The Post-2010 Lisbon Process
The Key Role of Education in Employment and Competitiveness

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Abstract
This paper points out that education should be the central objective of the post-2010 Lisbon Process. Compared to other OECD countries, the member states of the European Union perform poorly when it comes to key indicators of innovative potential, such as the percentage of students enrolled in tertiary education and the educational quality of Europe’s students. Education makes a three-fold contribution to a country’s economic health. First it is beneficial for employment rates, second it is a key driver for long-term economic growth and third it appears to be beneficial for social cohesion. It will be crucial for European countries to attain higher levels of tertiary education and increase the quality of their education.

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Lisbon has been neither a complete success story nor a complete failure. It is now important for the EU to look ahead and to realise it is facing new challenges that could not have been foreseen in 2000. A post-2010 Lisbon strategy ought to focus on ‘competitiveness through innovation’. But how best to foster innovation? This contribution argues that innovation can best be achieved by additional investment in human capital, a dimension that has not been given enough attention in the original Lisbon strategy of 2000.

1. Introduction

1.1 Looking back

With only two more years to go, the ambitious goal to make the EU the most competitive economy by 2010 will certainly be missed, as will also the three main Lisbon goals (employment, growth and social cohesion. Considerable progress has been made mainly on the employment front, with the overall employment rate in the EU increasing by over 4 percentage points, but at around 67% in 2007 in the EU15 (and 65.4% in the EU27), it remains well below the goal of 70%. And with the business cycle turning down, it is questionable that further progress can be made until 2010. On growth, the performance has fallen even further from the goalpost (3%), with only two countries from the EU15, Greece and Ireland, recording consistent growth rates of over 3% over the period 2000-2007 (and Ireland is now in recession). However, the Lisbon growth target might simply have been too ambitious. Over the last decade, the growth record of the EU has been, on a per capita basis, almost exactly the same as that of the US. Hence there has been no catching-up with respect to the US, but also no sliding back. On social cohesion there has been no progress, income inequality has stayed constant.

1.2 Looking forward

A new Lisbon process (2010-2020) will have to be designed with a completely different background. In 2000 the EU had only 15 members, the US seemed to have the strongest economy in world, climate change was not the priority it is today and financial markets were seen as growth factor. However, these assumptions are no longer appropriate for the next decade. Financial markets have now become a risk factor, threatening growth and requiring extensive government support. Combating climate change has become a priority for the EU. These two factors, reform of financial markets and the post-Kyoto regime for limiting CO₂ emissions, will certainly have to be part of the next Lisbon strategy. It is also apparent that the
next Lisbon strategy will have to be valid for all 27+ member states, including the goal of reducing the still-substantial disparities in income per capita between old and new member states. Considerable progress in convergence has already been achieved and our analysis, which stresses the importance of investment in human capital, suggests that progress on this front should continue given the generally high level of the human capital in the new member states.

However, the key change to keep in mind when drafting the next Lisbon strategy is that the global challenge to the EU is more likely to come from emerging economies like China, rather than the US. China will soon overtake the US as the biggest exporter (not counting the EU). Moreover, the structure of the Chinese economy is changing rapidly. Its exports are becoming increasingly intensive in technology and capital. Given its extremely high domestic savings rate, China can finance an unprecedented investment boom which is increasing the capital available for each worker at a more rapid pace than even in Korea or Japan during the phase of quickest growth of these economies. It is thus likely that by the end of the next decade the amount of capital available per worker will be higher in China than in the EU.

Thus, one question seems to be crucial: On what basis could Europe maintain a comparative advantage vis-à-vis very large emerging economies like China? Once China has accumulated as much capital as the EU, the answer must to be investment in human capital, i.e. education. The answer is straightforward and pragmatic.

The focus on educational policies has one more rationale: All other policies that might foster employment or growth are likely to have negative ‘side effects’ on other Lisbon goals. For example, labour market reforms might increase employment in the long run, but they often have a negative impact on social cohesion. By contrast educational policies that strengthen the quantity and quality of education, thus leading to higher skill levels, will have positive side effects. One can expect not only more growth, but also higher employment rates and less inequality (although an excessively cohesive society might hamper economic growth).

2. Where do we stand? Education and skills in the EU27

Education figured already among the original Lisbon goals, but this area never became a priority. It is clear that little can be done to change the skill level of an entire workforce over night. Most of the training one receives in life comes at an early stage. Experience has shown that ‘continuing education’ is a worthwhile goal, but in reality even the best continuing education programmes can help advance only the few that really desire to learn more after they have already started working.

Hence we propose to concentrate on the youngest cohort of the workforce; those still in education because their performance determines the composition of the workforce in the future. The highly skilled workers and scientists that the ‘knowledge economy’ needs during the next decade are being formed right now.

