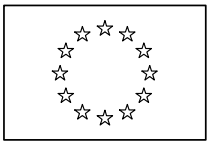

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The EU Economy: 2007 Review

Moving Europe's productivity frontier

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MOVING EUROPE'S PRODUCTIVITY FRONTIER

In all its diversity, the European Union is one of the most advanced and productive economies in the world. The Union scores high in global rankings in terms of output per worker and real income per capita. Even if the Member States that have recently joined the Union have still some way to go with respect to the more mature market economies of the other EU members, they are catching up rapidly – spurred by the continuous inflow of foreign direct investment, as well as by the EU cohesion policy, and supported by the adoption of the sound legal, regulatory and institutional infrastructures that are the hallmark of well-functioning market economies.

However, a sizeable gap in living standards between the European Union and the most advanced economy in the world – the United States – has remained. After a period of rapid catching-up during the 1950s and 1960s, this process came to halt in the early 1970s. Today, the standard of living in the EU, measured, by per capita GDP is still 1/3 below that of the US – despite a welcome surge in the number of people of working age participating in the EU labour market in recent years.

The root cause lies in a divergence in productivity developments. While experience clearly differs across EU Member States, productivity growth – by any measure, be it per hour worked, per person employed or relative to a composite of inputs including labour and capital – has actually slowed down since the mid-1990s in the European Union, while it has sharply accelerated in the United States. For example, EU-15 growth in labour productivity per hour dropped from 2% in 1981-1995 to 1½ % in the 1995-2000 period and then to 1% in 2000-05. In contrast, the US has witnessed a marked improvement in its productivity performance, with annual average growth rising over the same periods from 1¼%, to 2% and then close to 2½%.

By adopting the Lisbon Strategy in March 2000, European leaders attributed the highest importance to improving the EU's productivity performance along with achieving robust employment growth. This can be summed up by the keywords of moving towards a "knowledge-based economy" and creating "more and better jobs". To date, employment developments have indeed been promising. The EU-15's employment rate has soared from 60 to 66% since 1995, while the unemployment rate plummeted from over 10% to close to 7% – a level not witnessed in many years. There is evidence that labour market policies in pursuit of stronger job growth have been paying off, while policies geared towards better productivity performance – including measures to promote investment in human capital, encourage regulatory reform and stimulate entrepreneurship and innovation – have been less effective to date or perhaps need longer to deliver results.

Improving productivity and increasing employment can go hand in hand. Obviously it is tempting to assume the recent jobs 'miracle' itself has caused the productivity slowdown, with the latter being the price to pay for the former. A trade-off between more jobs and higher productivity may indeed emerge if faster employment entails a lower capital use per worker

and if greater numbers of low-skilled workers are employed. But this combined effect is small and is dwarfed by the impact of the development and diffusion of new technologies and best work practices – provided that they are in fact rapidly developed and diffused, which remains a challenge, notably in the most advanced Member States which are operating near the technology frontier but are slow to adopt new developments at the frontier. If labour and product markets function well and technological progress advances, high employment growth is compatible with high productivity growth.

Since mid-2005, productivity growth in the EU has picked up. It is hoped that part of this improvement is of a structural rather than cyclical nature, i.e. that it cannot solely be attributed to the recovery having gained pace. It is indeed possible that past reforms that aimed to boost productivity have finally begun to pay off, in which case the recently observed pick-up in productivity may in part be structural and associated with better efficiency. However, according to the *2007 EU Economy Review* published jointly with this Communication, a cautious interpretation appears warranted: to date, evidence of a structural productivity pick-up remains scant.

There is considerable scope to boost Europe's productivity, by promoting innovation, enhancing investment in human and ICT-related capital, fostering competition and streamlining the regulation of product, labour and financial markets. This was emphasised in 2005 with the revision of the Lisbon Growth and Jobs Strategy, with its greater focus on comprehensive integrated reform packages, "national ownership" of reform commitments and greater complementarity between reforms undertaken at EU and national level. The trend since the mid-1990s would appear to indicate that the European Union has yet to reap the full benefits of the information technology revolution and the spurt in the global division of labour associated with international economic integration. Assessments carried out by the Commission and the Council show that there has been progress on reforms but that the pace and intensity differs between Member States. The European Union can no longer afford to forgo the opportunities of higher productivity growth that structural reforms bring. With the population ageing and global competition heightening, boosting productivity is vital to secure sustained economic growth over the medium to long term.[1]

