

Universities: the twin challenges of fiscal austerity and technological change

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ABSTRACT. University is often regarded as a public good, although it hardly conforms to the technical definition. In the post-war period, universities became primarily social goods, largely funded through the budget. This traditional approach is subject to inevitable revision. Pressures in public finances in advanced countries and demographic factors in emerging economies require different funding models, based on the recognition that university education represents also a private benefit to beneficiaries. The application of ICT technology to tertiary training represents a twin revolution: a perishable service can be made available endlessly and everywhere; the cost frontier can be drastically optimised. Intelligent application of new technologies and blended models can bring about a Schumpeterian process of creative destruction and revolutionise the existing university models to create new diversified paradigms of higher education, which extend to society as a whole.

KEYWORDS: *Commodification, Distance learning, Heutagogy, Higher education, Massification, Online, Policy, Reification*

The traditional model of higher education

In the traditional world, university is regarded as a public good and university teaching represents a public consumption/service.

To recall, pure public goods are non-rival and non-excludable (consumption of these goods does not reduce the quantity available for others; nobody can be excluded from consumption, irrespective of whether they pay/not pay for them). Put it differently, the cost of providing it to a marginal individual is zero. Pure services are perishable and therefore they cannot be stored: university lessons represent in principle a once and for all process.

It is already clear that higher education hardly conforms to the strict definition of public goods. In theory, university education may be regarded as a mixed public good. Primary education, which is

in general compulsory, may instead be viewed fundamentally as a public good.

Other examples of pure public goods, which approximate the theoretical concepts outlined, can be identified as: the *democratic trias* (Parliament, Government and Judiciary Power – Montesquieu, 1748), national defence, law enforcement, public expenditure on key capital infrastructures, environment preservation (Figure 1 and Masera, 2013).

Market failure justifies public solutions to prevent under allocation of resources and/or under production of goods with respect to social optimum levels.

Pure public goods production (as defined above) can be estimated in a range of 5-10% of total GDP in most advanced countries. Public expenditure (including higher education, but excluding transfer payments) ranges between 15% and 25% of GDP (see Table 1); total public expenditure ranges between 40% and over 50% (see Table 2).

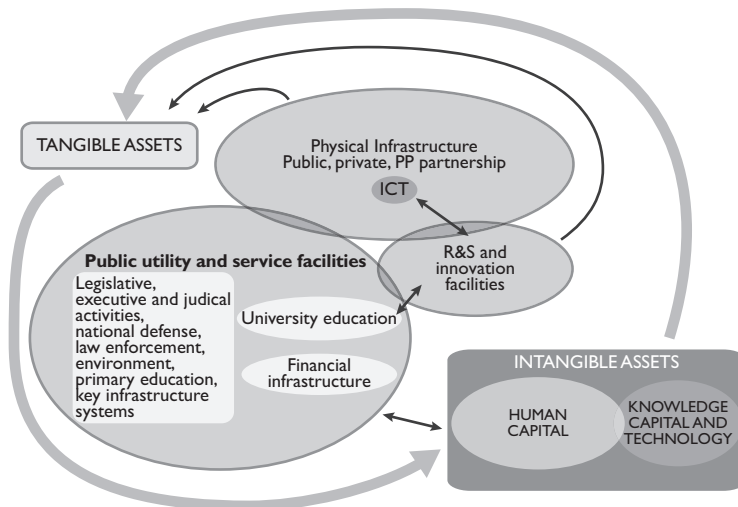


Figure 1. Public goods: narrow definition

Table 1. Final consumption expenditure of general government (percentage of GDP)
f=forecast
Source: Eurostat, data extracted o 2 July 2013

