



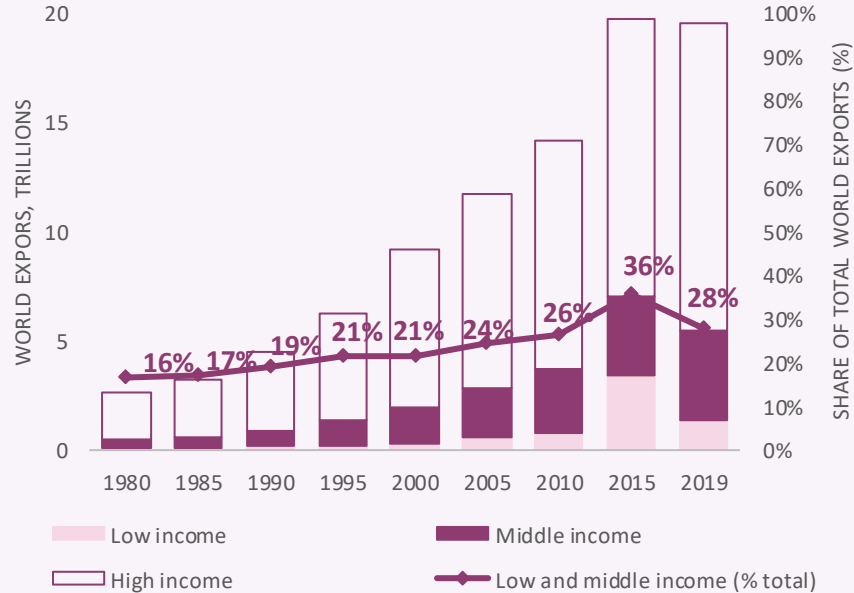
Trade-led development in an interdependent world

Daria Taglioni (World Bank)

WTO – July 2022

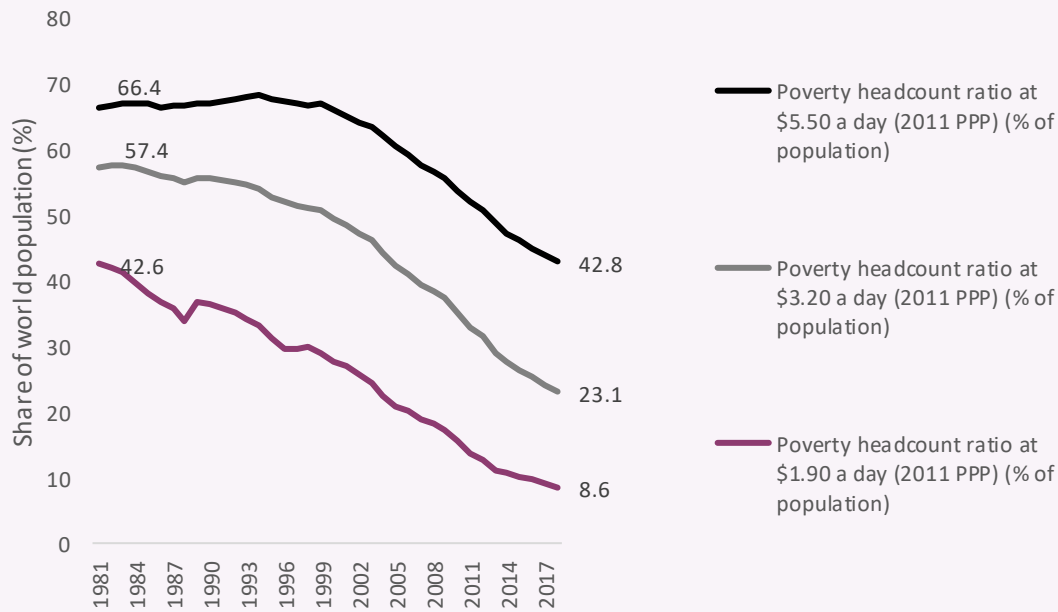
A 10-fold increase of global trade in forty years

EXPORTS OF GOODS AND SERVICES (CONSTANT 2015 US\$)



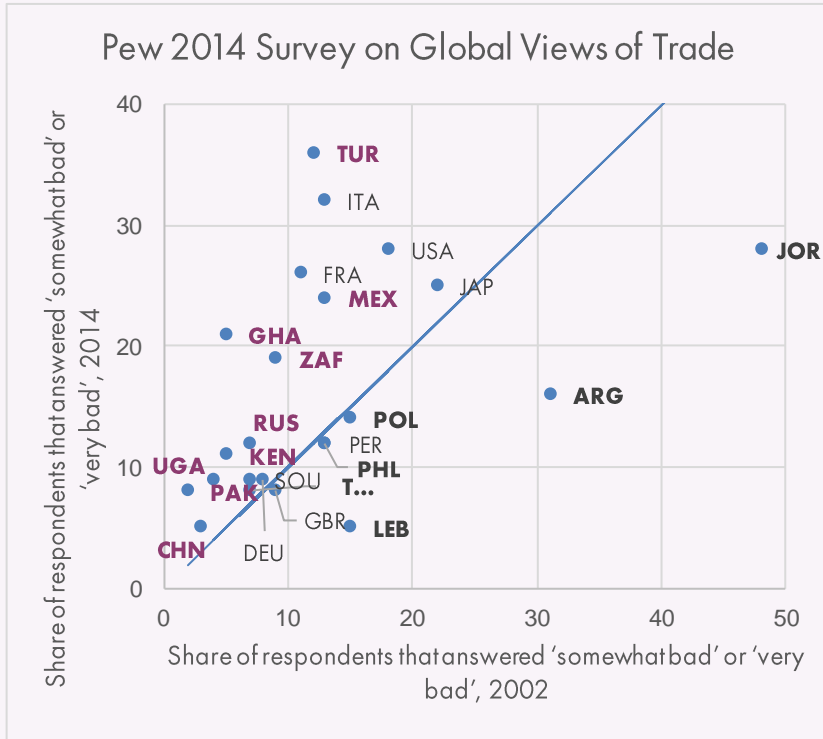
Associated with an unprecedented drop in all dimensions of poverty

Indicators of poverty



Source: World Bank's WDI

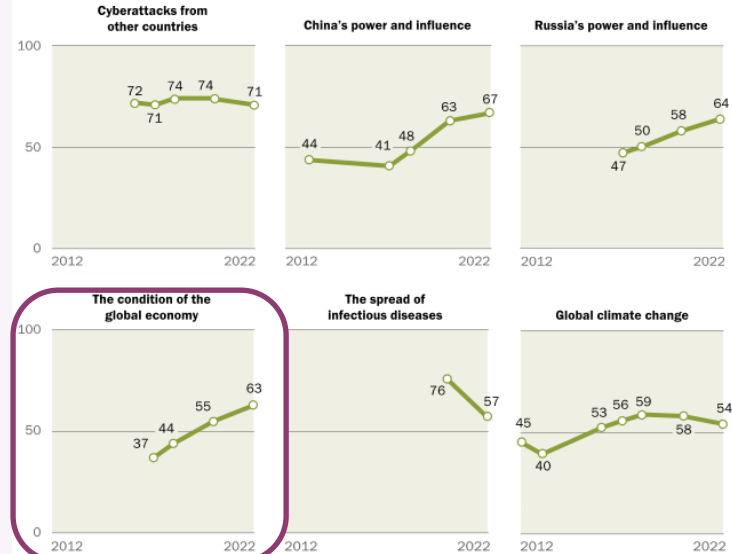
And yet, revolt of the public in many countries against free trade



Source: Pew Institute

Growing shares of Americans see the economy, China and Russia as major threats

% who say ___ is a major threat to the U.S.



Note: 2022 and 2020 data from Pew Research Center's online American Trends Panel, prior data from telephone surveys.
Source: Survey of U.S. adults conducted March 21-27, 2022. Q10a-e, Q43a&c.

PEW RESEARCH CENTER

This talk:

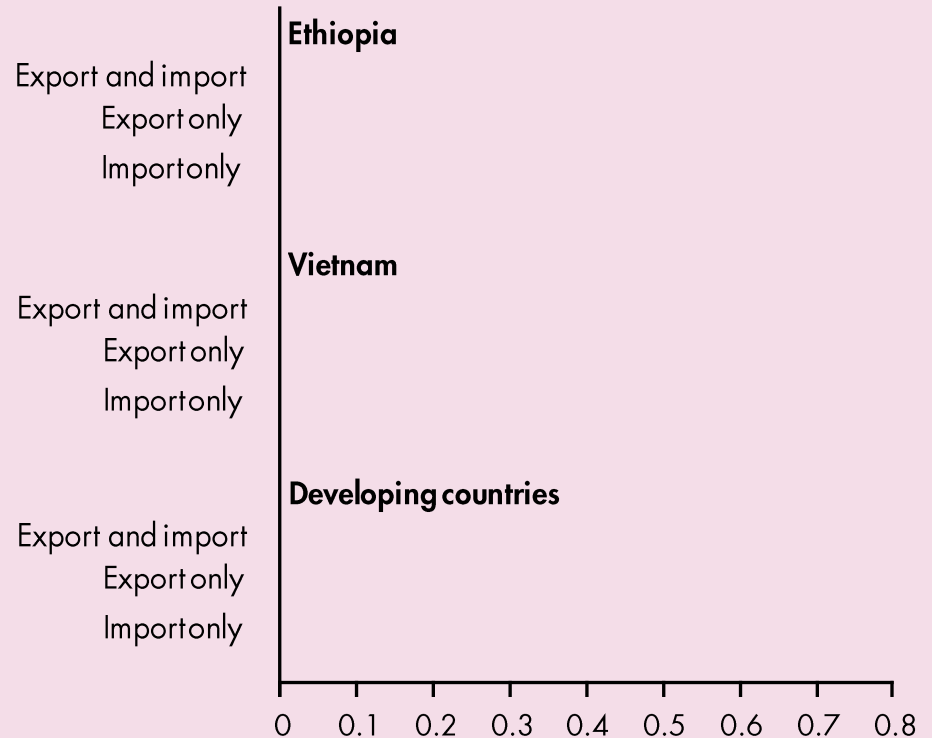
- **Gains from trade:** What are the mechanisms linking trade to poverty reduction and development
- **Two perceived threats:** Changing Technologies; and Exposure to Shocks
- **Three actual challenges:** Environment; Workers; and Geostrategic Tensions
- **Policy implications** (some)

What are the gains of participation?