1. MAIN FINDINGS OF THE REVIEW

The European Union experienced a productivity slowdown in the second half of the 1990s. This is in clear contrast with developments in the United States. The trend in Europe is principally a reflection of the slowdown which hit two large Member States of the euro area, Spain and Italy, particularly hard, while the other major economies were less affected. In fact, unlike Spain and Italy, manufacturing in Germany and France escaped the overall pattern of a declining trend in the 1990s. Since the turn of the century no further declines in trend productivity growth have been recorded in the EU and since mid-2005 productivity has actually picked up. Part of this pick-up, however, must be assumed to be cyclical amid an accelerating recovery as there is not enough data at present to confirm that it is of a structural nature.

The bulk of the EU-US productivity growth differential since 1995 stems from the diverging trends in total factor productivity (TFP) – a measure of the efficiency with which all factor inputs, including labour, information and communication equipment (ICT capital) and conventional capital (equipment and structures), are utilised. Differences between

[1] See in this context also the communication from the Commission "Raising productivity growth: key messages from the European Competitiveness Report 2007". COM (2007) final.

the two economies in the growth of capital per worker play much less of a role in shaping the productivity gap. Even so, a further breakdown of the contribution of capital services shows that a shift from conventional to ICT-related capital can be observed in the United States, especially in the private services sector, whereas a similar trend is not discernible in Europe. To the extent that ICT-related capital is productivity-enhancing this shift may also help explain the growing productivity gap between the two economies.

Almost all the TFP growth differential with the US is attributable to sluggish developments in only a handful of industries, with economic structures, comparative size of the industries and regulatory issues playing a key role. A detailed sector-by-sector analysis reveals that this relates mainly to wholesale and retail trade, real estate and other business services, electrical and optical equipment (which includes semiconductors, the main ICT producer industry) and to a lesser extent financial services. The low level of private ICT R&D expenditure in Europe in comparison with the US is mostly due to differences in industrial structure, notably the smaller size of the high-tech industry in the EU. Regulatory issues, especially entry and exit rules, appear to be playing a role in business and financial services, while the weak productivity performance of the EU's retail and wholesale industries is in part explained by constraints to the use of scale economies. On a more positive note, the EU has done significantly better than the US in the so-called network industries, helped by efficiency gains associated with the deregulation drive over the last two decades.

The EU productivity slowdown has been accompanied by unprecedented growth in employment. The question may legitimately be asked whether the two phenomena are related. Claims of a possible trade-off between productivity and employment seem to find some support in post-war economic history. In the 1970s and 1980s, the European Union combined relatively fast productivity growth with sluggish employment growth – while the United States conversely experienced fast job growth amid a productivity slowdown. During that episode the sharp rises in oil prices and the associated surge in real wage costs in many EU countries (as workers shifted higher energy prices forward onto employers via wage demands) triggered a substitution of capital for labour, which meant that fast labour productivity growth came with massive labour shedding. However, interpreting this phenomenon as a productivity-employment trade-off is correct in some sense but can also be misleading. Indeed, the US experience since the mid-1990s appears to be at odds with the notion of a trade-off between employment and productivity given that it performed strongly on both counts. The strong rises in productivity stemming from innovation and better work practices, which have been a feature of US economic performance over the past decade or so, have made both labour and capital more productive and thus stimulated the demand for both. Hence innovation has not harmed employment at all and will normally not do so – except if labour market institutions resist change and firms face weak market incentives to adjust.

