October 8, 2026
RIETI-ANU Symposium 2026

Supply Chain Resilience
- Current Situation and Perspectives of Japan -

Yasuyuki Todo

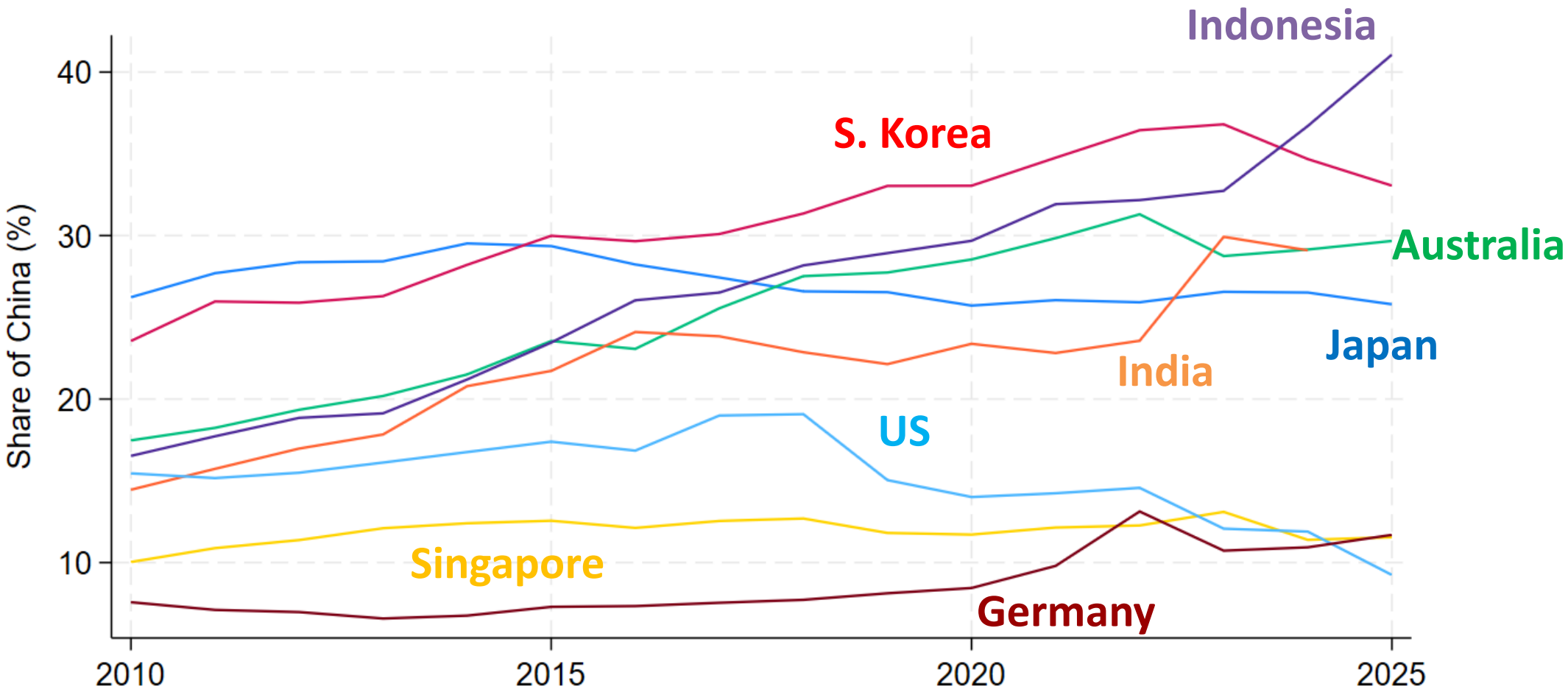
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Personal website

Asia, including Japan and Australia, are heavily relying on China in supply chains

Share of China in imports of intermediate goods

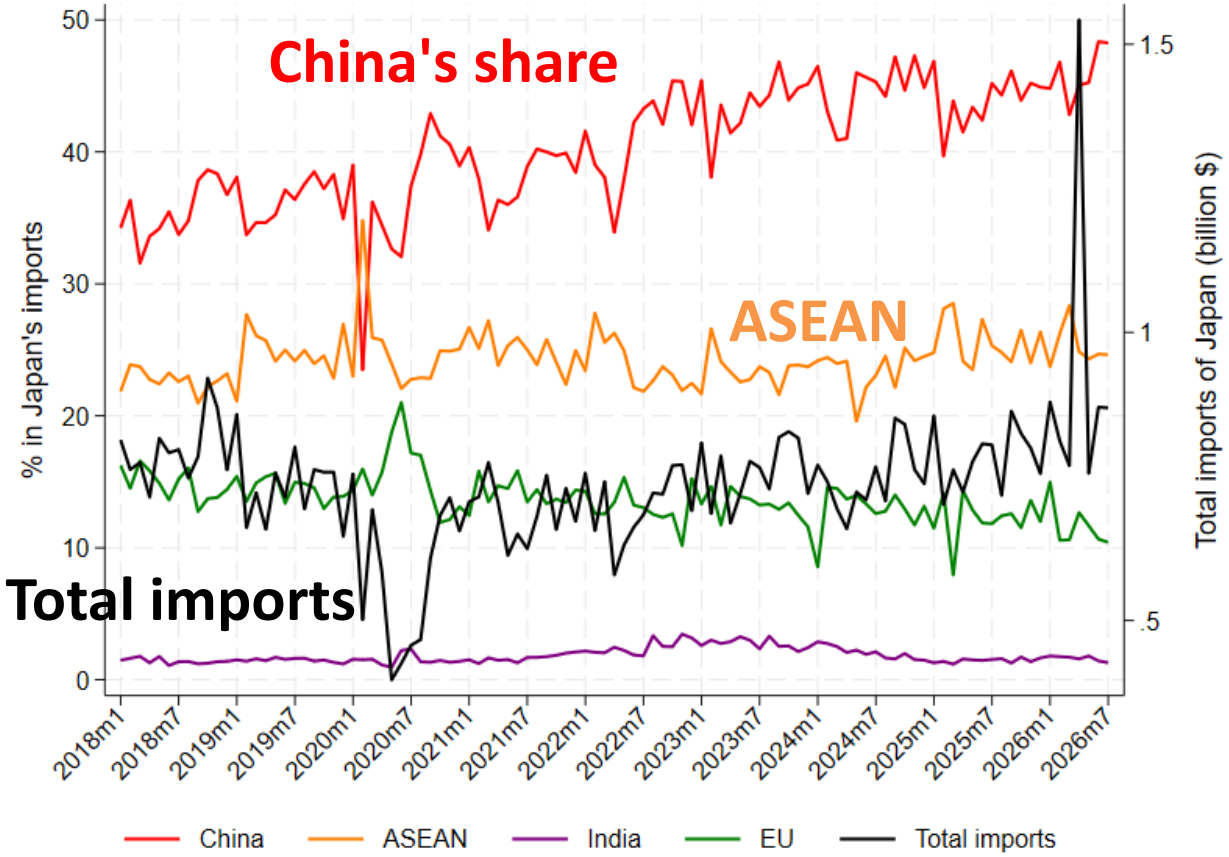


Source: UN Comtrade.

