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## Skills and Education – Is Europe on the Right Way?

### 1 The Rise of the Knowledge Economy

Skills and education, or briefly knowledge, are replacing physical capital as the main driver of economic growth. There is a variety of *macroeconomic theories* analyzing the importance of knowledge and calculating its overall economic return. A main difference exists between the neo-classical approach and the new-growth theory: the latter emphasizes relatively large positive effects of knowledge (defined as stock of human capital) on the overall growth rates, whereas neo-classical estimates are more modest. Whether the results of the new-growth theory are implausibly optimistic, see Sianesi and Van Reenen (2003), will not be discussed in this article. Yet it seems evident, even according to neo-classical estimates, that skills and education are highly productivity enhancing with economy-wide spill-overs.

What is missing in macroeconomic analyses of skills and education is the impact of the *structure of the educational system* on growth. An exception is Krueger and Kumar (2004). Their key finding is that most of the growth gap between Europe and the U.S.A. since the 1980s stems from differences in the educational system. According to these authors, the focus on vocational education held European countries, especially Germany and Italy, back. In contrast, general education, as provided in the U.S.A., makes it easier for firms to adopt new technologies. Krueger and Kumar (2004) argue that general education is needed if countries want to move from “catch up” or “imitation” strate-

gies to policies which foster innovation. “Frontrunner” strategies rely on the readiness of the workforce to accept new technologies. As a consequence, high participation rates in tertiary education seem to be of utmost importance for speeding up innovation and growth.

*Microeconomic analyses*, see Harmon et al. (2003), report a rate of return on schooling in the U.K. between 7% and 9% for men and between 9% and 11% for women. This result seems to be at the upper end of returns to schooling in Europe. Nordic countries appear to have lower average returns to schooling.

The Economist (2005) reports higher returns for tertiary education in the U.S.A. and U.K. than, e.g., in Germany and Italy. There the rates are higher than in the Scandinavian countries. Following the statistics provided by The Economist (2005), in the U.S.A. and U.K. the premium for tertiary education on earnings from employment, 25–64 years old, relative to upper secondary education, is nearly 100% (the income gets doubled), 60% in Germany and only 30–40% in Italy. Evidently the size of this premium influences the readiness of students to pay tuition fees or to engage in life long learning as an adult. So it is no surprise that for example in the U.S.A. high tuition fees exist and that about 5% of the 35–39 years old are enrolled in higher education programs. In Europe (EU-25) that latter figure is down to 1–2%, see European Commission 2006, table 3, p. 14). A wide gap between the U.S.A. and EU-25 in life long learning exists also for the 40–49 years old.

The emergence of the *knowledge economy* goes along with *increasing participation rates in tertiary education* and *intensified life long learning* (from “elite” to “mass” education). In advanced knowledge economies, participation rates in tertiary education may well exceed the level of 50% of an age cohort. Since they educate so many, universities need to care about the employability of their graduates.

Since knowledge plays an increasing role in the economy, with economy-wide spill-overs, education, especially higher education, is a *mixed good*, yielding private and social returns. The private returns on education justify economically that *tuition fees* are charged. Open issues are how high these fees should be and how far a system of stipends should reach the students. Countries in which tuition fees are paid demonstrate that charging fees will be accompanied by growing student consumerism.

Research and innovation become leading activities in knowledge economies, with basic research gaining relative importance; *research intensification* is not needed in all, but in some universities. This intensification will require, as U.S.A. examples show, that a comprehensive research university disposes of an annual budget of at least EUR 1 billion and organizes itself as an entrepreneurial university with well-defined strategies. Since the relative burden on the tax payer for financing higher education or research at universities will be reduced, new sources of revenues have to be found, influencing university missions and academic values.

## 2 The Globalization of Higher Education and Global University Rankings

In the next decade, the *globalization of higher education and research* will intensify due to the increased internationalization of the economies and due to the implementation of new technologies, especially in the field of the information and communication sector. New forms of global universities are already emerging: *open universities* stimulate education for masses of students without formal secondary school attainment; virtual universities, without much relying on physical infrastructure, reach out via internet; meta universities operate according to the MIT OpenCourseWare Initiative 1999 (“A transcendental, accessible, empowering, dynamic, communally constructed framework of open materials and platforms...” Charles M. Vest, 1999). Open universities, in particular, spread throughout the world: in Pakistan, the open university already counts 1.8 million students. Projects such as the Google Books Library Project (since December 2004) will, through the worldwide interconnectedness, reach more than 1 billion people.