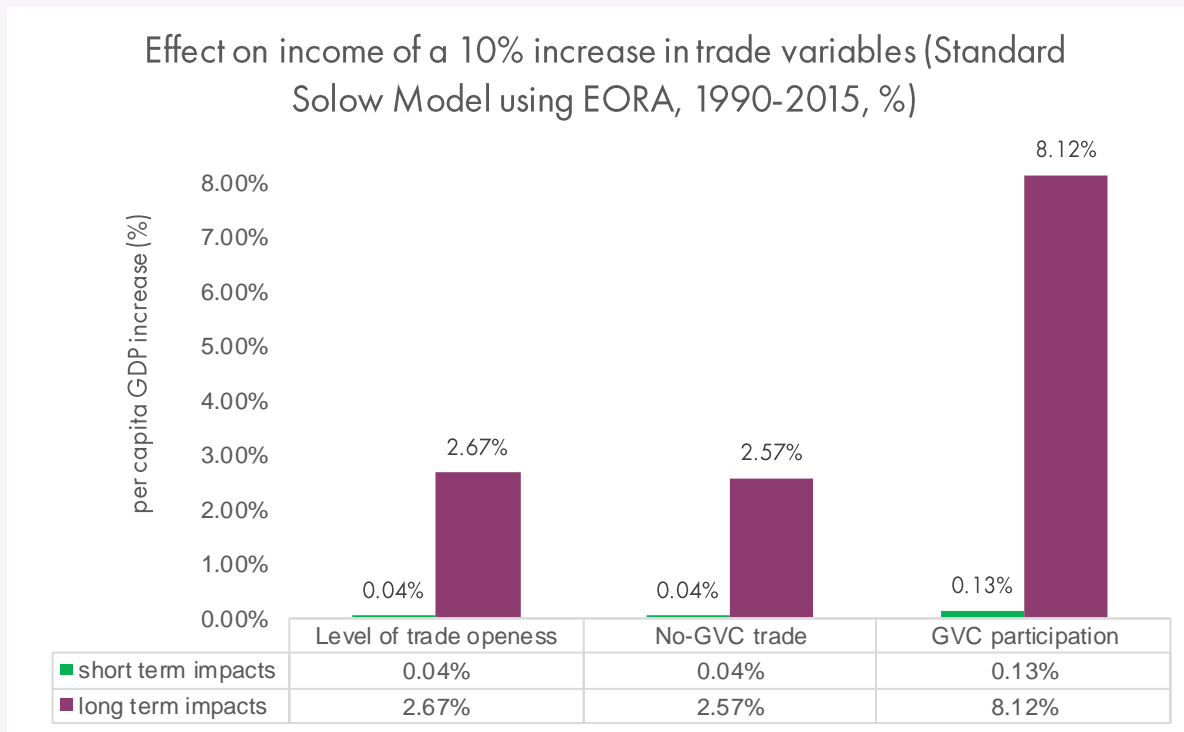


Traders are more productive than non-traders

Productivity difference between trading and nontrading firms (%)

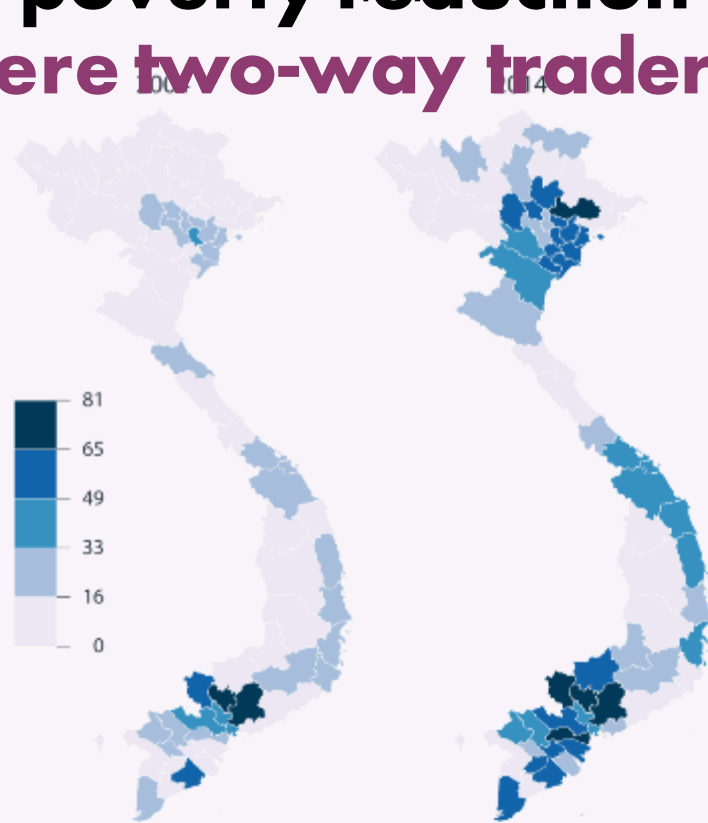


Income growth is highest when firms are integrated in global production

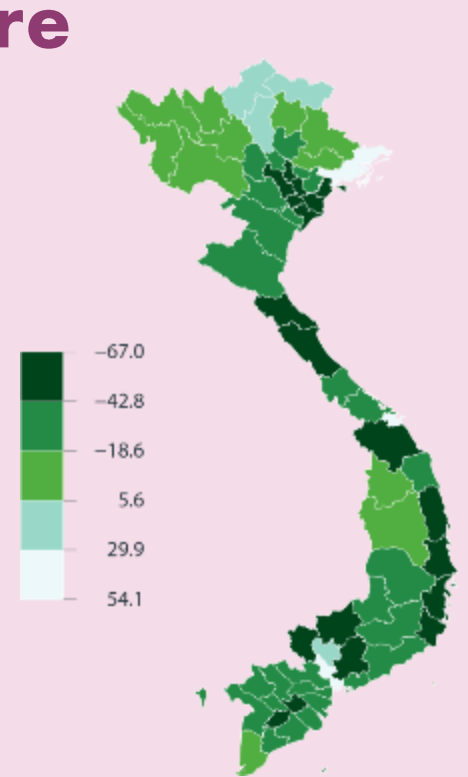


In Vietnam, poverty reduction is greater where two-way traders are present

Change in expenditure poverty rate, 2004–14 (%)



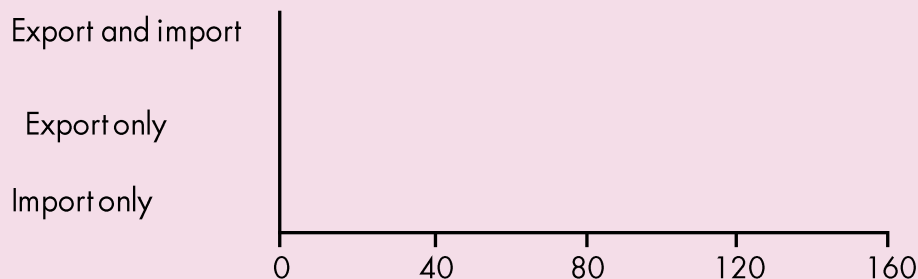
Change in expenditure poverty rate, 2004–14 (%)



In Ethiopia, capital intensity is higher, but so is employment growth

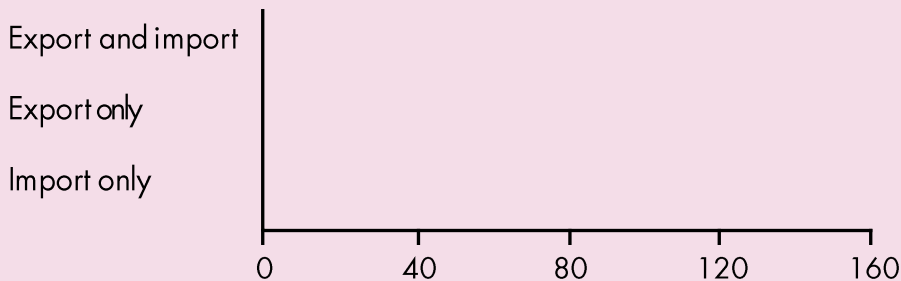
Capital intensity

Difference between trading firms and nontrading firms (%)

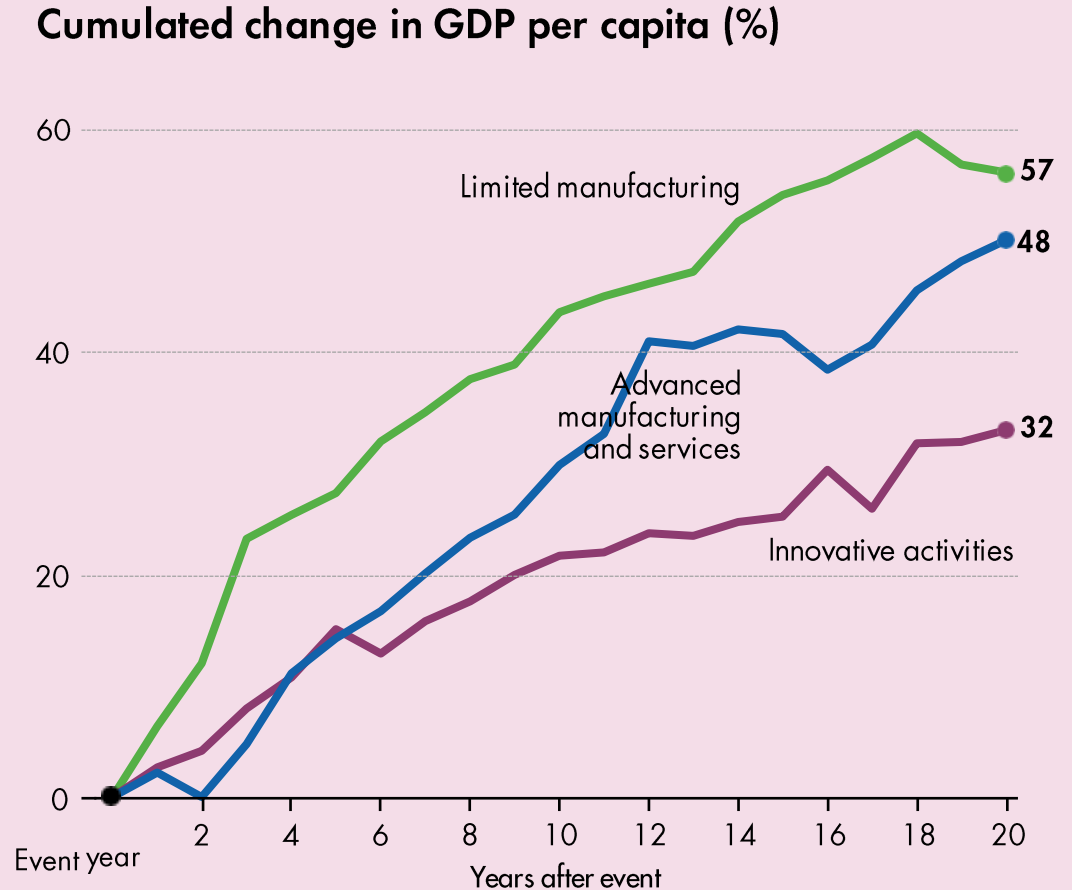


Employment

Before-after difference for firms switching from not trading to trading (%)



