



# **Structural Transformation in Thailand: A Perspective Through Product Innovation: A Comment**

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ความเห็นนี้เป็นความเห็นส่วนตัวของผู้วิจารณ์ ไม่จำเป็นต้องสอดคล้องกับความเห็นของสำนักงานนโยบายและยุทธศาสตร์การค้า



# Summary of the paper

- **Main findings**

- Economic development is the development of productive capabilities.
- The diversification and sophistication of Thailand's product structure has been impressive.
- Gains from the increase in economic complexities, however, have serious distributional problems – both at firm and regional levels.
- Existing product structures determines evolution of firms' product structure (path-dependence and cumulative causation).

- **Policy implications**

- Focus on products that are close to the current set of productive capabilities –
- Resource allocation should be improved , particularly through laggard firms catching up with frontier firms.

**Excellent utilization of data but could be improved in terms of policy recommendations!**



# Comments

- **Other measures of export sophistication may yield different results –**  
Thailand's export basket becoming less sophisticated may be able to explain the decline in long-term growth and competitiveness of Thailand's exports.
- **The roles of foreign firms in export complexity:** Thailand is a net importer of high technology. Therefore, product innovation may not happen without FDI. Also, locals may not get the benefits if technology transfer is not made.
- **Servicification of manufacturing:** more productive services mean more productive manufacturing and vice versa.

***Future studies should include the interplay between export sophistication, foreign firms, and services in determining Thailand's export competitiveness.***



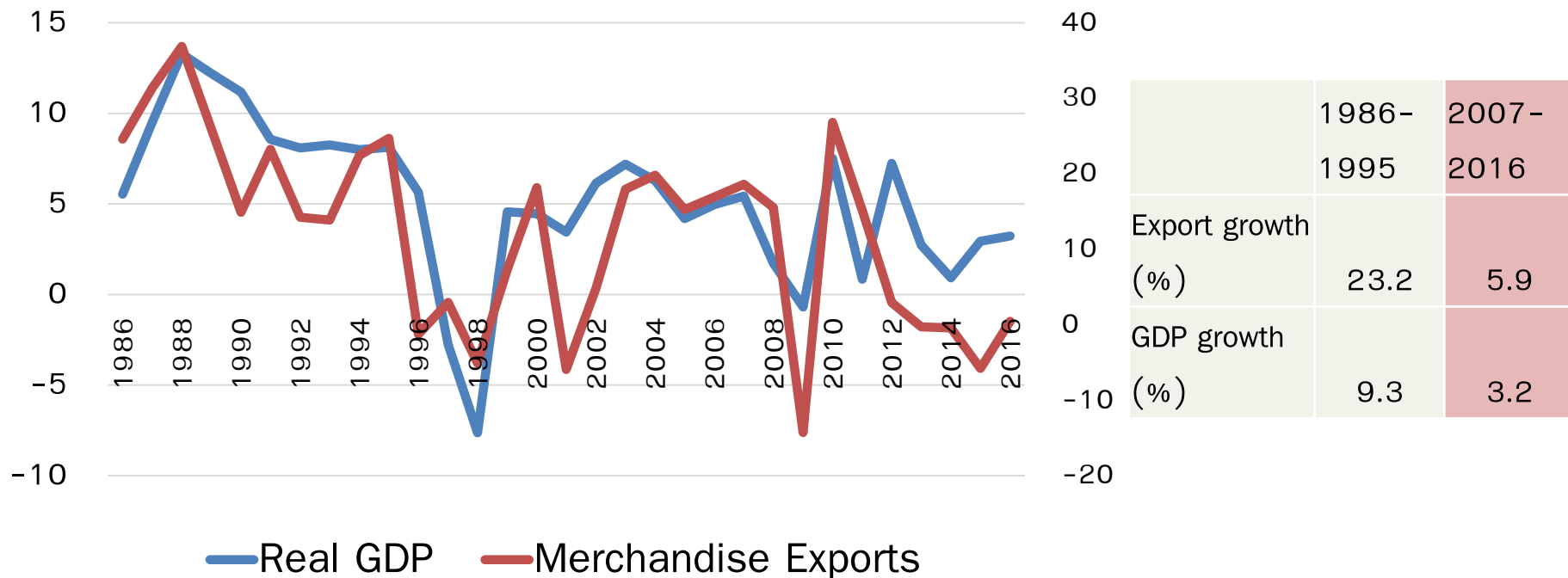
# Comment 1

**By using other measures, Thailand's export basket becoming less sophisticated** may be able to explain the decline in long-term growth and competitiveness of Thailand's exports.