Given these new vast opportunities of learning, higher education institutions will be increasingly confronted with the task of validating and branding knowledge.

To compete globally, universities need also a strong *regional base*. The areas in and around Boston or San Francisco, the rising regions around leading universities in Texas or Florida, as well as the European examples of Cambridge, Manchester or Barcelona demonstrate that universities should be part of a fast growing re-

gional clustering enhancing the culture and the impact of knowledge. The dynamics of innovation should have effects across all sectors, relying on modern infrastructure and being characterized by formal, but especially informal cooperation between universities, business and governments (Reichert, 2006).

In this regionally based climate of innovation, universities should switch from downstream strategies, which rely on exploiting existing knowledge, to *upstream strategies*. Upstream strategies consist in getting the best minds and the best infrastructure in targeted areas in which synergies between the university and other sectors of the region can be best achieved. Traditional, internally fragmented universities in Europe have difficulties in deciding on upstream strategies and in obtaining synergies through cooperation with other organisations. These universities tend to perpetuate existing structures and to oppose the reallocation of internal resources to targeted areas.

Not the systems of higher education in France, Germany or the U.K., but the U.S. “*hybrid system*”, with the old British college education as a base and competitive, structured Ph.D. programs on top, proved to be the most successful one in advancing the knowledge economy in the 20<sup>th</sup> century. The U.S. “*hybrid system*” allowed a massive expansion of student numbers (“*massification*”), research intensification within 250 to 300 research universities and the creation of a strong regional base for education and research activities. It thus paved the way for a diversification of universities with respect to missions and profiles. In the words of David Ward,

the president of the American Council on Education: the U.S. system proved to be democratic at the base and elitist at the top.

This massification of the system and this diversification of missions and profiles of U.S. universities was not driven by any federal plan but by autonomous institutions, either public or private (non-profit or for-profit). The system evolved as a consequence of the competition amongst universities. This competition was enhanced by the mobility of students and staff, and by the establishment of



competitive funding by federal grant or research institutions (NSF, NIH). Contrary to the federal level, U.S. states do a lot of planning of their own (e.g. California, Wisconsin). This creates a second level of competition: there is a fierce “*system competition*” among states. If the universities in California, for example, fall behind in national rankings, the state of California will come up with reforms of its university system and, presumably, with more money.

In recent years, the “*system competition*” has intensified amongst states in the world. *Global university rankings* (Times Higher Education Supplement, Newsweek, Shanghai) demonstrate how well Anglo-American universities are performing. So far, Asian countries, especially China,

Korea and Singapore, have given high attention to this “global system competition” and are on the point of investing huge sums in their university system. India, for example, aims at increasing the number of universities from about 300 in the year 2005 to 1500 in the year 2015 (Times Higher Education Supplement, April 27, 2007).

Europe’s reaction to the *rising importance of knowledge*, to the *globalisation* of higher education and research and to the *intensified “system competition”* amongst the states in the world is rather weak. An exception may be Germany’s “Exzellenzinitiative”. However, the European Commission (e.g. 2006, 2007) pointed out several times that actions are needed.

### 3 The European Reality

Many of Europe’s universities rightly claim to belong to the oldest institutions in their countries; the oldest university in Europe, the University of Bologna, dates back to 1088. Since their foundation universities have always pursued a broad range of missions. They have prepared their students for employment, enhanced knowledge through research, contributed to the social underpinning of the economy and acted as cultural institutions, mainly through the humanities. This richness of history, missions and values of European universities is unparalleled in the world and contributes to the high global esteem the university system of Europe still possesses.

Yet, the recent emergence of knowledge economies and the trends towards the globalization of higher education and research have put doubts on the effectiveness of the Euro-

pean university system. Knowledge has become too relevant to leave its production, its preservation and its transfer only to the traditional ways in which European universities have been operating in the past.

The term “*mass university*”, used for describing many European universities, highlights the ambivalent effects the emergence of the knowledge economy has had on them: on one hand, universities have experienced an enormous growth of the size of their institutions since World War II, especially in terms of student numbers. But, on the other hand, due to political conditions and ministerial rigidities, elitist attitudes and inertia within the institutions, and, of course, due to a lack of funding, universities in almost all European countries failed to cope with this growth in a demand oriented way.

Europe has a fully-fledged system of higher education. The EU-27 counts, at least, the same number of higher education institutions as the U.S.A. (about 4,000 institutions). Just counting entries, Europe (EU-27) has about as many institutions as the U.S.A. in the top 200 or top 500 of the university ranking lists. There are about 1,000 Ph.D. granting institutions (universities) in Europe. In the U.S.A., there is almost the same number. However, good doctoral programs and good basic research are definitely more concentrated in the U.S.A. than in EU-25.