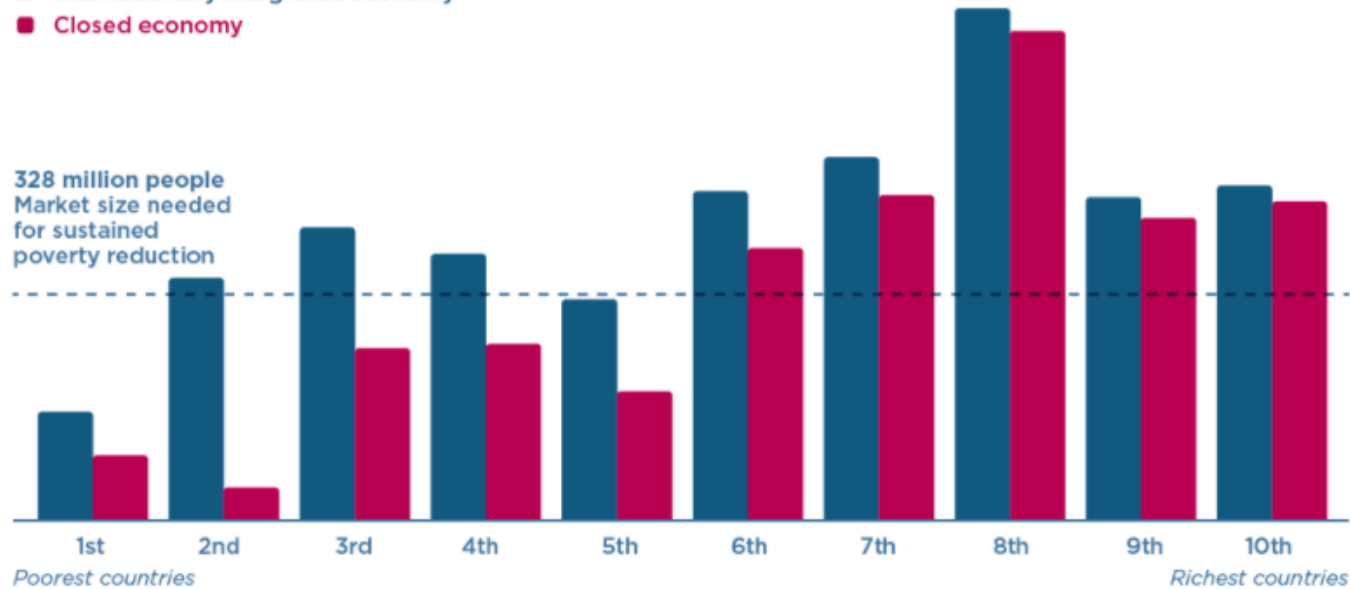
Incomes grow most when countries break into simple manufacturing GVCs



International integration provides a path for smaller, low-income nations to reduce poverty

Estimated market size by deciles of GDP per capita, millions of people

- Internationally integrated economy
- Closed economy



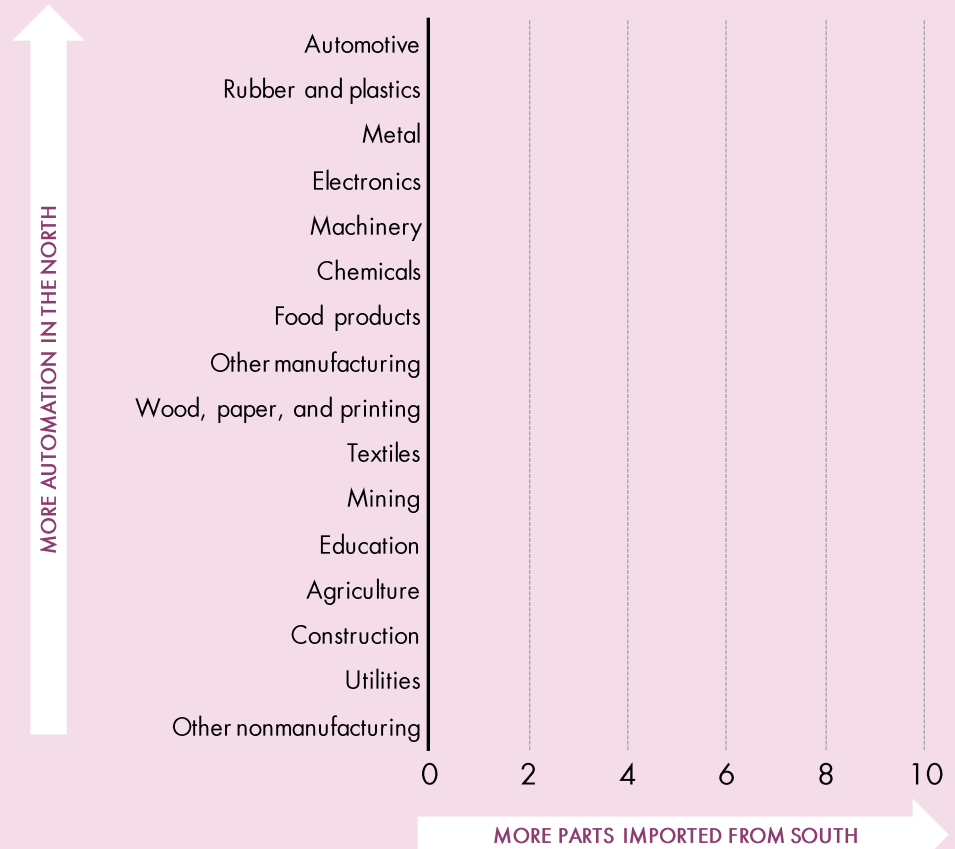
Source: Goldberg and Reed 2020

Are changing technologies a threat to the export-led growth model?



Changing technologies: increased adoption of industrial robots in the North has promoted imports from the South

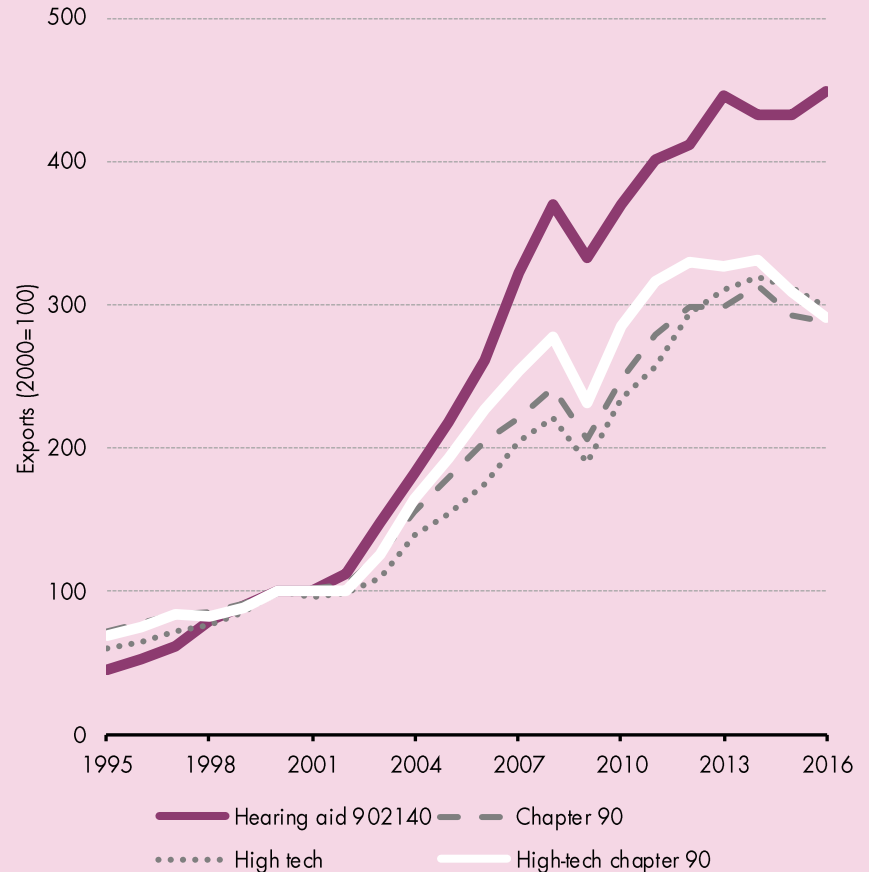
Change in parts imports from developing countries (%)



Source: World Bank (2020) – WDR “[Trading for Development in the Age of Global Value Chains](#)” based on Artuc et al (2019)

Changing technologies: hearing aids exports increased by 60% after switch to 3D printing

Exports of hearing aids, 1995-17

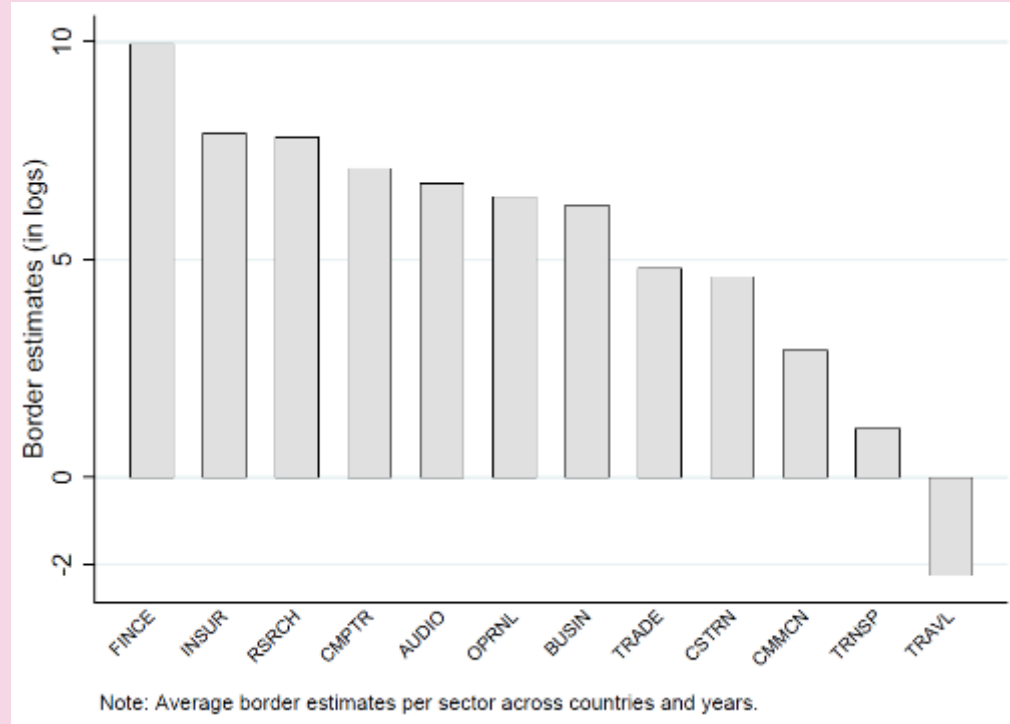


Source: World Bank (2020) – WDR “[Trading for Development in the Age of Global Value Chains](#)” based on Freund, Mulabdic and Ruta (2019)