| Geo/time | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 (f) |
|----------------------------------|------|------|------|------|------|------|------|------|------|------|----------|
| EU (27 countries) | 20.8 | 20.7 | 20.8 | 20.7 | 20.3 | 20.9 | 22.5 | 22.2 | 21.7 | 21.7 | 21.8 |
| Euro area (changing composition) | 20.5 | 20.4 | 20.5 | 20.3 | 20 | 20.6 | 22.3 | 22 | 21.5 | 21.5 | 21.6 |
| EURO area (17 countries) | 20.5 | 20.4 | 20.5 | 20.3 | 20 | 20.5 | 22.3 | 22 | 21.5 | 21.5 | 21.6 |
| Belgium | 22.9 | 22.5 | 22.7 | 22.4 | 22.2 | 23.1 | 24.7 | 24.2 | 24.4 | 24.9 | 25.1 |
| Bulgaria | 19.9 | 19.4 | 18.3 | 18 | 16.7 | 16.6 | 16.3 | 16.2 | 15.7 | 15.5 | 16 |
| Czech Republic | 22.7 | 21.5 | 21.4 | 20.7 | 19.8 | 19.7 | 21.5 | 21.3 | 20.7 | 20.8 | 20.9 |
| Denmark | 26.5 | 26.5 | 26 | 25.9 | 26 | 26.5 | 29.8 | 28.9 | 28.4 | 28.6 | 28.7 |
| Germany | 19.3 | 18.9 | 18.8 | 18.4 | 17.9 | 18.3 | 20 | 19.5 | 19.3 | 19.5 | 19.9 |
| Estonia | 18.3 | 17.6 | 17.2 | 16.2 | 16.4 | 19.3 | 22.1 | 20.9 | 19.5 | 19.6 | 19.4 |
| Ireland | 16.1 | 16.4 | 16.3 | 16.5 | 17.2 | 19.2 | 20.4 | 19.2 | 18.4 | 17.6 | 16.9 |
| Greece | 17.1 | 17.2 | 18.1 | 17.1 | 17.8 | 18.1 | 20.5 | 18.3 | 17.4 | 17.8 | 17.2 |
| Spain | 17.3 | 17.8 | 18 | 18 | 18.3 | 19.5 | 21.3 | 21.4 | 20.9 | 20.1 | 20 |
| France | 23.8 | 23.8 | 23.8 | 23.5 | 23.1 | 23.3 | 24.8 | 24.9 | 24.5 | 24.7 | 25 |
| Croatia | 19.1 | 19.2 | 19 | 18.8 | 19.2 | 18.8 | 20.2 | 20.1 | 19.8 | 19.8 | 19.4 |
| Italy | 19.5 | 19.7 | 20.1 | 20 | 19.5 | 20 | 21.4 | 21.1 | 20.4 | 20.1 | 19.7 |
| Cyprus | 19.8 | 17.9 | 18 | 18.4 | 17.5 | 18 | 20.1 | 20 | 20.1 | 20.1 | 20.1 |
| Latvia | 21.8 | 19.8 | 17.8 | 16.8 | 17.8 | 20 | 19.6 | 18.4 | 17.7 | 15.3 | 15.1 |
| Lithuania | 19.7 | 19.3 | 18.6 | 19.1 | 17.8 | 19.2 | 21.9 | 20.4 | 18.7 | 17.6 | 17.1 |
| Luxembourg | 16.4 | 16.9 | 16.5 | 15.4 | 14.8 | 15.5 | 17.5 | 16.7 | 16.4 | 16.9 | 17 |
| Hungary | 23.5 | 22.4 | 22.6 | 23 | 21.6 | 21.8 | 22.7 | 21.9 | 20.8 | 20.3 | 20.3 |
| Malta | 19.6 | 20.1 | 19.1 | 19.4 | 18.7 | 20.5 | 20.7 | 20.4 | 20.5 | 21.3 | 21.3 |
| Netherlands | 24.5 | 24.2 | 23.7 | 25.1 | 25.2 | 25.7 | 28.6 | 28.4 | 27.9 | 28.4 | 28.5 |

