

Inventor Counts and the Globalization of R&D

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Abstract

R&D is becoming increasingly globalized, but R&D statistics have not been keeping up with this development. Firm-level data capture R&D investments irrespective of location, and OECD survey data only capture R&D within national territorial boundaries. In this paper, relying on the firm's inventor employees information we develop a method of quantifying the R&D investments by the location where the firm's inventive activities has taken place. In particular, for 2,197 European business group and their 151,979 subsidiaries we have identified all inventors and their locations at the time of invention. In year 2000 these corporations have accounted for about 90% of the overall intramural R&D at the continental level according to the STAN-OECD data.

Analyzing the time series of the last two decades we compare the inventor counts to the consolidated R&D expenditures and find that both in levels and growth rates, there is a high correlation between these measures. Then, we propose a method of repartitioning the consolidated R&D according the geographical distribution of the inventors, that takes into the account not only the absolute level of inventor employment in a firm but also the potential mobility of inventors over time. This methodology allows us to estimate the share of non-domestic R&D by our firms. We also compare aggregated estimates of non-domestic R&D of sample enterprises to information from other data sources, finding consistent results. We finally employ the data to document the increasing globalization of private R&D activities of European firms.