Changing technologies: digitization is boosting services globalization

- Firms and people are investing in digital equipment literacy.
- The impact is a levelling-off of domestic and international trade costs.
- Since digital investments entail sunk costs, the impact will be durable

Estimated border effect across services sectors



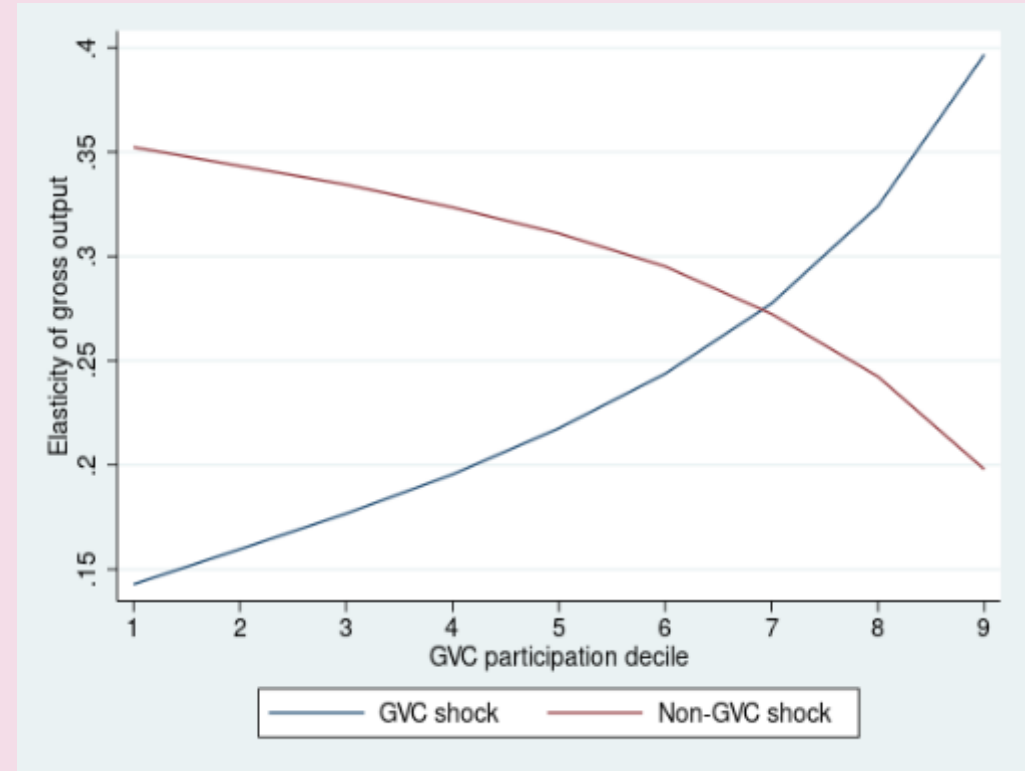
Source: Anderson, Borchert, Mattoo, and Yotov, (2018) and Mattoo and Taglioni (in progress)

Is exposure to shocks increasing in a world of GVCs?



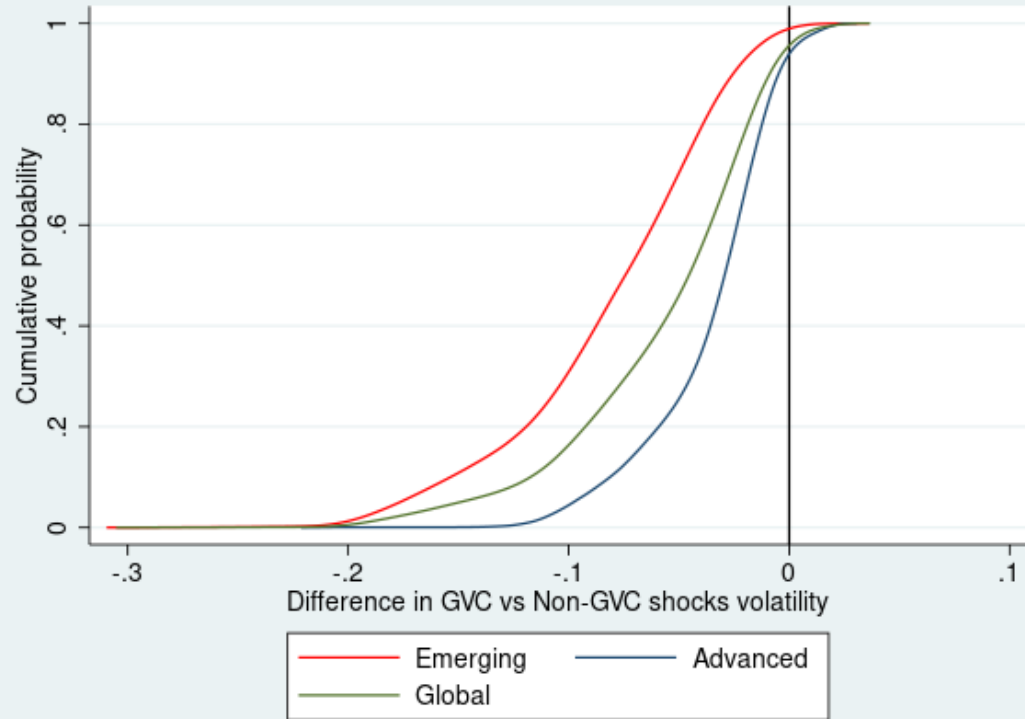
Output elasticity to GVC and non-GVC demand shocks

Shocks: GVC participation increases exposure to international shocks but it reduces exposure to domestic shocks



Source: Borin, Mancini, Taglioni ([World Bank 2021](#) and [VOXEU 2022](#))

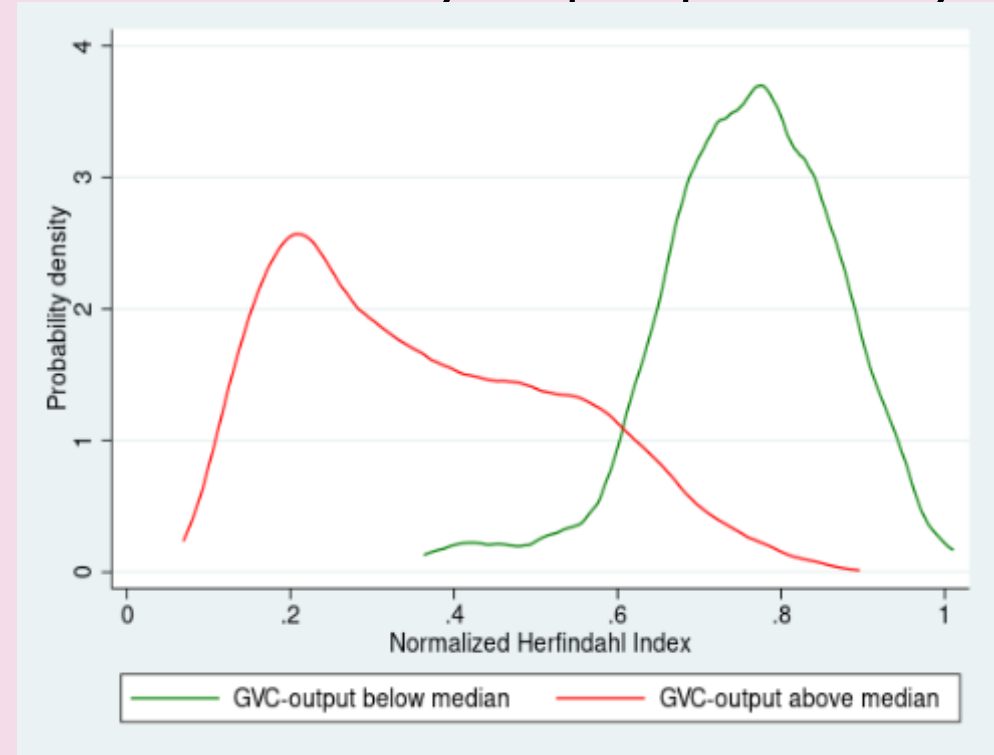
For more than 90% of country-sector pairs worldwide volatility to GVC-related demand shocks is lower than to direct demand shocks.



GVC participation is associated with greater market diversification and resilience.

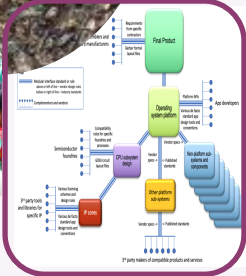
- Strong external dependency in key inputs to be weighed in against benefit of higher market differentiation.
- Intermediate solutions (“regional” value chains and in traditional trade) likely to present an intermediate profile of exposure to risk.

Normalised Herfindal-Hirschman Index (HHI) of final market concentration, by GVC participation intensity



Source: Borin, Mancini, Taglioni ([World Bank 2021](#) and [VOXEU 2022](#))

Challenges of participation to the trade-led development model

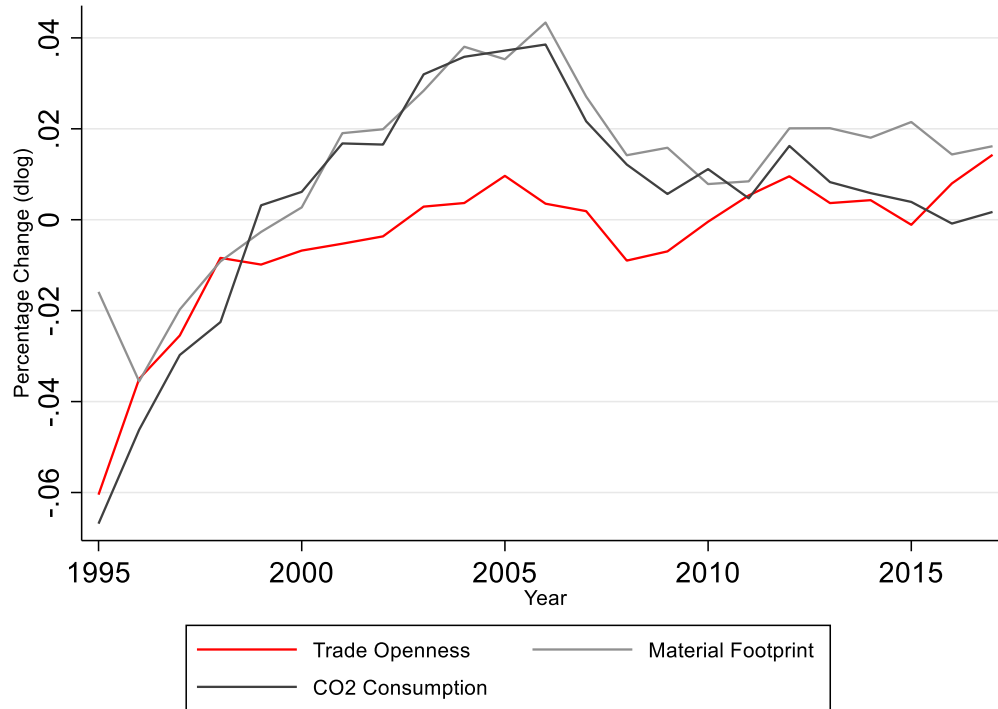


What are the costs of participation?

