Trade Reform in Services: Structural Change and Production Networks

Adam Jakubik (IMF) & Wentao Zhou (UW–Madison)

ajakubik@imf.org; wzhou92@wisc.edu

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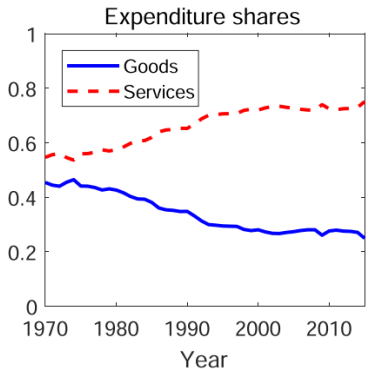
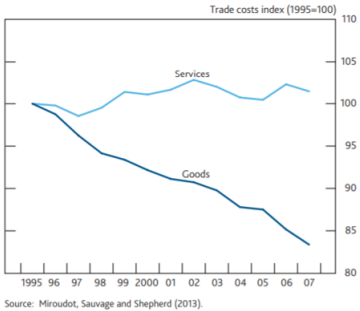
Motivation



- Post-war period of the world has experienced a significant structural change.
- Expenditure over services rose from 55% in 1970 to 75% in 2015.
- Income effects and population aging play important roles in this rising demand for services.
  [Cravino et al.(2017)],[Comin et al.(2021)]

Despite services demand ↑, services trade costs are still high



Source: Miroudot, Sauvage and Shepherd (2013).

- Trade costs in goods have fallen at an impressive rate in recent years, while trade costs in services have remained high.
- Regulatory burdens in services trade are two to three times larger than that in goods trade. [Miroudot et al. (2013)]
- Continued structural change –> "stealth erosion" of gains from GATT/WTO rounds of liberalizatioin [e.g. Lewis et al. (2021)]
- Opportunity cost of delayed policy reforms in services trade are growing.

Research questions

- How large are the welfare gains from services trade liberalization?
- What is the distributional impact of the reform? Who gains more?
- As EMDEs converge to AEs in expenditure shares, how the impacts differ?

Our approach: a model-based assessment

- Scenarios of services trade liberalizations are relatively rare in the data.
- Structural approach allows clean decomposition of the partial equilibrium and general equilibrium effects.

A multi-country multi-sector GE model w/ international production networks

- We solve the model (long-term equilibrium) following Baqaee and Farhi (2023):
  $\Longrightarrow$ accounts for non-linear production functions with I-O linkages
  $\Longrightarrow$ granular country-sector level data
  $\Longrightarrow$ new welfare decomposition

- Perturbations from iceberg trade cost (or tariff) solved via log-linearizing and differential hat-algebra.

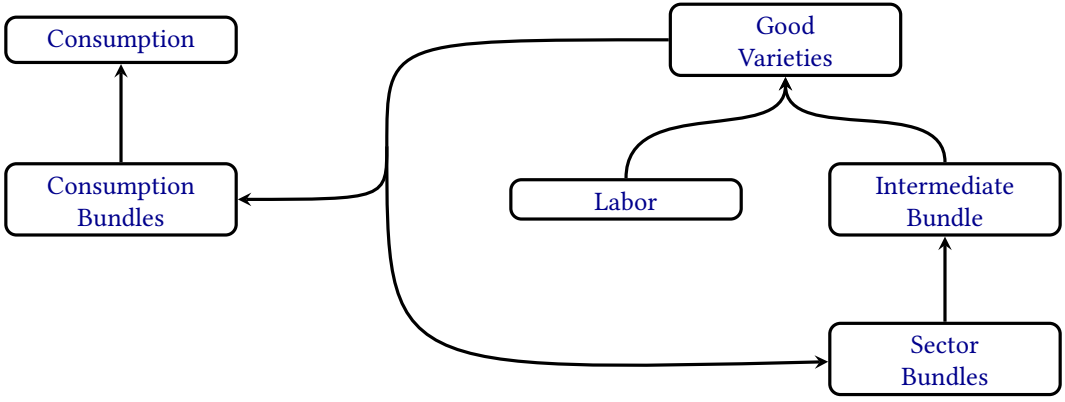
- Consumers consume domestic/foreign goods and services (CES utility) and provide labor and capital