# In the long run, Thailand's GDP growth is determined by export growth.

**Thailand's Merchandise Export and Real GDP Growth**  
(%, 1985-2016)



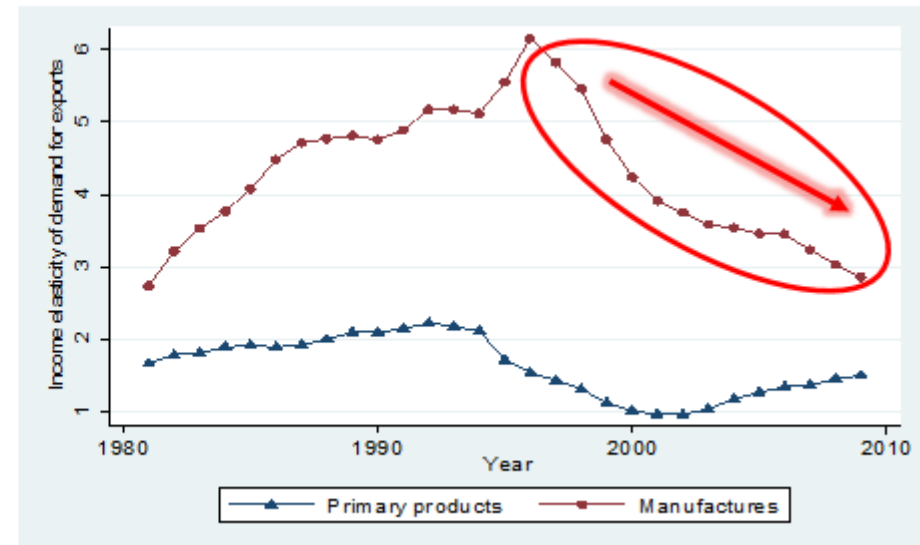
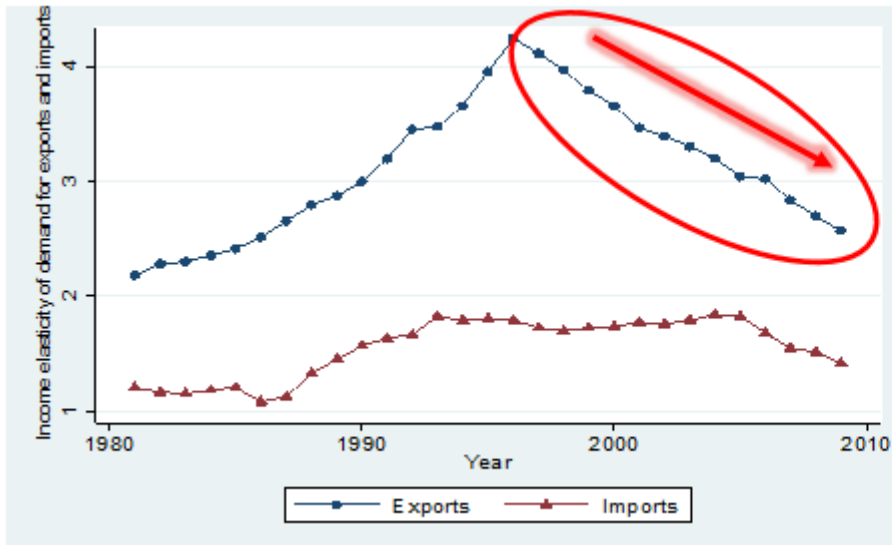
Source: World Development Indicators (2017)





# Thailand's long-term export competitiveness is at risk

- Income elasticity of demand for Thailand's merchandise, particularly manufactures, exports has dropped at an alarming rate.
- That is, a 1% increase in world GDP results in **smaller and smaller demand for exports from Thailand.**
- This explains the relative decline of Thailand's export growth in the post-1997 period. **What has happened to Thailand's long-term export competitiveness?**



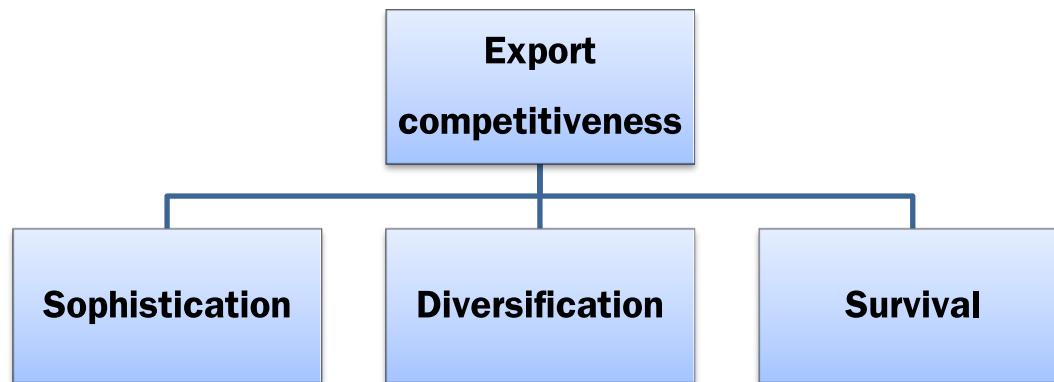
Rolling regression estimates of export and import demand functions for Thailand

$$\ln \text{Export} = c + \epsilon \ln \text{WorldGDP} + \pi \ln \text{Relativeprice}$$

Source: Tharnpanich and McCombie (2013)



# Export growth decomposition



Export growth is decomposed to investigate the root cause(s) of the problem. In particular, we will look at

1. Export sophistication
2. Export diversification
3. Export survival

Comparison will also be made between Thailand and China, Malaysia, Indonesia, the Philippines, and Vietnam



## Sophistication: Share in total exports by technology intensity

Lall (2000) classifies products into Primary, Resource-based, Low-tech, Medium-tech, High-tech products in SITC Rev.3.

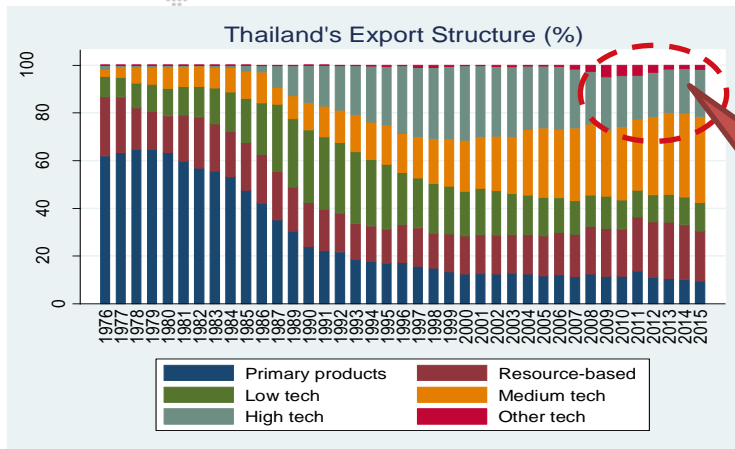
Classification	Examples
Primary products	Fresh fruit, meat, rice, cocoa, tea, coffee, wood, coal, crude petroleum, gas
Manufactured products	
<u>Resource based manufactures</u>	
Agro/forest based products	Prepared meats/fruits, beverages, wood products, vegetable oils
Other resource based products	Ore concentrates, petroleum/rubber products, cement, cut gems, glass
<u>Low technology manufactures</u>	
Textile/fashion cluster	Textile fabrics, clothing, headgear, footwear, leather manufactures, travel goods
Other low technology	Pottery, simple metal parts/structures, furniture, jewellery, toys, plastic products
<u>Medium technology manufactures</u>	
Automotive products	Passenger vehicles and parts, commercial vehicles, motorcycles and parts
Medium technology process industries	Synthetic fibres, chemicals and paints, fertilisers, plastics, iron, pipes/tubes
Medium technology engineering industries	Engines, motors, industrial machinery, pumps, switchgear, ships, watches
<u>High technology manufactures</u>	
Electronics and electrical products	Office/data processing/telecommunications equip, TVs, transistors, turbines, power generating equipment
Other high technology	Pharmaceuticals, aerospace, optical/measuring instruments, cameras
Other transactions	Electricity, cinema film, printed matter, 'special' transactions, gold, art, coins, pets