| Geo/time | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 (f) |
|---|------|------|------|------|------|------|------|------|------|------|-------------|
| Austria | 18.7 | 18.4 | 18.4 | 18.3 | 18 | 18.7 | 19.8 | 19.4 | 18.8 | 18.8 | 18.8 |
| Poland | 18.1 | 17.6 | 18.1 | 18.3 | 17.9 | 18.5 | 18.5 | 18.9 | 18 | 17.9 | 17.9 |
| Portugal | 20 | 20.3 | 21.1 | 20.5 | 19.8 | 20.1 | 22.1 | 21.6 | 20 | 18.3 | 18.9 |
| Romania | 19.3 | 16.3 | 17.4 | 16.7 | 16 | 16.9 | 18.5 | 16.3 | 15 | 15.7 | 15.5 |
| Slovenia | 19 | 18.8 | 19 | 18.8 | 17.3 | 18.1 | 20.1 | 20.7 | 20.8 | 20.6 | 20.3 |
| Slovakia | 20.4 | 19 | 18.3 | 18.8 | 17.1 | 17.5 | 19.9 | 19.3 | 18 | 17.6 | 17.1 |
| Finland | 22.1 | 22.2 | 22.5 | 22.2 | 21.5 | 22.5 | 25.2 | 24.7 | 24.4 | 24.8 | 25.2 |
| Sweden | 27.3 | 26.5 | 26.2 | 26 | 25.5 | 26.1 | 27.7 | 26.7 | 26.4 | 26.9 | 26.9 |
| United Kingdom | 20.3 | 20.8 | 26.2 | 26 | 25.5 | 26.1 | 27.7 | 26.7 | 26.4 | 26.9 | 26.9 |
| Iceland | 26 | 25 | 24.6 | 24.4 | 24.2 | 24.8 | 26.5 | 26 | 25.4 | 25.5 | 25.3 |
| Norway | 22.5 | 21.2 | 19.7 | 18.9 | 19.3 | 19.1 | 22.3 | 22 | 21.5 | 21.3 | 21.5 |
| Switzerland | 12 | 11.8 | 11.6 | 11.1 | 10.7 | 10.4 | 11.2 | 11 | 11.1 | 11.2 | 11.3 |
| Montenegro | 26.8 | 26.3 | 29.9 | 27 | 20.1 | 22.6 | 22.2 | 23.4 | 22.1 | 21.2 | 20.1 |
| Former Yugoslav republic of Macedonia | 20.3 | 19.6 | 18.4 | 18.1 | 17.1 | 18.2 | 19.1 | 19.1 | 18.3 | 18.9 | 18.5 |
| Turkey | 12.2 | 11.9 | 11.8 | 12.3 | 12.8 | 12.8 | 14.7 | 14.3 | 13.9 | 14.8 | 15.6 |
| United States | 15.8 | 15.7 | 15.7 | 15.6 | 15.8 | 16.7 | 17.6 | 17.6 | 17.1 | 16.5 | 15.9 |
| Japan | 18.3 | 18.2 | 18.4 | 18.2 | 18.1 | 18.6 | 19.9 | 19.7 | 20.4 | 20.5 | 20.6 |

Table 2. Government expenditure, EU 27, 2012 (percentage of GDP)
Data ranked in descending order according to the average of total revenue and expenditure.
Source: Eurostat, data extracted on 29 April 2013

| Total general governmental expenditure | |
|--|------|
| EU-27 | 45.4 |
| Euro area | 46.2 |
| Denmark | 55.5 |
| Finland | 53.7 |
| France | 51.7 |
| Belgium | 50.8 |
| Sweden | 51.3 |
| Austria | 48.7 |
| Greece | 44.7 |
| Italy | 47.7 |
| Netherlands | 46.4 |
| Hungary | 46.5 |
| Slovenia | 45.0 |
| United Kingdom | 42.2 |
| Germany | 45.2 |
| Portugal | 41.0 |
| Cyprus | 40.0 |
| Luxembourg | 42.1 |
| Czech Republic | 40.1 |
| Malta | 40.5 |
| Spain | 36.4 |
| Estonia | 40.2 |
| Poland | 38.4 |
| Ireland | 34.6 |
| Latvia | 35.2 |
| Bulgaria | 34.9 |
| Slovakia | 33.1 |
| Romania | 33.5 |

| Total general governmental expenditure | |
|--|------|
| Lithuania | 32.9 |
| Norway | 57.0 |
| Iceland | 43.1 |
| Switzerland (2) | 34.3 |

Total public spending on education in advanced countries represents between 5% and 8% of GDP. But, this includes primary education and capital expenditure. University spending in OECD countries amounts therefore to some 1.1% of GDP; private spending is equal to 0.5% (but, in the US, the percentage is 2.8%, compared to 1.5 in the EU). The average conceals significant differences notably in respect of private funding, which is as high as 1.8% in the US compared to 0.3% in EU countries (Table 3). The high proportion of private finance in the US is largely due to student debt financing. Outstanding student loans are over \$1 trillion (more than all the credit card debt). The combination of record unemployment of recent college graduates and very high tuition fees led in 2013 default rate on students loans to reach a high of 17% (and this form of debt is not liable to bankruptcy). All this helps explain the acute difficulties of high level education in the US and the interest in open online education (Uvalić-Trumbić and Daniel, 2013).

