

"Industrial Policies" for Resilient and Innovative Supply Chains

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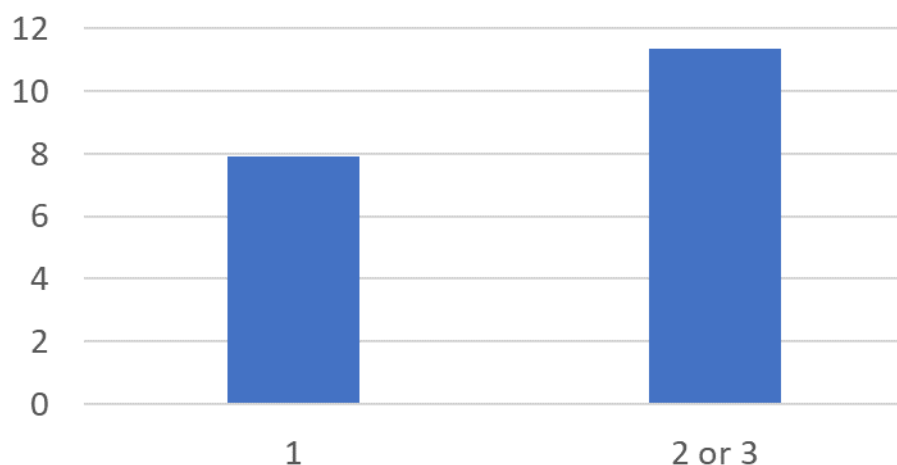
Waseda University and RIETI



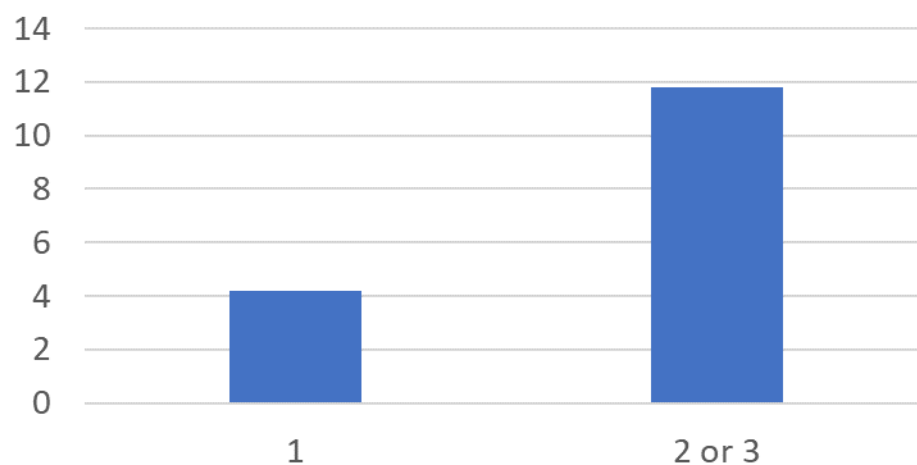
Geographically diversified supply chains are resilient

Share of resilient firms in ASEAN and India in the COVID-19 pandemic (%)

Resilient firms: shrink transaction with 1 customer/supplier because of pandemic
but increase transaction with another



Number of countries
where top 3 customers are located



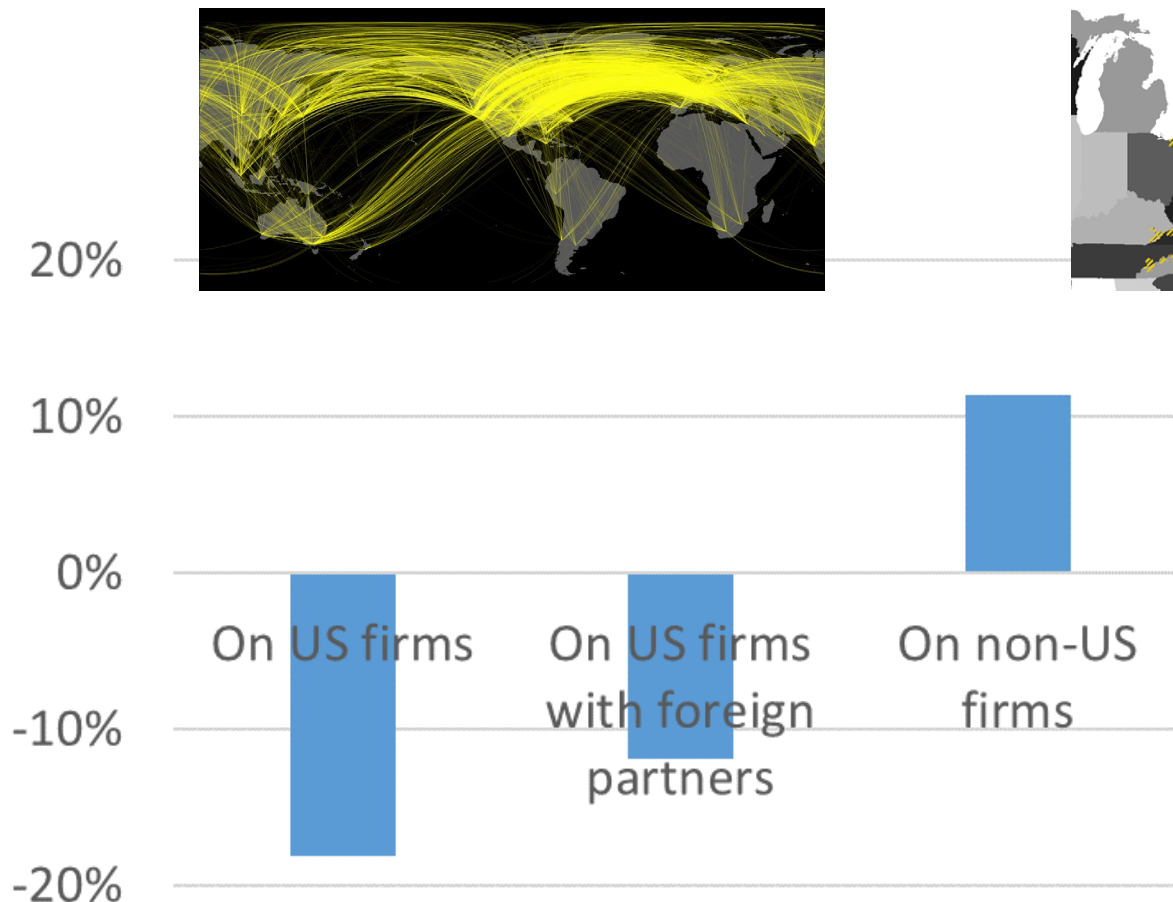
Number of countries
where top 3 suppliers are located