# Sophistication: Share in total exports by technology intensity

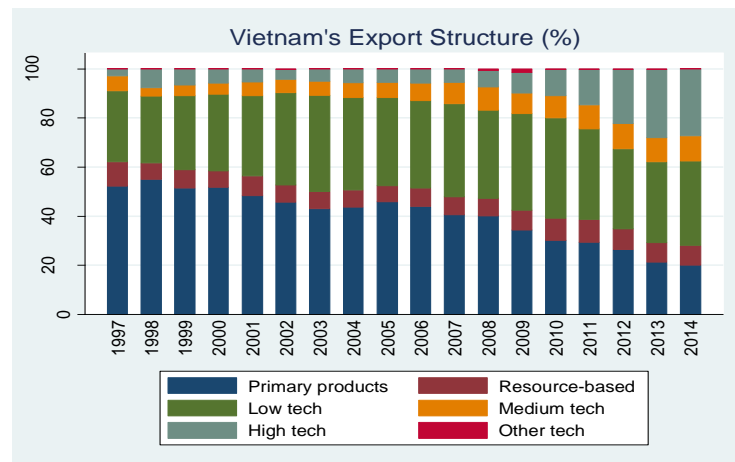
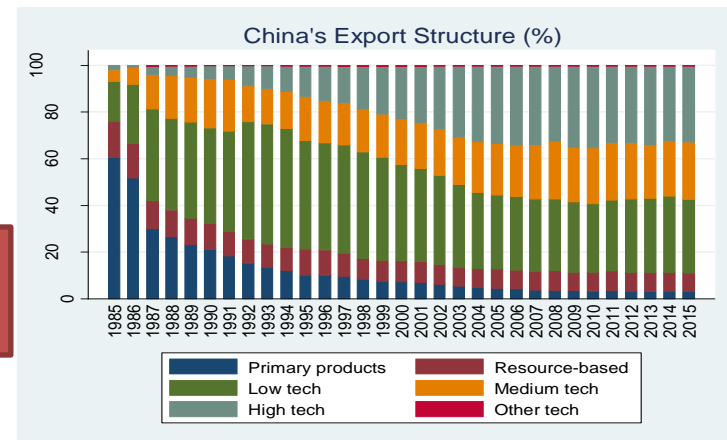
Lall (2000) classification of products by technological intensity shows that **share of high-technology exports has fallen over time** for Thailand.



Thailand

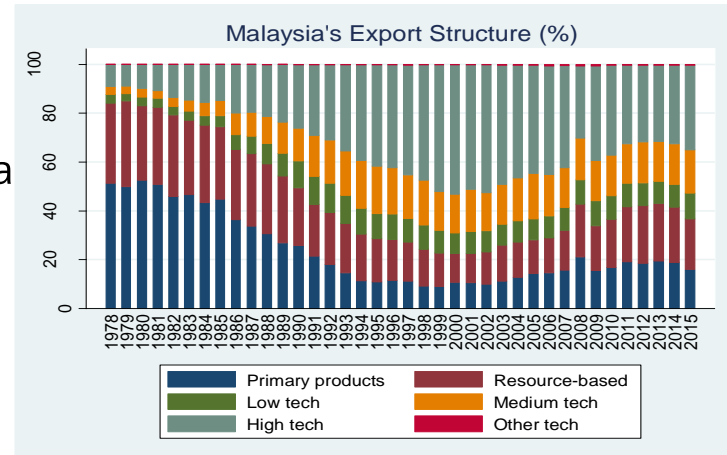
China

Share of high-technology exports of Thailand has recently dwindled



Vietnam

Malaysia




The technology intensity classification follows that in Lall (2000)