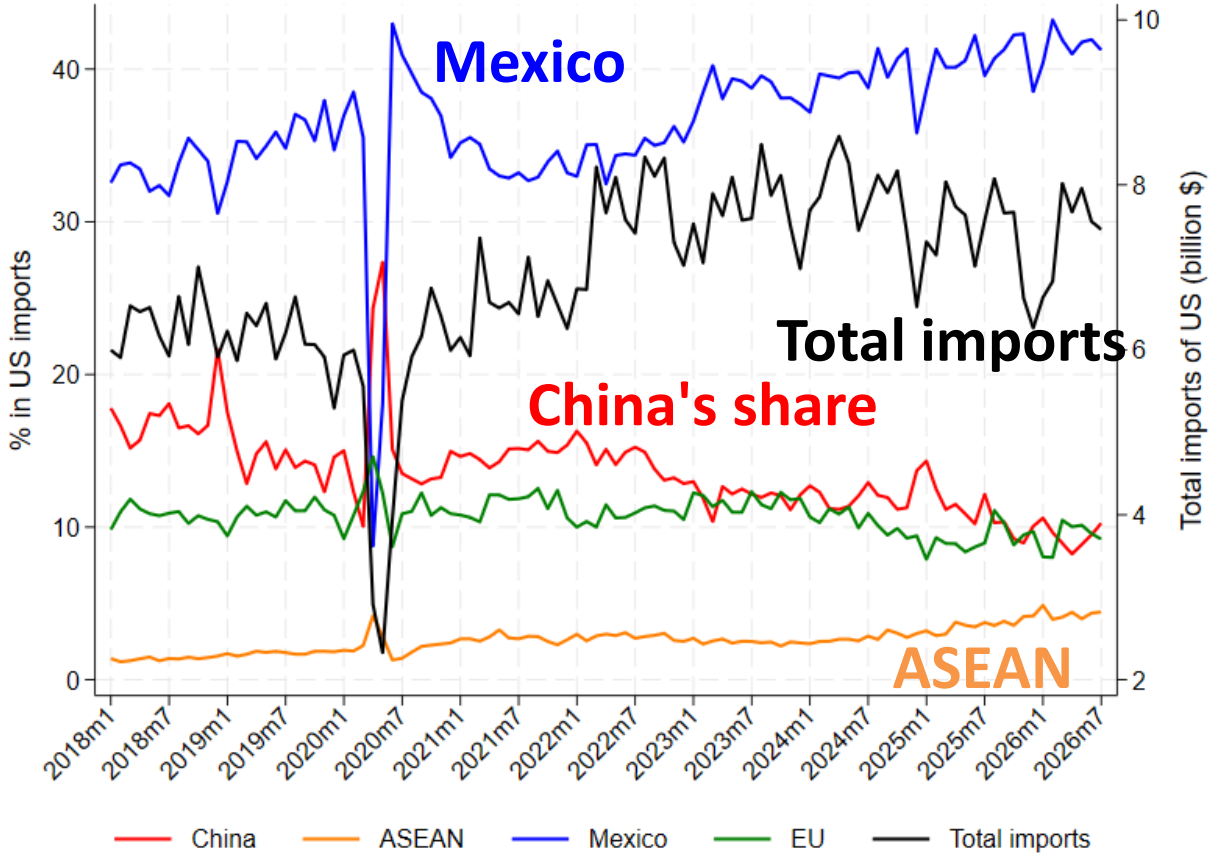
Asia, including Japan and India, are heavily relying on China in supply chains

