

Box 4

LABOUR PRODUCTIVITY DEVELOPMENTS IN THE EURO AREA: RESULTS FROM THE LATEST RELEASE OF THE EU KLEMS DATABASE

Productivity gains are the key factor driving improvements in real output growth and standards of living in the medium to long run. This box reports the main data on euro area labour productivity growth that have been made available in the EU KLEMS database.¹ In particular, it compares key trends in euro area labour productivity at the aggregate and sectoral levels over the period 1996-2005 with those seen in the period 1980-1995. It also draws comparisons with the United States.

The public version of the EU KLEMS Growth and Productivity Accounts database was launched in Brussels on 15 March 2007 and the values for a number of the variables it records were updated in November 2007. These data are the result of a two-year project by researchers

¹ The name of the EU KLEMS database comes from the fact that it decomposes developments in economic growth into the contributions of the various factors of production and intermediate inputs - capital (K), labour (L), energy (E), material (M) and services (S).

Chart A Labour productivity growth in the euro area

(average annual growth rates in percentages)

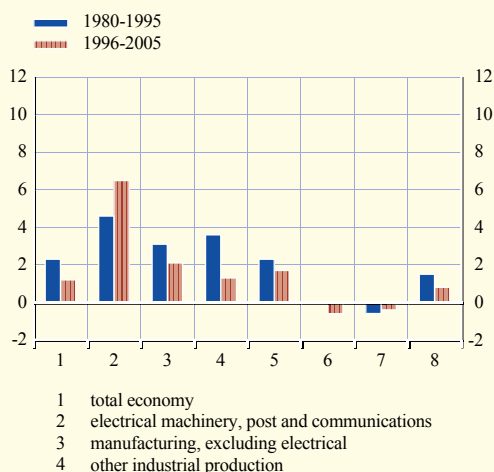
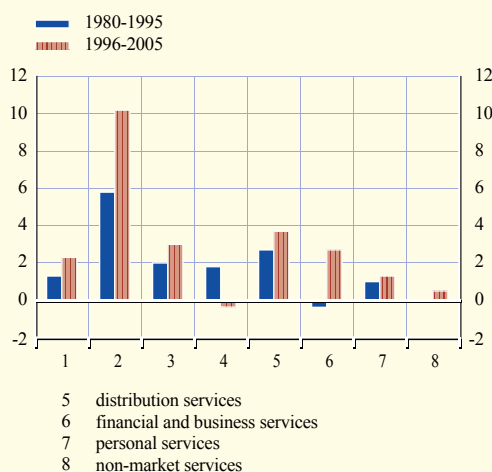


Chart B Labour productivity growth in the United States

(average annual growth rates in percentages)



Source: EU KLEMS database.

Note: Data for the euro area exclude Greece, Ireland, Cyprus, Luxembourg, Malta, Portugal and Slovenia.

based at 16 institutions across the EU, led by the Groningen Growth and Development Centre and the National Institute of Economic and Social Research in collaboration with Eurostat. The European Commission initiated and funded the project. The data consist of time series covering the period 1970-2005 which measure output growth, employment, capital formation and total factor productivity (TFP) at a disaggregated industry level across 25 EU countries as well as in the United States and Japan.² The EU KLEMS database provides very valuable information for assessing structural trends in real output and labour productivity. Nevertheless, these data are still at a preliminary stage and should benefit from thorough validation by national statistical institutes (NSIs). To this end, it is envisaged that the EU KLEMS project will include a further component, namely a “statistical module” whereby the NSIs will be involved in the regular compilation of this dataset which is, for the present, research-oriented. Such involvement is encouraged at the European level and should enable EU policy-makers to make greater use of official statistics on productivity developments for monitoring and decision-making.

Labour productivity can be measured in terms of real gross value added and total hours worked. Euro area labour productivity growth (measured as average year-on-year volume growth of gross value added per hour worked) slowed markedly from 2.3% in the period 1980-1995 to 1.2% in the period 1996-2005 (see Chart A), while euro area real gross value added growth (measured in terms of average annual growth) declined moderately from 2.2% in the first period to 1.9% in the second. In the United States, labour productivity growth rose from 1.3% to 2.3% in the same two periods, while US real gross value added growth also increased – from 2.7% to 3.1% (see Chart B). The slowdown in euro area labour productivity growth is largely due to an increase in total hours worked, from a negative average annual growth rate (-0.2%) in the period 1980-1995 to a positive rate (0.8%) in the period 1996-2005. This contrasts with a decrease in the average annual growth rate of total hours worked in the United States from 1.4% in the first period to 0.9% in the second.

² For more details, see Timmer, M., M. O’Mahony and B. van Ark, EU KLEMS Growth and Productivity Accounts: An Overview, available from www.euklems.net.

Together with the faster real gross value added growth mentioned above, this slower pace of labour input growth has contributed to the rise in US labour productivity growth recorded over the second period. Overall, this means that there was a clear reversal in labour productivity growth between the two periods, as a result of which US labour productivity growth overtook that seen in the euro area during the second period.³

Developments in labour productivity growth across economic activities can be seen in Charts A and B. As shown in Chart A, in the period 1996-2005 the euro area saw positive contributions from the electrical machinery, post and communications industries – which include information and communication technology (ICT)-producing activities – and, to a lesser extent, from manufacturing (excluding electrical), other industrial production, distribution services and non-market services. In contrast, the rate of labour productivity growth was negative in personal services as well as in financial and business services. The economic activities exhibiting a decline in labour productivity growth in comparison with the previous period from 1980 to 1995 were manufacturing (excluding electrical), other industrial production, distribution services, financial and business services and non-market services.