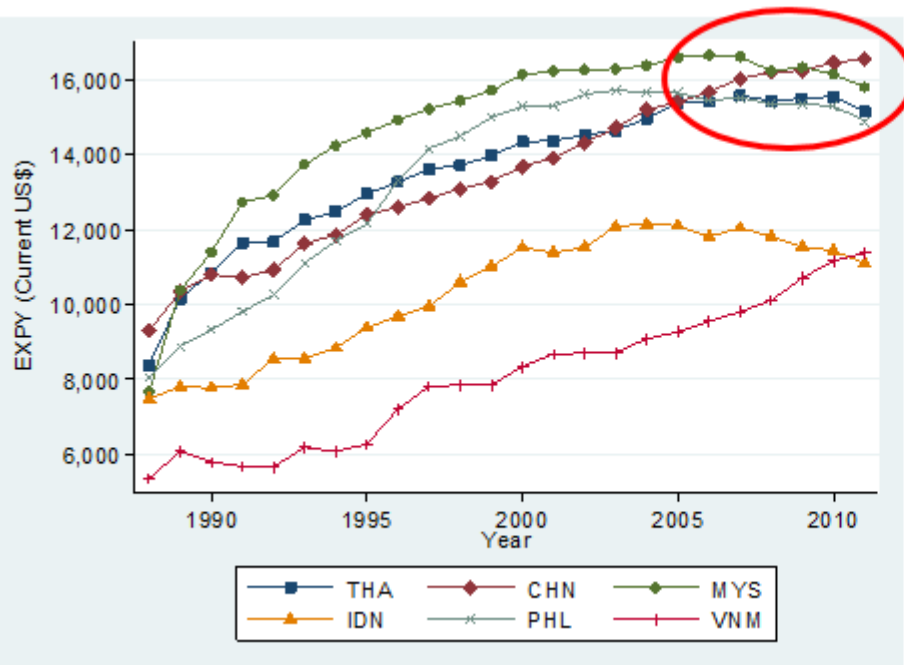


# Sophistication: Technology content of exports

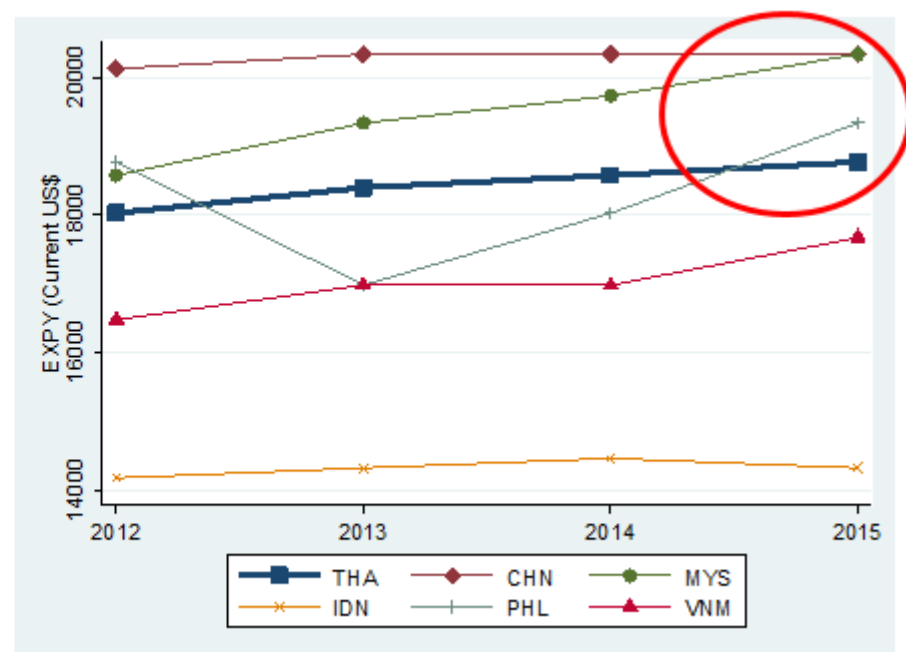
We can measure technology content of exports by using weighted average of GDP per capita of countries that export them. In this setting, Thailand's export sophistication has stopped increasing and has been surpassed by our neighbours.

Revealed **technology content** of non-oil exports

Thailand = 



1987–2011



2012–2015

Source: Author's calculation using data from UN Comtrade and Trade Outcome Indicators (WITS)

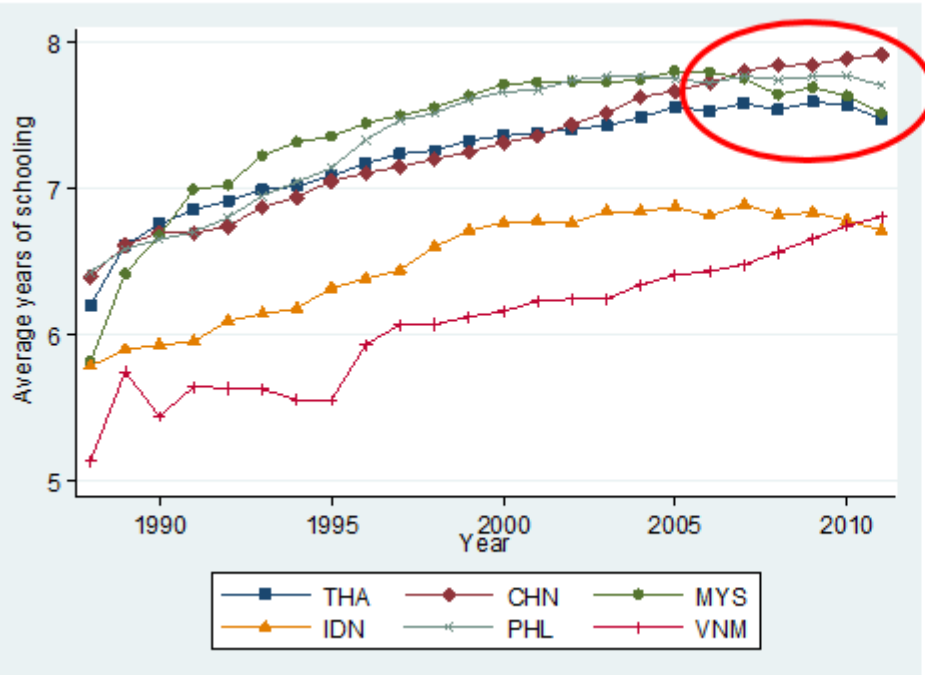


# Sophistication: human capital and physical capital content of exports

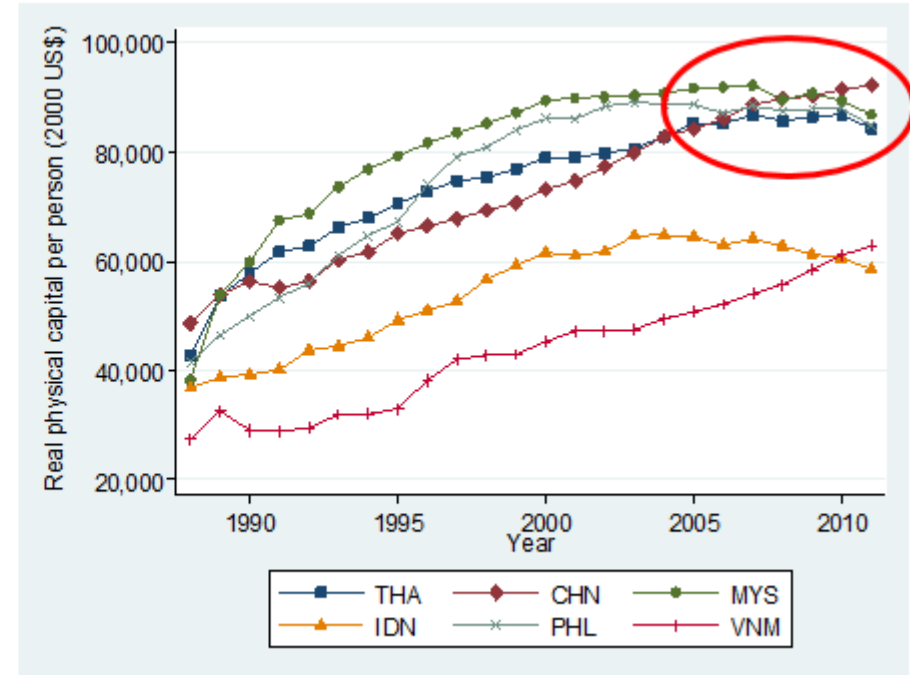
By the same token, we can measure human capital content and physical capital content of exports by using average years of schooling and real physical capital per person of countries that export them.