Table 3. Expenditure on educational institutions as a percentage of GDP, by source of fund and level of education (2010)

1. Including public subsidies to households attributable for educational institutions, and direct expenditure on educational institutions from international sources.
 2. Net of public subsidies attributable for educational institutions.
 3. Year of reference 2009.
 4. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
 5. Year of reference 2011.
- Source: OECD (2013).

| | Notes | Pre-primary education | | | Primary, secondary and post-secondary non-tertiary education | | | Tertiary education | | | Total all levels of education | | |
|----------------|-------|-----------------------|-----------------|--------------|--|-----------------|--------------|--------------------|-----------------|--------------|-------------------------------|------------------|---------------|
| | | Public1 (1) | Private2 (2) | Total (3) | Public1 (4) | Private2 (5) | Total (6) | Public1 (7) | Private2 (8) | Total (9) | Public1 (10) | Private2 (11) | Total (12) |
| OECD | | | | | | | | | | | | | |
| Australia | | 0.06 | 0.05 | 0.11 | 3.7 | 0.6 | 4.3 | 0.8 | 0.9 | 1.6 | 4.6 | 1.5 | 6.1 |
| Austria | | 0.6 | n. | 0.61 | 3.5 | 0.1 | 3.6 | 1.5 | 0.1 | 1.5 | 5.6 | 0.2 | 5.8 |
| Belgium | | 0.62 | 0.02 | 0.64 | 4.3 | 0.1 | 4.4 | 1.4 | 0.1 | 1.4 | 6.4 | 0.2 | 6.6 |
| Canada | 3.4 | x(4) | x(5) | x(6) | 3.4 | 0.4 | 3.9 | 1.5 | 1.2 | 2.7 | 5.0 | 1.6 | 6.6 |
| Chile | 5 | 0.53 | 0.11 | 0.64 | 2.7 | 0.7 | 3.4 | 0.7 | 1.7 | 2.4 | 3.9 | 2.5 | 6.4 |
| Czech Republic | | 0.47 | 0.04 | 0.51 | 2.6 | 0.3 | 2.8 | 1.0 | 0.2 | 1.2 | 4.1 | 0.6 | 4.7 |
| Denmark | 4 | 0.93 | 0.14 | 1.08 | 4.7 | 0.1 | 4.8 | 1.8 | 0.1 | 1.9 | 7.6 | 0.4 | 8.0 |
| Estonia | | 0.45 | 0.01 | 0.45 | 3.9 | 0.1 | 3.9 | 1.3 | 0.3 | 1.6 | 5.6 | 0.4 | 6.0 |
| Finland | | 0.40 | 0.04 | 0.44 | 4.1 | n. | 4.1 | 1.9 | 0.1 | 1.9 | 6.4 | 0.1 | 6.5 |
| France | | 0.68 | 0.05 | 0.72 | 3.8 | 0.3 | 4.1 | 1.3 | 0.2 | 1.5 | 5.8 | 0.5 | 6.3 |
| Germany | | m | m | m | m | m | m | m | m | m | m | m | m |
| Greece | | m | m | m | m | m | m | m | m | m | m | m | m |
| Hungary | | 0.70 | m | m | 2.8 | m | m | 0.8 | m | m | 4.6 | m | m |
| Iceland | | 0.73 | 0.23 | 0.96 | 4.7 | 0.2 | 4.9 | 1.1 | 0.1 | 1.2 | 7.0 | 0.7 | 7.7 |
| Ireland | | m | m | m | 4.6 | 0.2 | 4.8 | 1.3 | 0.3 | 1.6 | 6.0 | 0.5 | 6.4 |
| Island | | 0.66 | 0.18 | 0.84 | 4.0 | 0.3 | 4.3 | 1.0 | 0.7 | 1.7 | 5.9 | 1.5 | 7.4 |

