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Information and Communication Technologies, Market Rigidities and Growth: Implications for EU Policies

(Executive Summary)

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EXECUTIVE SUMMARY

There is a growing consensus in the public debate and among policy makers in particular, in support of the idea that market rigidities in the EU may explain why Information and Communication Technologies (ICT) still do not have any visible impact on growth performance in most EU countries. The objective of this paper is to check whether this view is backed by empirical evidence in a sample of EU countries, Japan and the US during the period 1980-2004. In order to do so, we examine two separate, albeit necessarily linked, questions – first, what is the influence of market rigidities on ICT investment and second, how do market rigidities influence the contribution of ICT investment to GDP? These issues are especially relevant from a policy perspective as ICT has been shown to be at the core of the growing economic divergence between the US and the EU since the mid 1990s. The evidence provided here indeed shows that the EU economy badly needs more reforms, along the lines of those proposed by the renewed Lisbon strategy, in order to make ICT investments effective and, by the same token, to increase the EU's growth potential.

The macroeconomic evidence on the role played by market rigidities in the diffusion of new technologies is still scant. On the one hand, macroeconomic studies have essentially considered the growth and productivity impact of ICT diffusion, devoting much (needed) effort to estimating ICT-capital stock and its impact on productivity and growth, see the papers by van Ark and Inklaar (2005) and Jorgenson et al. (2005). On the other hand, this literature has left practically untouched the issue of the role played by structural features of the economy and framework conditions (including institutions) which could possibly influence the adoption and expected impact of ICT on economic performance. Important exceptions to general trend in the literature are the recent papers by Gust and Marquez (2004) and Conway et al. (2006). These authors do, indeed, find conclusive evidence regarding the negative influence of labour and product market regulations on ICT investment using a similar approach to the one used here. In this paper, we move a step further, by also considering the link between market rigidities and the contribution of ICT to GDP growth. We investigate these issues by testing econometrically the determinants of ICT investment and ICT contribution to growth. The latter is derived from a growth accounting exercise using results taken from the EU KLEMS database.

Our research provides a number of important results. First we show that the persisting lower ICT investment intensity in the EU economy as compared to the US since the early 1980s cannot be attributed to lower dynamism in overall capital investment in the EU. The US economy, in particular, seems to have benefited from a first-mover advantage, given that it started to invest in ICT much earlier and has continued to do so to a greater extent (as measured in percentage of its GDP) than the EU and Japan. Consequently, the US economy was also able to reap greater benefits faster from ICT investment than EU countries. Second, while the EU also experienced a rise in the contribution of ICT to value-added growth after the mid-1990s, this contribution seems to have been much more limited. Also, the rise in the ICT contribution to growth has been broadly limited to relatively small EU economies such as Denmark, Luxembourg, Finland or Sweden. Third, the different experiences of the US and the EU in terms of ICT contribution to growth do not appear to be fully explained by differences in specialization in ICT-producing and ICT-using industries.

This evidence tends to suggest that the US economy was able to reap the benefits from ICT investment faster and to a greater extent than EU countries with similar specialization in ICT-

producing and ICT-using industries. Therefore, other structural factors must explain why ICT diffusion is still slow and its relative economic benefits are still hardly perceptible in the EU economy, at least by US standards. Our results show that greater market rigidities in the EU constitute one of the main culprits for this state of affairs. Countries where market regulations, in particular market regulations, were particularly burdensome have also invested less in ICT and benefited less from ICT investment in terms of GDP growth.

We have also considered the manufacturing and service sectors separately, given that existing evidence suggests that the US service sectors have largely contributed to the US growth resurgence since the mid 1990s, and that ICT investment in these sectors has also influenced these evolutions. A distinctive feature of the US service sectors as compared to those of the EU is its much lighter regulatory burden and its high level of integration. In the EU, we find that market regulation has tended to deter the positive impact of ICT on growth rather significantly in the service sectors and more so than in the manufacturing industry.

A number of policy implications can be derived from these results. First, they provide evidence for the central role played by labour market rigidities in influencing ICT investment and ICT contribution to growth. This suggests that labour markets reform may play a key role in the modernization of the EU economy and in boosting EU economic growth. These reforms should be seen as part of the essential conditions for increasing EU growth potential via technology diffusion. Second, our results suggest that the re-organization of production and the skills-improvement called for by ICT diffusion could help to explain why the EU economy is still slow to invest in ICT. The explanation put forward in this paper is that market rigidities, and labour market rigidities in particular, make these changes too costly. It follows that, market-oriented reforms, like those proposed by the renewed Lisbon strategy, cannot be considered as stand-alone policies and that radical changes at the firm/business level and reforms to improve labour skills are called for in order to promote technological change in the EU economy. Third, our results concerning the influence of past ICT investment suggest that the EU possibly lags behind in terms of ICT benefits because it started to invest later than the US. However, we show that even in those EU countries where ICT investment has caught up with US levels since the mid-1990s, the contribution of ICT investment to growth has taken time to materialize. It is therefore important to bear in mind that, even if greater product and factors market flexibility in Europe is a pre-condition for increased growth potential, in particular via ICT investment, these benefits may take time to bear fruit. Fourth, we find that lower market regulation, especially in the case of the service sector, promotes a larger contribution of ICT to GDP growth. The latter suggests that lower overall regulation in services can act as an important lever for increasing ICT contribution to growth, given the size of the service sector in total EU economic activity.