Mixed Effects on the Environment

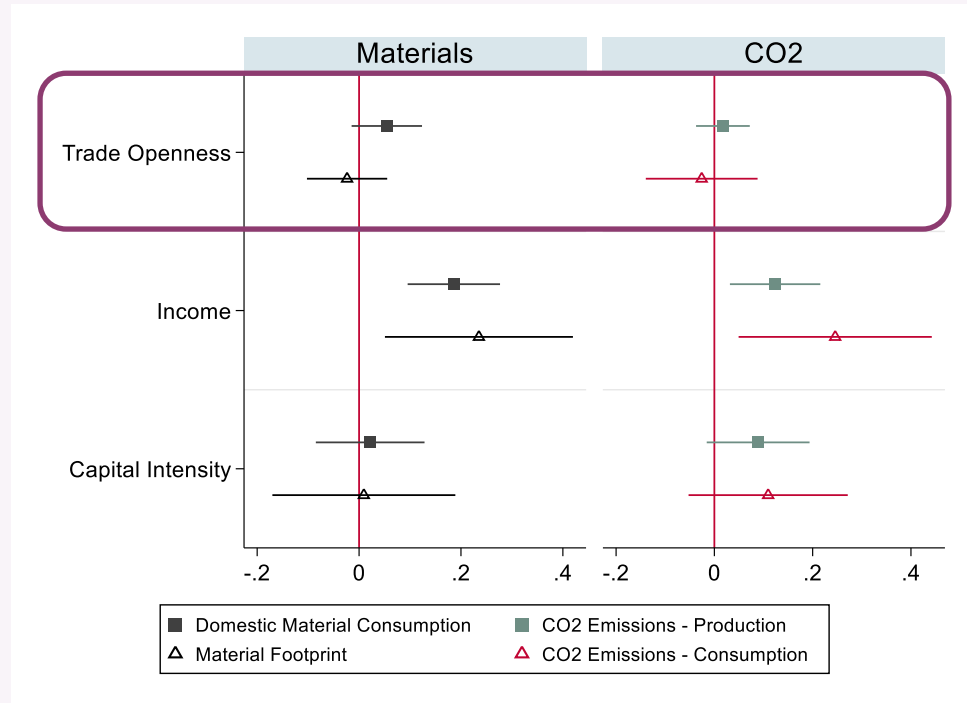


Material footprint and CO2 emissions grew over the period of exceptional trade and GVC integration ("long 1990s")



Source: Taglioni and Sommer, forthcoming

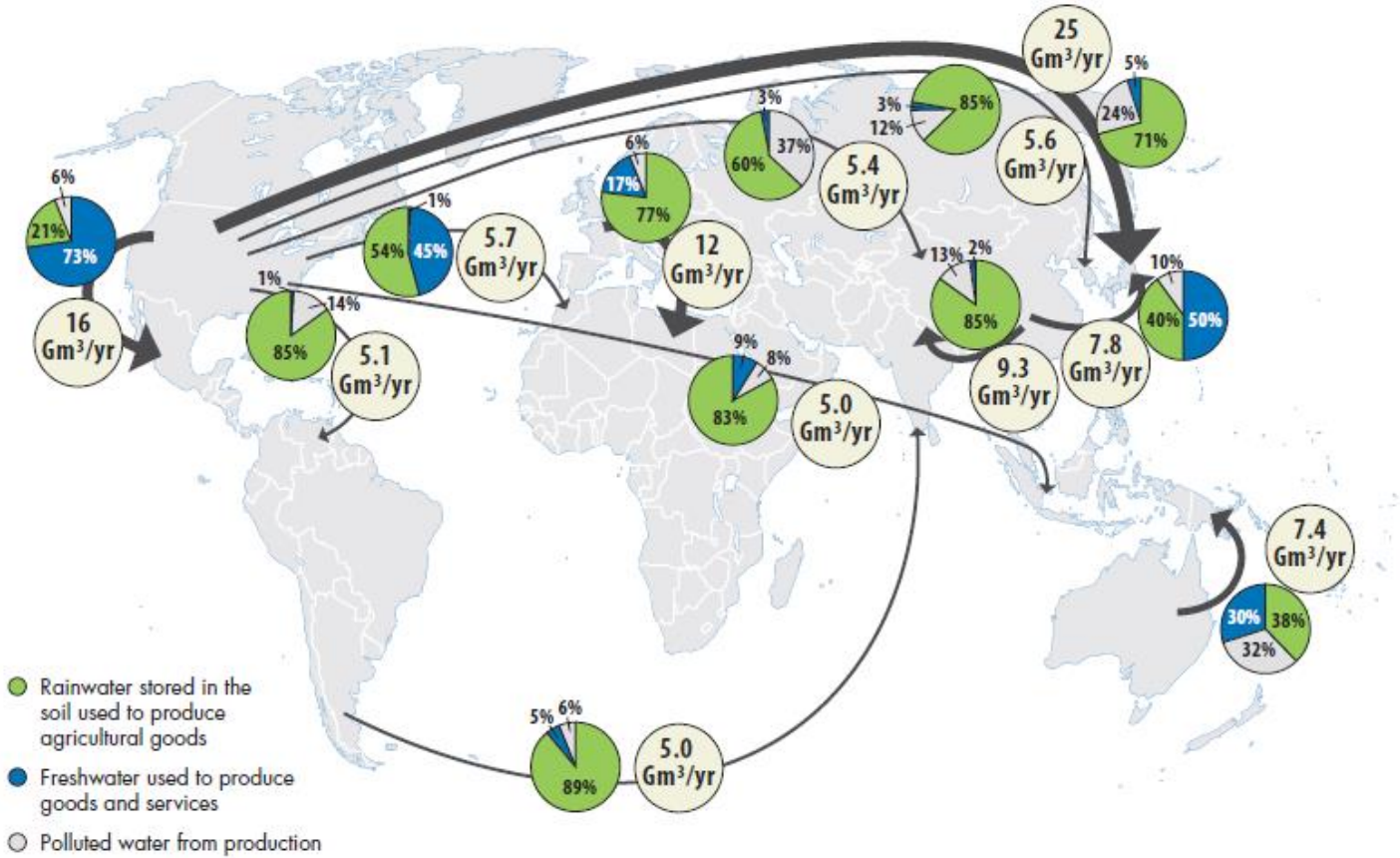
Three messages from the study of correlates of environmental impacts



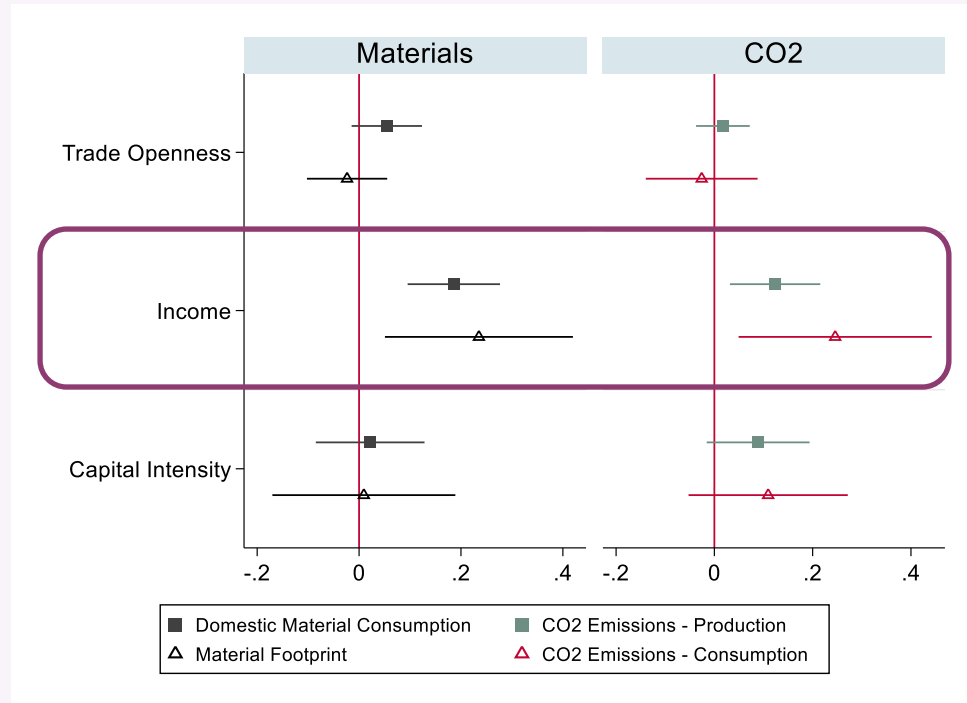
Source: Taglioni and Sommer, forthcoming

- **Message 1: trade per se does not induce environmental degradation**
- **Trade openness:** negative point estimates for Material Footprint and CO2 consumption point to possible efficiency gains from trade

