Direct and indirect productivity gains from offshoring

Topic: Analyzing productivity
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The shift abroad of economic activities is a major issue for empirical research on the threats and opportunities of an ever more integrated global economy. This is nowadays mainly referred to as offshoring. Since the pioneering work of Feenstra and Hanson (1996), it has become common practice to measure the offshoring intensity at the industry-level through the share of imported intermediates in total output. To compute this offshoring intensity for both materials and business services for 63 manufacturing and 35 service industries we have used a series of constant price supply-and-use tables (SUT) for Belgium for the years 1995-2004 that are all consistent with the 2007 vintage of the national accounts. It turns out that the offshoring intensity for materials is well above that for business services, but the growth rates of the latter are higher. Moreover, using detailed trade data we split the offshoring intensities according to the country of origin of the imports and find that offshoring to Central and Eastern European countries is growing fastest.

For Belgium, Michel and Rycx (2009) show that there is little or no impact of either materials or business services offshoring on overall employment. This finding raises the question whether there are any productivity gains arising from offshoring at the industry-level. This question is particularly relevant for a small open economy like Belgium where economic activities are rather footloose. On theoretical grounds there is not much doubt regarding the productivity gains from offshoring. Nonetheless, the findings in the empirical literature so far have not produced clear cut conclusions. Moreover, the issue has not yet been looked at for service industries.

Following the standard approach in the empirical literature, we measure the magnitude of productivity gains from offshoring by introducing offshoring as a technology shifter in a Cobb-Douglas production function at the industry-level and estimate its impact on total factor productivity (TFP) growth and on labour productivity growth. We include several offshoring intensities: for materials and business services and for high-wage and low-wage countries. Regarding the other variables in the productivity equation, we use a capital stock calculated with detailed investment data by industry and product, which allows for a split into ICT and non-ICT capital, and labour input data by skill level. The estimations are done separately for the manufacturing and the service sector. The results show that materials offshoring has a significant positive impact on total factor productivity in the manufacturing industries but not in the service industries, whereas business services offshoring has a significant positive impact only in service industries. Both these results are driven by offshoring to OECD countries. However, we also find that materials offshoring to Asia has a significant positive impact on total factor productivity. As further steps in the estimation procedure, we will be lagging the offshoring intensities to see whether the productivity gains from offshoring materialise with some delay. Finally, we will also introduce a measure of offshoring in downstream and upstream industries so as to determine whether there is an indirect or spillover effect of offshoring on productivity.