| | Notes | Pre-primary education | | | Primary, secondary and post-secondary non-tertiary education | | | Tertiary education | | | Total all levels of education | | |
|-----------------|-------|-----------------------|----------|-------|--|----------|-------|--------------------|----------|-------|-------------------------------|----------|-------|
| | | Public1 | Private2 | Total | Public1 | Private2 | Total | Public1 | Private2 | Total | Public1 | Private2 | Total |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Italy | | 0.44 | 0.04 | 0.47 | 3.1 | 0.1 | 3.2 | 0.8 | 0.2 | 1.0 | 4.3 | 0.4 | 4.7 |
| Japan | 4 | 0.10 | 0.12 | 0.22 | 2.8 | 0.2 | 3.0 | 0.5 | 1.0 | 1.5 | 3.6 | 1.5 | 5.1 |
| Korea | | 0.15 | 0.12 | 0.27 | 3.4 | 0.9 | 4.2 | 0.7 | 1.9 | 2.6 | 4.8 | 2.8 | 7.6 |
| Luxembourg | | 0.75 | 0.01 | 0.76 | 3.4 | 0.1 | 3.5 | m | m | m | m | m | m |
| Mexico | | 0.54 | 0.10 | 0.64 | 3.4 | 0.6 | 4.0 | 1.0 | 0.4 | 1.4 | 5.1 | 1.1 | 6.2 |
| Netherlands | | 0.41 | 0.01 | 0.42 | 3.7 | 0.4 | 4.1 | 1.3 | 0.5 | 1.7 | 5.4 | 0.9 | 6.3 |
| New Zealand | | 0.53 | 0.09 | 0.62 | 4.4 | 0.6 | 5.1 | 1.0 | 0.5 | 1.6 | 6.0 | 1.3 | 7.3 |
| Norway | | 0.43 | 0.08 | 0.51 | 5.1 | m | m | 1.6 | 0.1 | 1.7 | 7.5 | m | m |
| Poland | | 0.52 | 0.14 | 0.66 | 3.4 | 0.2 | 3.7 | 1.0 | 0.4 | 1.5 | 5.0 | 0.8 | 5.8 |
| Portugal | | 0.41 | n | 0.41 | 3.9 | n | 3.9 | 1.0 | 0.4 | 1.5 | 5.4 | 0.4 | 5.8 |
| Slovak Republik | 4 | 0.40 | 0.08 | 0.48 | 2.8 | 0.3 | 3.1 | 0.7 | 0.3 | 0.9 | 4.0 | 0.6 | 4.6 |
| Slovenia | | 0.58 | 0.15 | 0.74 | 3.6 | 0.3 | 3.9 | 1.1 | 0.2 | 1.3 | 5.2 | 0.7 | 5.9 |
| Spain | | 0.69 | 0.25 | 0.94 | 3.0 | 0.3 | 3.3 | 1.1 | 0.3 | 1.3 | 4.8 | 0.8 | 5.6 |
| Sweden | | 0.71 | n | 0.71 | 4.0 | n | 4.0 | 1.6 | 0.2 | 1.8 | 6.3 | 0.2 | 6.5 |
| Switzerland | | 0.19 | m | m | 3.6 | 0.5 | 4.0 | 1.3 | m | m | 5.2 | m | m |
| Turkey | | 0.04 | m | m | 2.5 | m | m | m | m | m | m | m | m |
| United Kingdom | | 0.32 | n | 0.32 | 4.8 | n | 4.8 | 0.7 | 0.6 | 1.4 | 5.9 | 0.6 | 6.5 |

Public spending: current and capital

A relevant distinction in the analysis of public spending is the acquisition of goods and services for current consumption and government acquisition of capital assets (fixed capital formation), such as infrastructure spending and investment in universities of non-recurrent nature. Spending on intangibles (such as education and research facilities) can also be included, provided that the assets acquired have a life of more than 1 year.

A distinction the two types of expenditures would require dual budgetary accounting (as adopted in many European countries during the 30's. In practice, this analytical and accounting separation has been abandoned: recurrent and capital budgets are in general integrated. Accordingly, the statistics to which reference must be made blur the two concepts.

A fundamental reason why separate analysis of government expenditures has been abandoned lies in the difficulty of appropriate accounting of the "value" of investment outlays. This is due to inefficiencies, waste, corruption, ... (Arslanalp et al., 2011; Masera, 2013).

In spite of these difficulties, the theoretical distinction is of paramount importance and cannot be neglected. Reference can be made to the simple representation of the production possibility frontier.

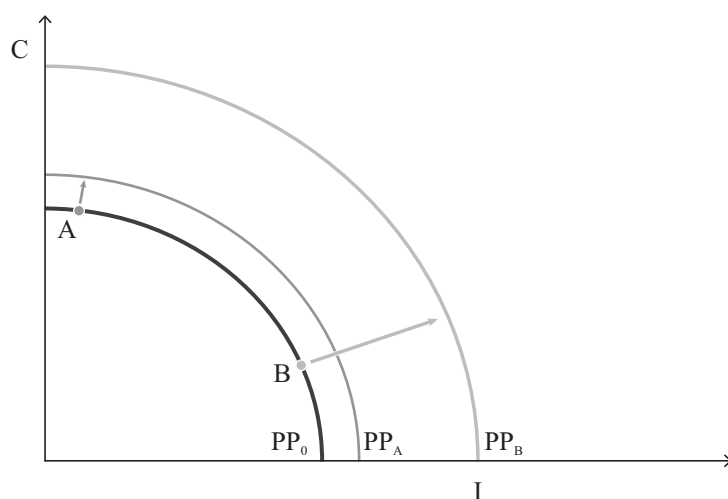


Figure 1. The production possibility frontier

Starting from PP_0 , two alternatives (A and B) are depicted. In case A, consumption today is privileged at the cost of less economic growth tomorrow. Under B, instead, investment today becomes more economic growth in the future (an upward shift of the PP curve).