Todo et al. (2021), ERIA Discussion Paper, No. 407

- Substitution of disrupted partners is easier when more diversified.
- Domestic concentration of partners is risky, considering domestic shocks.

Geographically diversified supply chains are resilient

Effects of supply-chain links with a firm damaged by Hurricane Sandy in the US on sales growth



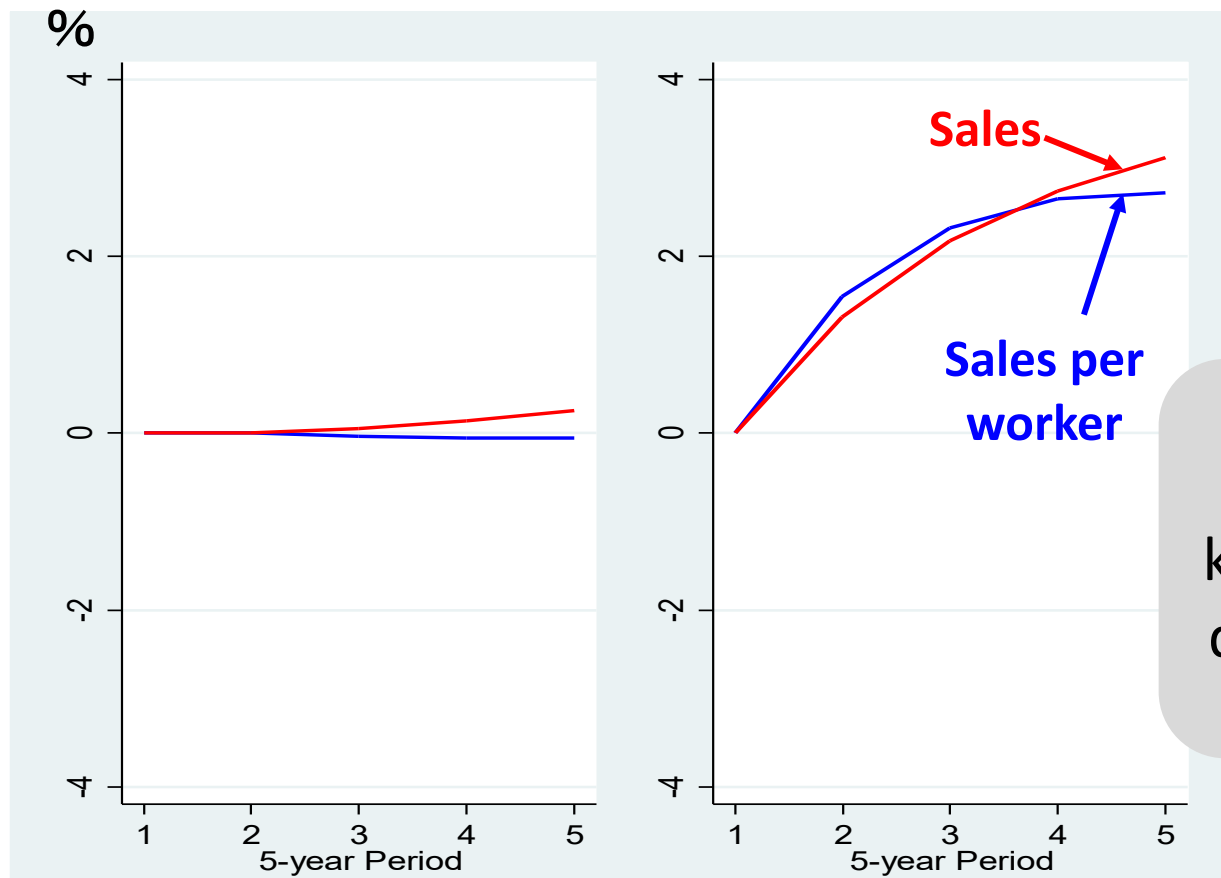
Globalized firms mitigated propagation of negative shocks possibly by substitution.