**Example:
Trade in
agricultural
products
saved 4% of
the global
water
footprint,
1996-2005**



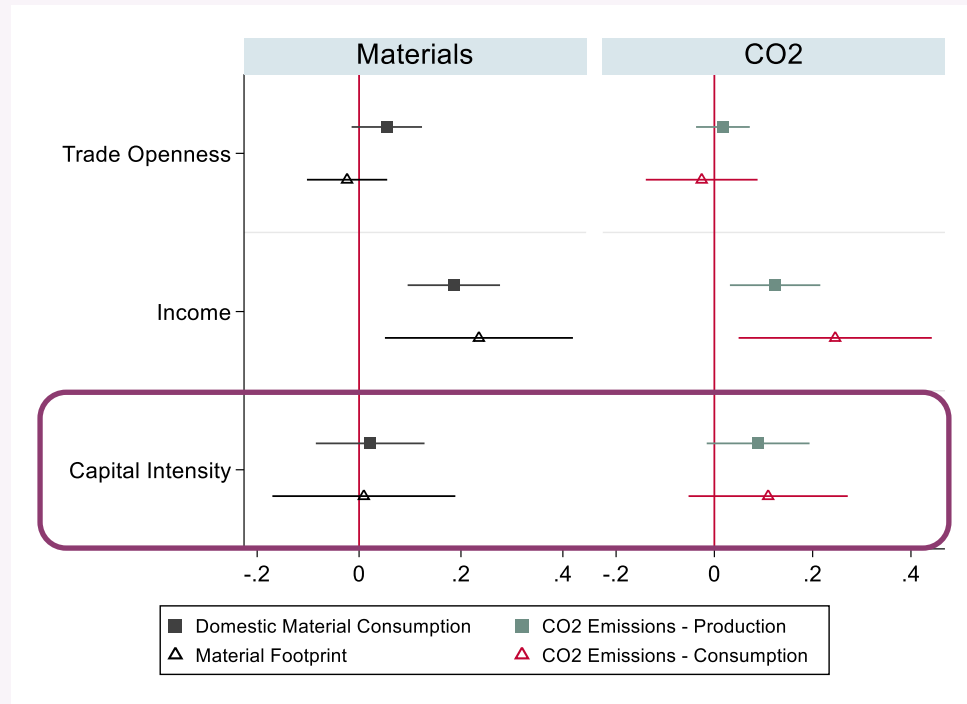
Three messages from the study of correlates of environmental impacts



Source: Taglioni and Sommer, forthcoming

- **Message 2: Rising incomes are associated with more use of natural resources and pollution**
- **Scale matters:**
 - More economic growth leads to *more consumption, more shipping, and more waste*
 - The counter effect of *technology* whereby richer countries are expected to be cleaner and more efficient does not offset the scale effect.

Three messages from the study of correlates of environmental impacts

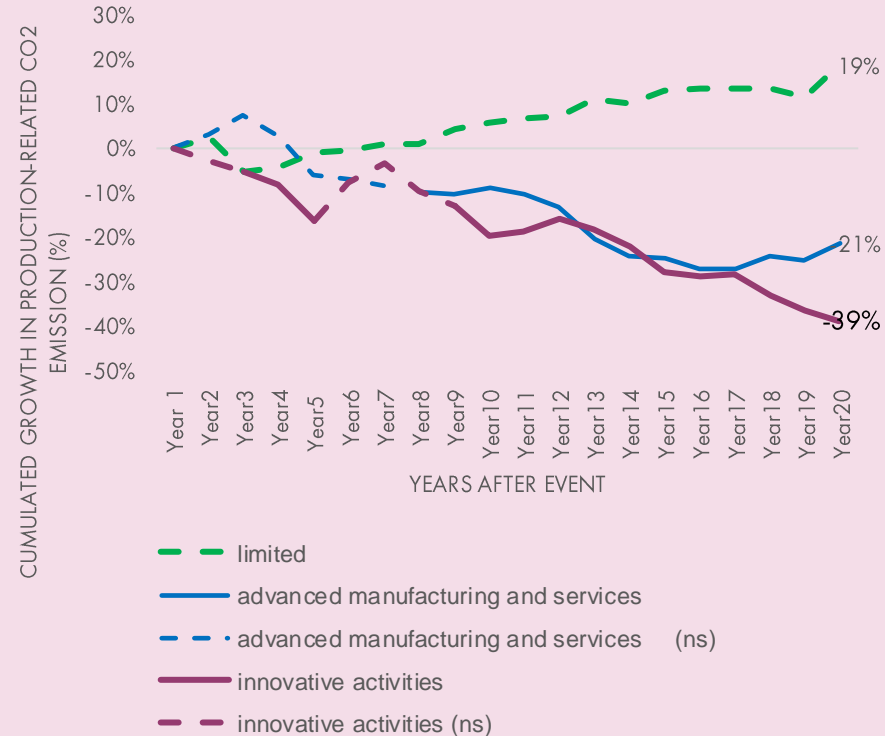


Source: Taglioni and Sommer, forthcoming

- **Message 3: More capital-intensive countries pollute more**
- capital-intensive countries use more natural resources and pollute more.
- High and middle income countries tend to be more capital intensive than low income countries.

But production related CO2 emissions dropped in most countries after a deepening of their engagement in the export-led growth model

Production related CO2 emissions after GVC transitions



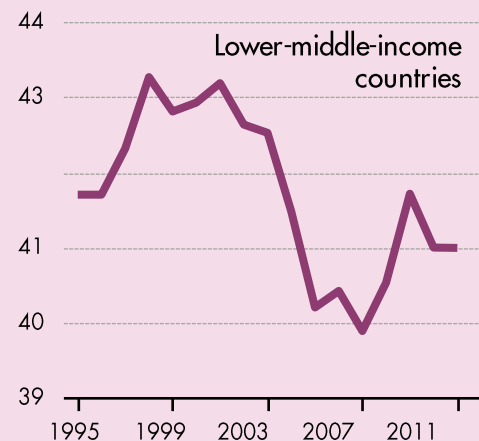
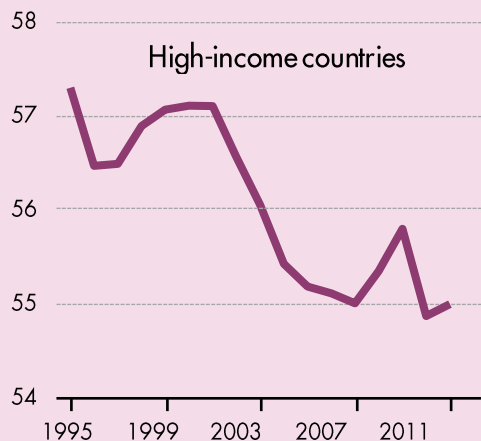
What are the costs of participation?

Uneven distribution of the gains and rising within-country inequality



Trade and GVCs have contributed to the declining labor share within countries

Labor share over GDP (%)

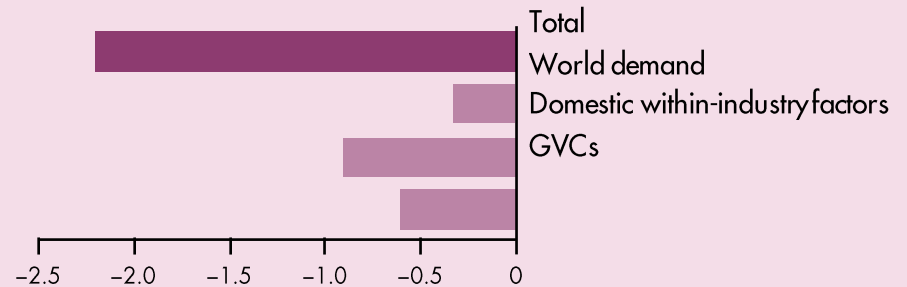


- Workhorse model of international trade (Heckscher-Ohlin) shows that trade benefits the owners of factors that are used intensively in export sectors and hurts owners of factors that are used more intensively in import competing sectors.
- But empirical analysis contradicts the model, since we observe declining labor share also in developing countries.

Explanations for the declining labor share within countries

- **Standard explanation:**
 - Trade played only a secondary role in the increase of the skill premium. Trade only important in interaction with technology or macroeconomic factors.
 - Useful explanation, but there are cases in which the Heckscher-Ohlin model fails even after controlling for concurring factors
- **New consensus:** main culprit are factor adjustment costs.

Factors contributing to labor share decline (percentage points)



High mobility costs create winners and losers after trade policy changes

- Shift of focus to **regional inequality and mobility frictions**:
 - Workers cannot adjust immediately after a globalization episode, creating winners and losers not easily identifiable looking at macroeconomic outcomes. (Autor, Dorn and Hansen; Pierce and Schott; Dix-Carneiro and Kovak, Topalova; Artuc, Chaudhuri and McLaren)
- All dimensions of worker mobility are correlated, but **geographical moving costs most damaging**:
 - Worker welfare increases significantly more than when reducing sectoral moving costs (Artuc, Bastos and Lee, 2022) .
- Effects on development are **long-lasting and wide-ranging**:
 - High adjustment costs prevent efficient allocation of factors and reduce growth rates, employment, and wages while increasing informality.
 - Adverse effects also on education, child labor, crime, investment in physical and human capital.

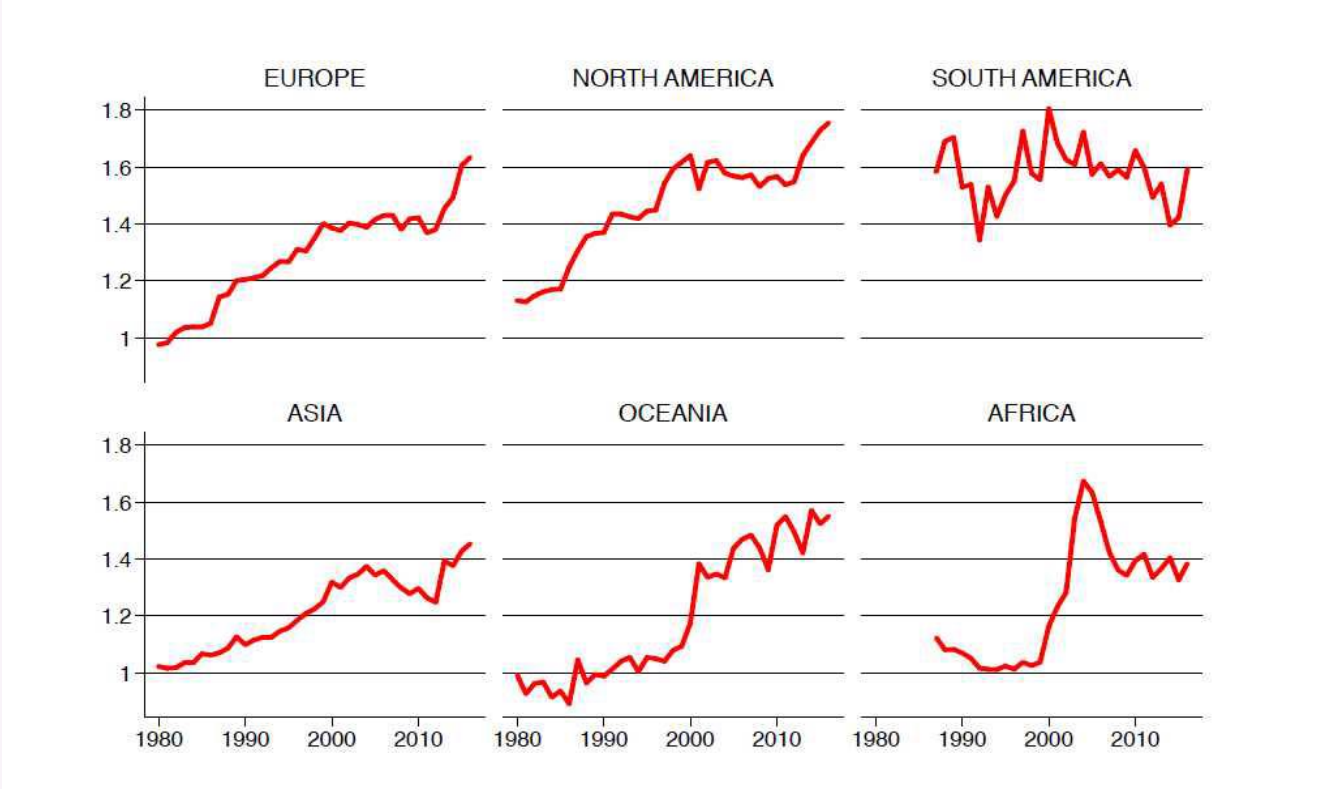
Trade benefits consumers, but impacts are uneven

