post-war period that controlled all elements of hardware and software production have given way to a fragmented horizontal structure across national boundaries that combine speed and flexibility, while off-loading corporate risk. Facilitated by the personal computer, the internet and an increasing supply of highly qualified employees in developing countries, these networks extend across the globe, particularly to the Pacific Rim, India and Eastern Europe.

Saxenian (2002) has charted the development of this industry.[3] The story starts with an increasing numbers of Taiwanese, Indian and Chinese studentsenroled in Ph.D. programmes in the United States.[4] During the 1980s Taiwan sent more doctoral students to the United States than any other country. The first generation of these students tended to stay in the United States, working in the semi-conductor industry before returning home to establish their own businesses. Encouraged by government policies approximately 6000 doctoral engineers were returning home each year by the mid-1990s (Saxenian et al. 2002). The combination of the knowledge and networks established in the United States by the first generation of IT entrepreneurs, coupled with the critical mass of expertise of returnee graduates, enabled Taiwan to capitalise on the possibilities of a horizontally structured industry operating across national boarders.

The emergence of the electronics industry in Bangalore in India, also demonstrates how less-skilled employment in the IT industry was exported from Western economies to enclaves in the developing world (Kobrin 1999). The education and training of electronic engineers provided the necessary human capital for the electronics industry in Bangalore to take off. But contrary to the view that only lower skilled work would be subject to price competition, the IT industry suggests that this is at best wishful thinking. India's tertiary education system now trains over 67,000 computer science professionals annually and another 200,000 enrol each year in private software training institutions.

The cost advantage to companies employing software professionals in India in comparison to the United States is presented in Table 2.

It can be seen from this table that Indian programmers are around 14 times cheaper than those in the United States. But much of the work of Indians in the past has been at the low end of the market. Saxenian (2000) has shown that the annual revenue per employee in the Indian software industry was $15–20,000, whereas in Israel and Ireland the corresponding figure was $100,000 per employee. However, wages have risen in Bangalore and there is now concern that, with increasing competition from China, Russia and Romania, amongst others, the industry will price itself out of the market unless it moves into higher value-added production (Yamamoto 2004). This may be facilitated by the large numbers of Indian entrepreneurs in Silicon valley where in 1998 they were running more than 775 technology companies, accounting for $3.6 billion in sales and 16,600 jobs (Saxenian 2000).

While we have focussed on the IT industry, the same point can be made with respect to many business processes in, for example, finance, engineering and design and health as well as in research and development.

Digital Taylorism

If it were true that the relentless nature of capitalism was leading to an unprecedented demand for employees to think for a living, it would mark a profound economic transformation. But the reality is more complex. Historically, productivity has not come from giving people permission to think, but from imposing barriers to individual initiative and control through a detailed division of labour. While the management of knowledge workers poses problems for HR professionals, there is also a major shift to what we called digitalTaylorism (Brown, Lauder, and Ashton 2008). If the era ofFordism, characterised by MechanicalTaylorism, involved the transformation of craft work through 'scientific management' (Braverman 1974), today we are witnessing the translation of knowledge work into working knowledge.

DigitalTaylorism enables innovation to be translated into routines that might require some degree of education but not the kind of creativity and

Table 2. Salaries of software professionals in the United States and India[a], 1997 (OECD 2000).

	United States (USD per annum)	India[b] (USD per annum)
Help desk support technician	25,000–35,500	4400–7000
Programmer	32,500–39,000	2200–2900
Network administrator	36,000–55,000	15,700–19,200
Programmer analyst	39,000–50,000	5400–7000
Systems analyst	46,000–57,500	8700–10,700
Software developer	49,000–67,500	15,700–19,200
Database administrator	54,000–67,500	15,700–19,200

Source: OECD Information Technology Outlook, OECD, Paris, 2000. p. 140.
Figures starting salaries for large establishments employing more than 50 software professionals. They may be marginally lower for small firms. Salaries for a particular designation vary owing to factors such as educational and experience profile of the professional; platform of operation; nature of the assignment (contract/full-time); location of the employer; and the additional technical/professional certification.
Converted at exchange rate ofINR 41.50/USD, Source: INFAC, Bombay (1998).

independence of judgement that is often associated with the knowledge economy. In order to reduce costs companies have to move from knowledge work to working knowledge; that is, from the idiosyncratic knowledge that a worker has and applies, to working knowledge, where that knowledge is codified androutinised, thereby making it generally available to the company rather than being the 'property' of an individual worker.

There are many ways in which digitalTaylorism can be applied, for example, a leading company producing and selling software handling credit card transactions and credit rating expanded very rapidly over the last decade both within the UK and abroad, mainly through acquisitions. In an interview with the CEO in 2006, he defined the company's major problem as one of how to encourage his staff (mostly university graduates) to be innovative. He thought this was essential for the continued success of the business as they developed products for new markets and customers. Today the problem has changed dramatically. The company has achieved an annual growth rate of 25% and opened offices across the developed and developing world, including China, India and Bulgaria. There has been a change in CEO, and the major issue in no longer defined as innovation, but of how to align business process and roll out software products to a global market. The creative work in producing new platforms, programs and templates, has been separated from what they call routine 'analytics'. Permission to think is restricted to a relatively small group of knowledge workers in the UK, while the more routine work (i.e.customising products to different markets and customers), also referred to as the 'grunt work, isoffshored to their offices in Bulgaria (where graduates can be hired at a third the cost of the UK) and India.

Dividing graduate work: the war for talent

Corporations typically rate their management workers according to sets of what appear to be clearly definedcompetences, often referred to as A, B and C players. The A players are believed to be crucial to the future of the company. Every effort is made to retain this group through generous compensation, interesting assignments and career development.

