

# **The Spread of ICT and Productivity Growth: Is Europe Really Lagging Behind in the New Economy?**

*Eric Bartelsman, Andrea Bassanini, John Haltiwanger, Ronald Jarmin, Stefano Scarpetta  
and Thorsten Schank*

## ABSTRACT

The economic performance of some OECD countries over the past decade, most notably the United States, has renewed the interest of analysts and policy makers on economic growth and on how policy can eventually support it. This report sheds some light on this issue by relying on harmonised macro and sectoral data for OECD countries and a unique cross-country firm-level dataset. This allows to address a number of issues. What are the key factors explaining differences in output and productivity performances across OECD countries? What is the role of ICT-producing industry and the ICT-driven capital deepening in explaining the different growth patterns of countries? Does the adoption of ICT technologies require organisational changes and/or changes in the composition of inputs? What is the contribution of new firms to overall productivity growth in general and in ICT-related sectors? Do ICT-industries show stronger firm and employment turnover rates? Is there any relationship between the spread of ICT and institutional features of the product and labour markets? For example, do stringent regulations on start-ups (as well as those affecting incumbents) affect the diffusion of ICT? Do differences in labour market policy and institutions explain different patterns of adoption of new technologies?

Macro data clearly point to widening disparities in growth performance across the OECD countries, even on the basis of cyclically-adjusted series. These disparities are related to differences in labour utilisation rather than to widening differences in labour productivity growth rates: i.e. higher growth rates in output per capita observed in a number of countries have been accompanied by improvements in the utilisation of labour, while sluggish employment in others (mainly in continental Europe) have not been fully compensated by higher labour productivity growth, thereby leading to a further slowdown in output growth. However, observed changes in growth patterns in some countries are also the result of the information and communication technology (ICT) revolution. In particular, it is argued that those countries that have developed an ICT-producing industry -- and/or where other industries have been quick in adopting highly productive ICT equipment -- have been able to shift to higher output and productivity growth paths. In this respect, the United States and some smaller countries (e.g. Australia, Ireland) have benefited the most from this ICT revolution, while most large European economies are still lagging behind.

The sectoral and micro analysis also reveals important cross-country differences. The U.S. economy seems to be better able to acquire comparative advantage in rapidly growing ICT market segments than most of its trading partners. At the micro level, there seems to be a different degree of "market experimentation" in the United States compared with Europe, even if aggregate firm turnover rates are similar. The findings suggest that in the U.S. new firms tend to be smaller (relative to average incumbent) and less productive when compared with their European counterparts, but, if successful, they also tend to grow much more rapidly.

The micro evidence reported in the paper offers additional elements in our discussion of a growth-enhancing policy setting. Our results seem to suggest that certain institutional and regulatory settings may reduce the degree of *market experimentation* of new firms. This, in turn, could lower the speed with which a country shifts to a new technology, thereby offering an interpretation to the observed differences in innovation and adoption across the Atlantic. For example, low administrative costs of start-ups and not unduly strict regulations on labour adjustments in the United States, may stimulate potential entrepreneurs to start on a small scale, test the market and, if successful with their business plan, expand rapidly to reach the minimum efficient scale. In contrast, higher entry and adjustment costs in Europe may stimulate a pre-market selection of business plans with less market experimentation. Our econometric results lend some support to these considerations. By using pooled data (country, industry and time) we find that stringent regulatory settings in

the product and labour markets contribute to hinder innovation activity and the adoption of leading technologies.