In order to achieve the growth potential, it is fundamental to insure the quality of public investment and hence the effective (tangible/intangible) capital accumulation. Available international evidence for physical infrastructure investment shows that up to 50% of government outlays defined as investment may represent pure waste (Arslanalp et al., 2011; Banca d'Italia, 2011).

On the other hand, good capital expenditures on education (human capital), research and development (the knowledge triangle) and innovation plays a crucial role not only in capital accumulation, but also in raising total factor productivity (TFP) (Hulten et al., 2001).

University teaching and fiscal austerity in developed countries

As was indicated above, education at university does not fulfil the requirements of public goods. However, in the post-war period, in all advanced countries, universities became social goods and were largely funded through the budget.

The pressure on public finances, and notably on public debt sustainability, has led in most countries (and notably in Europe) to gradual, but significant cuts in university spending. At the same time, the social justification for universities has come under growing scrutiny. The emphasis has shifted towards university education as a private benefit to individuals, who should therefore largely fund their high level training.

Our societies are therefore facing an important dilemma which requires the solution to a trade-off problem. If the emphasis becomes suddenly and exclusively on reducing cost for university teaching, basic research and support to research and development, there is an evident risk of depriving the system from its ability to achieve sustainable growth. This would ultimately undermine the very objective of debt to income sustainability. The choice between the appropriate level of public spending and an effective process of expenditure reduction becomes crucial.

These issues affect also emerging economies. This is not due to unsustainable debt to income ratios, but to the need to contain increases in total government expenditure. Demographic and social forces swell the number of potential university students beyond what are generally regarded as acceptable levels in the short-term. An interesting reference is to the Nigerian experience, where some 2 million prospective students compete for about 200 000 places domestically available.¹

The competitive environment of university education is also under pressure because of the growing relevance of “excellent” high level training/research centres on a worldwide basis. In this scenario, government expenditure too is increasingly focused on support for world class domestic university/research centres to foster human capital accumulation, and the competitive advantage of the national economy (Capano and Meloni, 2013). These trends – which are common to advanced and top emerging economies – clearly exacerbate funding and cost constraints for “average” universities.

University models: ICT and regulation

As was argued, total productivity growth fundamentally depends on efficient investment in high level teaching, research, innovation and technological advance. The university models are at the centre of this process of change with the development of online learning. The application of ICT technologies to universities has created new challenges and opportunities and, therefore, new business models for higher education. What must be emphasised is that virtual campuses (see, for example <http://www.marconiuniversity.org/>) and teaching are a revolution in terms of traditional services and, therefore, university teaching. As indicated in neoclassical economics: “Services pass out of existence in the same instant that they come into it and are of course not part of the stock of wealth” (Marshall, 1920). The essence of e-teaching is instead that the lesson is electronically stored and can therefore be made available to the consumer endlessly and everywhere. The lessons are also subject to a constant critical assessment and review and, therefore, become in some ways part of the stock of knowledge. The change in the mode of transmission creates a new type of non-perishable good.

1. The largest number of graduate students belongs to China and India. The total university population of these two countries is expected over the next 50 years to increase to some 60 million (i.e. the total Italian population)

2, See for instance http://ec.europa.eu/research/industrial_technologies/ppp-in-research_en.html.

3, See Table B2.3., OECD (2013).

The true issue becomes that of combining the cost/funding pressure and the use of technology to foster efficient models of online and blended learning. Inevitably, the mix between private and public in the provision of university teaching/learning will change. It is not yet completely clear which will be the winning business models.

In any event, the public good approach will have to accept the challenges from private profit and from the need to attract increased financial resources from the private sector itself, as is evidenced by the investments already made in tertiary education by private equity funds in the US and the UK. The era of PPP (Private-Public Partnership)² has begun also in university education (joint public and private partnership, notably in funding)³ As in many other sectors, if the public pulls back from direct provision of certain activities, it is fundamental that it will play a role as intelligent forward looking “regulator” of the system. The rules should be, in so far as possible, simple and should lay the background for a sound competition between the emerging business models. Higher education experiences significant changes, which will be shaped by associated regulatory drivers, with a view to ensuring/preserving the quality of the services provided.

