

On Concepts and Measures of Changes in Productivity --- A reformulation

Topic: Productivity and efficiency analysis 1

Author: Ariel Luis Wirkierman

Co-Authors: Nadia Garbellini

There exists a vast literature on the measurement of productivity changes, reflecting a wide range of theoretical approaches to economic analysis. The present paper departs from Pasinetti's (1959) critique to Solow's (1957) seminal paper, and advances a novel reformulation of Pasinetti's (1959) original physical productivity measures in an Input-Output framework, considering the reproducible character of intermediate commodities and fixed capital goods.

By reclassifying industry magnitudes in terms of vertically (hyper-) integrated sectors, it is possible to change the unit of analysis and devise sectoral measures of total labour productivity changes, which account for the input requirements of all supporting industries participating in the production of each final commodity. Moreover, by measuring composite capital goods in terms of units of productive capacity we distinguish the analysis of technical change from the pace of accumulation.

The correspondence between empirical magnitudes and theoretical categories of Pasinetti (1973, 1988) is established by departing from a set of square commodity x activity Supply-Use Tables (SUT) and associated capital coefficient matrices, acknowledging the difference between depreciation, retirements and replacements of fixed capital in observed given structures.

In order to empirically quantify the dynamics of employment and technical change, the productivity measures derived have been applied to the case of Italy during the period 1999-2007.

Complementarily, in the light of the 'yeast vs. mushrooms' debate initiated by Harberger (1998), the pattern of concentration of disaggregated total labour productivity changes by subsystem is compared to traditional Input-Output TFP growth measures by industry, allowing to uncover methodological differences implied by each approach.

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