



Employment and Competitiveness

The Key Role of Education

Daniel Gros*

Abstract

More than half way into the decade, it is clear that the ambitious goal to make the EU the 'most competitive economy' by 2010 will be missed. This contribution shows that investing more in education would be the key in terms of employment, a central element in the Lisbon goal. Improving the skills of the EU's population would have, inter alia, a direct impact on the employment rate. Reaching the Lisbon goal of an employment rate of 70% would be possible even without labour market reforms if the average level of qualification of the EU were to reach the benchmarks in this area (which in turn are very close to the values reached by the best performing member states).

The data also show that the modest improvement in employment rates that has taken place in recent years is entirely due to a small but significant upgrading of the skill level of the EU population. There is no sign that labour markets had any impact.

The key importance of education and skills has been reiterated in many official documents; but close to nothing has been done to speed up the pace of change. This is another example of how the Lisbon agenda has remained an empty list of good intentions.

A higher proportion of university graduates is evidently also a precondition for increasing R&D spending. It will take probably another generation before the share of the work force with tertiary education has reached the level (around 30%) required to make it worthwhile to spend the 3% of GDP on R&D set by the Lisbon agenda. Putting Europe at the forefront of technology will take more than a few years.

Introduction

In the year 2000, the heads of state and government of the EU15 convened in the city of Lisbon to solemnly declare that the EU would become the 'most competitive' economy in the world by 2010. The way to achieve this ambitious goal seemed clear: Europe needed to bring more people to work and make them more productive. This was easier said than done! After more than half of the time available to reach this lofty goal has elapsed, it is clear that the EU is definitely not on its way to becoming the most competitive economy in the world. In terms of productivity, the EU has clearly not only fallen even further behind the US (the implicit benchmark in most areas), but its record post-Lisbon has actually deteriorated, compared to the 1980s or 1990s.

The deeper causes of the absolute and relative deterioration of productivity growth in the EU are still under discussion. Most economists assign part of the blame to insufficient investment and another part to an inexplicable residual factor called 'total factor productivity' growth. The relative weights one should assign to these two factors are still under discussion, but it appears that 50:50 (one half insufficient investment and one half 'we do not know') constitutes a good characterisation of the research results available so far.

More progress seems to have been made in terms of the other key Lisbon target, namely to reach an employment rate of 70% by the year 2010. Over the last six years, the employment rate (those employed as a percentage of the working age population) has indeed crept up by about 2 percentage points, from around 62% to 64.5%, but progress has been too slow to bring the Lisbon target within reach by the end of the decade.

* Daniel Gros is Director of CEPS. Many thanks to Funda Celikel-Esser for excellent research assistance.

This contribution looks at an aspect that is often forgotten: namely the link between skills and employment. It shows that the key problem of Europe in terms of employment is not so much the structure of its labour markets, but the insufficient skill levels of its population. Let us consider two key findings:

- 1) The small improvement in the overall employment ratio that has taken place since Lisbon can entirely be explained by an ongoing change in the skill composition of Europe's labour force. Labour market reform does not seem to have had any impact on employment ratios.
- 2) If the European work force had the same skill composition as the US (or some more advanced member countries), the employment rate in Europe could easily reach the Lisbon goal even without any labour market reforms.

The main policy conclusion is that the key to dealing with Europe's structural problems is to increase the level of education of its work force. Some progress is happening on this front as a result of a general increase in the investment in schooling that has taken place over the last decades. However, this ongoing 'automatic' improvement in skill levels is proceeding very slowly. There has been virtually no acceleration since 2000 and almost none of the more specific benchmarks set in the context of the Lisbon agenda is likely to be reached by the end of this decade.

More investment in education will thus deal with the low employment rates which constitute one key structural weakness for Europe. More education has been shown in innumerable studies to increase growth as well. More education thus brings at least a double dividend: 1) even with rather rigid labour markets, it leads to higher employment. 2) Increasing the human capital of the population raises the growth rate. Moreover, increasing investment in higher education is also a pre-condition to ensure that the increase in R&D spending in Europe called for by the Lisbon agenda actually leads to more ideas being produced and not just an increase in the salaries of those qualified for this type of occupation. There are thus at least three channels through which higher investment in education fosters growth.

This contribution deals only with the first channel or aspect. It starts by providing some simple background information on the link between employment and skill levels. It then analyses the progress that is taking place and provides evidence that without increased efforts it would take Europe generations to achieve its own goals. It also documents briefly the importance of the link between education and R&D spending, which suggests that reaching the 3% of GDP target set for the latter will make sense only in about a generation, i.e. when

there are enough knowledge workers around to conduct much more research.