- Producers use domestic/foreign goods and services as intermediate inputs in nested CES production function

- Industries and countries are interconnected through production networks (amplification)

Model overview

Figure: CES functions over goods and varieties



Key model mechanisms

$$d \log W_c = \underbrace{-\sum_{i \in N} \lambda_i^{W_c} d \log \tau_i}_{\text{Price Effects}} + \underbrace{\sum_{f \in F} \left(\Lambda_f^c - \Lambda_f^{W_c} \right) d \log \Lambda_f}_{\text{Reallocation Effects}} \tag{1}$$

- **Welfare impact of trade liberalization**:
  Changes in real income = Changes in factor income - Changes in consumer prices

- **Price effects** of trade liberalization:
  reduction in service trade costs also lowers the prices of goods through input linkages
  $\Longrightarrow$ changes in consumer prices

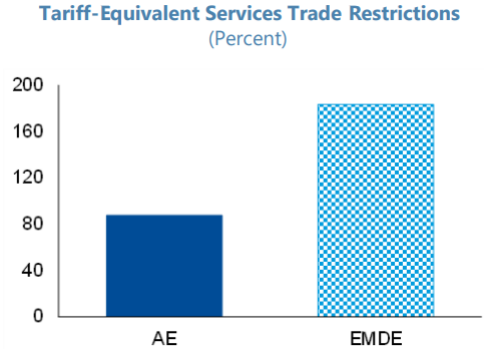
- **Reallocation effects** of trade liberalization:
  changes in relative prices induce changes in relative product demand
  $\Longrightarrow$ reallocation of trade and production across countries through production networks
  $\Longrightarrow$ changes in factor income

Key findings

- Services trade liberalization generates welfare gains by lowering consumer prices and increasing factor incomes $\Longrightarrow$ increases in real income.
- Countries that consume or export more services gain the most.
- As EMDEs converge to AEs in consumption patterns, services trade liberalization generates larger welfare gains due to stronger reallocation effects.
- The stronger reallocation effects are especially pronounced among AEs w/ strong existing links to EMDEs.

Baseline simulation

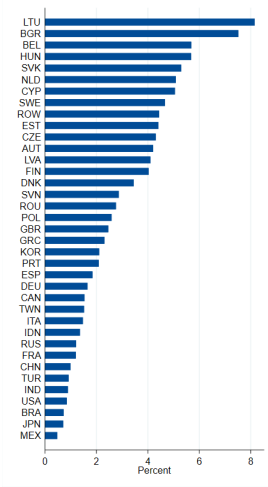
- We use WIOD inter-country input-output tables: 41 countries and 30 industries
- Within industry elasticity of substitution is from Caliendo and Parro (2015)
- We consider a 50% reduction in services trade (iceberg) costs across countries.



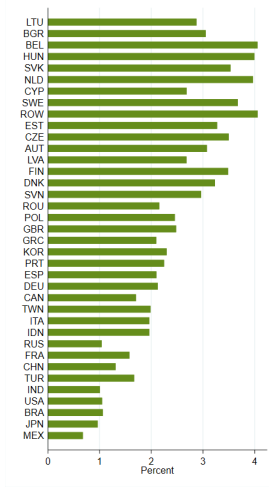
Source: IMF (2023) based on OECD STRI.