Although Europe seems to be similar to the U.S.A., the main difference is that Europe’s universities still operate mostly in *nationally fragmented systems*. Many of them are still subject to the micromanagement by national ministries and lack clear gov-

ernance structures, a prerequisite for enabling them to become agents of change in more and more dynamic and open societies. Universities in Europe do not yet benefit from scale effects which a European area of higher education and research could easily provide. Universities are still mostly seen as institutions of a nation state only, not as institutions which have to reach beyond national borders and which have to excel in higher education and research at the global or, at least, European level.

Too many universities in Europe still follow the same “Humboldtian” idea of a comprehensive university, with a predetermined spectrum of subjects and with research done for its own sake only. A lack of diversification of missions and profiles is a consequence, often followed by illusions about the quality of their services. These illusions are made possible because universities in Europe are not forced to look beyond their nation states, and nation states, in general, avoid international comparisons of their universities, because those comparisons may trigger requests for reform and for more funding.

The *performance* of universities in Europe does not match the performance of U.S. universities. In the U.S.A., e.g., gross enrolment rates (all students irrespective of age as a percentage of the population in age group 20–24) reach 81%, compared to only 57% in the European Union, (European Commission, 2006, p. 13). The high U.S. number is a consequence of the high percentage of people studying within the age group 20–24, but also of the relatively high participation rates in life long learning beyond the age 24. Europe, on

average, should have 40% more students than it has now.

With respect to employability, the unemployment rate of the population aged 25–29 with tertiary education attainment is 8.5% in EU-25, but only 2.6% in the U.S.A., (European Commission, 2006, p. 13). This unemployment rate in Europe, however, is of different size regionally. Especially in France and Italy, for example, unemployment rates are well above the European average.

All in all there is an economic puzzle Europeans should think about:



Although in the U.S.A. higher proportions of the population study, unemployment rates of graduates are lower and graduates receive higher premiums on tertiary education. Hence the puzzle: In the U.S.A., the supply of graduates is relatively higher than in Europe, yet they are less unemployed and enjoy higher premiums on tertiary education attainment. So what went wrong in Europe?

Europe disposes of a broad research base, yet peak performance is too weak. For example in *mathematics*, a subject not relying on costly infrastructure and not dependent on native languages, the research performance of Europe clearly falls behind the one in the U.S.A. Out of the 300 most highly cited researchers in mathematics (ISI, 2007) about two-thirds

are affiliated with U.S. universities. Only 6–7% come from France, 6% from the U.K. and only 2.3% from Germany. About half of the U.S. top researchers in mathematics were born outside the U.S.A., proving the global attractiveness of the U.S. system, and leading to a brain drain for the rest of the world.

Similar results can be derived in the other fields of the sciences, e.g. molecular biology. In the social sciences or in economics the situation is not different.

#### **4 The Europe of Knowledge: the European Higher Education Area and the European Research Area**

As already stated, Europe's Universities still operate mostly in small national systems or sub-systems, which results in a lack of recognition of foreign degrees and in low levels of trans-national or trans-sectoral mobility of researchers and students. As a consequence, the creation of the Europe of Knowledge, comprising the European Higher Education Area (Bologna Process) and the European Research Area, is a goal which should be pursued with great efforts at the European level and which should bring first results by 2010. To improve their performance, European universities need the scale effects and the competitive pressures a Europe of Knowledge could provide.

In London, in May 2007, during the ministerial conference, all "Bologna" states and Europe's universities reaffirmed their commitment to the Bologna process. Universities are certainly cognisant that the Bologna Process has to reach beyond the introduction of a common study archi-

ture in Europe. It requires a fundamental reconsideration of the curriculum in every discipline, to ensure a student-centred approach and the achievement of appropriate learning outcomes. Again and again, universities have urged governments to give them the autonomy to undertake the Bologna reforms appropriately. Since the Trend IV report of the European University Association (2005) it has become evident that the quality of reform activities correlates positively with the degree of institutional autonomy of universities.

The European Research Area is not yet a reality. On January 1, 2007, with the introduction of the 7<sup>th</sup> Framework Programme, the European Research Council (ERC) was launched. Universities warmly welcome the ERC, hoping that through the ERC a true European dimension with respect to research excellence in Europe might be reached. The European Research Area, however, should also include a trans-national labor market for researchers in Europe. The implementation of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, adopted by the Commission in March 2005, and since then supported by many universities throughout Europe, is a first step into this direction. However, further steps are needed. The Green Paper by the European Commission (2007) re-launches the debate on further steps and provides new perspectives on the European Research Area. For 2008, the European Union intends to come up with a new action plan.