Imports of automobile parts

to Japan



to US

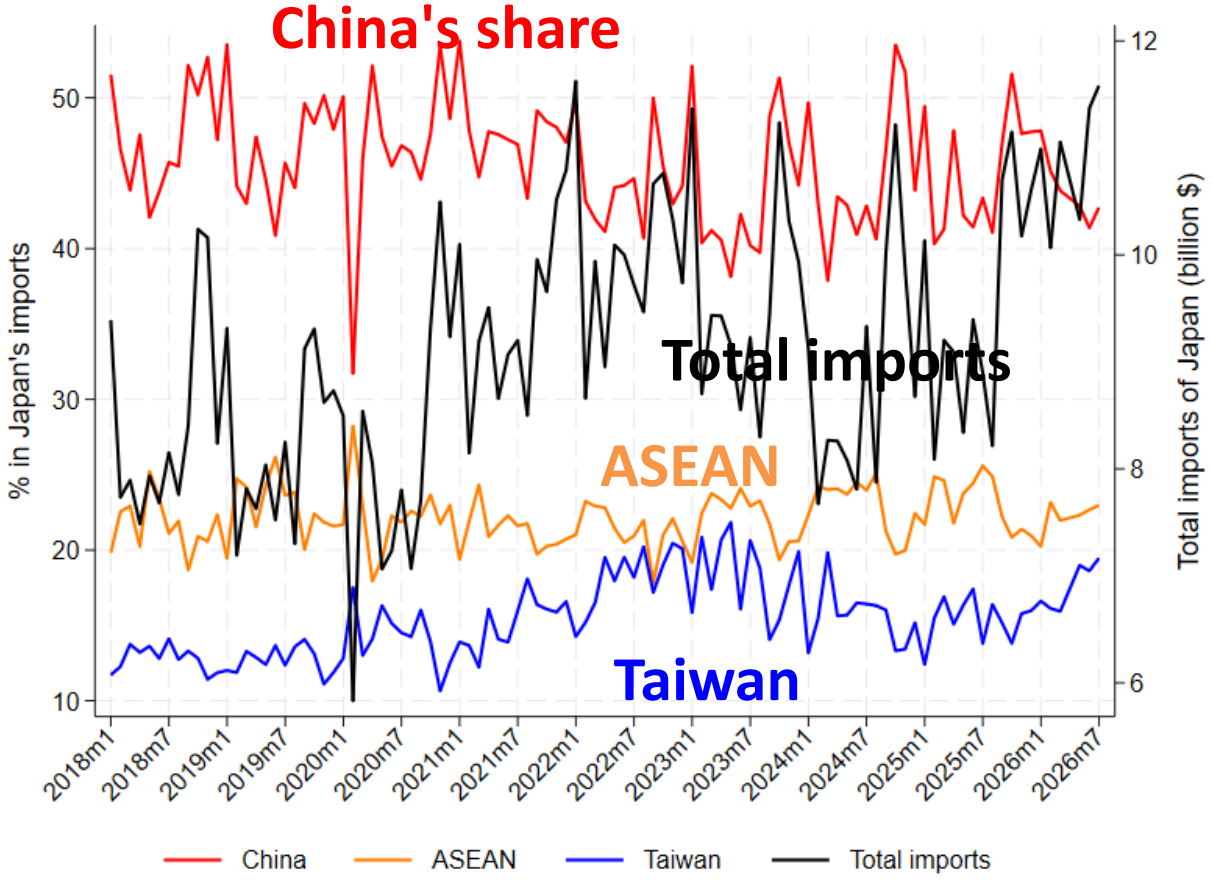


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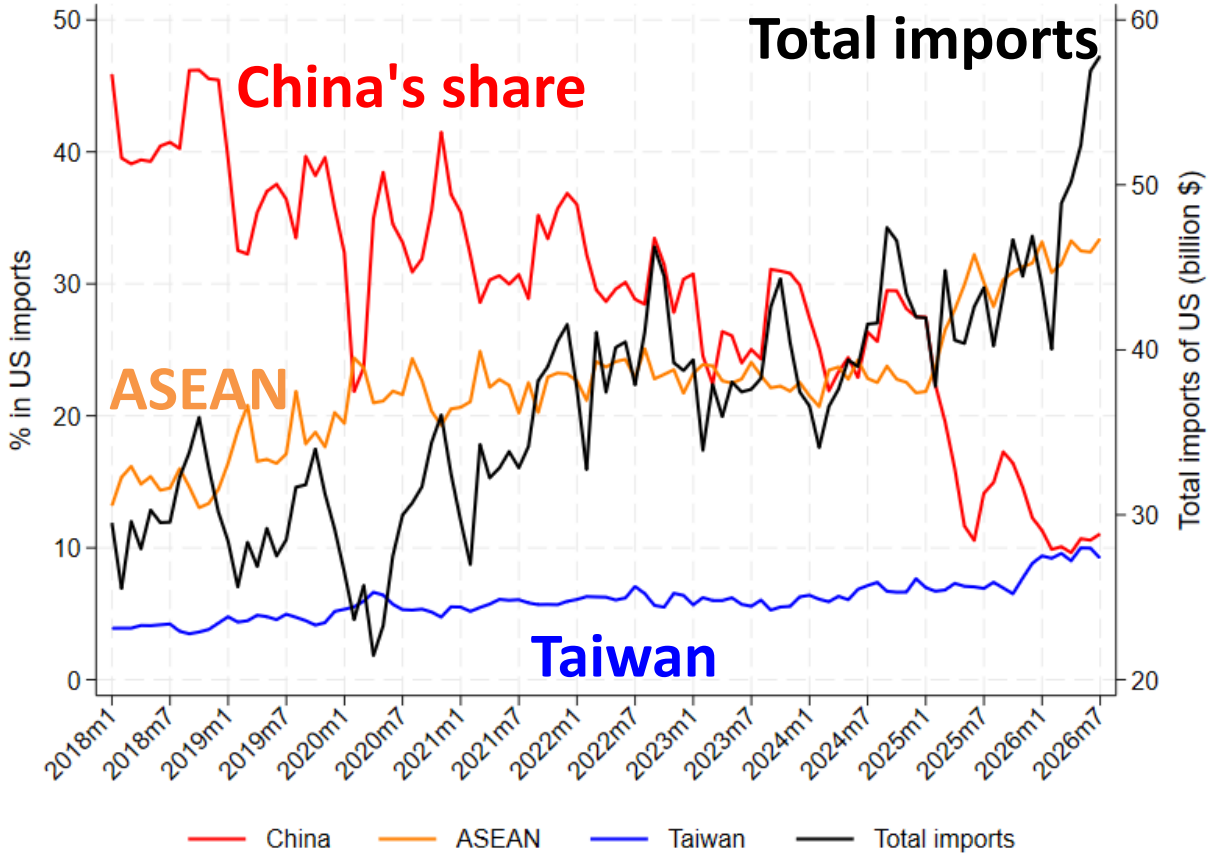
Asia, including Japan and India, are heavily relying on China in supply chains

