Dynamic Productivity Decomposition with Allocative Efficiency[1]

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Abstract

We propose a novel approach to decomposing aggregate productivity growth that considers changes in the allocative efficiency as well as technical efficiency, entry and exit, and variety. The allocative efficiency is measured in terms of the dispersion in revenue-based productivity (TFPR) while the technical efficiency depends only on producer-level quantity-level productivity (TFPQ). Applying our approach to an establishment-level dataset from Japanese manufacturing industries over the period of 1986-2014, we find that the allocative efficiency among survivors worsened in the 1990s and 2000s, and then improved in the early 2010s. This result is in contrast with the results from the decomposition approach proposed by Foster, Haltiwanger, and Krizan (2001) that measure the reallocation effect in terms of the correlation between the change in output share and productivity. We further find that almost throughout the sample period, both entering and exiting establishments were less efficient than survivors, indicating a negative entry effect and a positive exit effect, respectively. The variety effect tended to be negative but small.

Keyword: Productivity decomposition; Allocative efficiency, Japan.
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