Geographically diversified supply chains are also innovative

Changes in sales of Japanese firms

(1) By adding a supplier in the same prefecture

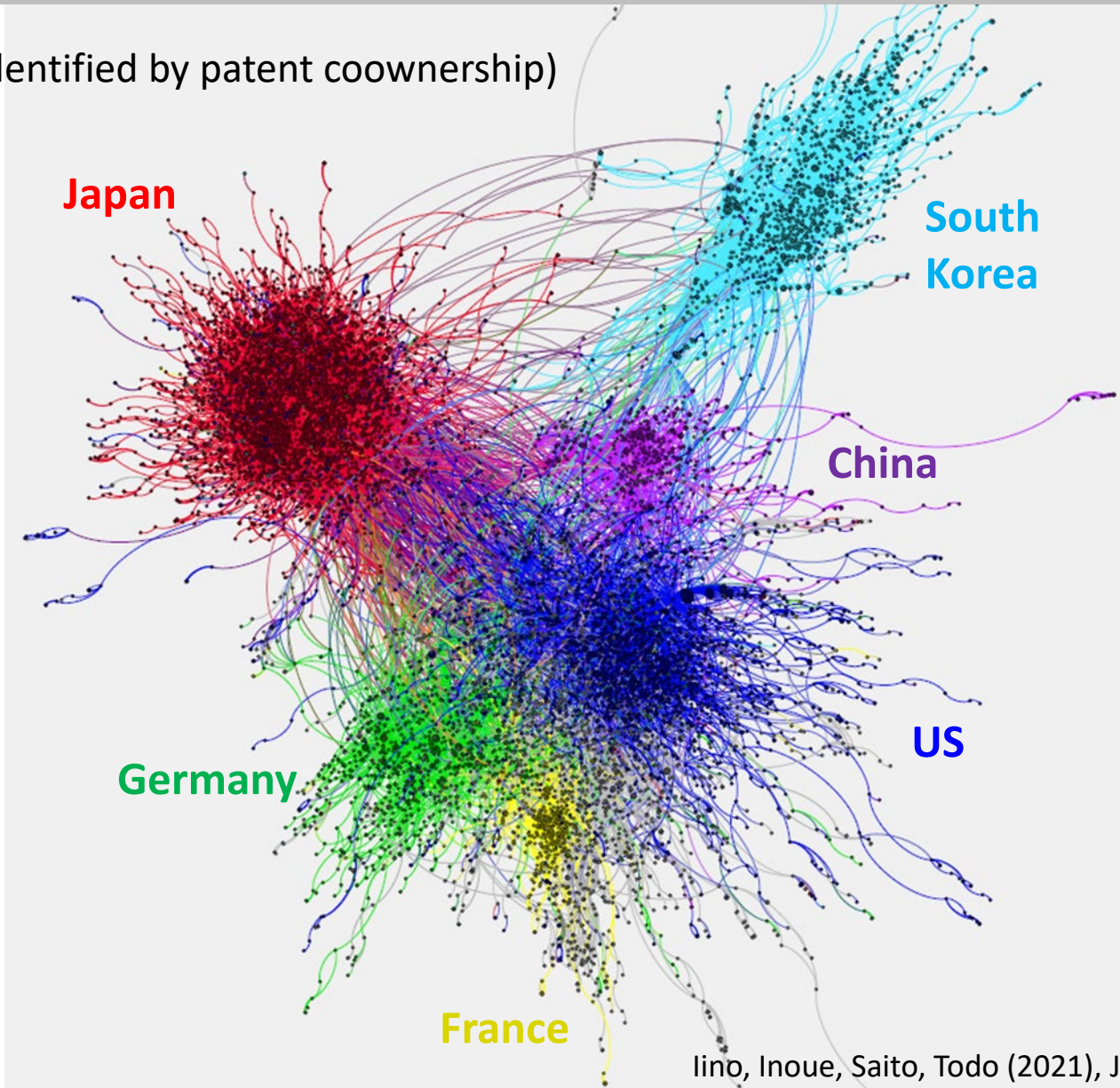
(2) By adding a supplier outside the prefecture



Learning new knowledge from distant partners

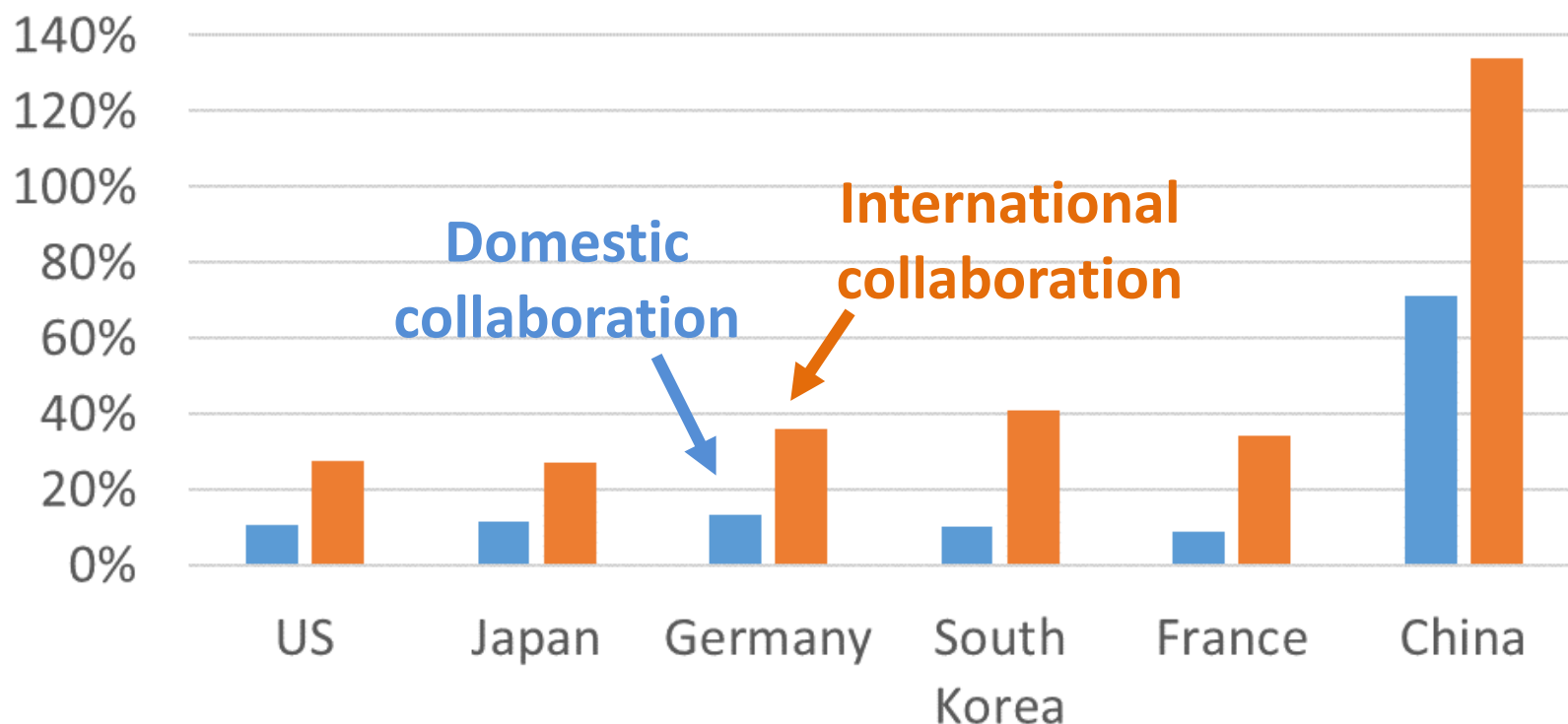
Global knowledge networks of firms are also proliferating across countries.