We propose to concentrate on a composite indicator which relies on measurement of both the quantity and quality of the investment in education. The first element, quantity, is defined as: i) the percentage of people aged 25-34 who have attained upper-secondary education and ii) the percentage of people aged 25-34 who have attained tertiary education. The first is important when it comes to medium technology-intensive manufacturing in general. The second quantity indicator is a useful predictor of the potential for innovation. Highly developed countries, the OECD countries and the member states of the EU depend on high proportions of people with university degrees, especially degrees in the natural sciences, engineering and medicine, to be able to dominate global markets with new patenting activity and innovative production processes.
Although these two quantitative indicators tell us something about the stocks of human capital, they do not tell us about the quality of the skills and knowledge of the workforce. It might be, for example, that in some nations a high proportion of the population has attained upper-secondary education but the quality of the education is overall poor. Thus the nation’s labour force might not be capable of enhancing productivity, but could more likely represent a burden. Thus it is crucial to also focus on the quality of education.

We measure the quality of education by looking at the performance of students in a variety of fields. For a numerical measure we use the results from the PISA tests of the OECD which provide reliable and internationally comparable indicators of the skills of students in upper secondary education in mathematics, sciences and reading.

In Figure 1 we put these two aspects together in a single composite indicator (which shows the combined effect of the population’s (aged 25-34) attainment of upper-secondary education with PISA test results to measure the human capital useful for ‘normal’ manufacturing and service activities. Figure 1 shows that the global ranking is led by the non-European country Korea, followed by the best-performing European country Finland. Canada is positioned in third place before the three transition countries Czech Republic, Slovenia and Slovakia and Sweden. Germany is positioned in an upper-middle position, whereas France and the United Kingdom are located at the lower end of the distribution. The US is located in the lower middle part of the distribution. The Mediterranean countries Portugal, Spain, Italy and Greece are located on four of the five last ranks.

Figure 1. Upper-secondary education attainment and PISA test results in 2006

This picture changes however when one looks at the type of composite indicator for the innovative potential (combining Pisa results with the indicator on tertiary education attainment rate) in Figure 2.

It is striking to observe that two relatively advanced countries like Germany and Austria range at the end of the EU27 distribution just before the two Mediterranean countries Italy and Portugal as well as the three transition countries Slovakia, Hungary and Czech Republic. The three leading countries Canada, Japan and Korea are all non-European and significantly dominate the ranking. The best-performing European country Finland is respectively located in the fourth position, followed by Ireland and the Netherlands. On average the EU does not seem to have a strong starting position in the race for innovation, at least in terms of the quantity and quality of its human capital.
The same conclusion arises if one looks only at the distribution of the G7 countries in Figure 3. 

Canada and Japan clearly lead the ranking before the United States, France and the United Kingdom which are positioned in the middle. Germany and Italy are performing poorly in comparison to the rest of the countries. This is especially problematic for Germany, which is still heavily reliant on its manufacturing industries, but is not preparing to foster its research and innovative capacities, as the stocks of tertiary attainment remain low and the quality of education is average. Furthermore, Germany is the only country where the population aged 55-64 has attained a higher percentage of tertiary education (23%) in comparison to the youngest cohort (22%). In most other countries there had been huge increases over the time. Although in the US there has been only a slight increase of 1%, the tertiary graduation rate is nearly double the amount of that of Germany.
3. **Education and employment in the EU27**

But how is education related to employment and competitiveness? The most visible Lisbon target, and in principle the one most susceptible to be influenced by policy, remains the goal to reach an employment rate of 70% (by the year 2010). The implicit benchmark for the EU in setting the goal of an employment rate of 70% in 2000 was the US, which had attained this value at that time. Over the last years the employment rate has increased in the EU15 from around 62% to close to 67%. However progress has been too slow to put the Lisbon target within reach by the end of the decade. Another 8 millions jobs would have to be created to reach the goal. But how can the employment rate of 70% be achieved?

The official mantra is that reforms, especially labour market reforms, are needed to reach this goal. It is true that the employment rate in Europe is low because some groups participate only weakly in the labour market, but it is not widely appreciated that the EU15 has actually a slightly better (or rather less bad) record than the US in providing jobs for the less skilled.

<table>
<thead>
<tr>
<th>Share of population*</th>
<th>Employment rates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EU15</strong></td>
<td><strong>US</strong></td>
</tr>
<tr>
<td>Below upper secondary</td>
<td>37.8</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>41.5</td>
</tr>
<tr>
<td>Tertiary</td>
<td>20.7</td>
</tr>
</tbody>
</table>

* Aged 15-64.

_source_: Own calculations based on OECD and Eurostat data.

As a matter of fact, Table 1 highlights that the employment rate for those with less than upper secondary skill levels is higher in the EU (50.6%) than in the US (43%). The problem of the EU is thus not mainly that the lower skilled cannot find a job in a rigid labour market, but rather that there are far too many of the low skilled around since the EU over one-third (37.8% of the population in working age) has not even completed upper secondary education against around one-fifth (21.3 %) in the US.

