

# **Decomposition of Supply and Demand Shocks in the Production Function using the Current Survey of Production**

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## Abstract

The purpose of this paper is to decompose total factor productivity (TFP)-type quantity into supply/productivity, demand, and other shocks. We propose a method of decomposing these three kinds of shocks in the production function using the gap between the actual amount of production and the production capacity of each plant. We construct a model to describe the capacity and realized production under Cobb-Douglas technology and attempt to compute the demand and supply/productivity shocks separately using the Current Survey of Production by METI. This dataset provides product-based data for production, sales, inventory, labor, and the production capacity of each plant at the present input levels. The main idea is that production capacity does not, or cannot, change against a short-term change in demand, but realized production should reflect such demand shocks observed by firms. We found no negative productivity shocks but found severe demand shocks during the financial crisis of 2007-2008 in our empirical results.

Key words: Productivity, Production Capacity, Supply Shock, Demand Shock,  
Plant-level data

JEL classification: C14, D24