(2011-13, identified by patent coownership)



International research collaboration is effective to promote innovation.

% increase in the number of patent citations
due to research collaboration
(firm level)

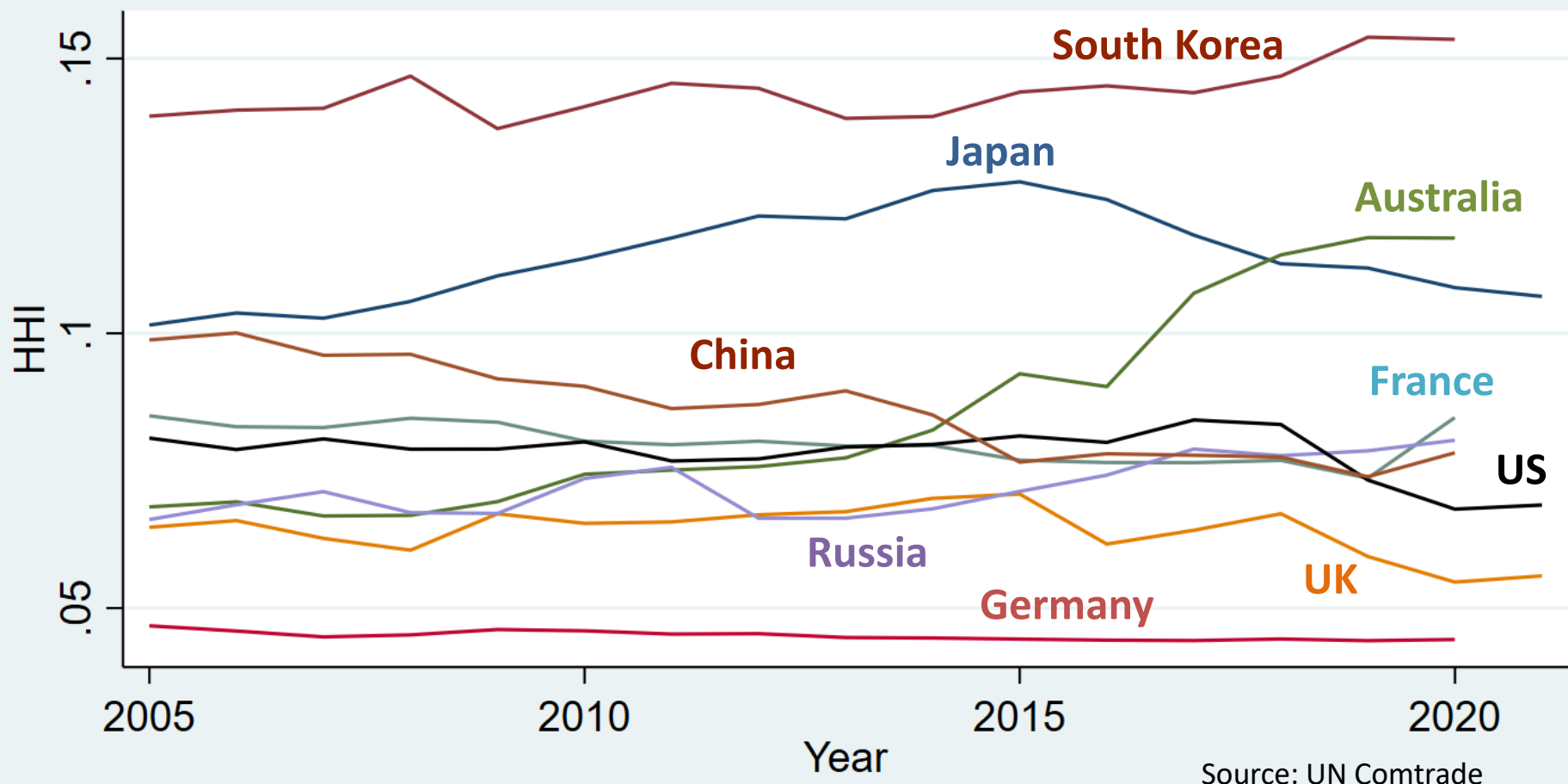


Current policies of Japan, the US, and European countries to decouple from China

- Restrictions on exports, technology transfer, and FDI inflows in high-tech sectors because of national security concerns
- Targeting resilience of supply chains, particularly those in the semiconductor industry
 - "Reshoring" of plants to the domestic economy by huge subsidies
 - Supporting R&D in high-tech sectors
- Economic security bill of Japan

