Macro*Plus*
Comment

University challenge

- *Highly-skilled workers are increasingly demanded in today's high-tech, globalising world*
- *The cost of the requisite education is rising relative to the general price level*
- *Technology however offers a way out: universities, in particular, are likely to be transformed*
- *Massive Open Online Courses (MOOCs) will develop, as will the Oxbridge/Ivy League models*
- *Many middle-ranking universities however are likely to be hollowed out*

The race for skills

Education and skills are increasingly in demand

An era of rapid technological change puts a premium on skills – from literacy and numeracy through to lateral and conceptual thinking. And globalisation augments the premium, as skilled workers sell themselves, directly or indirectly, in the huge and growing world market. In the US, for example, a master's degree commands double the weekly earnings of a high school diploma (Figure 1). Correspondingly, the unemployment rate of low-skilled workers, whose jobs are increasingly being replaced by technology or relocated to developing economies, is more than three times that of masters' graduates.

Not surprisingly, therefore, demand for university places in advanced economies is surging. Across OECD countries the proportion of adults (aged 25 to 64) who have achieved tertiary education of some form has increased by almost 10 percentage points since 2000.[1]

Costs however are rising too, relative to general inflation

Meanwhile, however, the price of education, historically an intrinsically labour-intensive activity, has been rising relative to the general price level, and in particular relative to the prices of technology-intensive goods. The price of education in the US, for instance, has more than doubled since 1998 (Figure 2).

These twin developments – rising demand and rising (relative) cost – are putting education budgets, both personal and state, under increasing pressure. But there is a way out: technology.

Technology, technology, technology

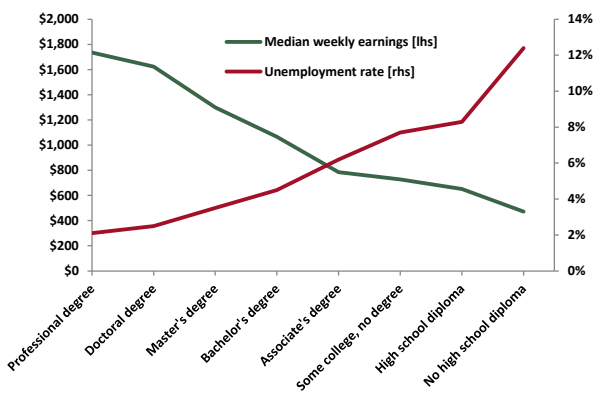
Disruptive technology offers the way out

The education sector is entering the digital age. And this technology is 'disruptive', producing major effects both on the demand side and on the supply side.

On the demand side, the most fundamental changes concern the curriculum. The spreading of technology throughout the world of work is changing the type of education that people need, and hence the education that students want to receive, and wish to study.

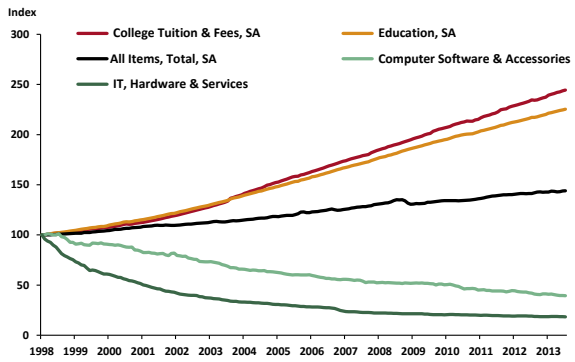
The supply side, meanwhile, is undergoing an even more radical transformation. Technology is changing the way that education is provided, how people learn, and the methods of learning. And, crucially, technology is offering these changes at a lower price than traditional methods.

Figure 1: U.S. earnings and employment by educational attainment



Source: U.S. Bureau of Labor Statistics (2013)
Note: Data are for persons aged 25 or over. Earnings are for full-time wage and salary workers. Unemployment rate in 2012

Figure 2: U.S. Consumer Price Index, selected components



Source: U.S. Bureau of Labor Statistics (2013)
Note: 1998=100; SA: seasonally adjusted

MOOCs are transforming tertiary education

The penetration of technology in education is likely to affect all stages, but particularly tertiary education. Already there is a proliferation of free, high-quality, Massive Open Online Courses (MOOCs) at university level. These are transforming the reach of tertiary education in scale and geography alike. Recorded materials and lectures enable millions of students to access 'star' academic teachers. Interactive (online) lectures have become possible.

Technology has challenges to overcome

There are issues to overcome, of course. Education is not just about lectures and exams. While basic levels of student / lecturer interaction can be maintained through virtual-based contact and feedback, online courses may struggle to provide deep mentoring or challenge. Standards need to be maintained, and tests marked. Credentialing is an issue (although the financial analyst (CFA) and accountancy (ACA) exams already manage credentialing systems that are international, cope with thousands of entrants, and are not-campus based). Online courses may also struggle to confirm student identity, or catch plagiarism. And students may well miss out on the social elements and extra-curricular activities that are so much part of a 'full educational experience'.

Nevertheless, the fact remains that new technologies are offering, and on a massive scale, ways to meet changing educational demands while at the same time reducing costs.

Technology will affect different universities differently

Against this backdrop of cost pressures and increasing penetration of technology, three main models can be distinguished:

1. **Oxbridge / Ivy League / Liberal arts model.** This offers real mentoring and a distinctive residential experience. These institutions may offer tutoring (and seminars) as their major selling point. Other universities too may choose to specialise in this way. For example, Stanford medical school is increasingly using class time for mentoring and interaction rather than for lectures. But this model will be ever-increasingly expensive.
2. **Online / distance learning model.** This model offers a flexible experience, with some options embracing a local light-touch tutor. Such institutions are expanding rapidly in the US – e.g. Coursera, edX, and Khan Academy. Online models are likely to develop, both through current providers (e.g. the UK's Open University) and new ones, such as FutureLearn. Costs are low.
3. **Mass University model.** This model, prevalent today in much of Europe and the US, is based on lectures to audiences that, even if large by lecture-room standards, are small by global standards. If students can gain access, free, to 'Superstar' academics, they will demand real mentoring too if they are to continue to pay the fees that such universities currently charge. Labour-intensive universities that fail to adapt could well become extinct, given that their (relative) costs will increase continually, while the (relative) quality of their offering will fall.

Picking universities

Universities' models are set to be revisited

As this generation's youth prepares for university this new academic year, it is perhaps worth pondering what education, and importantly universities, will look like when their children go to college. In the West, budgetary pressures over the coming decades are likely to have constrained public spending severely, including on education; in populous emerging economies, governments will have been striving to educate huge numbers in the most cost-effective ways.

Mass universities are likely to be hollowed out

Our judgement is that the high-end residential model, with its focus on close tutoring, is likely to survive. But, increasingly expensive, it will serve only a minority of students. Online models will have developed considerably, on the basis of containing costs. The mass university sector, however, is likely to have withered, and universities that have not adapted will have disappeared.

The next test

Nothing is certain; but there are three particular developments to 'watch for':

- First, top global universities offering an increasingly differentiated residential experience, possibly coupled with an online offering. Residential and online products from the same university may be differentiated through price and quality.
- Second, students baulking at paying top dollar for middle-ranking universities; and potentially choosing the top universities' (cheaper) online models instead.
- Third, bodies that provide assessment (e.g. Pearson) and online platform providers (e.g. 2U) solving credentialing issues. ■

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[1] See OECD, 2013. *Education at a Glance 2013 – OECD Indicators.* http://dx.doi.org/10.1787/eag-2013-en Indicator A1 p. 26 and Table 1.4a p. 39