As has been correctly underlined: The regulatory framework impacting e-learning can be viewed as a complex of attempts to balance the promotion of perceived benefits of the new technology with the protection of established forms, provisions, and institutional norms. Regulation is generally driven by public policy goals; in e-learning, as in other fields, these goals frequently collide.

VS

| | |
|--|---|
| 1. The encouragement of innovation, change, and competition in higher education. | 2. The desire to continual quality, with quality defined with reference to traditional notions of higher education (raising barriers to entry). |
| 3. The desire to diversify capital investment in higher education. | 4. The desire to protect existing institutions and avoid “commercialization”. |
| 5. The establishment of an enabling infrastructure (technological, legal, policy, financial) for new forms of education. | 6. Unwillingness to divert limited resources from already resource-poor mainstream higher education provision. |
| 7. The promotion of institutional autonomy, diversity, and competition. | 8. The preservation of centralized control, coordination, and planning. |
| 9. The desire to rationalize higher education to achieve tighter focus and greater efficiency. | 10. The desire to maintain traditional notions of scope, scale, and content. |

Source: Harley and Lawrence (2007).

Traditional public sector university professors and government officials in University Ministries often resist the revolution from online higher education systems. This is not necessarily due to the desire to preserve positions and roles. Bayesian (a priori) probability approaches help explain that subjective probabilities may hinder an objective assessment/evaluation of the new models, their implications and possible developments.

Is e-learning a low cost/low quality proposition?

Many observes/researchers tend to attribute to e-learning a low cost, low quality character. In particular, it is often argued that online teaching/learning models are intrinsically different and necessarily inferior compared to the traditional high quality systems. “Online institutions (...) are best suited to meet the needs of self-directed and adult learners. They do not address the value propositions that meet the needs of younger students or those without substantial educational preparation, and they do not meet any of the research-oriented value propositions of traditional universities” (Rubin, 2013). The corollary of this approach is that

good traditional universities are best suited for research and developing new knowledge.

In the perspective of an increased importance of online universities, the argument has been advanced that teaching and research should be separated. E-universities should focus on standardised courses aimed at those who want to enter the workforce with quality professional training. Face to face instruction would instead best suited for students who want to enter universities and research centres (Christensen, Eyring, 2011). The university model would thus be differentiated: relatively few research universities would coexist with a large number of teaching universities, which would increasingly adopt e-teaching systems.

These arguments carry some weight, but they must be carefully assessed before endorsement. First of all, in the new university scenarios blended models may represent a superior approach taking into account effectiveness and cost efficiency: the cost structure of efficient e-teaching processes should be fully acknowledged. As to research, the potential of network building is very large in bringing together, in new forms and environments, researchers on a www basis. The current emphasis on promoting and improving research ranking on a university/department basis may well be challenged by an active interplay of researchers in an international/worldwide network. An interesting example in this respect is offered by the European Research Area (ERA) model. ERA represents a unified research area open to the world based on the European single market, in which researchers, scientific knowledge and technology circulate freely. Through ERA, the Union and its Member States should strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address important research challenges.³

3. http://ec.europa.eu/research/era/index_en.htm

Conclusions

To sum up, cost pressures in advanced economies and demographic factors in the emerging world, together with the quest for excellent research centres, concur in shaping new models (and business models) for universities and colleges. There is an evident need for a redefinition of the roles between the private and the public sector. While compulsory education at primary and secondary levels

will in general continue to be offered as a public good, university education is increasingly subject to a different combination of fees and public support. Overall, government intervention will decline, but within a process characterised by a shift from direct funding of universities to tax relief, family allowances, grants and low finance cost for students, scholarships. The government sector and/or independent authorities will in any event have an enhanced role in quality preservation. The reduction of the cost of current face-to-face modes of tertiary education is inevitable. The issue becomes that of delivering optimal e-learning solutions by avoiding the dangers of massification. ICTechnology is a crucial enabling factor to shape innovative, effective and efficient responses to the new challenges and to emerging university models. Account must be taken that tertiary education is faced with new complex functions/missions to be performed. For instance, at EU level, the so-called European High Education AREA (EHEA) identifies the following main functions: (i) formation of human capital; (ii) requalification of existing human capital (permanent training); (iii) production of knowledge through scientific research; (iv) exchange of new knowledge and transfer of research results to the economic system; (v) contribution to the international exchange/accumulation of human capital; (vi) contribution to local development (Education, Audiovisual and Culture Executive Agency, The European Higher Education Area in 2012: Bologna Process Implementation Report). The task of this conference in Athens is to offer ideas and guidelines, looking back at the extraordinary initial models of high level training developed in ancient Greece. The reference to classical Greek civilisation is highly relevant also in the perspective of online college teaching.