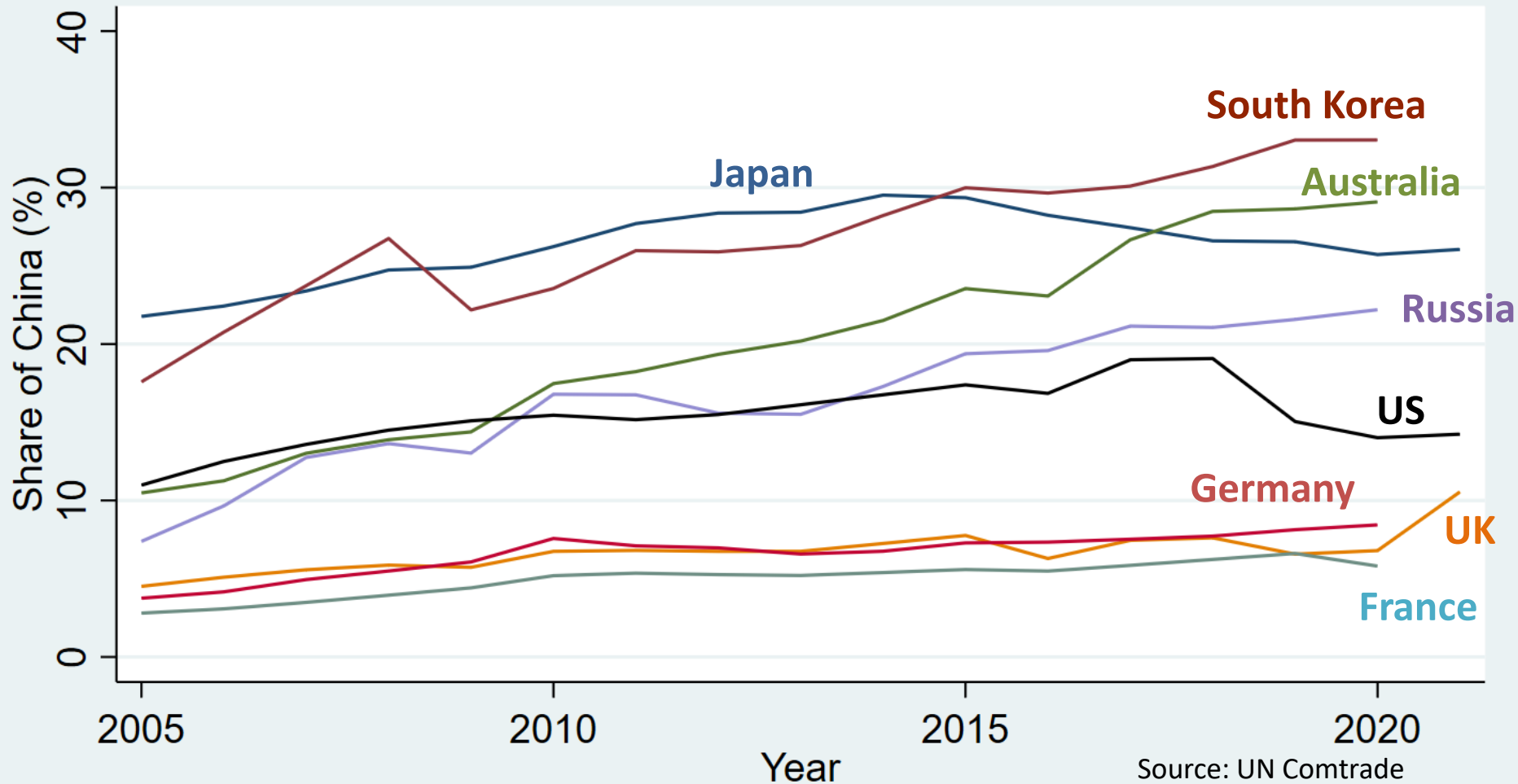
Many Asia-Pacific countries have intensified supply-chain partners, while China has diversified.

Concentration index (HHI) of partner countries
in intermediate-good imports



Supply-chain concentration is mostly due to an increase in the share of China.

