

Decomposing Import Demand in Trade Policy Analysis: A Sourcing-by-Agent Framework

Yutaro Kimata, Yuma Kamiya, and Ken Itakura

Graduate School of Economics, Nagoya City University

Preliminary Draft

September 2026

Abstract

This paper develops GTAP-SBA, a sourcing-by-agent modeling framework based on the Global Trade Analysis Project (GTAP) model and database, and provides empirical inputs for trade policy applications. In standard GTAP-style trade models, import sourcing is aggregated at the sector and regional levels before imports are allocated to domestic users. This structure does not fully capture heterogeneity in sourcing patterns and responses to trade costs across firms, households, investment, and government. GTAP-SBA addresses this limitation by integrating purchasing-agent information from the OECD Inter-Country Input-Output (ICIO) tables, allowing each agent to source imports independently within each sector while preserving the GTAP accounting structure. Combining these data with applied tariffs, we estimate sector-agent-specific trade elasticities and find substantial heterogeneity across agents: import demand by firms and investment responds more strongly to tariff changes than household demand. We also estimate gravity models for goods and services trade to calibrate an expansion of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). In the counterfactual experiment, both standard GTAP and GTAP-SBA imply an approximately 13.5 percent increase in intra-CPTPP17 exports and broadly similar effects on real GDP across countries. GTAP-SBA, however, additionally identifies how sectoral import adjustment is distributed across production, household consumption, investment, and government demand. These results show that sourcing-by-agent is not merely a database refinement, but provides an additional margin for understanding the composition of adjustment to trade policy even when aggregate effects are similar.

Keywords: sourcing by agent; GTAP; trade elasticity; computable general equilibrium; inter-country input-output tables; CPTPP expansion

JEL classification: C68; F13; F14; F15; F17