Imports of electric and electronic equipment

to Japan

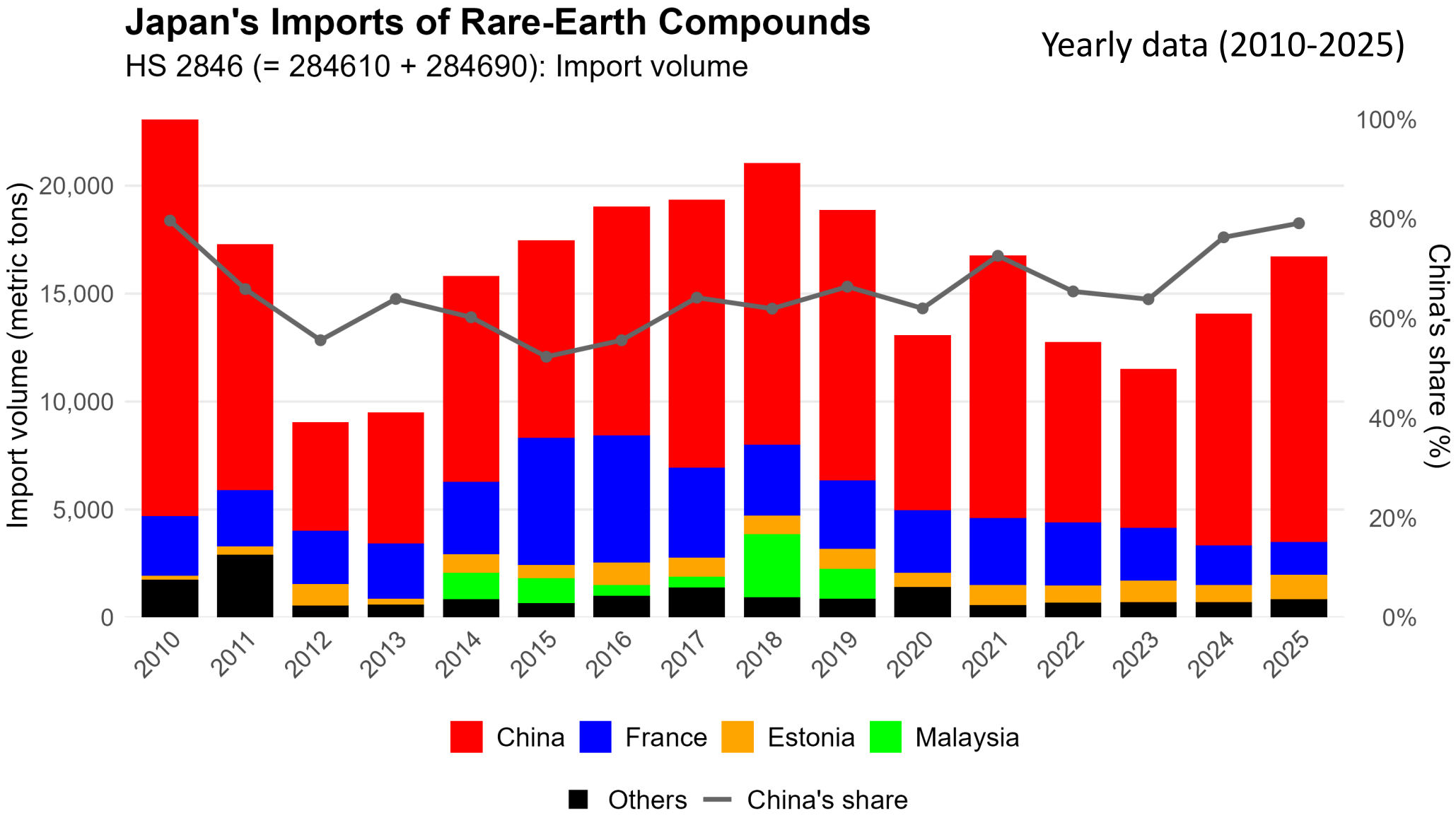


to US



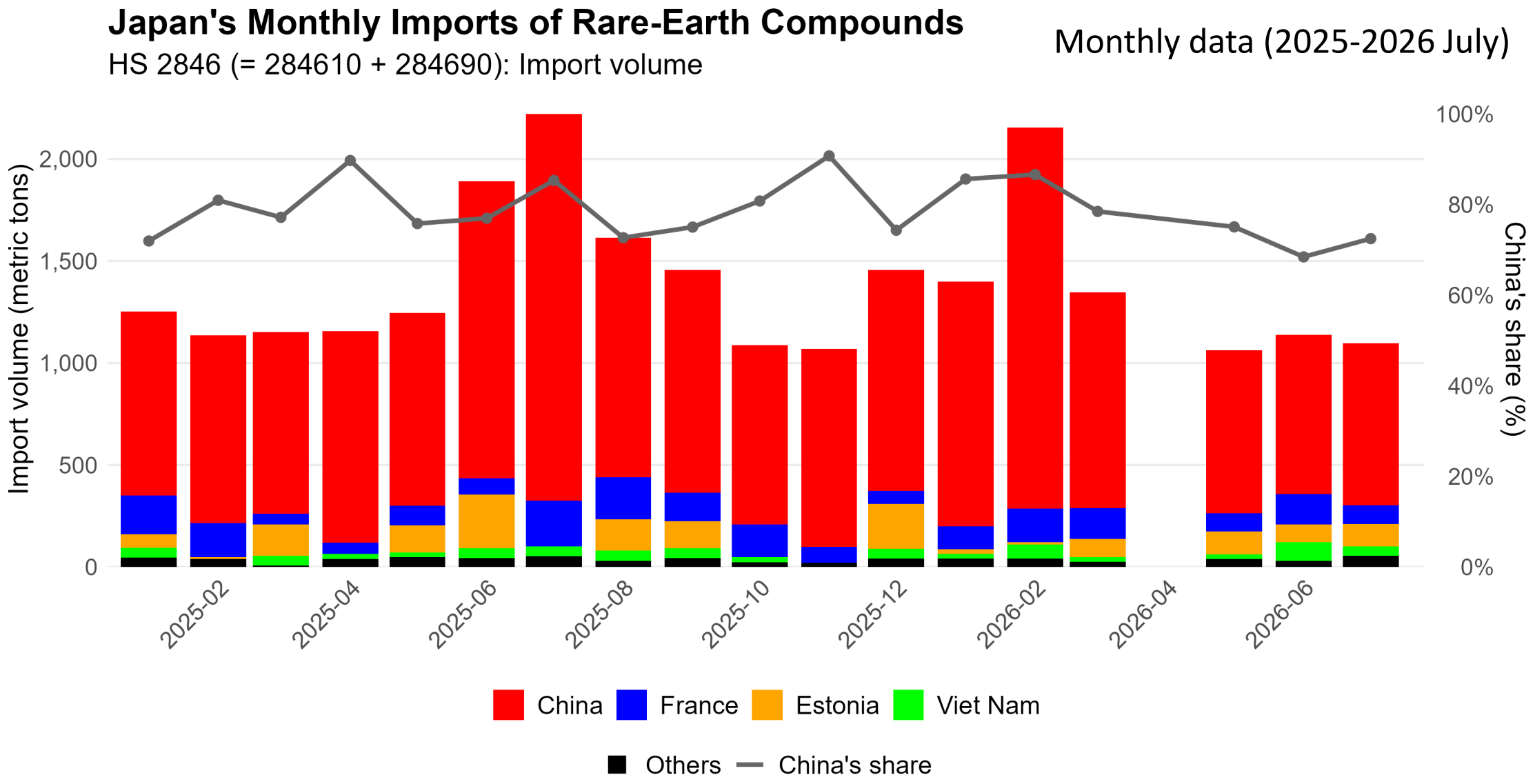
Source: UN Comtrade.

China dominates rare-earth exports



Source: UN Comtrade.

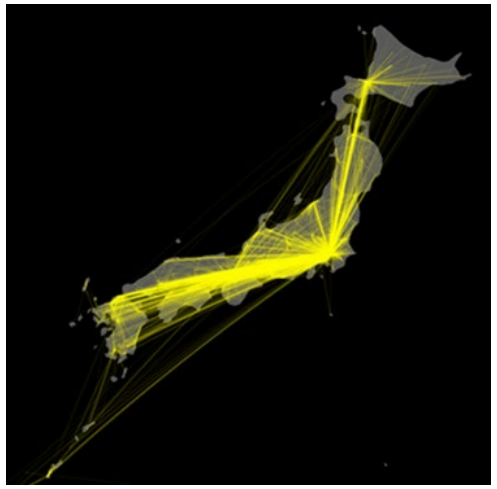
China dominates rare-earth exports



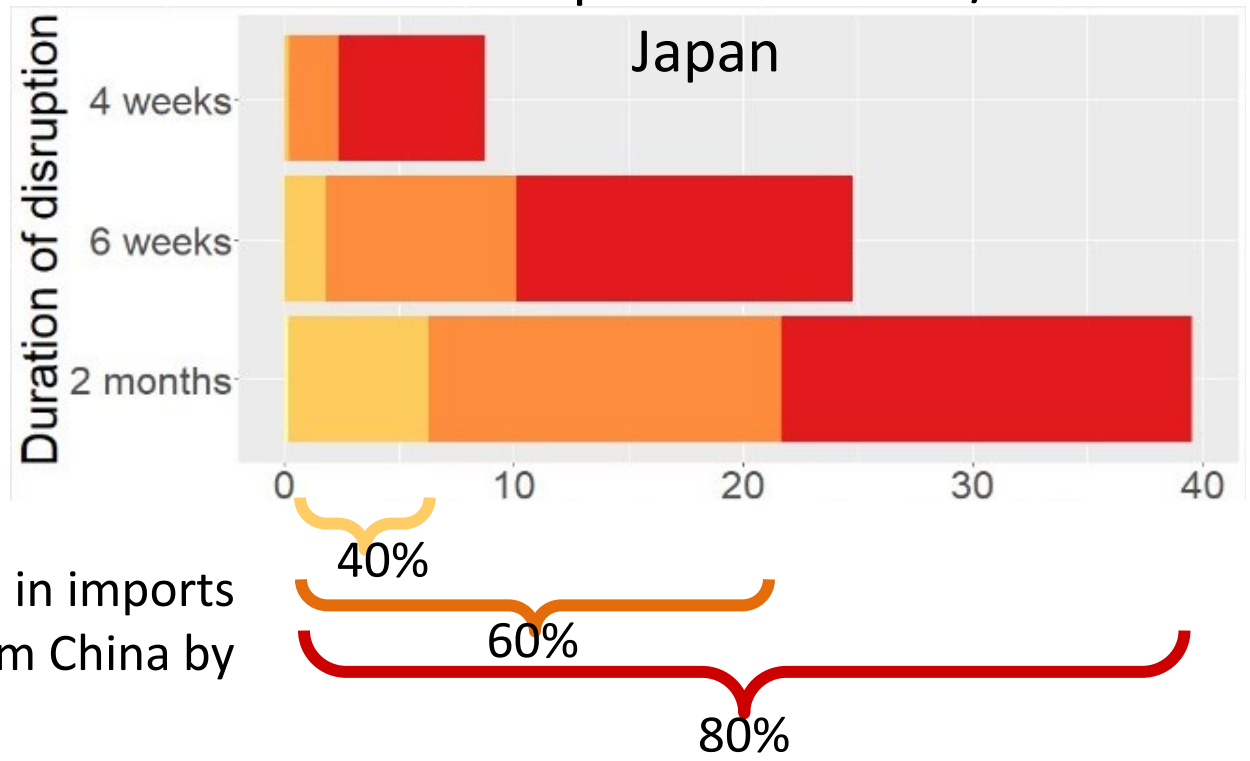
Source: UN Comtrade.