US employment rates are only marginally higher than those in the EU among the higher skilled. The big difference here is the fact that in the US the proportion of the working age population with higher skills is about a quarter higher than in Europe: 26% of the US population has tertiary education compared to around 21% for the EU.

3.1 **Progress so far**

Given the large differences in the employment ratios at different skill levels documented so far, it is clear that the evolution of the overall employment ratio will depend not only on labour market reforms, but also on changes in the skill composition of the potential work force. An increase in the share of the higher skilled should lead to a higher employment rate even in the absence of reforms simply because the higher skilled tend to have a higher employment rate. Table 2 below provides the relevant data for the eight-year period 1999-2007. The last row

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2 International comparisons of skill levels are inherently difficult because of differences in national education systems. Different sources give somewhat different numbers, but the broad picture is the same across all sources: employment rates are very similar on both sides of the Atlantic within most skill categories, but the skill composition of the population is quite different, with a much higher proportion of the US population having higher skills.
gives the overall employment ratio for the EU15 in 1999 and 2007. This overall ratio has increased from 62.2 to 67, and thus by a significant amount over these eight years. However, looking at the employment rates by skill levels give a different picture: for the lowest of the three skill levels considered here the employment rate increased insignificantly by 0.9%. The conclusion is clear: the overall employment ratio has increased in the EU mainly because the share of the lower skills has declined over this period. Labour market reforms inspired by the Lisbon agenda have had a marginal impact at best.

### Table 2. Education and employment: What has improved since Lisbon in the EU15?

<table>
<thead>
<tr>
<th>Share of population*</th>
<th>Employment rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
</tr>
<tr>
<td>Below upper secondary</td>
<td>41.7</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>40</td>
</tr>
<tr>
<td>Tertiary</td>
<td>18.3</td>
</tr>
<tr>
<td>Overall</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Aged 15-64.

Source: Own calculations based on Eurostat data.

### 3.2 What would a ‘better educated’ Europe look like?

A simple thought experiment can illustrate the importance of raising the skill level for the comparison EU-US: assuming that there are no reforms in EU labour markets one can assume that the employment rates by skills should remain roughly constant, even if the skill composition of the population changes. One can then ask what would be the EU employment ratio if the EU population had, on average, the same composition in terms of qualification levels as that of the US. The answer is simple: the employment rate in the EU should be roughly equal to that of the US (and rather close to 70%).

This simple result derives from the fact that the employment rates in different skill groups are quite similar in the EU(15) and the US. As already mentioned above, the employment rate for those with less than upper secondary education is actually somewhat higher in the EU. But the difference is rather small and this is also the case for other skill levels.

Table 3 below shows the present shares of the population in the EU at different skill levels as well as the Lisbon benchmark in rounded numbers.

### Table 3. Education and employment: A thought experiment based on stylised facts

<table>
<thead>
<tr>
<th>Share of population* (rounded)</th>
<th>Typical employment rates (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-15 Benchmark</td>
<td>EU-15 = US</td>
</tr>
<tr>
<td>Below upper secondary</td>
<td>35</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>45</td>
</tr>
<tr>
<td>Tertiary</td>
<td>20</td>
</tr>
</tbody>
</table>

* Aged 15-64.

Source: Own calculations based on OECD data.

The key challenges are at the lowest and the highest level: In the EU around 35 % of the population does not have upper secondary education, whereas the Lisbon target (of course initially only for the youths) is less than half of this, i.e. 15 %. Part of the mirror image of this is
that around 30% of the population should have a tertiary (University) education, against only 20% at present.

As for the employment rates by skill class, there is no particular benchmark so that this example uses the actual numbers which are very quite similar on both sides of the Atlantic: around 50% for the lowest skill class, compared to around (mostly above) 80% for the highest skill class (those with University degrees). With its present skill composition the EU has an employment rate of around 67% (Figure 4 illustrates the employment rate in more detail with respect to levels of education in EU15). However, if the EU improved the skill level of its population to its own benchmark (which has already been reached in some Scandinavian countries) the employment rate should go to 70%.

Figure 4. Employment rate with respect to levels of education in EU15

The basic mechanism is quite simple: increasing the share of the population with a least upper secondary education by 10 percentage point (and reducing that of the level below) yields a gain of 2 percentage points in terms of the overall employment ratio because the employment rate of those with upper secondary education is 20 points higher than those with below upper secondary (70% versus roughly 50%). Increasing the share of those with tertiary education also by 10% leads to a further gain of around 3 percentage points because the employment rate of this skill level is 30 points higher than those with below upper secondary.3

3 How realistic is it to expect that employment rates would stay high for people with tertiary education if their supply increases massively? The experience of most EU member countries actually suggests that there is no negative correlation at all between an increased supply of workers with higher education and their employment rates. Those countries that have seen over the last decade the strongest increase in the supply of people with tertiary education have also experiences the highest increase in their employment rates. Overall, the cross-country correlation between the change in the share of the population with tertiary education and the change in their employment rates has been strongly positive, suggesting that improving the education level does not lead to unemployed academics.
4. Education and growth

The overall level of education and more precisely the skills, abilities and creativity of European citizens constitute also a key determinant for European growth.