Employment growth can be associated with some productivity losses, but the effect on the overall trend is small. Some labour market reforms, such as the introduction of flexible employment contracts and working-hours arrangements alongside more employment-friendly wage bargaining practices, can lead to some productivity losses as less productive strands of the labour force are employed and the capital use per worker falls. This is broadly confirmed by empirical analysis although this effect appears to be fairly small. Econometric research estimates the trade-off to be in the range of a 10-40% relative loss in productivity for a given employment gain, while simulations with DG ECFIN's macro-econometric model QUEST show a fall in productivity growth of around 20% for a given employment gain. Econometric estimates show that policies that boost the job prospects of 'marginal' workers – such as fiscal incentives for temporary and part-time work, targeted tax cuts for low-skilled/low-income workers, employment subsidies, direct job creation schemes and in-work benefits – may have

raised employment by slightly over 1% over the 2001-06 period in countries where such policies were implemented; there would also have been a limited negative impact on productivity growth in the range of ¼ to ½%, or around 25% of the employment gain. Moreover, in some countries, such as Italy and Spain, the regularisation of illegal workers may have negatively affected labour productivity statistics.

Recent employment and productivity developments have their own root causes, but can mutually benefit from a comprehensive strategy to increase jobs and growth. This can best be achieved by policies in pursuit of a 'knowledge society', which figures prominently on the European Union's policy agenda as exemplified by the Lisbon Strategy for Growth and Jobs. In this framework, Member States have included a host of policy measures aimed at strengthening TFP growth in their National Reform Programmes. Policies to promote productivity while supporting employment can be grouped under three main headings: *(i)* knowledge building; *(ii)* strengthening competition forces; and *(iii)* enhancing flexibility.

i) Knowledge building **requires more and better investment in R&D and human capital**. Policies have been aiming to narrow the gap between the United States and the European Union as regards investment in R&D and human capital. The US invests almost 3% of GDP in R&D and over 7% in education, as compared to close to 2% and 5½% respectively in the EU. Efforts in the EU to tackle this date back to before the adoption of the Lisbon Strategy in 2000, with the Bologna Process for example pursuing the creation of the European Education Area and harmonised academic qualifications. The European Research Area aims at overcoming fragmentation and at increasing spill-over effects of R&D investments. Under the Lisbon Strategy, moreover, Member States have committed themselves to raising R&D spending (most of which will have to come from private sources which is the main source of the gap in R&D spending between the EU and the US), formal educational attainment and the skill level of the labour force.

Public support for R&D investment and education is motivated by the positive effects such activities have on welfare and growth. Simulations with the QUEST model indeed provide evidence that actions to support R&D investment could significantly raise economic and productivity growth. Specifically, if R&D intensity were to increase from1.8% of GDP in 2005 to the expected EU level of 2.6% of GDP by 2010 (based on Member States' own targets, included in their national reform programmes), growth in both GDP and productivity would be raised by 0.2 of a percentage point per annum. And this effect might be as much as twice as high if favourable cross-border effects are taken into account. Although aggregate employment would barely be affected, there would be a shift in demand from low- to high-skilled workers and an associated relative pay increase for the latter owing to the inelastic supply of high-skilled workers in the short to medium run.

To make R&D policies effective, some preconditions need to be met. The above-mentioned favourable effects may not materialise if certain preconditions are not met. For example, substitution may occur, with the private sector using the fiscal windfall to cut its own funding. It is also not obvious that the government will be able to more accurately select R&D projects that are worth developing than the private sector does, although this problem is less pertinent if support takes the form of tax incentives (as opposed to targeted grants). But in the case of tax incentives there is a greater risk of 'deadweight losses', with the government subsidising R&D investment that would have been carried out anyway. These institutional risks may be less relevant if the setting in which private and public actors operate is supportive – including an effective protection of intellectual property rights, a well-educated and skilled labour force, well-functioning competition and strong linkages between public and private research.

The effectiveness and cost-efficiency of education also need to be secured throughout the European Union. Inefficiency in education systems appears to be high in some Member States as evidence shows that other Member States achieve the same outputs with considerably fewer resources – or, put differently, that better results could be achieved with similar resources. This is particularly worrying since human capital is not only an important determinant of the quality of the labour force and productivity in its own right, but also because it may enhance the capacity of economies to innovate. In particular, countries that are close to the technology frontier – as many EU Member States are – need to enhance their capacity to adopt new technologies, and this requires major efforts to maintain, and where possible improve, the quality of education, particularly higher education.