- Jaravel and Sager (2019):
 - Trade with China had led to large price declines.
 - The price declines disproportionately benefit low-income consumers.
- Atkin, Faber and Gonzalez-Navarro (2018):
 - “Retail Globalization” in Mexico increased household welfare through lower prices and increased variety.
 - But the richest households gained more.
- DeLoecker, Goldberg, Khandelwal and Pavcnik (2016):
 - Trade Liberalization in a sample of developing countries reduced prices, and it increased quality, product variety, and firm profits.
 - Benefits to consumers came in the form of lower prices, but they were smaller than predicted by models of perfect competition or constant markups.

Trade liberalization boosts firms' profits

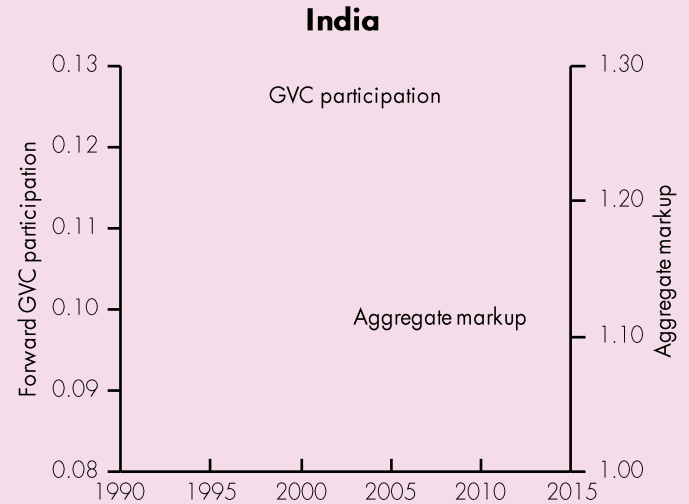
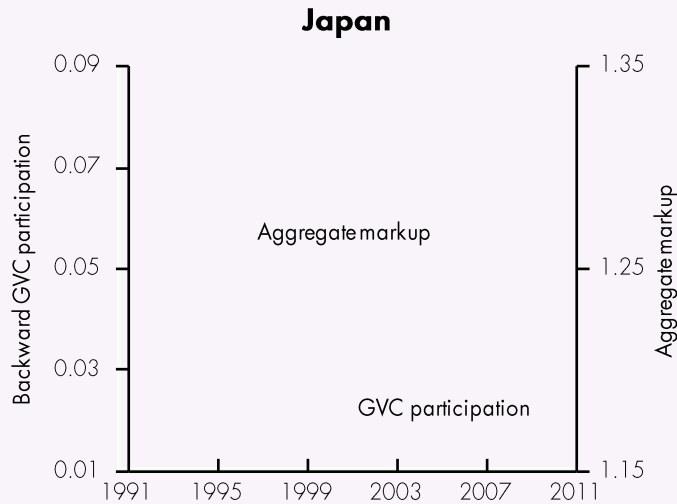
- DeLoecker, Goldberg, Khandelwal and Pavcnik (2016):
 - Liberalization of input tariffs reduced costs of producers
 - Cost reductions were not passed through completely to consumers in form of lower prices
 - **So profits increased**
 - In the short run, producers benefited more than consumers
 - But firms with highest markup increases have the most new product introductions
 - Potentially substantial dynamic gains through product innovation and higher product quality

Rise in global market power



Source: De Loecker and Eeckhout

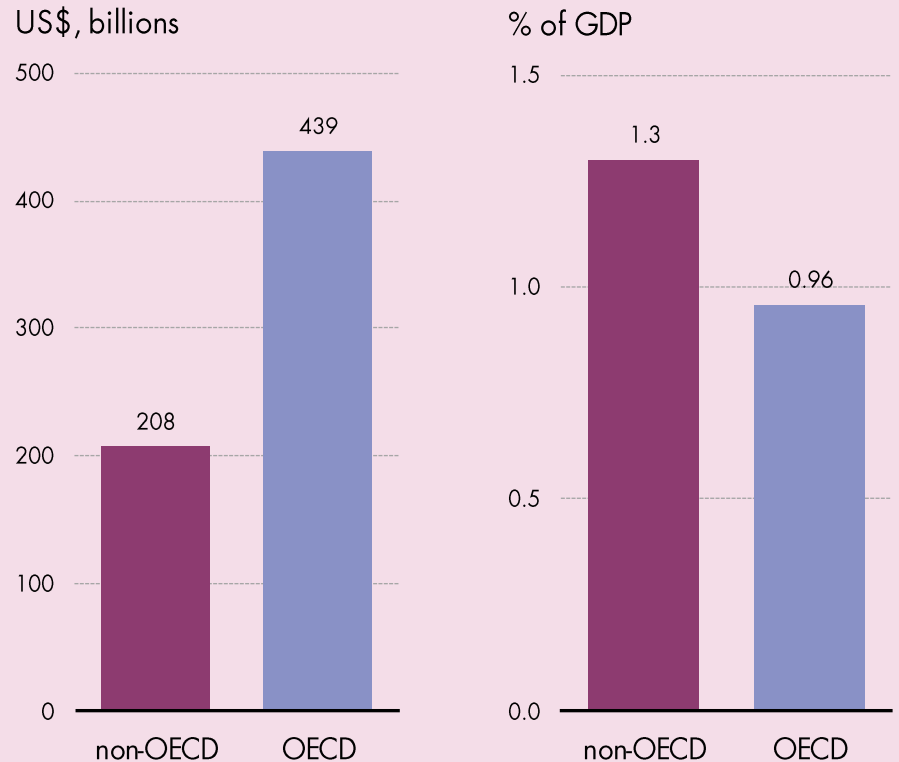
Increasing trade and GVC participation associated with rising markups in "buyer" countries, but markups in "supplier" countries may fall



Raising tax revenue is **challenging** in today's globalized world

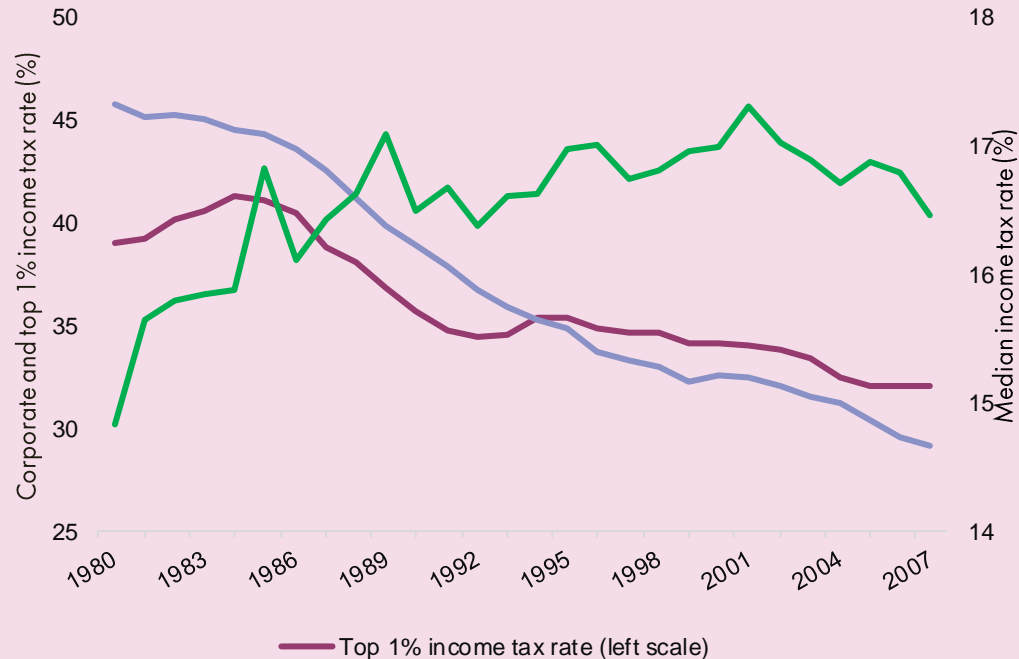
- Corporate income taxes have declined by nearly 50 percent since 1990
- As a share of GDP, non-OECD countries lose the most from profit shifting
- Social spending and investment in human and physical capital may be constrained

Revenue loss from profit shifting



Impact of globalization on tax structures makes it harder to tax winners and compensate losers

Corporate tax rates and personal labor income tax rates for top 1% and median workers in 65 economies over 1980-2007



