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Don't underestimate the effect of competition in global value chain networks on economic growth

Recent studies suggest that the economic growth is mainly due to technological improvements implemented by producers. However, an article published by researchers from ICTA-UAB and the Department of Economics at the University of Bamberg shows, based on WIOD data that competition has a greater effect on growth than technological innovation.

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Some recent research articles including McNerney et al.[1], argued that technological improvement is the most important cause of long-term economic growth. Although we agree with these studies that production networks are vital to understand sources of economic growth, we believe they exaggerate the role of innovation and overlook another important growth determinant, namely competition causing market share reallocation. In a recent article published in *Economics Letters* me and Philipp Mundt show[2] that competition has a larger effect on labor productivity change than technological improvement.

To illustrate the role of market share reallocation in economic growth, consider a market populated by *N* producers with heterogeneous productivity. Suppose that *N-1* producers innovate improving their productivity, whereas the *N*th producer, which operates below the industry's average productivity, does not. Then aggregate productivity of this industry may still decline if the market share of the *N*th producer grows fast enough. This phenomenon is called "Simpson's paradox"[3]. If more productive manufacturers increase their market shares,

the same phenomenon explains why aggregate productivity grows even in the absence of innovation.

To compare the importance of the two forces empirically, we decompose the labor productivity of an industry at the global level into two components: (i) the so-called within effect that captures the influence of technological improvement, and (ii) the between effect that quantifies the reallocation of market shares between the producers.

Applying this decomposition to the data from the (WIOD), we account for dependencies between suppliers in their productive performance[4] by estimating the productivity of entire production chains (henceforth, value-chain productivity) instead of individual producers (hereafter, idiosyncratic productivity)[5]. Considering the median across all industries, we find that 60% of aggregate productivity improvement in the period 1995-2009 are due to competitive reallocation, and only 40% originate in innovation (Fig. 1).

To quantify the contribution of global input–output linkages to the sectoral labor productivity decomposition, we compare our value-chain productivity measure to the idiosyncratic productivity of countries in each sector, which neglects the existence of input linkages. The results in Fig. 1 demonstrate significantly lower role of competition once global value-chain linkages are ignored, with a median between effect across all industries of merely 21%. This stresses the relevance of global value chain analysis in studies of productivity change. Our study also indicates that the previous estimations[6,7] on the role of competition were downward biased since these linkages were ignored.

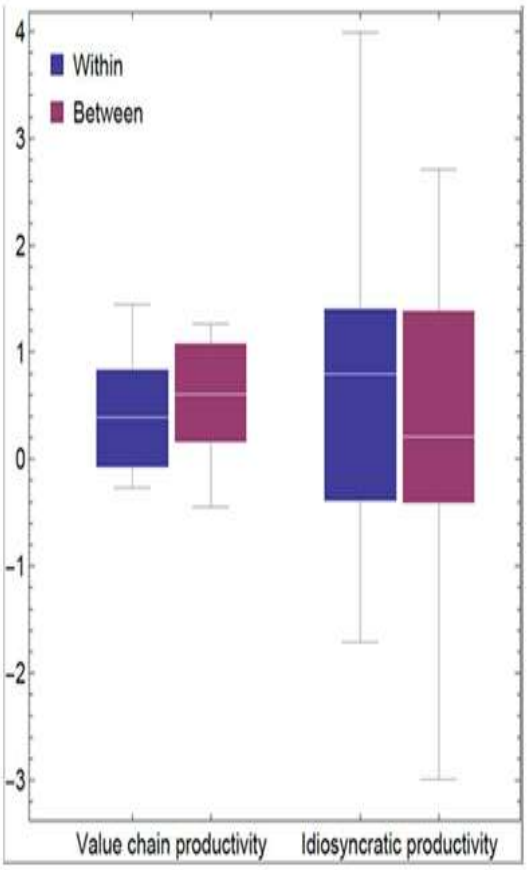

Fig. 1 Decomposition of aggregate productivity change. Box plots for the within and between effects across all industries are shown. White markers indicate median values.

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