Baseline simulation:

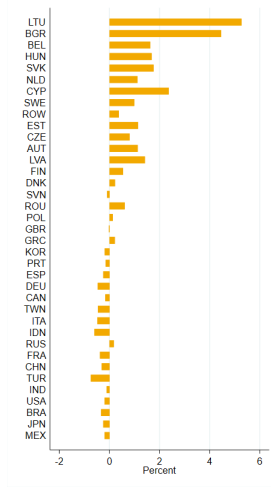
Welfare gains



Price effects: $-\Delta \log CPI$

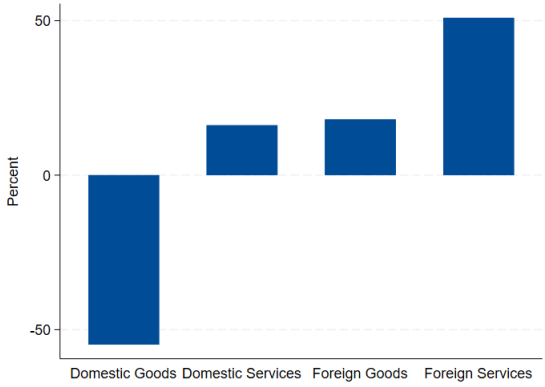


Reallocation effects



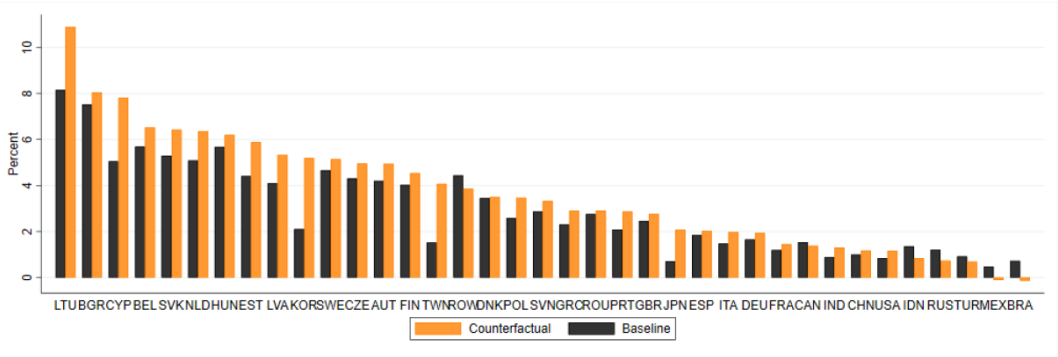
Differential Consumption Patterns

- AEs consume more foreign services and less domestic goods than EMDEs
- How do the impacts of trade reform differ when EMDEs have the same consumption patterns as AEs?



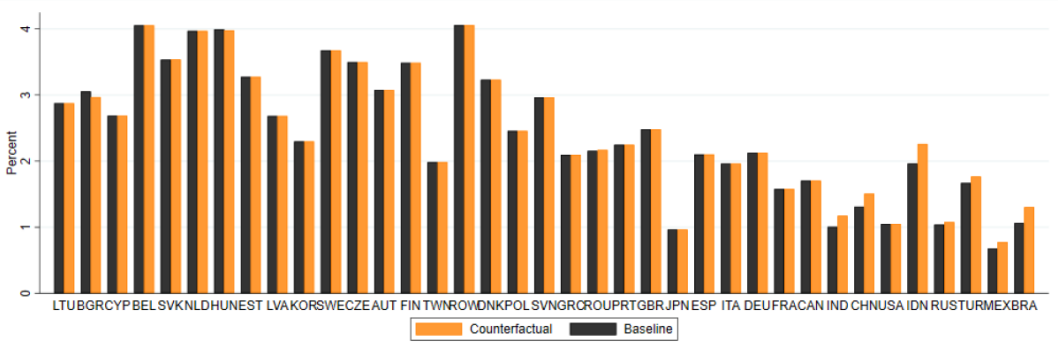
As EMDEs catch up w/ AEs in consumption patterns

