

Box 7

DEVELOPMENTS IN EURO AREA LABOUR QUALITY AND THEIR IMPLICATIONS FOR LABOUR PRODUCTIVITY GROWTH

The composition of the euro area workforce evolves over time and in response to changing labour market conditions. This leads to changes in the available stock of human capital. However, standard measures of labour input, such as total hours worked, ignore the effects of changes in the quality of labour, resulting, for example, from changes in the share of workers with a higher level of education and more labour market experience. This results in an underestimation of the contribution of labour input to economic growth. In principle, productivity measurement should take into account changes in labour quality by using a

quality-adjusted number of hours actually worked as a measure of labour input. The term labour quality growth is commonly used to describe the difference between labour quality adjusted and unadjusted hours worked.

This box presents evidence of changes in human capital in the euro area and its impact on productivity growth based on an estimate of euro area labour quality since the early 1980s. A number of different data sources have been used to establish this estimate, but these are still incomplete, hence the estimate should be interpreted with some caution. In order to improve such analysis in the future, a regular compilation of euro area national accounts, including breakdowns of wages and employment by educational level, age group and gender (and by industry) would be needed.

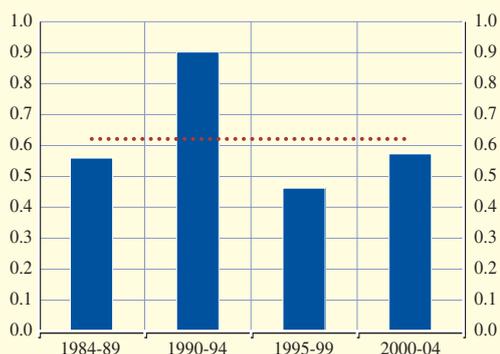
Estimates of labour quality in the euro area

Measuring labour quality requires disaggregated information on proxies of human capital and productivity. Human capital is determined by several individual characteristics, such as education and work experience. Intuitively, labour quality increases when the share of total hours worked by workers with higher human capital and productivity, such as those with a higher level of education and those with more work experience, increases.¹

The results suggest that euro area labour quality has increased continuously since the early 1980s (see Chart A), the average growth rate being approximately 0.6% year on year in the period 1984-2004. Over time, changes in labour quality growth may reflect developments in both trend and business-cycle frequencies. The trend increase in labour quality growth is driven mainly by a rise in the share of total hours worked by those with a higher level of education. In terms of the business-cycle frequency, it is possible that the share of lower-skilled workers will increase during periods of stronger growth, as firms scale back their skill requirements in order to expand production, thus encouraging a larger number of lower-skilled workers to enter the labour market due to the greater likelihood that they will find a job and possibly to the prospect of higher wages. The significant increase in labour quality growth in the first half of the 1990s and subsequent decline in the rest of the decade – a period of particularly strong employment growth – is consistent with this interpretation. In the last few years, growth in labour quality appears to have risen.

Chart A Euro area labour quality growth

(averages of annual growth rates)



Source: ECB calculations.

Note: The dotted line represents the average for the period 1984-2004.

¹ The index of labour quality in the euro area is constructed in two steps. First, weights are estimated for 30 different worker groups (cross-classified by education, age, and sex) in 12 euro area countries using earnings equations and microdata on individuals from the European Community Household Panel (ECHP). Second, these weights are combined with data on total hours worked for worker groups cross-classified by country and worker characteristics from the European Labour Force Survey (LFS). For a detailed discussion on different methods of estimating labour quality, see D. Aaronson and D. Sullivan. (2001) "Growth in Worker Quality", Economic Perspectives, Federal Reserve Bank of Chicago.

Chart B Decomposition of labour productivity growth

(contributions)



Source: ECB calculations. Except for the estimate of labour quality growth, the data are from the Groningen Growth and Development Centre.

labour quality growth accounted for only 15 percent of productivity growth, this share increased to more than 30 percent at the beginning of this decade. These estimates suggest that while TFP growth (excluding the impact of labour quality growth) was slower in the 1990s than in the 1980s, it showed a further slowdown during the recent period of sluggish growth in the euro area. However, given the imprecision that is inherent in all estimates of TFP, these results should be interpreted with some caution.

Some policy considerations

While the main drivers of changes in labour quality are a higher level of education and labour market experience, it is important to recognise that other (non-measured) factors, such as the quality and type of education are also likely to have an impact. The decomposition of labour productivity growth suggests that policies in the area of human capital should be geared towards enhancing educational attainment and providing more on-the-job training. Furthermore, the slowdown in TFP growth suggested by this decomposition highlights the need for economic policies that stimulate innovation and promote the use of productivity-enhancing technologies.

² Developments in labour productivity growth and its decomposition, which do not include an estimate of labour quality growth, are shown in the box entitled "Developments in Euro Area Labour Productivity" in the March 2005 issue of the Monthly Bulletin.

Implications for productivity

Using a quality-adjusted measure of labour input in a standard growth accounting framework provides further insight into recent developments in euro area labour productivity growth. Within this framework, growth in labour productivity, which is defined as real output per hour worked, can be decomposed into three components: capital deepening (i.e. growth in capital services per hours worked), growth in labour quality and total factor productivity (TFP) growth.² The decomposition of labour productivity shows that changes in labour quality are playing an ever greater relative role in the explanation of labour productivity growth (see Chart B).

While in the early 1980s the contribution of