A well-known, often cited, early example of MOOCs (Massive Open Online Courses) in the US is the course on the Ancient Greek Hero by a senior Professor of Harvard University, Gregory Nagy (Director of the Center for Hellenic Studies). Professor Nagy has taught his course (which includes references to Plato's Dialogues) at Harvard for over 35 years. In 2013, he decided to launch a pioneering e-learning initiative, Harvardx, through this MOOC platform. His lessons are offered freely to online students. Enrolment exceeded over 30 000 (www.edx.org).

Nathan Heller (2013), in a recent paper in *The New Yorker*, makes another interesting reference to ancient Greek higher education,

indeed to Socrates himself, in analysing online college education. Professor Fisher of the Harvard Law Schools runs in parallel his course on a traditional basis and online: “Each week, the law-school class has two Socratic sessions on campus. The online students, meanwhile, have ‘sections’ on the Web, taught by the teaching assistants. Every other week, the whole group convenes, in person or remotely, for an evening session at the law school. Artists, writers, and other copyright holders visit and speak about their legal concerns. The teaching assistants are in the room, but also online with their Web students, who are watching the event through a Webcast. The teaching fellow is monitoring this discussion, participating in it, and then forwarding questions into the room... So in the room there are two screens: one screening questions from the Harvard Law School students, and the other featuring the questions that are curated by the teaching fellows”. As these examples demonstrate, new technologies can bring about a Schumpeterian process of “creative destruction” (Schumpeter, 1942) and revolutionise the existing university models, to create new diversified paradigms of higher education, which extend to society as a whole, as is argued in a companion paper also presented at this GUIDE conference by Gigante (2013).

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Sintesi

Le università debbono oggi affrontare la doppia sfida dell'austerità fiscale e dei rapidi mutamenti tecnologici, che le costringe al superamento del paradigma tradizionale e ad un'integrale riconfigurazione.

Nel contributo si analizza la pluralità di fattori – la crescente richiesta, in tutto il mondo, di centri di ricerca di eccellenza; l'insostenibilità dei costi nei Paesi avanzati; la componente demografica nelle economie emergenti – che influenza significativamente lo sviluppo di nuovi modelli, non solo economici, per l'Higher Education; e contemporaneamente si sottolinea l'urgenza di ridefinire e ridistribuire i ruoli fra il settore pubblico e quello privato.

Infatti, se l'istruzione primaria e secondaria obbligatoria continuerà per lo più ad essere garantita dallo Stato come bene pubblico, l'istruzione terziaria verosimilmente dipenderà sempre più dalla reciproca combinazione e dall'equilibrio variabile fra due componenti fondamentali, le tasse universitarie e il sostegno governativo. Complessivamente però l'intervento pubblico diminuirà, senza interrompersi bruscamente, ma attraverso il passaggio graduale dal finanziamento diretto degli atenei al progressivo incremento degli sgravi fiscali, delle detrazioni familiari, delle sovvenzioni e agevolazioni per gli studenti, delle borse di studio.

In generale risulta pertanto inevitabile, già nel breve periodo, la riduzione dei costi dei modelli di Higher Education in presenza, tuttora prevalenti. L'obiettivo precipuo diviene così quello di assicurare soluzioni e-learning di qualità, scongiurando i rischi connessi alla massificazione.

In tale contesto, rivestono un'importanza determinante da un lato gli organismi governativi e le autorità indipendenti, che possono e debbono garantire la qualità dell'insegnamento; dall'altro le nuove tecnologie, le uniche in grado di dare risposte innovative, efficaci ed efficienti alle sfide odierne, ai modelli accademici emergenti, alle complesse funzioni che l'istruzione viene oggi, per la prima volta, ad assolvere.

In altre parole, l'ICT costituisce l'elemento realmente rivoluzionario, il quale, innescando un processo schumpeteriano di distruzione creatrice, può trasformare radicalmente l'attuale panorama universitario e i suoi tipi, e dar vita a forme inedite e diversificate, capaci di penetrare e coinvolgere in profondità le società nel loro complesso.

Nel prospettare scenari futuri e proposte innovative, si riaffaccia prepotentemente il paradigma educativo dell'antica Grecia, che appare ancora straordinariamente fecondo: quello socratico e platonico in particolare, da tempo peraltro insistentemente presente, con sorprendente vitalità, nei MOOC di Harvard.