Chart B shows that US labour productivity growth was stronger for a majority of economic activities than in the euro area in the period 1996-2005. The labour productivity growth rates over this second period were considerable for all other industries (above 2% per year) and exceed those seen in the euro area, as well as being higher than in the period 1980-1995. As in the euro area, the electrical machinery, post and communications industries show the fastest pace of labour productivity growth in the second period. Overall, a comparison of Charts A and B indicates that in the second period there was a labour productivity differential in standard manufacturing (that is, excluding electrical) in favour of the United States, as well as a quantitatively larger differential in market services (i.e. distribution services, financial and business services and personal services).

Real output growth trends can be further analysed in terms of growth accounting, whereby real output developments are attributed to the rates of change in capital, labour and TFP. Rather than attempting a full real output growth decomposition, the table below reports annual TFP growth, which appears to be the key factor behind the larger difference between real output growth in the United States and that in the euro area in the second period.⁴ This component is assessed with regard to the market economy (i.e. the total economy excluding real estate activities and non-market services, namely health, education and government services). In the period 1980-1995 euro area average annual TFP growth (at 0.9%) was slightly above that seen in the United States (at 0.7%). In the period 1996-2005 euro area TFP growth fell to 0.4%, while US TFP growth rose considerably, to reach 1.4%. The decline in euro area TFP growth in the second period was fairly broad-based and included manufacturing (excluding electrical) and other industrial production as well as services activities such as distribution services and financial and business services. The only economic activities with higher TFP growth in the second period

³ For a recent analysis of the differences between the performance of the euro area and of the United States in terms of real output and labour productivity growth since the mid-1990s, see van Ark, B., M. O'Mahony and G. Ypma (eds.), *The EU KLEMS Productivity Report: An Overview of Results from the EU KLEMS Growth and Productivity Accounts for the European Union, EU Member States and Major Other Countries in the World*, Issue No 1, March 2007.

⁴ For a more detailed analysis of sectoral euro area TFP growth using EU KLEMS data, see the box entitled "Sectoral patterns of total factor productivity growth in euro area countries", ECB Monthly Bulletin, October 2007.

Total factor productivity growth

(annual average growth rates in percentages)

| | Euro area | | United States | |
|---|-----------|-----------|---------------|-----------|
| | 1980-1995 | 1996-2005 | 1980-1995 | 1996-2005 |
| Market economy | 0.9 | 0.4 | 0.7 | 1.4 |
| Electrical machinery, post and communications | 2.6 | 4.8 | 3.8 | 7.1 |
| Manufacturing, excluding electrical | 1.5 | 0.9 | 0.9 | 1.5 |
| Other industrial production | 1.6 | 0.2 | 1.2 | -0.7 |
| Distribution services | 1.3 | 0.7 | 1.8 | 2.4 |
| Financial and business services | -1.0 | -1.3 | -2.3 | 0.1 |
| Personal services | -1.1 | -0.9 | 0.6 | 0.7 |

Source: EU KLEMS database.

Note: Data for the euro area exclude Greece, Ireland, Cyprus, Luxembourg, Malta, Portugal and Slovenia.

than in the first were the electrical machinery, post and communications industries and personal services.⁵

As mentioned above, work is still in progress on the EU KLEMS database and caution is therefore required when interpreting the data. Analysis of the current EU KLEMS dataset shows that euro area productivity growth was limited over the second period, and lagged behind that of the United States during the same period. Moreover, it broadly corroborates earlier findings which attribute the slowdown in euro area labour productivity growth in the second period to developments in some services activities that make use of ICT (such as distribution services and financial services). The poor labour productivity and TFP growth performance of euro area market services reflects insufficient technological and innovation spillovers as well as market rigidities.⁶ It is, however, worth noting that TFP growth does not just capture technological progress. It reflects other factors such as benefits from economies of scale, variations in capacity utilisation and measurement errors, representing, as it does, all factors other than changing amounts of labour and capital. Finally, the fact that labour and product market rigidities are a drag on euro area labour productivity growth is a reminder that, despite significant progress in some areas, the implementation of structural reforms has not yet enabled a knowledge-based economy to be launched.⁷ Further efforts are therefore required – as advocated in the renewed Lisbon strategy – in order to facilitate the allocation of resources to their most productive uses while fostering labour productivity growth and technological progress.

5 Among the sources of disparities between economic growth in the United States and in the euro area, other than TFP growth, capital accumulation does not appear to have contributed to the widening of the gap (despite the greater dynamism of the ICT capital component in the US economy).

6 See van Ark, B., M. O'Mahony and G. Ypma (eds.), op. cit; and the article entitled "Productivity developments and monetary policy" in this issue of the ECB Monthly Bulletin.

7 See Nicoletti, G., and S. Scarpetta, "Regulation, productivity and growth: OECD evidence", *Economic Policy*, Issue 36, 2003; "Competition, productivity and prices in the euro area services sector", ECB Occasional Paper No 44 issued by the Task Force of the Monetary Policy Committee of the ESCB, April 2006; Gómez-Salvador, R., A. Musso, M. Stocker and J. Turunen, "Labour productivity developments in the euro area", ECB Occasional Paper No 53, October 2006; and the box entitled "Developments in euro area productivity and the need for structural reforms" in the ECB Annual Report 2006.