***ii) Competition* is crucial for both the level and growth rate of productivity**. Market contestability puts pressure on firms to innovate and favours the turnover of firms by prompting competitive businesses to enter the market and less competitive ones to exit. Concerns that intense competition would deter firms from innovating because pressure on profit margins would make it difficult to generate the required funds appear to be unfounded, even though the evidence suggests that the most innovative firm in a market is usually the dominant one. EU policies in the pursuit of stronger competition are three-pronged and while their primary objective may not be to raise productivity, they are clearly helpful in this regard. Specifically, a fully functioning single market stimulates productivity by increasing the exposure of firms to foreign competition, by allowing economies of scale (including in R&D activities), and by making the cross-border transfer of technology and managerial skills easier. As noted, moreover, the liberalisation and regulation of network industries such as telecommunications, electricity, gas postal services, rail, road and air transport have contributed to productivity. Finally, competition policy proper has helped lower entry barriers and has raised the costs of anticompetitive practices.

Empirical research confirms the expected positive effects of opening markets to competition on productivity and growth, but also on employment. Simulations with QUEST to estimate the impact of each of these policy areas, either in isolation or combined, confirm the need to ensure competition across the economy. Computing the macroeconomic impact of the product market reforms that took place in 1995-2003, the simulations suggest a positive effect on GDP amounting to almost 1½%, consisting of a 1% increase in employment and a ½% increase in labour productivity. Again this confirms that policies targeted at raising productivity also can have a positive impact on employment, i.e. that the sometimes presumed employment/productivity trade-off is a fallacy.

***iii) Enhanced flexibility* is needed to smoothly adjust production structures towards further specialisation and diversification into new areas of relative comparative advantage**. The expansion of the technology frontier that is necessary to remain competitive on a global scale is not a costless operation since it will expose the economy to structural change. The adjustment capacity of the economy is thus crucial, not only to ensure that adverse 'shocks' are absorbed smoothly without generating persistent slack, but also to ensure that maximum benefit is drawn from technological change. However, many EU Member States appear to have limited adjustment capacity, unlike the United States where it is estimated that up to half of the observed aggregate productivity growth is due to reallocation of resources towards innovative activities. The adjustment capacity of the EU in the face of technological change is also hampered by the limited flexibility allowed for by labour market institutions and rule books. In particular, overly tight employment protection regulation and too high minimum wages can act as a deterrent to labour mobility. Overall, structural impediments to firm entry and expansion are contributing to the EU-US productivity gap.

Measures have been undertaken by EU Member States over recent years to facilitate firm and labour mobility, but more and broader action is warranted. Measures have focused in particular on reducing the administrative costs for market entrants and on improving the access of small and medium-sized enterprises (SMEs) to funding. In addition, several Member States have reviewed their bankruptcy laws to encourage risk-taking. Some reservation is warranted to the extent that policies targeted at companies of a certain size (typically SMEs), such as reduced social security contributions below a certain employment-threshold, for example, might discourage them to grow beyond the eligibility thresholds – which is all the more costly since new firms' productivity performance is found to improve markedly when they grow. On aggregate, cutting the administrative cost burden imposed on all European firms, which is estimated in the range of 3 to 4% of GDP, by a quarter, could yield a 1% increase in GDP. Removing obstacles to geographical and occupational labour mobility will also promote a more efficient allocation of resources and increase potential growth; and a move towards life-long learning must accompany a successful transition to a knowledge-based economy.

2. CONCLUSIONS AND KEY POLICY IMPLICATIONS

A change in mindset is called for. Globalisation and the ICT revolution have discredited a number of widely held beliefs, such as that only large countries and large companies can be technology leaders and that trade is the main vehicle for technology diffusion. In fact it now appears that small countries can be technology leaders in specialised fields, that new technologies are often developed and introduced by small start-up firms and that the international mobility of researchers and financial capital – rather than trade – are the main vehicles for diffusion.

A broad consensus is now emerging on what is constraining productivity growth and the measures needed to increase it. Restrictions concerning labour and product markets, lack of openness to foreign direct investment and barriers to access or the creation of new technologies and their diffusion can act as key impediments to productivity growth over longer periods of time. The competition-friendliness of product market regulation, R&D activity and the quality of human capital all help to raise TFP growth. Meanwhile, the wider objectives and benefits of legislation and regulation need to be safeguarded; and indeed, regulation may even spur innovation (for instance in eco-innovation, or by setting standards through top-runner programmes, thus promoting renewable energies or energy-saving products).

