Abstract

Since the Lisbon Summit in 2000, there has been an active debate within Europe regarding the competitiveness of the EU regional economy. While the gap in GDP per capita is not really widening according to Van Ark, it is labor productivity that is diverging. After nearly four decades of European convergence to U.S. productivity levels, labor productivity and total factor productivity trends in the U.S. and the EU began to diverge in the mid-1990s. U.S. labor and Total Factor Productivity (TFP) growth accelerated, EU productivity growth did not. A large and growing literature has tied the divergence in labor productivity trends to superior American investment in and utilization of Information and Communications Technologies (ICT). More recent work has attributed some of the divergence in Total Factor Productivity to ICT as well. Superior American performance appears to arise not only or even mostly from high levels of investment in ICT; rather, American industries and firms appear to derive greater output boosts from their investment.

Basu et al. (2003) have proposed a model consistent with these facts, in which the impact of ICT investment is enhanced by unmeasured investment in organizational capital that is complementary to the ICT hardware and software. In this paper, we build on the work of Basu et al., both conceptually and empirically. In our empirical work, we develop a simple model of unmeasured complementary capital and apply it to U.S., French and Belgian data in order to understand whether complementary capital accumulation can explain the “missing” TFP growth in the European countries since the mid of the 1990s. Theory suggests that TFP growth should be negatively correlated with contemporaneous investments in ICT capital, because firms are diverting resources to install the new capital; while it should be positively associated with lagged investments in ICT capital. Whereas the United States started to invest in ICT and in complementary capital in the late 1980s and continued during all the 1990s, we find evidence that France and Belgium delayed the wave of ICT investments until the late 1990. We also trace the benefits of these late investments on TFP growth during the first years of the XXI Century.

We also begin to suggest a different conceptualization of “Complementary Capital” that suggests a role for constrained supplies of skilled labor in determining the impact of ICT investment on productivity. We offer preliminary evidence suggesting the importance of this labor supply affect and sketch out how it might be tested more thoroughly.