Heavy reliance on China results in vulnerable supply chains

Simulation using rich data
for 1 million companies and
4 million supply-chain ties in Japan



Value added production loss/GDP of Japan



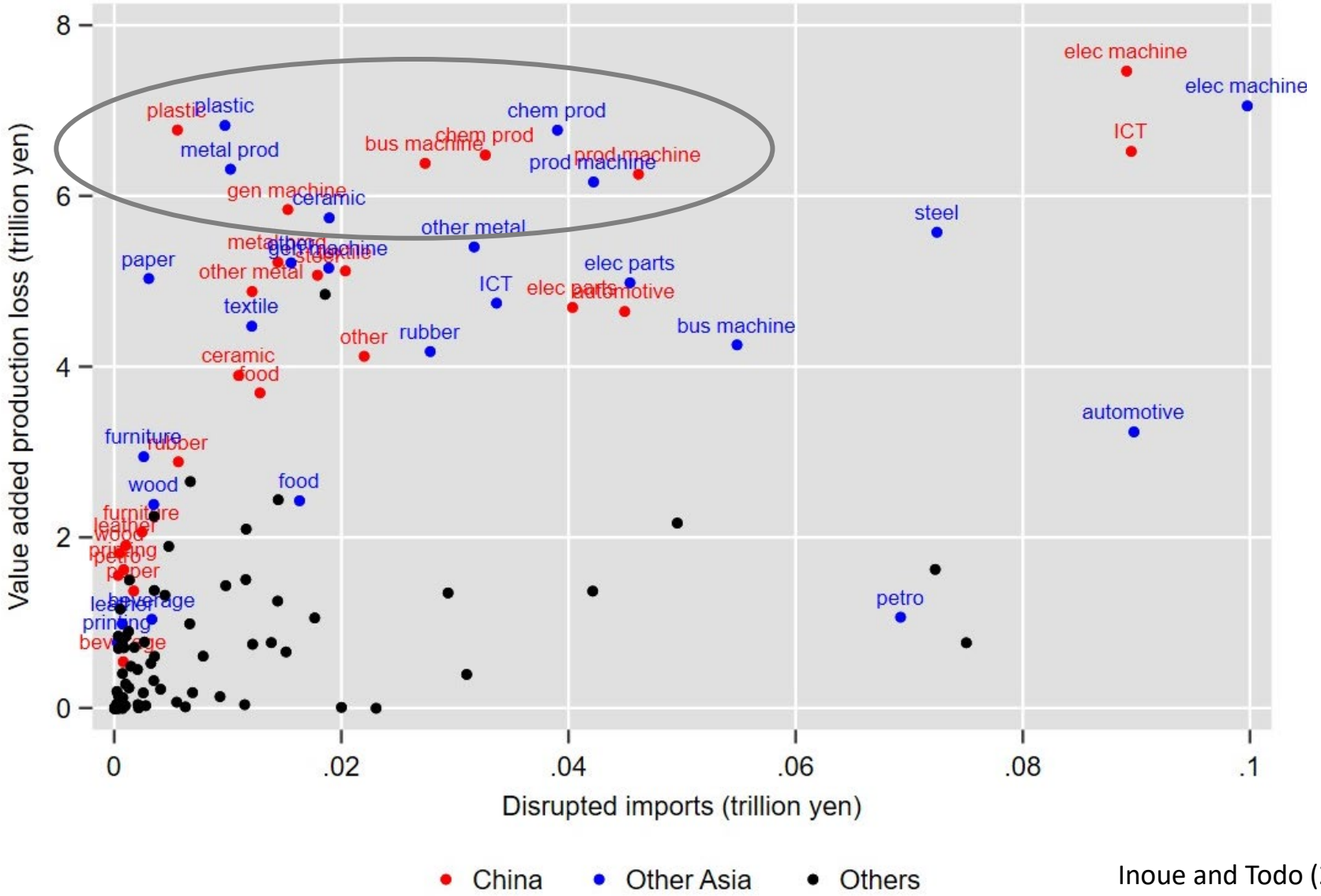
Reduction in imports from China by

The effect of import disruption is magnified through domestic supply chains.
➔ substantial total effect

Need for diversify supply chain partners to mitigate disruption risks

Inoue and Todo, 2023, PLOS ONE.

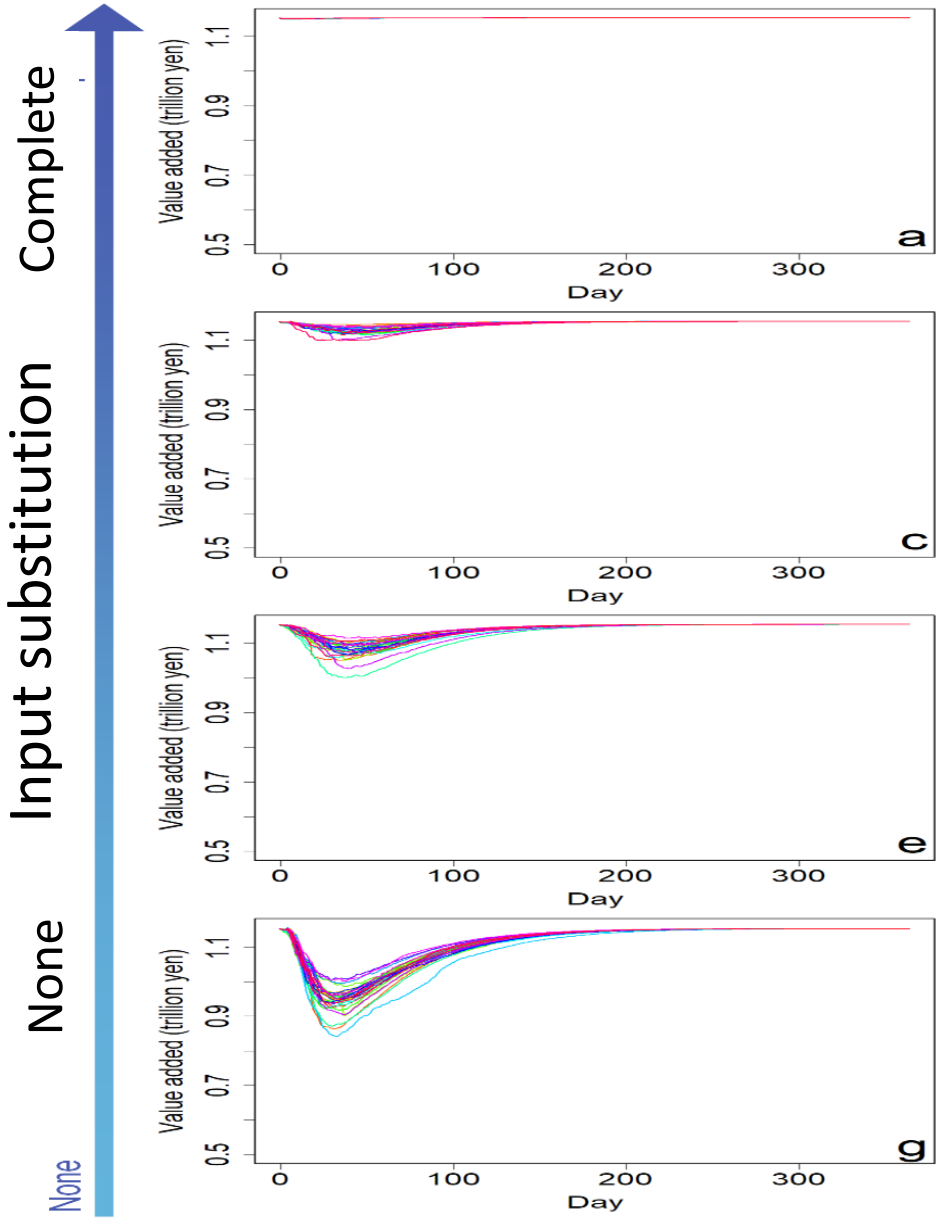
Import disruption of upstream products (e.g., metal, plastic, chemical, machinery) has a larger effect, relative to their import values