- Larger welfare gains from services trade liberalization



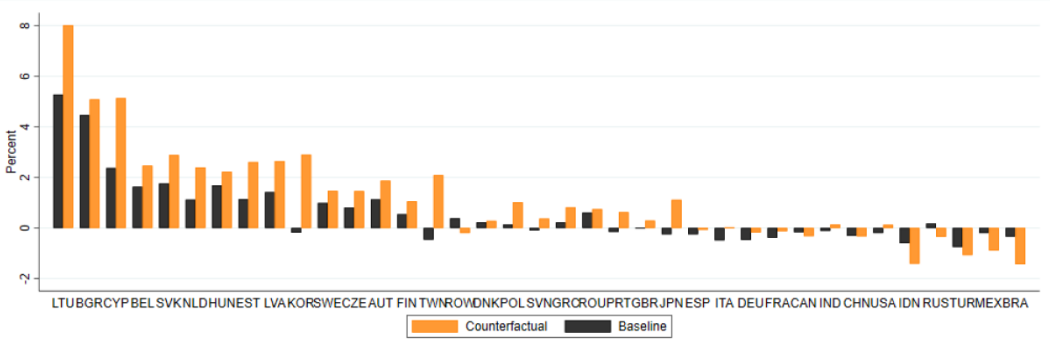
As EMDEs catch up w/ AEs in consumption patterns

- As EMDEs consume more services, they benefit more due to lower prices of their consumption baskets.
- This mechanical increase in price effects of trade liberalization is rather small.



As EMDEs catch up w/ AEs in consumption patterns

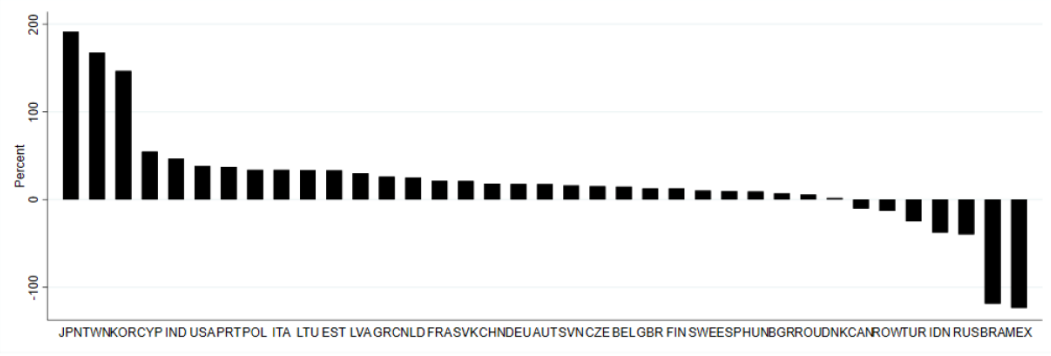
- Trade liberalization generates significantly larger reallocation effects across the world
- Services providers gain more in factor income while goods providers lose more



As EMDEs catch up w/ AEs in consumption patterns

- Production networks lead to uneven increases in welfare gains
- Japan, Taiwan, and Korea will lose in the baseline case, however, gain as structural change continues

Figure: Percentage Difference in Welfare Gains



Discussion

- A novel and unique amplification mechanism of service trade reform: as services trade liberalization generates increases in real income across the world, countries will further increase their demand for services $\Longrightarrow$ further amplifying the impact of lower trade costs in services

- Economic effects of similar order as fragmentation in B-F model:
  Attinasi et al. (2023): welfare loss from decoupling -3.1% and -15.2%.
  Javorcik et al. (2023): friend-shoring: -0.1 to -4.6

- Welfare gains likely to be to underestimated, in future work:
  (i) non-homothetic preference as a potential amplifier given correlation between income and services consumption
  (ii) long-run demographic trends, aging linked to services consumption (Cravino et al., 2022).

Summary

- We solve a multi-country multi-sector GE model w/ international production networks to understand the global impacts of service trade liberalization
- Price effects and reallocation effects both found to be quantitatively important.
- Production networks play an important role in the reallocation of trade and production across sectors/countries.
- Hoekman, Mattoo, Sapir (2007) study the impediments to WTO GATS negotiations; our findings show rising opportunity costs of inaction as EMs develop.