## 5 The Modernization Agenda for Universities

The British Prime Minister Tony Blair surprised his colleagues during the informal meeting of the European Council at Hampton Court, end of October 2005, when he stressed the importance of a modernized university system for a refocused Lisbon Strategy. The Commission reacted to the discussion at this meeting (“Hampton Court Follow-Up”) by issuing, on May 10, 2006, with input from experts, a communication on “Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation” (European Commission, 2006, 208 final).

Since the Hampton Court meeting in October 2005, the discussion of the *modernization* agenda has centered on the following points for action:

1. **Break down the barriers surrounding European universities:**
  - There should be a major effort to achieve – by 2010 – the core Bologna reforms in all EU Member States.
  - By 2010, at least one-third of all graduates at the Master’s level and one-fifth of those at the first degree level should have spent at least one term/semester abroad.
  - No applicant should have to wait longer than 2 or 3 months for a decision about qualification recognition.
2. **Provide the appropriate skills and competences for the labor market:**
  - Member States should treat the preparation for the labor market (in terms of specific skills and transversal competencies) as an important – but never an exclusive – indicator of the quality of universities’ performance. Employability should be defined by the ability of (nearly all) graduates to find an adequate job within six or nine months after graduation.
3. **Reduce the funding gap and make funding more effective in education and research:**
  - Member States should adopt the target that by 2010 (as was announced in the Annual Progress Report in February 2006) or 2015 (as was officially communicated in May 2006) the *total* funding for a *modernized* higher education sector should not be less than 2% of GDP. They should also renew their commitment to raise their level of investment in research to 3% of GDP by 2010.
  - With or without substantial tuition fees, Member States should nonetheless improve their current funding models by introducing more competitive schemes.
4. **Create genuine autonomy and accountability for universities:**
  - Member States should draw up a framework of rules and policy objectives for the university sector as a whole.
  - In this context, universities should possess the freedom and the responsibility to set their own missions, priorities and programs.
  - Member States should build up and reward management and leadership capacities within universities.



5. **Acknowledge and reward excellence at the highest level:**
  - All Member States should review their provision at postgraduate (master and doctorate) levels and the disciplines concerned.
  - Financial support should be made available at a European level to develop excellence at graduate/doctoral schools and networks meeting key criteria.
  - Competition for research excellence through the European Research Council (ERC) should be strengthened.



6. **Build up a more positive image of European universities in the world:**
  - Erasmus Mundus or Marie Curie Programs should enhance the attractiveness of the European higher education area globally.

Although the documents of the “Hampton Court Follow-Up” underline the main directions in which the modernization agenda should move forward, the meeting of the European Council in June 2006, under the Austrian EU presidency, hesitated to make clear commitments. It especially avoided any reference to the rule that at least 2 % of GDP should be spent on higher education. It only encourages Member States to foster modernization, restructuring and innovation as suggested by the Com-


munication of the Commission in its communication of May 10, 2006. The European council left open what role the Commission has in surveying progress in the process of achieving the modernization goals.

## 6 Universities as Strong Actors in the Knowledge-Based Society

Given the Bologna Process, the discussion on relaunching the European Research Area and the increased awareness of modernizing the university system, Europe seems to be on the right way. Yet, most of the work still needs to be done. What should come about quickly is to empower universities to escape the shadows of national bureaucracies. In many EU Member States, governments still decide on details of running a university. Universities should be *autonomous institutions*, legally *and* actually, accountable to the general public only. Universities should quickly become strong actors in the field of higher education and research, with good institutional strategies. Universities should overcome their internal fragmentation and should not just be conglomerations of departments, of faculties or of study programs.

The institutional autonomy of universities is needed because the world of knowledge has to be organized similarly to advanced economies: the decisions about the supply of goods and services are left to agents (firms) who compete or cooperate and who only have to comply with predetermined rules set by law and governments. Public accountability and systems of quality assessment ensure that the performance delivered by the universities to society becomes

sufficiently transparent and can be evaluated. Competition amongst universities will enhance the diversification of missions and profiles and will lead to a contest in reputation, manifesting itself by attracting public awareness, brains and money.

Autonomous universities would also be a driving force to gain from the positive scale effects a Europe of Knowledge could provide. 

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