

Technical efficiency, productivity, R&D and multinationality

Discussion by:

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Aims

- How to fill the EU productivity gap with respect to its main competitors (USA, Japan, Rest of World)
 - EU productivity gap is a measure of EU firms' internal (innovative) capabilities;
 - Factors driving firms' productivity and efficiency
- Issues addressed:
 - The role of R&D in explaining potential gaps between EU and non-EU firms;
 - Differences in the propensity to invest in R&D;
 - Differences in the returns to R&D
 - Alternative explanations:
 - Multinationality and industry diversification as factors explaining both productivity gaps and differences in R&D propensity

The EU productivity gap

- EU firms are *on average* less efficient and less productive than US and Japanese firms and more productive and efficient than the Rest of the World;
 - This holds when controlling for sector-, time- and firm-specific effects;
 - *Do these results hold for all EU countries?*
 - *Can these results be sensitive to the location of firms across EU countries?*
 - *External factors affecting firms productivity (local institutions, agglomeration economies ...). Is there an omitted variable bias?*

The role of R&D

- Differences in *R&D levels* explain partially productivity gaps
 - Productivity gaps disappear with respect to the US and the Rest of the world;
 - EU firms are less able than US and Japanese firms to transform R&D into productivity gains.
 - Southern European firms are less efficient and less able to transform R&D into productivity than other EU firms
 - *Why? Is the local territorial capital less conducive for R&D effects?*
 - *Is the sample geographically balanced?*
 - *Does specialization matter?*
 - *Southern Europe is specialized in low tech sector, while Northern Europe is relatively more specialized in high-tech production and knowledge intensive sectors.*

Alternative explanations

- *Multinationality* creates incentives for R&D, but it hampers productivity
 - This proposition holds for Medium-high, medium-low and low R&D sectors, but not for High R&D sectors
- Differences in *multinationality* explain the EU firm superiority with respect to the Rest of the World
- Factors driving R&D intensity (at firm level): Industrial concentration and multinationality exert positive effects on R&D intensity, but only in High and Medium-high R&D sectors
 - EU firms have the lowest propensity to invest in R&D in all industries
 - *Why have sectors been identified by the level of R&D instead of the technology intensity as before?*
 - *Why previous classification is not good in this case?*
 - *Any potential collinearity with R&D variable?*

Suggestions for future developments

- EU differences across and within countries should be better identified and explained
- Location as a potential source for efficiency and/or productivity should be better explored, at least as far as the EU is concerned.
 - Role of territorial capital, hard and soft, in increasing firms' propensity in investing in R&D
 - Place-based vs. a-spatial policies
- Alternative explanations for the EU gaps deserve more robust results before being translated into policy implications
- Sensitivity to potential sample-selection biases should be discussed and carefully evaluated
 - Can the performance of SMEs reverse these trends?
 - Are SMEs more efficient and productive than large enterprises, once controlled for R&D?
 - Does propensity in investing in R&D differ between small and large firms?
 - Are SMEs more able to reap R&D benefits than large firms?