Inoue and Todo (2023), *PLOS ONE*

The difficulty in input substitution magnifies the propagation effect

Changes in value added production after a shock: Assuming different levels of input substitution



All products are substitutable

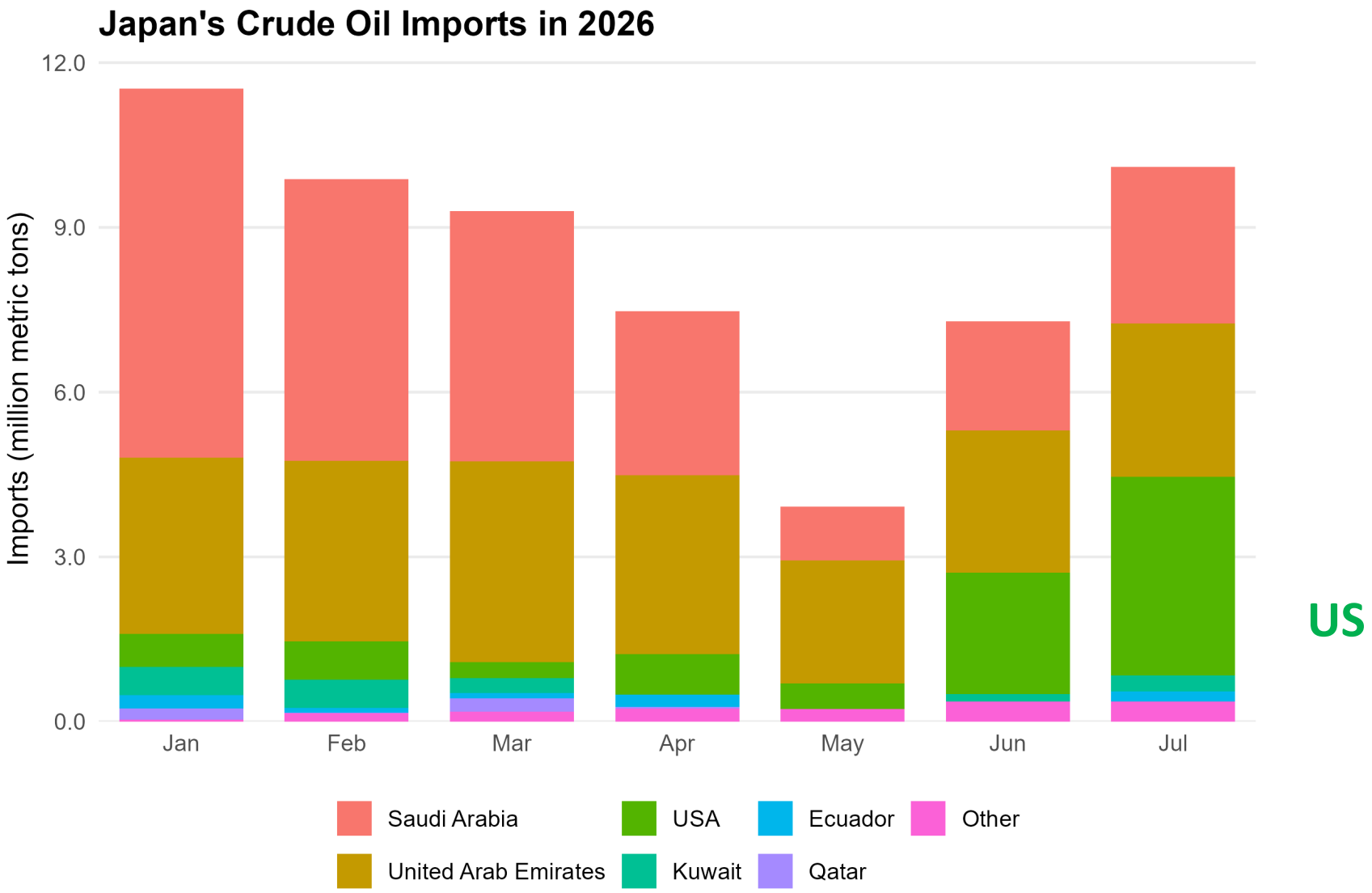
Products within the same industry are substitutable

Products randomly assigned to each firm
➔ more diverse input set
➔ more difficult input substitution

No substitution between inputs

Inoue and Todo (2019), *Nature Sustainability*.

