

Offshoring, Greenhouse Gas Emissions and Productivity

Topic: Productivity and efficiency analysis 3

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Lower wage costs abroad are the main motivation for the offshoring of economic activities. Therefore, offshoring is generally believed to be productivity-enhancing. However, lower wage costs are not the only reason why firms seek to offshore parts of their production processes. The possibility of avoiding pollution abatement costs for greenhouse gas emissions may be another motivation in decisions to engage into offshoring, especially for emissions-intensive activities. Not only does this raise fears about non-coordinated action in the fight against global warming, it may also lead to lower productivity gains from offshoring in emissions-intensive industries. In this paper, we address this latter issue by estimating whether the impact of offshoring on productivity differs according to the industry-level emissions intensity. For this purpose, we use data from the Belgian Air Emissions Accounts and combine them with a time series of constant price supply-and-use tables for the years 1995-2004. First, we decompose the greenhouse gas emissions-intensity for intermediate inputs so as to identify to what extent changes in this intensity can be attributed to the substitution of imported intermediates for domestic intermediates. The results show that this substitution accounts for about 15% of the reduction in the emissions-intensity. Then, we define a framework for estimating productivity gains from offshoring, bring this to the data, and find that offshoring is indeed productivity-enhancing. To test whether this result holds for all industries whatever their level of greenhouse gas emissions, we split the sample into high and low emissions industries using means and quartiles of emissions levels to define the subsamples. According to the estimation results, offshoring is significantly productivity-enhancing in both high and low emissions industries. Hence, greenhouse gas emissions do not seem to influence productivity gains from offshoring. This result is confirmed by productivity estimations that include interaction terms between offshoring and emissions levels.