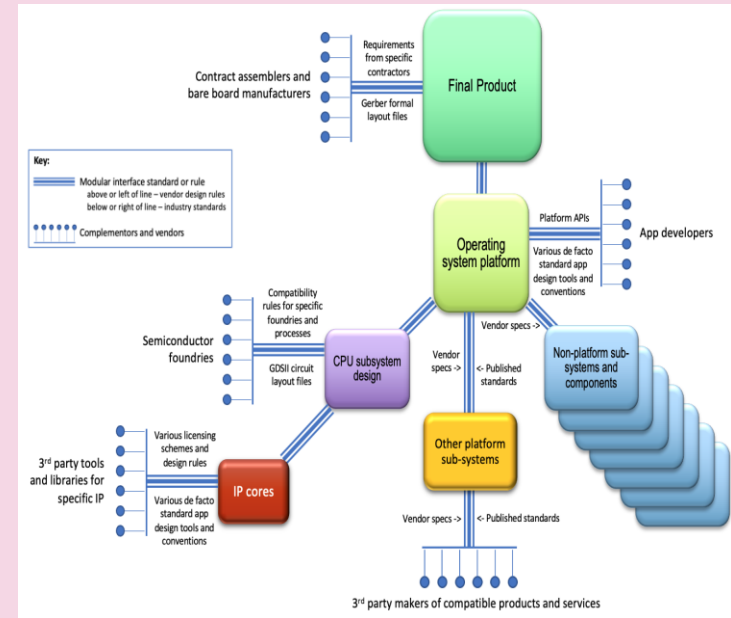
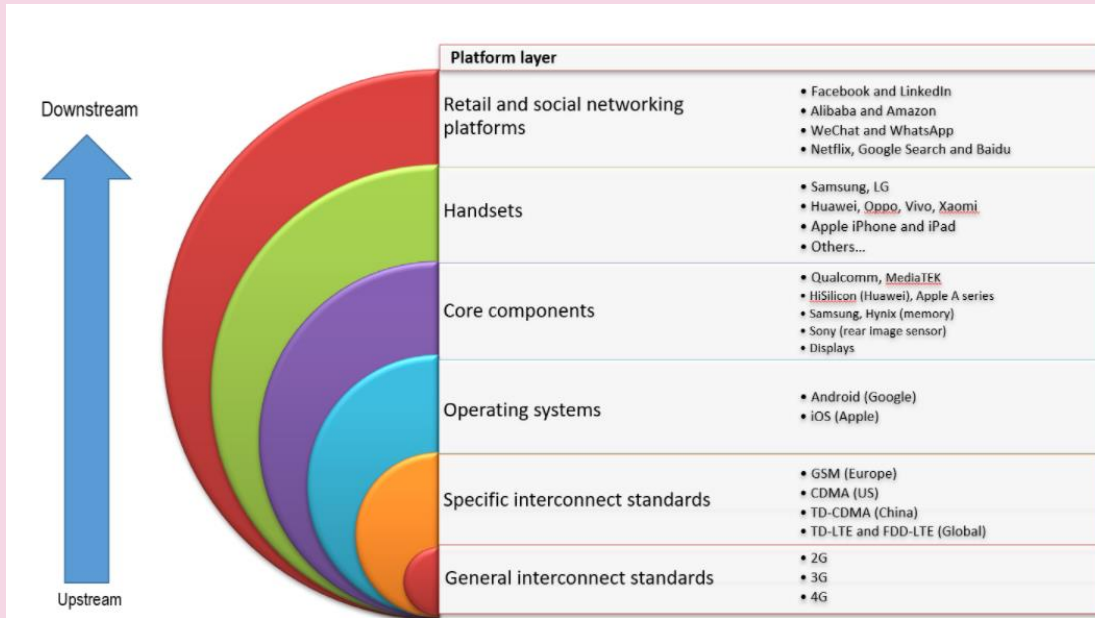
Source: Egger, Nigal and Strecker, 2019

**What are the costs
of participation?**

**Global geo-
strategic tensions**



Global industries are becoming **massively modular multi-tiered ecosystems**



Three paradoxes of modern global industries that constitute a recipe for geopolitical tensions



Complexity at scale (more quality, more innovation, lower prices)



Market concentration and fragmentation, simultaneously



Geographic clustering and dispersion, simultaneously

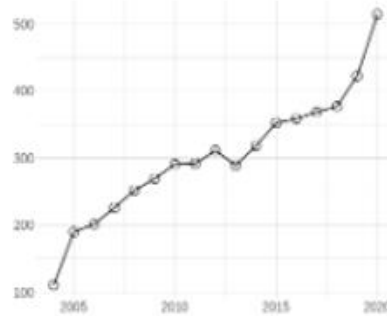


Complexity on a global scale

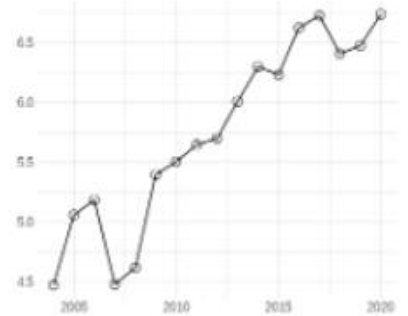
Both the number of components in each phone and the number of countries involved in the production of phones have increased substantially.

Figure 5: Evolution of mobile phones composition

(a) Average number of components

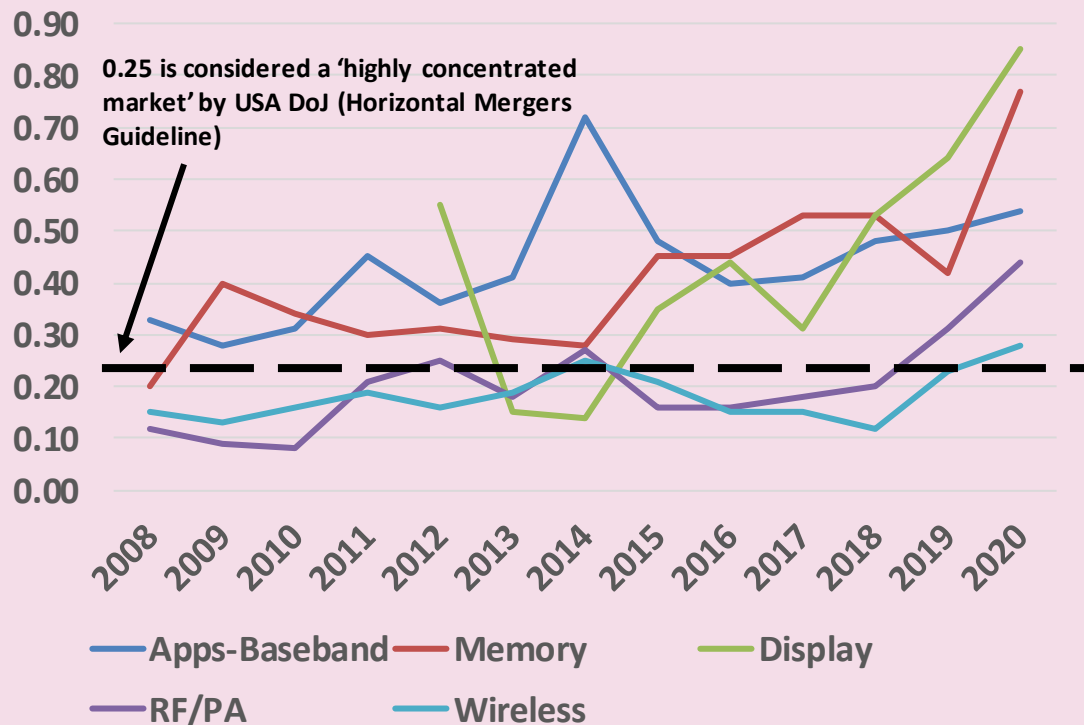


(b) Average number of suppliers country



Market concentration and fragmentation

HHI by Function in the Smartphone Industry

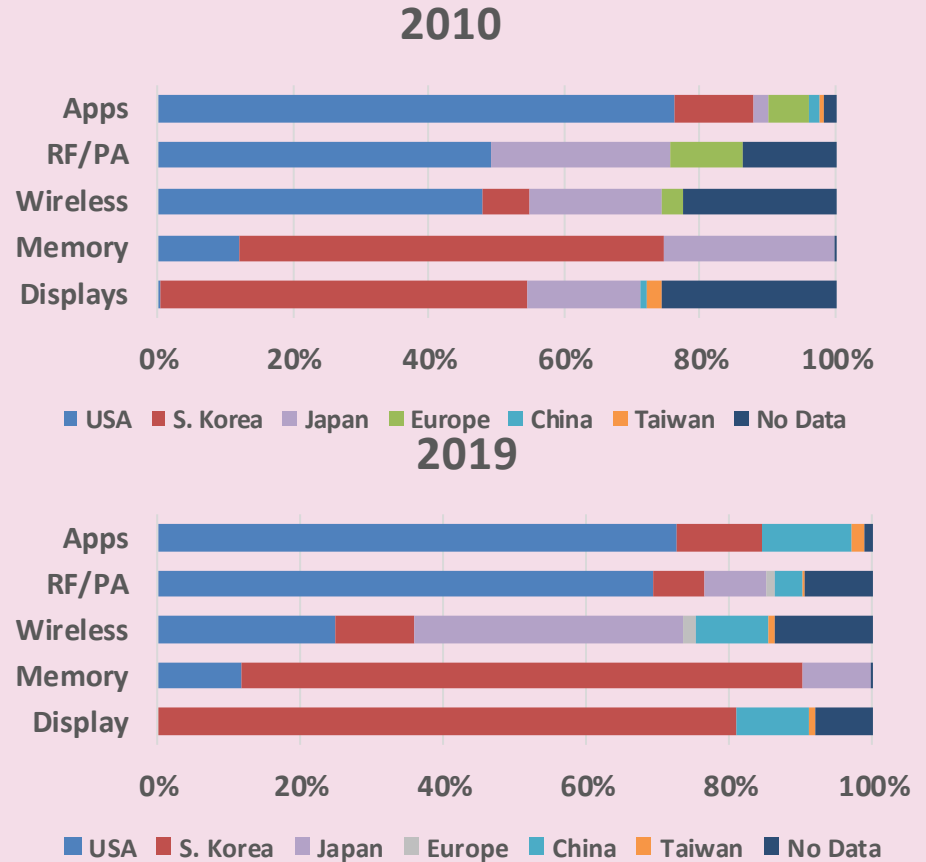


Source: Thun, Taglioni, Sturgeon and Dallas (forthcoming)

Geographic clustering and dispersion

- New functions are globally dispersed. The addition of new functions leads to geographic dispersion because capabilities are globally dispersed.
- The depth of capabilities required within each module leads to clustering.
- Creating large measures of global interdependence and supply chain vulnerabilities.

Smartphone industry, 2010 vs. 2019



Source: Thun, Taglioni, Sturgeon and Dallas (forthcoming)

Policy implications



Policy implications

Need to focus on disruptions and transitions and not only on steady state

National policies:

- Keep policies flexible, simple and adaptive. Putting impractical conditions on transfers may increase adjustment costs further and lead to the waste of public resources.
- Prioritize reducing labor mobility costs along all dimensions (spatial, sectoral, and occupational) to facilitate multi-dimensional development.
- Potential justification for place-based policies.

International cooperation:

- Some large measure of interdependence is here to stay.
- Self-sufficiency can only be a solution to very limited contingencies and dampens development prospects for poor countries.
- Multilateralism and a means to transparently identify and sanction bad actors will be necessary.
- An institutional solution will need to be developed:
 - Rebooted WTO?
 - A government-led entity to create clear and consistent rules for participation and sanctions for bad actors ?
 - An industry-led, technocratic layer to map industries, identify choke points, and suggest mitigations?

Thank you!



dtaglioni@worldbank.org