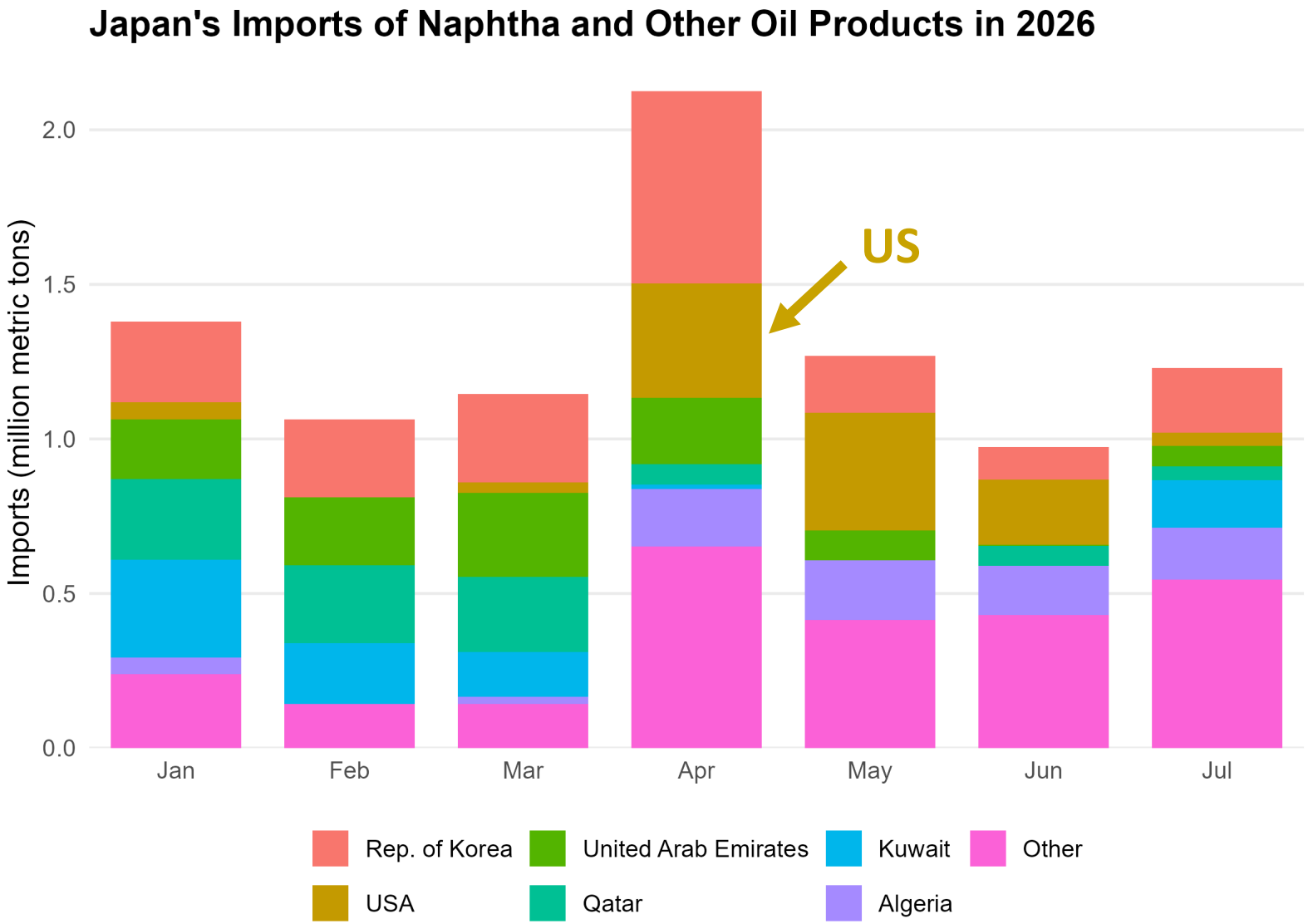
In the Strait of Hormuz Crisis, Japan quickly imported oil and oil products from alternative sources, mostly the US. ➔ Diversification matters to resilience



US

Source: UN Comtrade, HS 270900.

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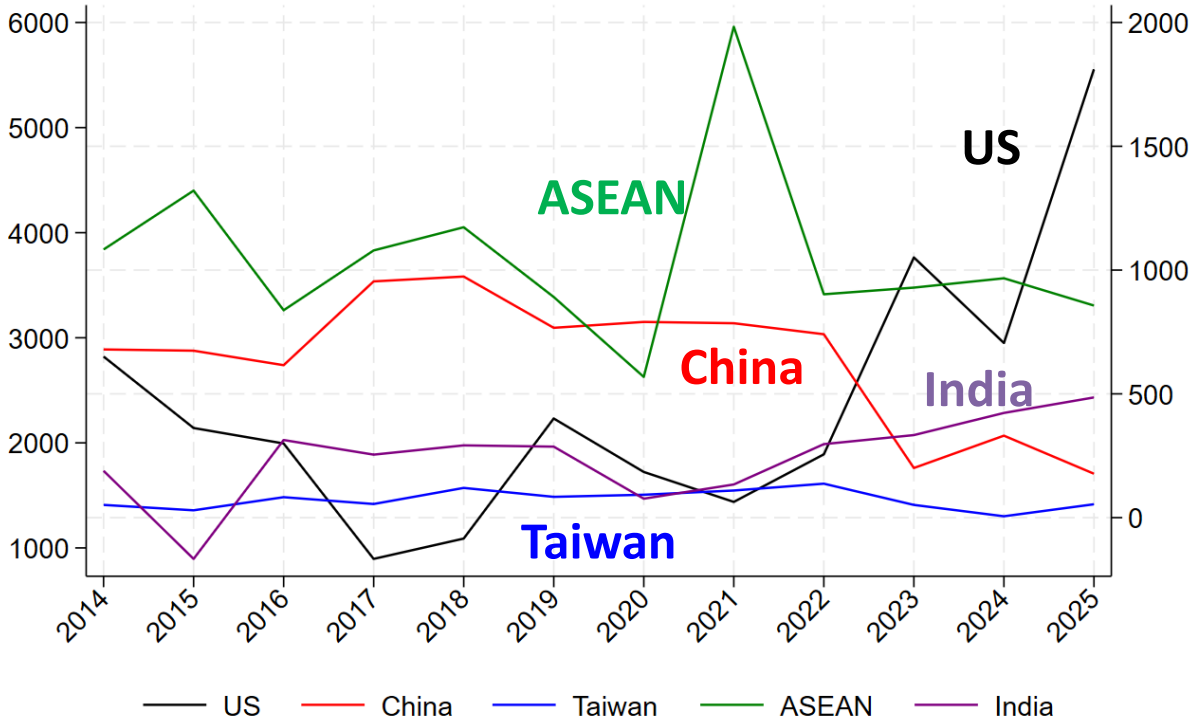


Source: UN Comtrade, HS 271012.

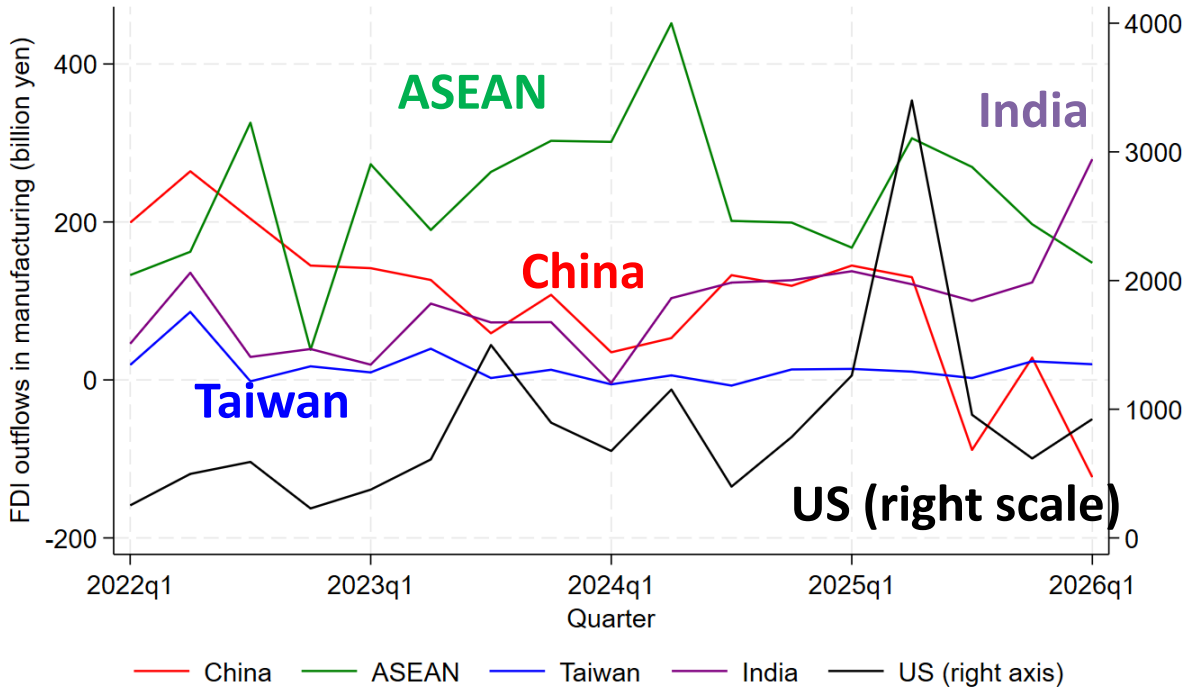
But, Japan's supply chains have not much expanded to the Global South
➔ Policies needed