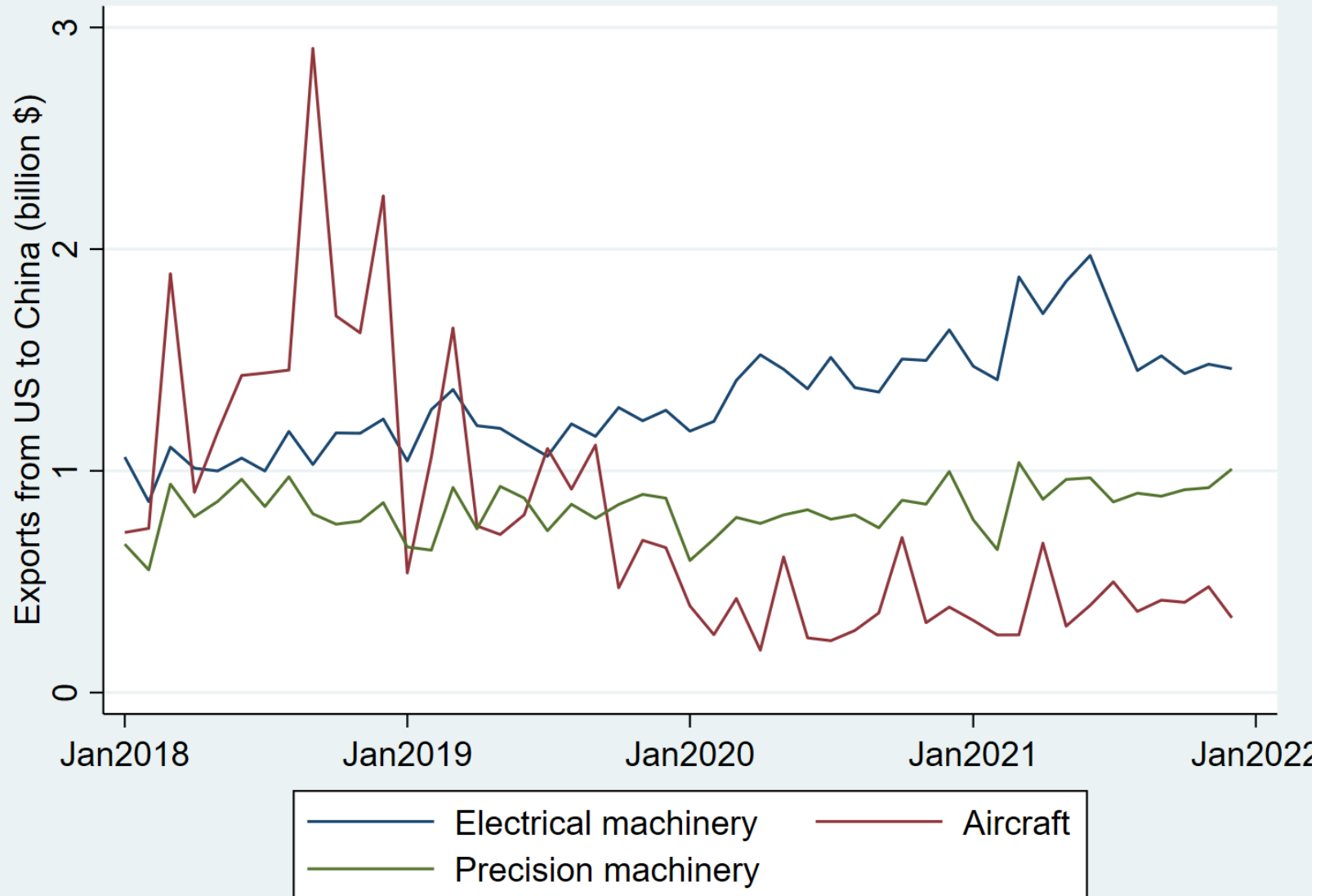
Share of China in intermediate-good imports