This paper does not deal with the very interesting special situation of the new member states from Central and Eastern Europe. Their education levels are in most cases at least as good as those of the old EU15 and their growth rates have now been 2-3 percentage points higher. However, their GDP per capita is still much lower and their employment rates are also lower than in the EU15. This combination of differences suggests that the new member countries are still engaged in a catching-up process and that the even lower employment rates are due to the fact that the older part of the population had learned skills that are of little value in the new environment of an open market economy. The remainder thus deals only with the 'old' EU15, which still account for over 90% of the GDP of the EU25 and 80% of its population.

1. Employment and skill levels: The forgotten link

The official mantra is that reforms, especially labour market reforms, are needed to reach this goal. The Lisbon employment target was chosen because implicitly the aim was to catch up with the US in terms of employment rates. The presumption was that Europe needed to price its marginal groups, especially the lower qualified, into its labour markets. 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. As a matter of fact, the employment rate for those with less than upper secondary skill levels is *higher* in the EU (49.2%) than in the US (43.0%). 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: over one-third (35.6% of the population in working age) in the EU 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: over 26% of the US population has tertiary education (university level) compared to around 21% for the EU.⁴

⁴ 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

Table 1. Education and employment (2004)

	Share of population		Employment rates	
	EU15	US	EU15	US
Below upper secondary	35.6	21.3	49.2	43.0
Upper secondary	43.8	52.3	70.1	71.1
Tertiary	20.6	26.5	82.5	82.9

Source: Own calculations based on Eurostat and OECD data.

2. 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 five-year period 1999-2004. The last row gives the overall employment ratio for the EU15 in 1999 and 2004. This overall ratio has increased from 62.0 to 64.5, and thus by a small, but non-negligible amount over these five 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 has actually declined. The decline has been very small, but there has definitely been no improvement as for the overall ratio. The conclusion is clear: the overall employment ratio has increased mainly because the share of the lower skills has declined over this period. Labour market reforms inspired by the Lisbon agenda should have increased the employment rates of the lowest skills, but the opposite has been the case.

Table 2. Education and employment: What has improved since Lisbon?

	Share of population			Employment rates		
	1999	2004	Change	1999	2004	Change
Below upper secondary	39.4	35.6	-3.8	49.6	49.2	-0.4
Upper secondary	42.3	43.8	+1.5	69.0	70.1	+1.1
Tertiary	18.3	20.6	+2.3	81.8	82.5	+0.7
Overall	NA	NA	NA	62.0	64.5	+2.5

Source: Own calculations based on Eurostat data.

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.

3. What would a 'better educated' Europe look like?

A simple thought experiment can illustrate the importance of raising the skill level for the EU-US comparison: 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

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 will be documented below, this corresponds to the share of the youngest cohorts that has this level of educational attainment in the EU15 at present (the EU25 numbers would be very similar).

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).

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

	Share of population (rounded)		Typical employment rates (rounded)
	EU15	Benchmark	EU15 = US
Below upper secondary	35	15	50
Upper secondary	45	55	70
Tertiary	20	30	80

Source: Own calculations based on Eurostat data.

4 | Daniel Gros

With its present skill composition, the EU has an employment rate of around 65% (as can be verified by summing the products of the first and the third column). However, if the EU improved the skill level of its population to its own benchmark (which is close to that reached in some Scandinavian countries), the employment rate should go to 70%.

The basic mechanism is quite simple: increasing the share of the population with at least upper secondary education by 10 percentage points (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% vs. 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.

There are of course wide variation among member countries in terms of their overall employment rates. However, there is much less variance in the differences of the employment rates across skill levels. The lower skilled have lower employment rates in all member countries, suggesting that raising the skill level should have a positive impact on employment everywhere. It might also be the case that in some member countries there is little scope for further increasing the skill level of the population (at least in terms of formal qualifications). This might be the case for Scandinavians, and possibly the British,

but for the EU, and in particular its core, namely France and Germany, there is certainly still a lot of room to improve the skill level of the population, increasing the number of university graduates and radically lowering the numbers of those without even upper secondary education.