Tackling the root causes of slow productivity growth remains one of the most pressing and complex economic policy challenges facing the Union. Policies to promote higher productivity growth must be implemented in a comprehensive manner to facilitate the adjustment to a rapidly changing global economic environment and to meet the associated calls for greater competitiveness. At the same time, policies to encourage higher productivity growth can ease the social, economic and budgetary challenges for European welfare states stemming from ageing populations. They will also help to smooth adjustment to adverse competitiveness developments within the euro area.

The focus of the revised Lisbon Growth and Jobs Strategy remains valid and should be vigorously pursued into the next cycle. Maintaining its emphasis on more R&D and innovation, a more dynamic business environment, greater employability and investment in people, energy and climate change is all the more crucial now that the fruits of past reforms are becoming apparent.

A number of key policies can make an important contribution to stronger productivity growth in the European Union. The analysis underpinning this Communication shows that they must aim at:

- ***Promoting higher levels of R&D investment***. This should include notably private investments, supported by more market-based financing systems such as risk-capital funding. Tax incentives can be an important element of such a policy but efforts should be made to minimise deadweight losses and ensure additionality. Strong linkages between public and private research are needed in combination with more effective protection of intellectual property rights.
- ***Developing world-class research and educational establishments***. The pursuit of top managerial and research skills will lead the economy to high rates of innovation and diffusion of new technologies. More skilled researchers are needed if R&D activity is to expand, otherwise the increase in demand for these skills will merely raise wage costs and squeeze other investment activities. The initiatives in the framework of the Bologna Process towards harmonised academic qualifications and the creation of the European Research Area should help boost the urgently needed international mobility of skilled researchers. Outside the specific field of research initiatives to introduce the EU 'blue card' (following the example of the US Green Card) may also have a positive effect on the attractiveness of the EU for skilled migrants. Inefficiencies in education systems need to be addressed in some countries and better results achieved. Adapting education and training systems is necessary to increase their responsiveness to the needs of the knowledge-based economy and society.
- ***Establishing a fully functioning, open and competitive single market***. Actively improving the contestability of markets, notably with the liberalisation of services where the scope for productivity growth appears greatest, is key to foster innovation. More flexible and less burdensome regulatory and institutional frameworks, allowing easy entry and exit from activity, are able to deliver a dynamic and competitive business environment. This is most necessary in the services industry, notably in retail trade. The efficiency gains associated with the deregulation of network industries over the last two decades may serve as an example in this regard. Indeed, it is a general objective of the Growth and Jobs Strategy to ensure a regulatory framework that is transparent, effective and proportionate to its needs and to remove unnecessary administrative burdens that hamper growth and inhibit innovation.
- ***Promoting an integrated approach to enhance both flexibility and security in the labour market***. Modernised social and labour-market policies can match the pursuit of efficiency with considerations of fairness. Flexicurity strategies should be designed and implemented to support employment and facilitate labour mobility through the four mutually reinforcing components of: (i) flexible and reliable contractual arrangements, (ii) comprehensive life-long learning strategies, (iii) effective active labour market policies, and, (iv) adequate income support systems.
- ***Improving the quality of public finances***. The need to improve competitiveness, concerns about fiscal sustainability and growing demands by taxpayers to get more value for public money as well as the need to reconsider the scope for state intervention in the economy has prompted efforts to increase the focus of budgets on more growth-enhancing activities and gear the tax mix and the allocation of resources within the public sector towards better efficiency and effectiveness. This includes, inter alia, the modernisation of public administration which can be a key element to ensure control over expenditure and budgetary consolidation. Achieving and maintaining sound public finance positions, by

avoiding the crowding out of private savings to finance public deficits, is in itself an essential condition to support strong and sustained capital investment by the private sector.

Whilst many aspects of this approach have been announced in recent years in individual EU countries' reform programmes, and in several cases introduced, **the "mindset" shift needed to make an overall success of the process has still further to go at both the country and the European levels. A comprehensive strategy matching efficiency with fairness should help to equip citizens with the skills, the support and incentives they need to succeed in a changing world.**

The Lisbon Strategy for Growth and Jobs can provide an effective vehicle for managing this transition process, a transition that is essential to drive Europe's productivity frontier forward.