> You have just got to decide that those people are our future and whether they are kind of A players or they are kind of high potential people lower in the organisation, those are the people that we are going to pay, you know, whatever.

The B players are the 'engine house' of the company, they get things done and need to be treated with dignity and paid at a competitive rate. It includes 'engineering talent' with extensive experience but 'they usually are folk that don't really want to lead the charge'. The C players are those that they expect will leave through lack of skill or commitment. Beneath these categories are the routine knowledge workers, we discuss below.

The A category managers are those who are seen as exceptionally talented and as the quote above suggests, will be highly rewarded. We are told that such inequalities are justified because 'Talent is the new oil and just like oil, demand far outstrips supply'.[5] Consultants at McKinsey popularised the idea of a 'war for talent' by arguing that talent management had assumed greater strategic importance since the 1980s with the growth of the knowledge economy.[6] This, they suggest, reflects the changing economic role of talent as only 17% of all jobs required knowledge workers in 1890, whereas now it is over 60%. The result is that, 'more knowledge workers means it's more important to get great talent, since the differential value created by the most talented knowledge workers is enormous.'[7]

In London the head of HR within the banking sector told us:

> We have segmented our employees brutally just in terms of talent. They've gone through quite a tough assessment process over many years now. So we have the group that are recognised as talent, and sadly there is this group who are recognised as not talent. I don't know how I fix that, that's next year's problem. That group who are talented we actively manage them in terms of how long have they been in their current role, what's their next role? They get moved around the world quite a bit. They get stretched and out there.

What is interesting about this war for talent is that the ideology appears ubiquitous, almost every HR executive or manger had on their bookshelf a copy of the book written by Michaels and colleagues who popularised the concept of war for talent (2001). And, it translated into a strategy for recruitment from universities based on a few select universities with high reputations. There were exceptions to this, especially in the motor vehicle

sector, but generally it held true for the other sectors we studied and the countries that were part of the study.

Leading transnational corporations gravitate towards the global elite of universities because they are believed to have the best and the brightest students. This view is actively promoted by leading universities as higher education has become a global business. The branding of universities and faculty members is integral to the organisation of academic enquiry. Claims to world-class standards depend on attracting 'the best' academics and forming alliances with elite universities elsewhere in the world, while recruiting the 'right' kinds of students. Universities play the same reputational games as companies, because it is a logical consequence of global market competition between universities.

Leading corporations and elite universities have engaged in a 'tango' that enhances each other's brands. But when companies recruit from these universities, they are merely extending the notion of a brand to new entrants. The issue of recruiting to enhance the brand of the company extends to the highest levels. One of our financeinterviewees had an international reputation in relation to banking in China and when he was recruited by a Western bank it made headlines in the financial sections of the papers in China. But by choosing to fish in such a small pond for talent companies are strengthening the barriers to entry: it is as if they are putting a sign out, 'those who are not at internationally recognised universities need not apply'. What may be considered extraordinary about this strategy is that despite the demand for increased numbers of young managers who can work across the globe, they remain focussed on recruiting from the elite universities in each country. The consequence is that many able will not get their foot in the door: the ideology of the war talent leads to paradoxically to a massive wastage of talent. The problem is that 'talent' that has a reputed university pedigree acts as an effective signal in the new global labour market.

The standardisation of judgements about workers

In order to be able to move workers to where they are most suited or needed, MNCs need to standardise judgements about workers across the globe. This gives them a major competitive advantage in terms of the utilisation of talent. However, in contrast to Qualifications Frameworks, MNCs have their metrics for assessing workers' capabilities. Without such an assessment system they cannot know where work can best be placed and at what level of skill.

NQFs in the light of the new realities of the global auction

Given the account of changes to the global labour market and labour processes there are several points to note. Firstly, when recruiting globally MNCs are fundamentally concerned with what they consider 'talent' and

they consider the top universities in each country as the pool in which they should fish for such talent. Secondly, they have their own criteria and methods of determining skill levels below that of university graduates. In this context they are as concerned with motivation and attitude as they are with the kinds of skills that can be registered on NQFs are purported to measure. Thirdly, one of the features of the rise of the Asian giants like China and India and indeed many of the small rapidly developing economies is the speed with which skills can be acquired to a very high level. A moment's reflection on what, in historical terms, is the overnight development of the East Asian tigers as well as China and India tells us the speed at which these skills can be acquired. It is only in the kind of niche markets dominated by German engineering that a much longer period of skill formation is required. Given such speed it is difficult to see how what are ultimately highly bureaucratic forms of certification as implied by NQFs could keep pace with the changing nature of skill sets.

Perhaps a more productive focus in the creation of skills would be to harness the creation of particular forms of skill through variations on the German dual system which provides a more general level of education that speaks to the need to adapt to changing skill sets with very specific forms of discipline that addresses the question of having a deep knowledge of the particular objects, including electronic objects and processes that skilled workers transform.

Notes

1. See 'Chinese University Students to Top 16 Million' at http://www.edu.cn/20010903/200991.shtml.
2. The figures on China and India were compiled with the assistance of Gerbrand Tholen. For a broader statistical analysis of these issues see Brown et al. (2005).
3. See also Saxenian (2000, 2002).
4. See Heidrick and Struggles (2007).
5. See Michaels, Jones, and Axelrod (2001).
6. See Michaels, Jones, and Axelrod (2001).

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Hugh Lauder is professor of Education and Political Economy at the University of Bath. Parts of this paper were written with professor Phillip Brown to whom a debt is acknowledged. Their current book is Brown, P., Lauder H., and Ashton, D., 2011. *The global auction: The broken promises of education, jobs and incomes*. Oxford: Oxford University Press.

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