There is no need here to prove the link between education and growth. As an illustration, Figure 5 shows the link between education (measured here by average years of schooling) and growth for the 1990-2004 period (after controlling for other important variables like investment and the initial income per capita). The positive link between educational levels and economic growth is apparent.

![Figure 5. Human capital and economic growth: Partial regression plot for 23 OECD countries](image)

5. Educational levels and levels of social cohesion

Although educational levels do not seem to be the main driving force in explaining levels of interpersonal trust in an OECD country sample (see Roth, 2008) in certain model specifications they still seem to be strongly associated with levels of interpersonal trust. The scatter plot in

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4 Although some studies question the significant positive relationship between human capital and economic growth (Pritchett, 2001) a majority of the empirical results support a positive relationship between levels of education and economic growth (Barro, 1991; Barro & Sala-i-Martin, 2004; Krueger & Lindhal, 2001; Bassanini & Scarpetta, 2001). Recent research argues e.g. that findings of non positive relationships between education and economic growth are mostly due to poor data quality (De la Fuente et al., 2000), thus when utilizing high quality data a robust positive relationship between education and growth can be established. The positive relationship can not only be replicated when using quantitative data like average years of schooling, but also when using qualitative data from the PISA tests (Hanushek et al., 2007).
Figure 6 between education and levels of interpersonal trust, which can be regarded as a very good proxy of social cohesion, shows a fascinating pattern. Those countries with low levels of education have low levels of interpersonal trust. In the lower left corner are those countries with low levels of education like for instance Portugal and low levels of trust. In the upper right corner are the Scandinavian countries with high levels of human capital and high levels of trust. In the middle are the coordinated countries.

Figure 6. Scatter plot between education and interpersonal trust for 20 OECD countries

6. Better performance of education?

But how are we going to achieve a better performance in education? Do we have to invest more money in the education system? Taking PISA data and plotting them against the total educational expenditure costs of GDP (Figure 7) shows that there is no relationship between educational expenditure and the PISA results. Portugal for instance spends a relative high amount on education but has very low results in the PISA test. The correlation between these two variables (as measured by the R2) is only 0.3, implying that the amount of resources (public plus private) that a country spends on education is not a key factor in determining the educational achievements of its high school students.
If the quantity of spending on education is not decisive in determining educational achievements, one should perhaps look at the quality. Quality in this context should mean the efficiency of the given spending on education. The efficiency of a government is of course difficult to measure objectively. However, there exist numerical indicators resulting from extensive survey work done by international institutions. The indicator used here comes from the World Bank and is called ‘government effectiveness’ – see Kaufmann et al. (2005) for more details. Using this indicator one finds immediately a rather strong result: there is a very strong correlation between government efficiency and education achievement (Figure 8).

Increasing the government efficiency seems to be crucial in increasing the quality of the education. The basic message from the data is that one key parameter that distinguished member countries is the efficiency of their governments. This implies that one cannot just copy educational programs from one country to another. A program that might work in a highly efficient country (e.g. one of the Nordics), might in reality work quite differently in another country with a lower degree of efficiency in its public administration and the same program might thus not give the same results.

5 Kaufmann et al. (2005) define government effectiveness by combining the responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government’s commitment to policies. The main focus of this index is on ‘inputs’ required for the government to be able to produce and implement good policies and deliver public goods.”
7. Conclusion

There can be little doubt that education should be the central objective of the next Lisbon strategy. The EU does not seem to be well equipped on this account if one only looks at the key indicators of innovative potential, at least if compared to the rest of the OECD countries. Moreover the quantity and quality of human capital vary substantially in the European Union. The Mediterranean countries in particular seem to face severe problems.

It is also clear that education plays a key role in increasing the employment rate in the European Union. Labour market reforms have a role to play, but further investment in human capital is more important.

Finally, education plays a key role in explaining long-term economic growth. Countries with higher stocks and quality of education are growing faster and are more competitive. Those countries will more easily tackle the challenges of the process of globalization and will be better prepared with respect to the three emerging countries of China, India and Brazil.

To sum up, it will be crucial for European countries to attain higher levels of tertiary education, especially in the fields of natural sciences, mathematics and engineering. European countries should also try to increase the quality of their education. In contrast to the 2000 Lisbon strategy, the post-2010 Lisbon process should put educational policies in first place.
References


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