Again, **Thailand's export sophistication has been weakened.**


Revealed human capital content of non-oil exports



Revealed physical capital content of non-oil exports



Source: Author's calculation using data from UN Comtrade and World Development Indicators

Thailand = 

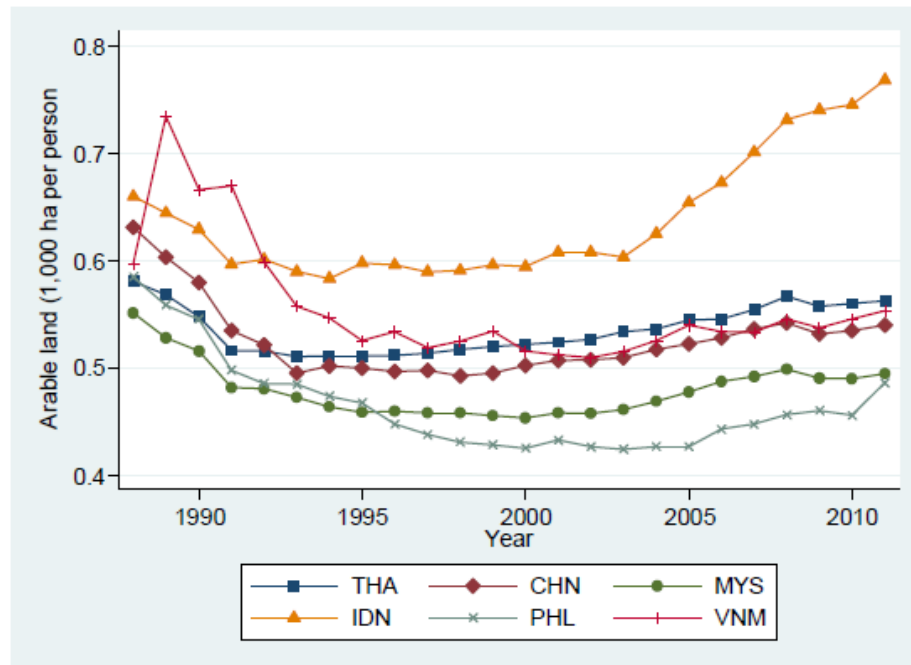



## Sophistication: human capital and physical capital content of exports

Similarly, we can also measure natural resource content of exports by using, among others, arable land hectares per person of countries that export them (Shirotori, Tumurchudur, and Cadot, 2010).

Accordingly, ***the natural resource content of Thailand's exports is higher than our neighbours and has been on the rise.***

Revealed natural resource content of non-oil exports



Thailand = 

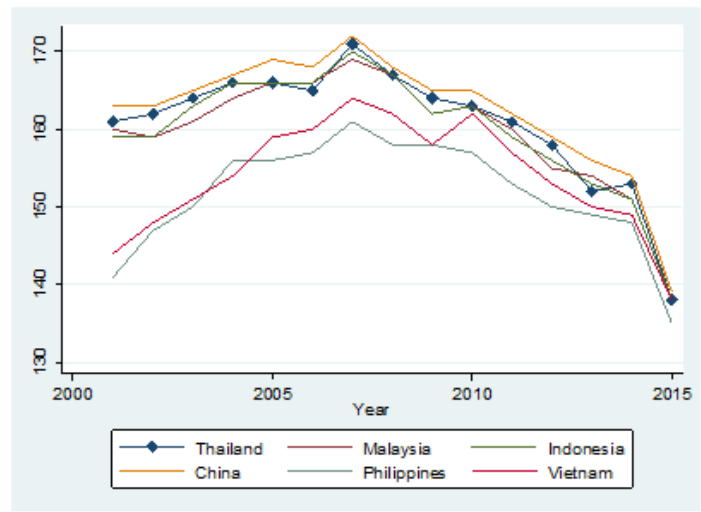
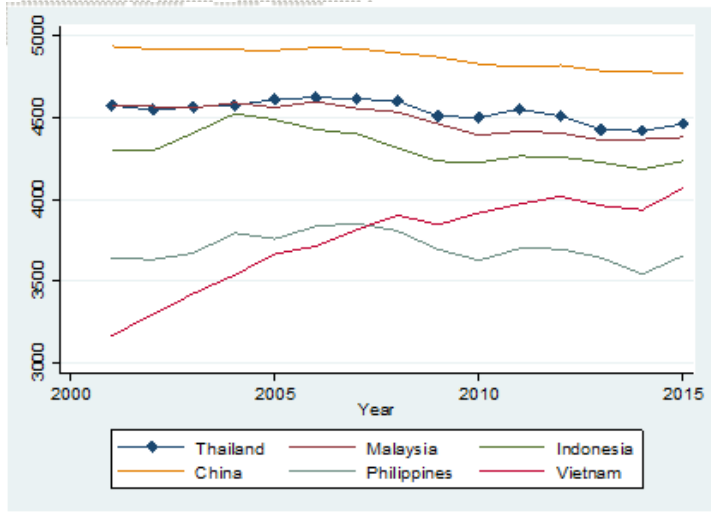
Source: Author's calculation using data from UN Comtrade and World Development Indicators