Trade between US and China is actually increasing

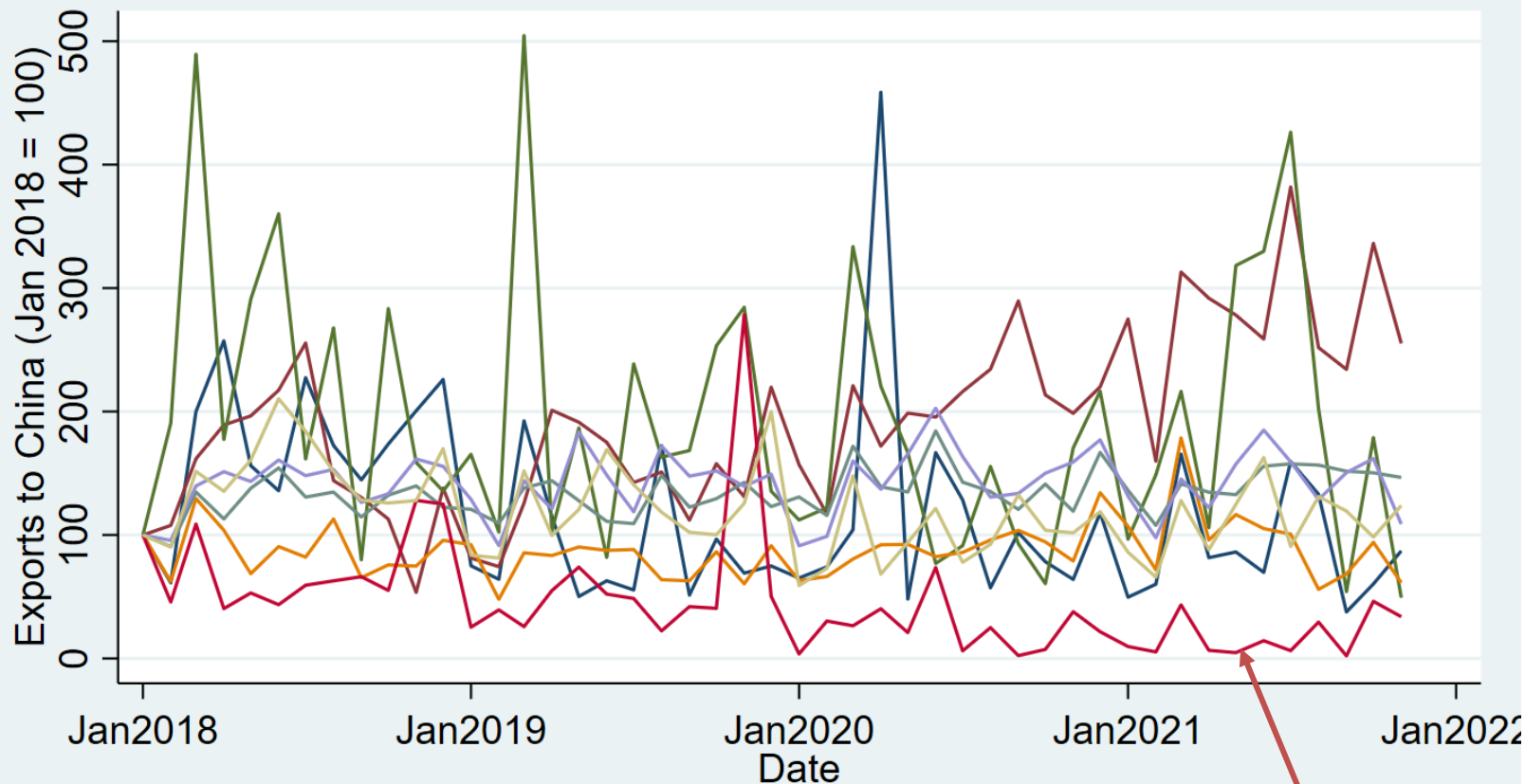


Exports of high-tech products from US to China are mostly increasing, with some exceptions



Source: UN Comtrade

Exports of only some products from the US to China are declining



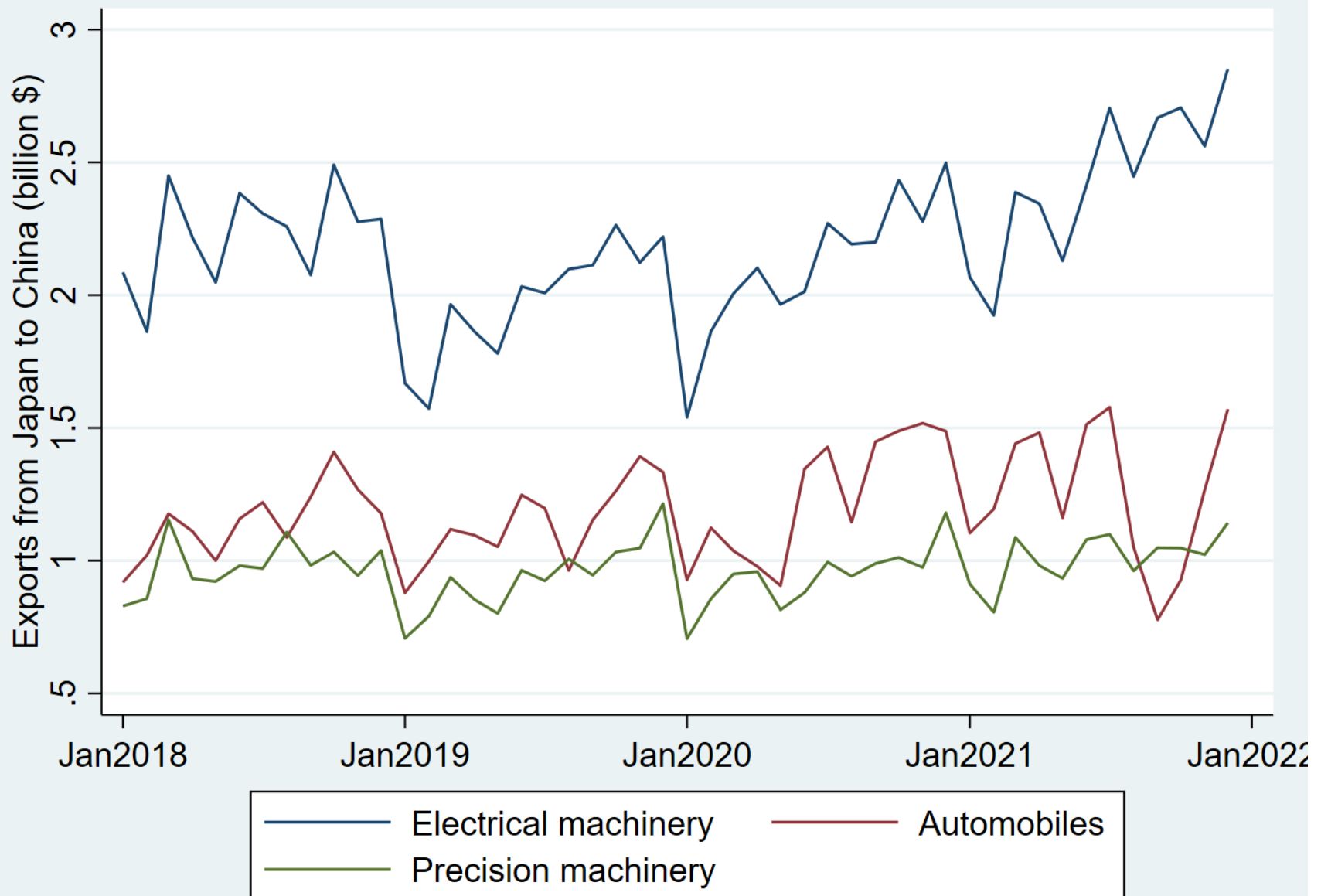
4-digit HS codes
that include
"semiconductor"

8456	8486
8519	8523
8541	9010
9030	9031

apparatus for photographic
laboratories including that
for semiconductor materials