Japan's foreign direct investment outflows in manufacturing (billion yen)

Yearly (2014-2025)



Quarterly (2022Q1-2026Q1)



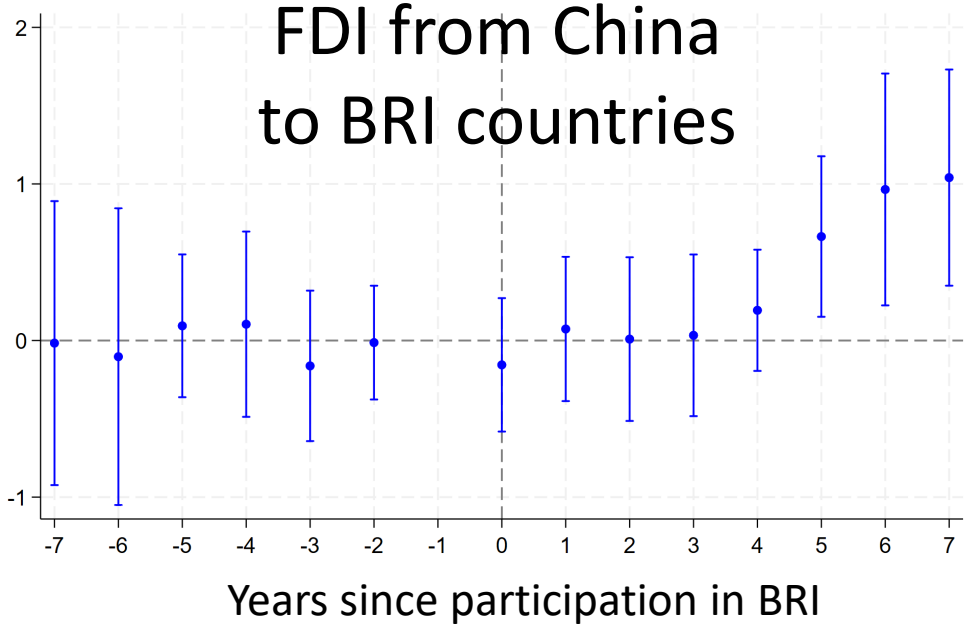
Source: UN Comtrade, Bank of Japan.

Barriers to Japan's Expansion of Supply Chains to the Global South

- Competition with China
  - **China's Belt and Road Initiatives**

➔ Global South's economic and political **ties with China ↑, with Japan ↓**

Effect of BRI on



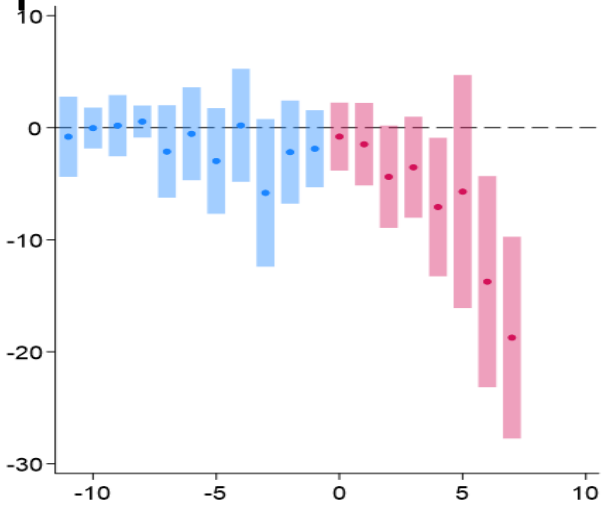


Todo, Nishitateno, and Brown (2025), J. Jap. Int. Econ.; Li and Todo (2026), World Economy

Barriers to Japan's Expansion of Supply Chains to the Global South

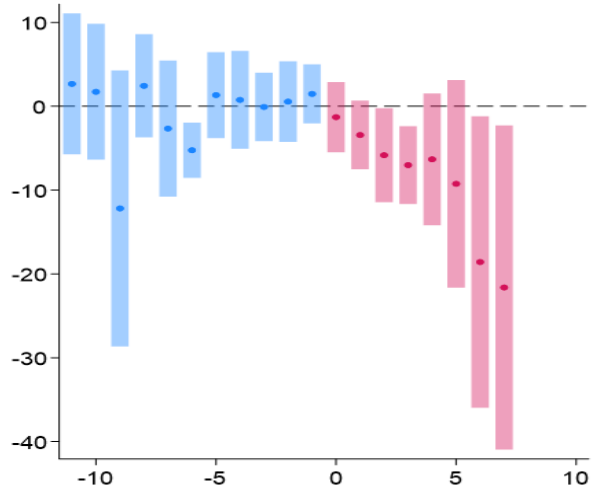
Effect of BRI on

infrastructure projects by Japan in BRI countries



Years since participation in BRI

visits of political leaders of BRI countries to Japan



Years since participation in BRI

Nishitateno and Todo (2026), Rev. Int. Econ.;

Japan needs to effectively utilize ODA and other official finance

- Evidence: Japan's ODA ➔ Japan's FDI to the recipient country
  ➔ Supply chain resilience (Kimura and Todo, 2009, World Dev.; Choi, 2026, World Economy)

The Strait of Hormuz Crisis has provided opportunities to Japan

- **Energy crisis** in emerging and developing Asia

  ➔ needs for energy transition

  ➔ but not rapid transition to renewable energy sources,

  given the current reliance on fossil fuels (total primary energy supply in ASEAN: oil, 32%; coal, 32%; natural gas, 20%; renewable energy, 14%)

- **Japan's strategy**
  - **AZEC** (Asia Zero Emission Community) allows for multiple approaches
    - energy-saving equipment in Thailand; LNG project in Vietnam (JBIC)
  - **POWERR Asia** has committed $10 billion in financial cooperation in Asia to strengthen supply chains for critical commodities and diversify energy sources.
    - emergency loan to Bangladesh, petroleum-stockpiling systems in the Philippines

➔ **can create Japan's supply chain resilience and should be strengthened**