***The drop in Thailand's export growth in recent years could be explained by the relative decline in export sophistication – we need to boost our export complexity!***



# Thailand's export diversification is among the best

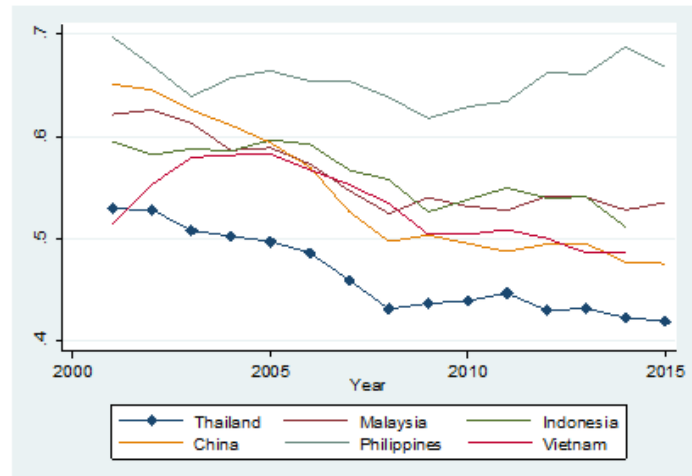
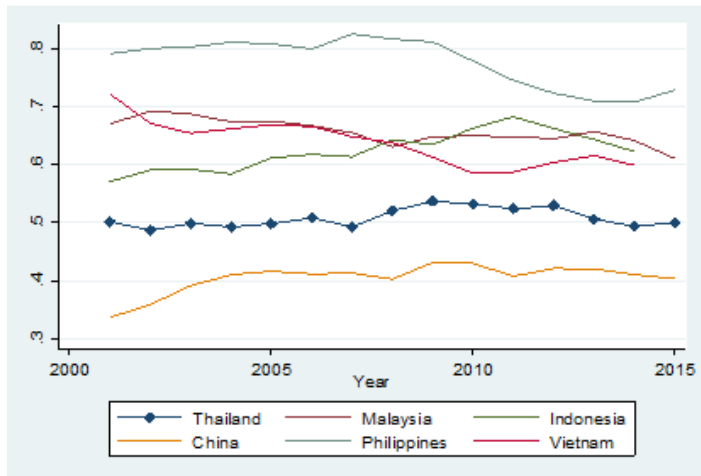
Quantity



Products

Markets

Share in total



Thailand =

Top 50 Products

Top 5 Markets








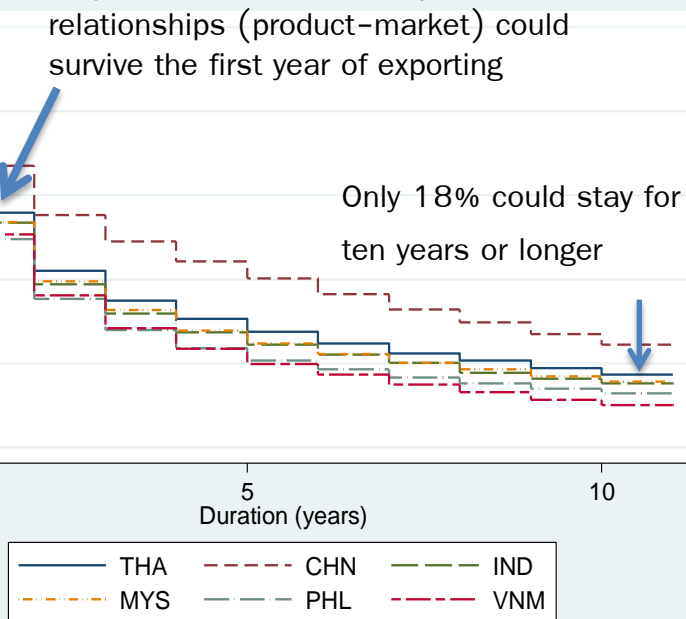
# Thailand's export survival rate is neither too high nor too low.

## Export survival rate (%)

Thailand = 

Only 56% of Thailand's export relationships (product-market) could survive the first year of exporting

Only 18% could stay for ten years or longer

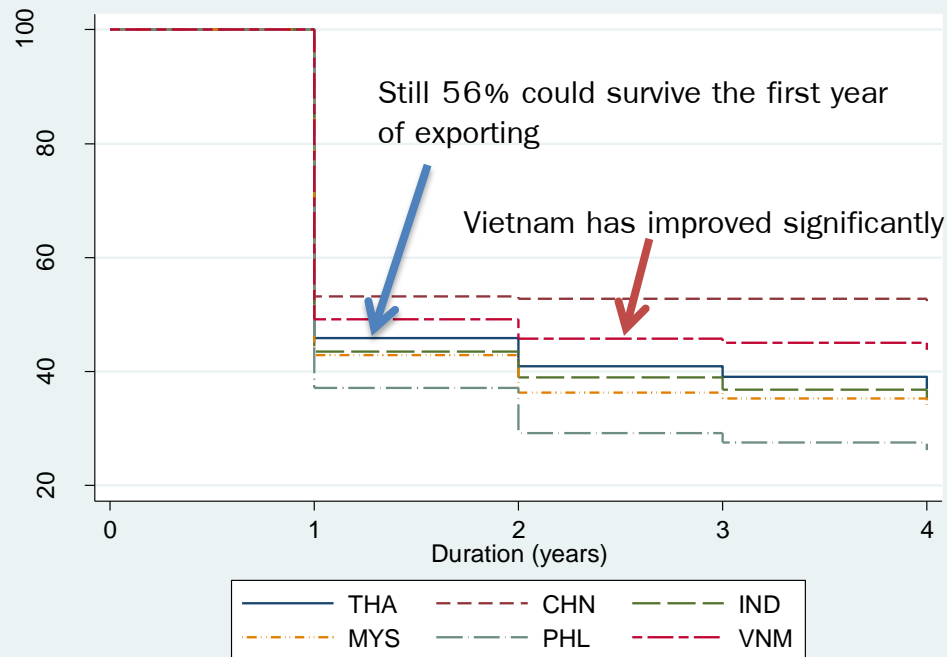


2000–2011

Source: Author's calculation using data from UN Comtrade

Still 56% could survive the first year of exporting

Vietnam has improved significantly



2012–2015

Source: Trade Outcome Indicators (WITS)