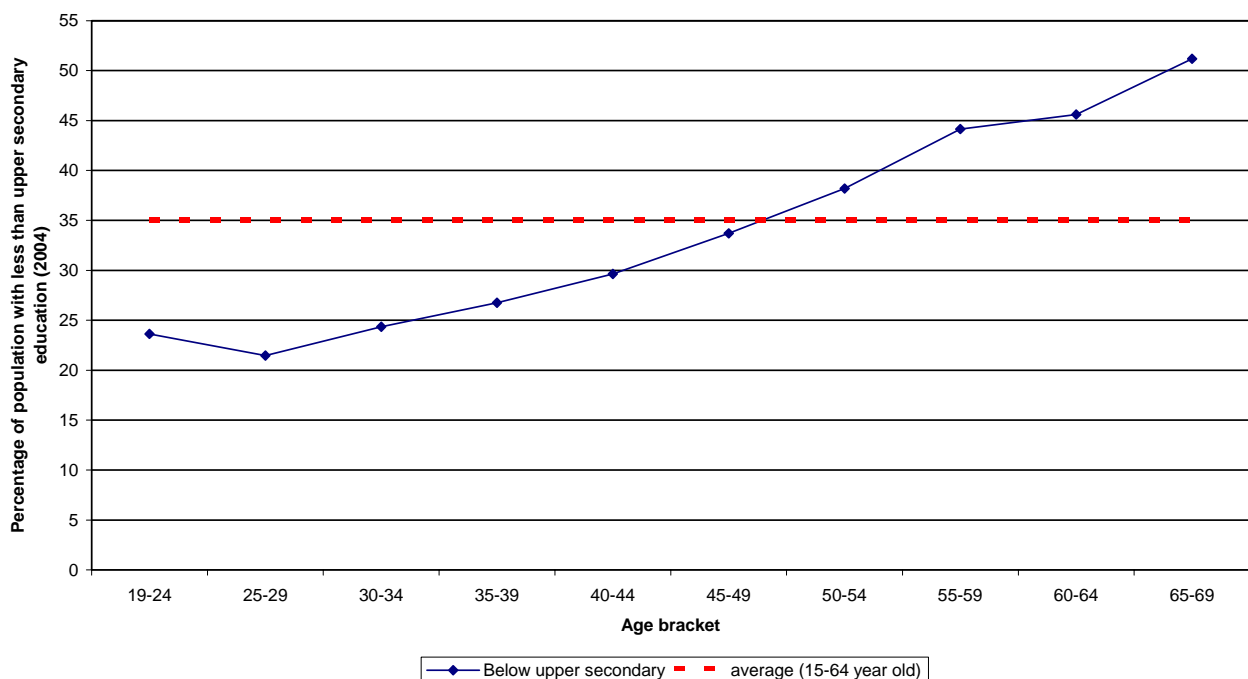
How realistic is it to expect that employment rates would stay high for people with tertiary education if their supply increases massively? The experience of most EU member countries actually suggests that there is no negative correlation at all between an increased supply of workers with higher education 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 experienced 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. Is Europe improving?

It was already shown above that the skill level of the population is improving in Europe because the new cohorts entering the labour market have in general a higher skill level than the older ones.

Figure 1 shows how the share of the lowest skills is indeed increasing with the age of the cohort.

