

# What can be learned from production potential in demand-driven macroeconomic models?

Topic: Input-Output Theory and Methodology (7)

Author: Peter Dreuw

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Name: Peter Dreuw

Institution: GWS – Institute of Economic Structures Research, Osnabrück

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## Research question

Demand-driven models inspired by Keynesian and post-Keynesian theory assume that any level of demand can be met as long as unused production capacities exist. In such models, output adjusts to demand, and fiscal or private investment and consumption can stimulate growth without running into supply constraints. In contrast, neo-Keynesian and mainstream macroeconomic models emphasize the role of supply-side limitations and the concept of potential output determined by capital, labor, and technological progress.

This conceptual divide raises a broader question: How can the integration of supply-side modeling approaches into demand-driven models improve our understanding of capacity utilization, technological progress, and long-term growth? In particular, what information about the economy can be gained by incorporating production potential into a demand-driven framework, how can such an approach help interpret periods of under- or over-utilization of resources, and what implications follow for scenario analyses?

The discussion is empirically motivated by current debates about capacity limits in Germany, where demographic change, labor shortages, and ambitious governmental investment programs challenge the assumption of abundant production capacity. However, the focus of this research is not on evaluating specific policy measures, but on exploring the methodological and analytical implications of combining two distinct macroeconomic traditions, with the aim of bridging demand- and supply-side perspectives.

## Method

The analysis is based on the dynamic Input-Output model INFORGE (INterindustry FORecasting GErmany), which describes 65 economic sectors and captures detailed interindustry relationships. Following the INFORUM approach, it links sectoral production, demand, investment, prices, employment, and trade through consistent Input-Output relationships combined with econometric behavioral equations in a bottom-up framework.

To explore the interaction between demand-driven dynamics and production potential, the study applies a simple Cobb–Douglas production function ex post to the INFORGE model. This function uses capital stock, as well as trend components of labor and total factor productivity (TFP) to estimate potential output at both sectoral and aggregate levels. The trend components are derived using the Hodrick-Prescott filter. Importantly, the production function analysis does not feed back into the dynamic Input-Output framework; it is used to evaluate and interpret the model results from

an alternative, supply-oriented perspective.

To demonstrate the benefits and analytical capacity of the combined approach, scenario analyses are conducted with and without an additional „500 billion government investment program. These simulations serve as an illustrative example to test how the integrated demand- and supply-side framework captures changes in capacity utilization, potential output, and total factor productivity across sectors.

#### Data used

The study relies on data from the INFORGE database, primarily constructed from official German national accounts and Input-Output tables published by the German statistical office (Destatis). Sectoral production, employment, investment, and price data are fully consistent with national accounting principles.

#### Novelty of the research

The novelty of this research lies in bridging two macroeconomic perspectives: the demand-driven (Keynesian and post-Keynesian) tradition and the neo-Keynesian, supply-oriented approach. By overlaying a production potential analysis onto a dynamic, demand-driven Input-Output model, this study provides a framework for examining supply side constraints, capacity utilization and technological progress for scenario analyses with a dynamic Input-Output model.