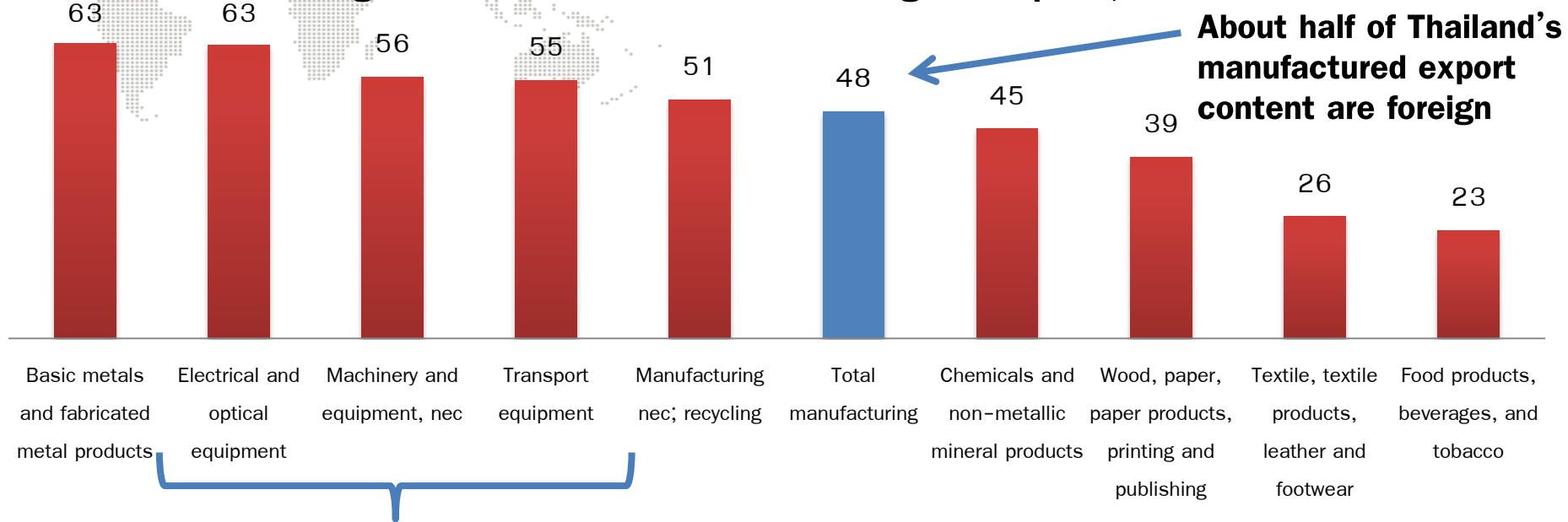
## **Comment 2**

# **Roles of foreign firms in Thailand's Export Complexity**



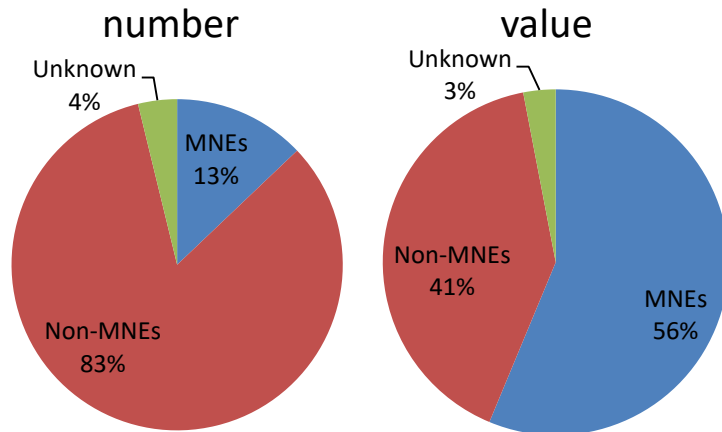
# Roles of foreign firms in Thailand's exports

Foreign value added share of Thailand's gross exports, 2011



***The more sophisticated the product, the higher the value of foreign value added.***

Source: OECD



MNEs constitute only 13% of total number of exporters but account for 56% of total export value in 2015.