Figure 1. Low skilled as a percentage of the population by age bracket

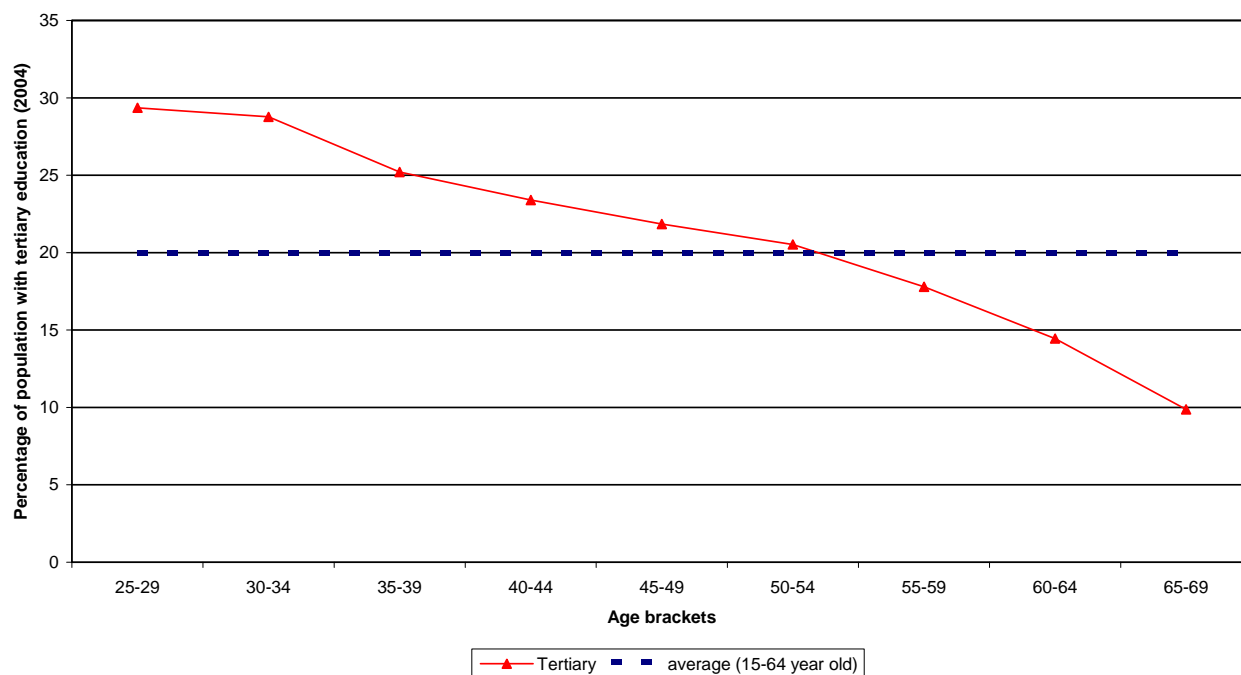


It is straightforward to determine where the average education level of the EU15 is heading if one assumes that all new cohorts have the same level of skills as the most recent one: in this case, the average for the entire work force would over time converge to that level. This would imply that given present trends, the share of the population that does not have upper secondary education would tend towards a value around 20%, which is above the Lisbon target. Moreover, this target would be reached (asymptotically) only in about two generations (some time between 2030 and 2050). Progress can thus be expected, but it comes at a snail's pace.

Moreover, the Lisbon target of halving the number of young people who do not finish upper secondary education is very likely to be missed. The proportion of the 19-24 years old who did not attain this level of qualification has stayed at around 24% since 2000 (the first year with reliable data).

At the other end of the skill scale, the data provide more encouragement. As Figure 2 shows, the share of the younger generation that has attained tertiary educational levels is now close to 30%. This implies that over time the average should also tend towards this level.⁵ But, as already mentioned above, it will take two generations before the average will reach this level.

Figure 2. Higher education by age in Europe



⁵ For a more detailed forward-looking analysis of the evolution of education levels based on enrolment data, see Andrea Montanino and Bartosz Przywara and David Young (2004), “Investment in education: The implications for economic growth and public finances”, Commission of the European Communities, DG ECFIN, Economic Papers No. 217.