Source: UN Comtrade

Hi-tech exports from Japan to China are not declining



Source: UN Comtrade

Evaluating current supply chains

1. Supply-chain diversity is too low for some Asia-Pacific countries, such as South Korea, Australia, and Japan, because of heavy reliance on China.
2. Recent policies of Japan and the US are successful in increasing supply-chain diversity, while not decreasing overall trade with China.
3. There is still a room for Japan to decrease its reliance on China in supply chains.
(particularly considering the recent situation)

Policy suggestions

1. Do not focus too much on reshoring,
but **focus more on diversification of supply chains**
 - Self-sufficiency is
 - Inefficient from the perspective of economics and national security
 - Vulnerable to domestic shocks
 - Diversified among countries without national security concerns
 - Reduce reliance on China but not decoupled completely (Japan and the US have successfully done so)
 - Utilize international frameworks, such as G7, QUAD, FOIP, and Japan-US, Japan-EU FTAs to lower search costs and national security risks

Policy suggestions

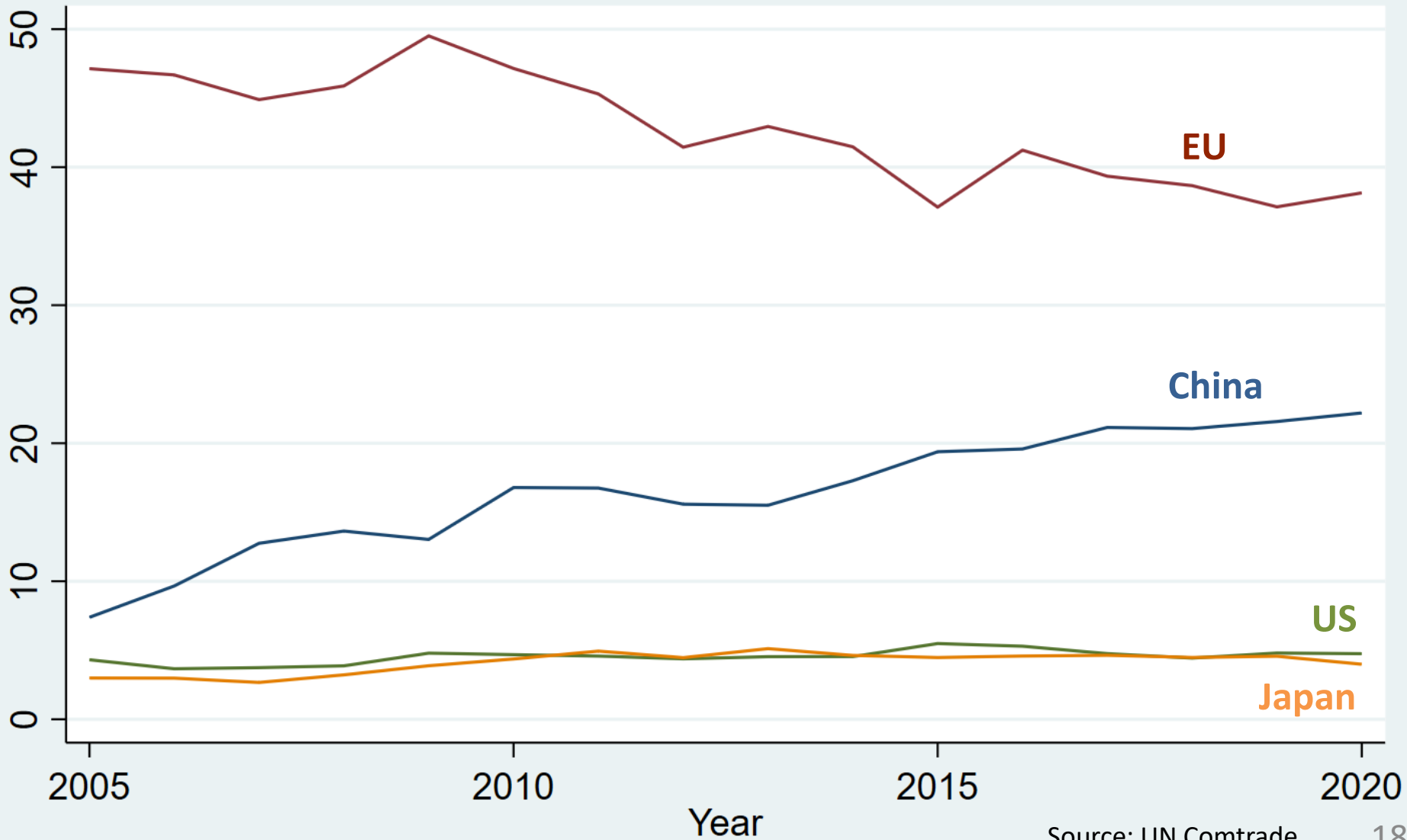
2. Expand **international knowledge networks** among countries without national security concerns
 - Innovation is the key to economic growth, resilience and national security.
 - Closed innovation is inefficient.
 - Protect high technology, utilizing international frameworks, such as G7, QUAD, FOIP, and Japan-US, Japan-EU FTA (again)
 - Restrictions are needed but should be minimal.
 - Clear rules should be presented to the private sector.

Policy suggestions

3. Do not focus too much on the semiconductor industry, but **cover broad industries and firms**
 - Any product can be a "choke point" in supply chains.
 - "Industrial policy" targeting limited industries has not been necessarily successful even in China.
 - To be effective, "industrial policy" should be combined with competitive policies.
 - Restrictions on the private sector for national security should be needed but minimal.

Russia's reliance on EU is decreasing

Share of country/region in Russia's imports of intermediate goods



Reliance on Russia in fuel imports is increasing or remains high in some countries

Share of Russia in imports of coal, oil, and natural gas

