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PRESS RELEASE

European competitiveness: A semi-parametric stochastic metafrontier analysis at the firm level

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We make a **cross-country comparison of the competitiveness of firms within Europe, as measured by their productivity**, that is, efficiency gains in using existing technology to produce goods and services from a given set of inputs. The analysis covers ten manufacturing industries in seven EU countries (Belgium, Finland, France, Germany, Italy, Spain and the UK) over the period 2002-2009.

In contrast to other large-scale firm-level productivity studies on manufacturing, we use a flexible semi-parametric methodology that does not impose *a priori* a functional relationship between input and output. Our methodology allows for both inefficiency and noise in the data, which is important as firm-level data are known to suffer from measurement errors. For each industry, a so-called metafrontier is estimated for the group of seven countries, showing the highest value added that can be generated for a given level of inputs (labour and capital), as well as country-specific frontiers. This makes it possible to assess which part of the relative inefficiency of firms is due to one of their country's technology gaps with respect to the most efficient country and which part is due to the distance of a firm with respect to the country frontier determined by their most efficient domestic competitors. The dynamics of productivity are assessed through a Hicks-Moorsteen indicator of total factor productivity growth.

We show that **Belgium and Germany (followed by France) appear to be technological leaders** (as they determine the European metatechnology frontier) in most industries considered whereas Spanish firms witness a dramatic technology gap with regard to the international technology frontier. The competitiveness disparities are persistent over time as no catch-up is found in the productivity change estimates.

It is not entry or exit, but within-firm productivity growth and reallocation between incumbents that is the main driver of industry-level productivity growth. In particular, the **relative contribution of efficiency growth in young firms (between 5 and 10 years) is the main explanation of industry-level productivity growth**.

We note **substantial differences between countries in efficiency development among young firms**. In Finland, firms younger than five years are on average more efficient than older competitors. In Belgium and Germany, it takes more time for new firms to become efficient whereas newly created Italian and Spanish firms seem unable to catch up with their older domestic competitors, even within a period of ten years after entry.

Institutions that promote post-entry growth of young firms are expected to foster productivity growth at the industry level. Whereas firms just starting out have a high probability of being forced to exit at an early stage, a small share of surviving start-ups explains a disproportionate part of industry-level dynamics, in terms of employment as well as productivity growth. Existing studies hint at **the crucial role that credit constraints and demand-side factors can play in hampering post-entry growth**. The trade-off which - to some extent - seems to exist between employment and productivity growth complicates the formulation of a coherent policy as policies that aim at raising productivity may offset measures that seek to ensure the employability of low-productivity workers.