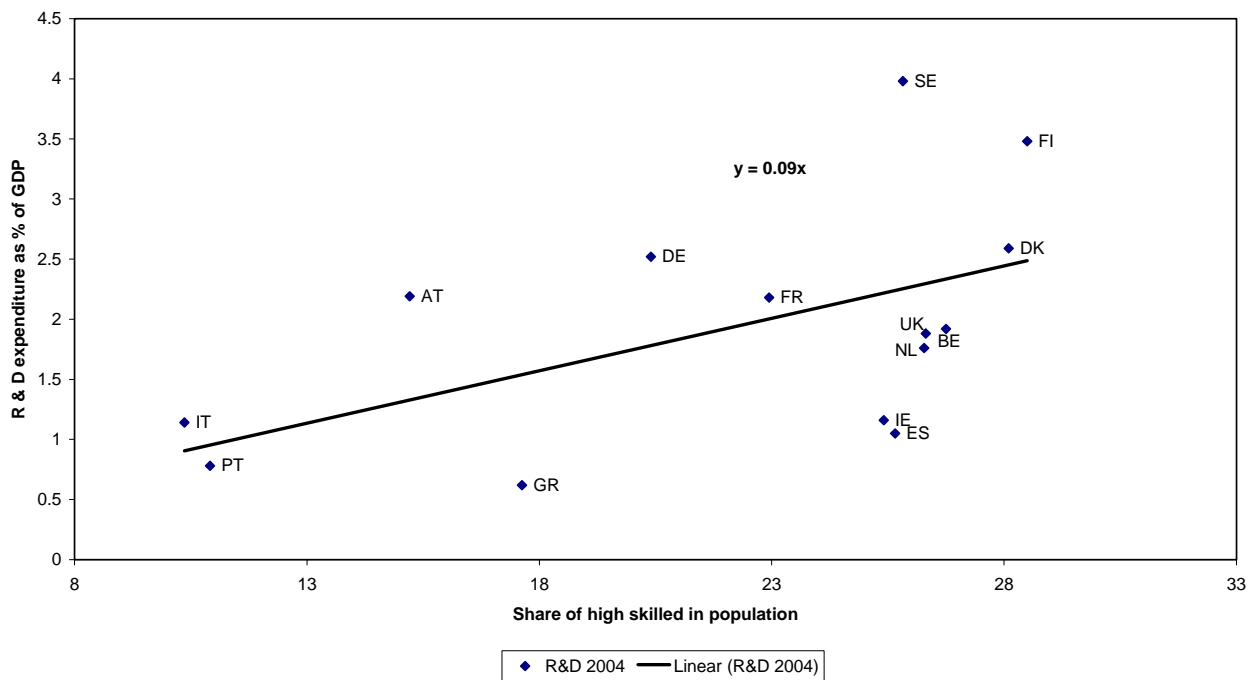
5. Education and R&D

The link between education and R&D is self evident: without more scientists, it does not make sense to increase spending on R&D. This is why it is pointless to focus on a target like ‘increasing R&D spending to 3% of GP by 2010’. This would mean an increase in spending of around 60% and it is not likely that it is possible to increase the number of the so-called ‘knowledge workers’ within a few years by this percentage. As shown above, there has been a gradual improvement in the sense that in younger cohorts the proportion of those with tertiary education has now reached 30%, which represents an improvement of around 50% over the values of a generation earlier (the 29+ vs. the 49+).

The link between R&D spending and higher education is also apparent in the data, displayed in Figure 3 which shows that across member countries

there is a strong correlation between R&D spending as a percentage of GDP and the share of the population that has a tertiary education. Given that the definition of what constitutes expenditure on R&D differs considerably across countries, it is not surprising that some countries show considerably higher (or lower) propensities to spend on R&D than others with similar education levels. But the correlation is still evident in the data. Moreover, the trend line suggests a simple rule of thumb: across countries a 10 percentage point increase in the share of university graduates in the population is associated with a 1% increase in the share of R&D spending by 1% of GDP. Thus, the target of spending 3% of GDP on R&D on average for the EU will probably be reached (and become appropriate) only when around 30% of the workforce has a tertiary education. But, as documented above, this will take more than a generation to achieve.

Figure 3. R &D expenditure and share of highly skilled



6. Conclusions

This contribution has concentrated on the one area where some progress has been made towards the Lisbon goals, namely that of employment, which has increased somewhat over the last five years. However, it appears that very little of this improvement has been due to labour market reforms. Instead, what seems to have happened is that the skill composition of the EU’s population is slowly improving. Since the higher skilled have in general a much higher employment rate, any improvement in the skill composition leads automatically (i.e. even without reforms) to a higher employment rate.

The ongoing improvement in the skill level of the EU’s population is not a reason to become complacent. At the slow pace at which it is proceeding, it will take almost two generations to start closing the transatlantic gap that exists in this area.

The upgrading of the skill level of the European labour force is further slowed down by its unfavourable demographics. Obviously, the average skill level improves more quickly if each cohort is of the same size, than if each cohort is smaller than the preceding one. In those member countries where birth rates have settled at a value around 1.3, each

generation is 35% smaller than the preceding one. This implies that the improvement of the average skill level also proceeds at a correspondingly slower pace. The reduction in the effective working life that has taken place over the last decades in many member countries constitutes a further factor slowing down the improvement in skill levels. A shorter working life makes it less attractive to invest in human capital simply because the time period over which this capital can yield returns is then shorter.

One key transatlantic difference that explains a large part of the difference in economic performance is the EU-US difference in terms of education levels. This difference is most marked at both ends of the spectrum: Europe has a much higher proportion of its population at the lowest level (below secondary education) and Europe has a much lower proportion at the highest level (namely tertiary education).⁶ The weakness at the tertiary level also implies that it does not make sense to call for more spending on R&D. Additional spending in this area makes sense only when the supply of people who can actually undertake research has increased, but this will take a generation.

The obvious question that follows is what should be done to increase the educational attainment of the EU population. This is in the first instance a responsibility of member states. Instead of signing solemn declarations at their annual spring summits, national leaders should get down to the more serious business of improving the education levels of their own people. This task has been neglected over the last decades and this is one of the key reasons why Europe's economy is not performing well at present. Labour market reforms are always useful and welcome, but in the long run it is at least as important to foster investment in human capital.

The EU is making a small contribution, for example, via its ERASMUS programme. But this programme has been cut under the compromise just agreed for the next seven-year budgetary framework. This shows once again the gulf between rhetoric and reality when it comes to the Lisbon programme.

⁶ Unfortunately, the data are not good enough to document systematically that this difference at the tertiary level is most pronounced not just in tertiary education in general, but at the upper echelon of tertiary education, namely post-graduate studies. See Etienne Wasmer with Peter Fredriksson, Ana Lamo, Julián Messina and Giovanni Peri (2005), "The Macroeconomics of Education", report prepared for the Seventh European Conference, of the Fondazione Rodolfo De Benedetti, Venice, 11 June 2005.

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