

Estimating Aggregate Productivity Growth with Plant Level Data when Markets are not Competitive

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Abstract

An aggregate productivity residual measures aggregate technological change in a world without imperfections and frictions but does not when these conditions are not met. This paper explores aggregate productivity growth and its reallocation components in the presence of imperfect competition. Econometric estimates of markups are employed to evaluate and decompose aggregate productivity growth into technological change, and reallocation of markups and resources. The manufacturing census in Colombia for the years 1977-1991 provides an excellent example for the purpose. There are three primary findings. First, we find that, at the aggregate level, technology growth have significantly higher variance than does productivity growth. Second,

reallocation of resources explain significant amount of variation of the gap between aggregate productivity and aggregate technology. Third, reallocation of capital and labor, weighted by average markups, affect total reallocation the most, followed by reallocation of materials. We discuss an advantage of employing the empirical methodology to plant-level data.

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