***How can we integrate the role of foreign firms in the analysis of product innovation?***

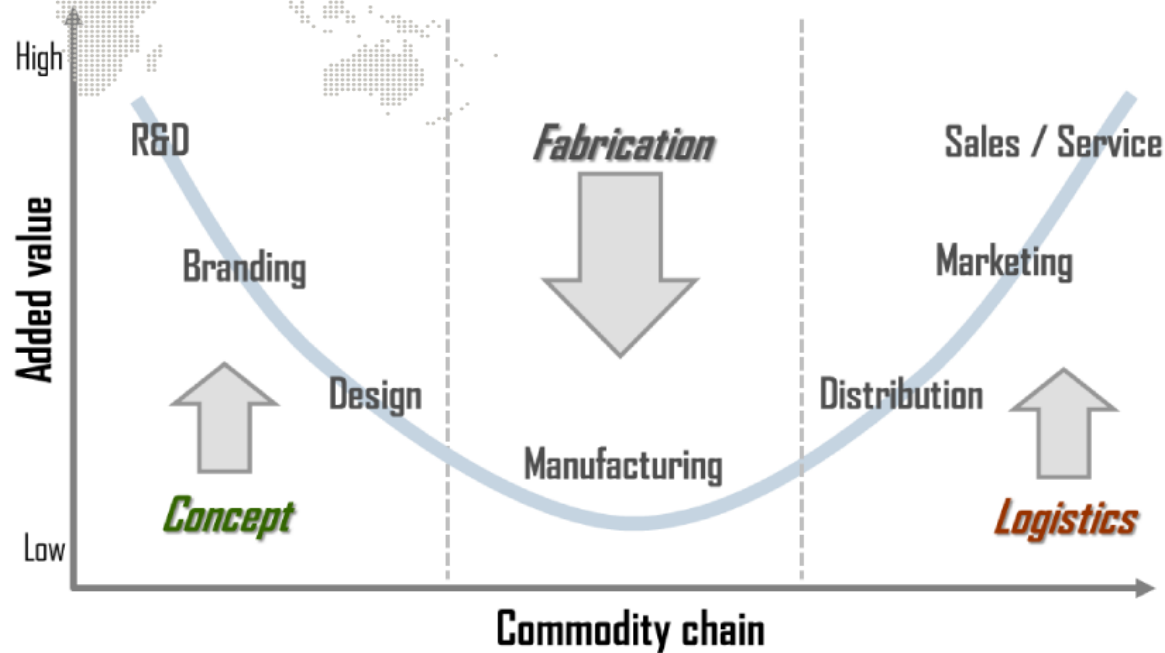


## **Comment 3**

# **Servicification of manufacturing**



**Services are increasingly embedded in manufactures. More productive services, therefore, mean more productive manufacturing**



Services contribute to growth of manufacturing.

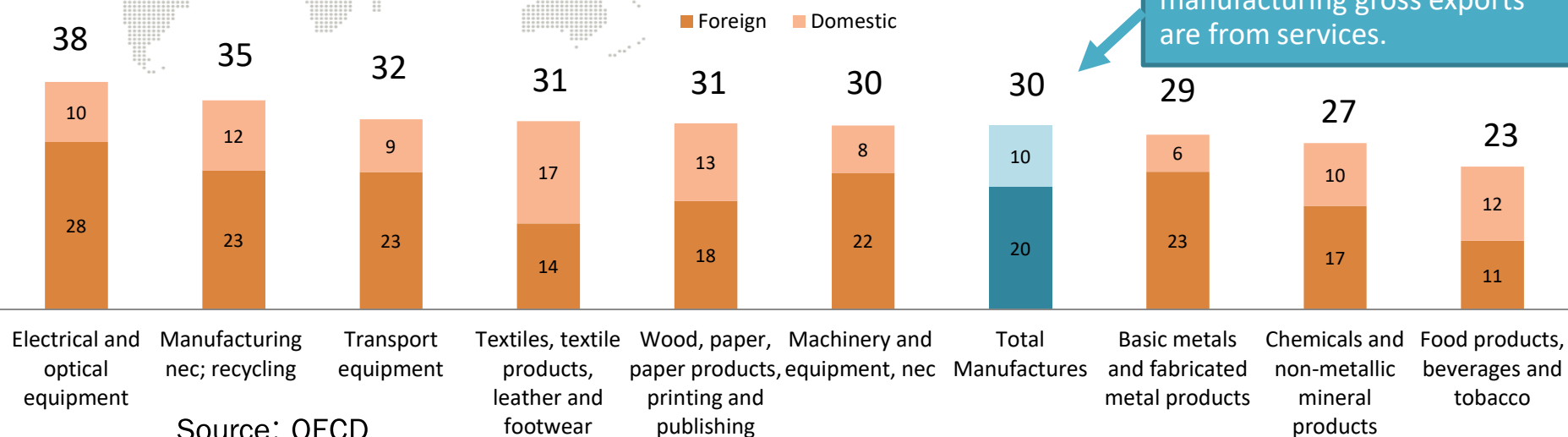
- Services as a glue and facilitator of GVCs.
- Services as outsourced inputs in global value chains
- Services as in-house inputs in global value chains





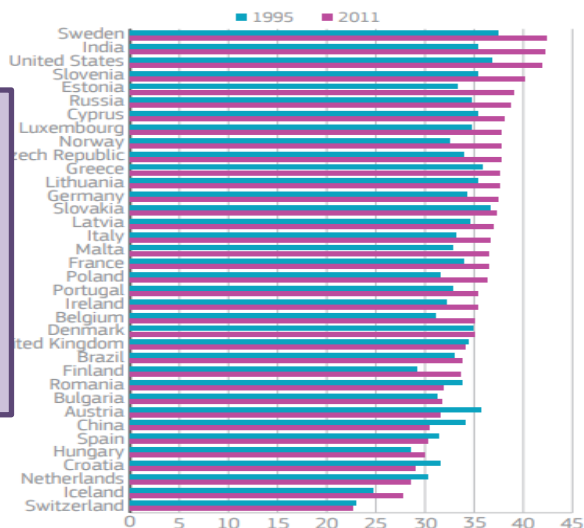
# Servicification of Manufacturing

Service value added content of exports, Thailand, 2011 (%)



Almost one third of manufacturing gross exports are from services.

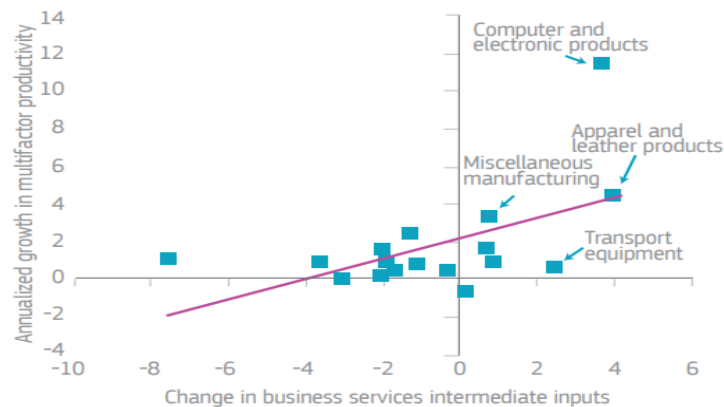
share of service value added in manufactured goods has increased from the already high levels.



Source: Trade in Value Added (TiVA) 2015 Database, OECD

US manufacturing sectors that buy more business services record greater productivity growth

Percentage, 2002-2011 average

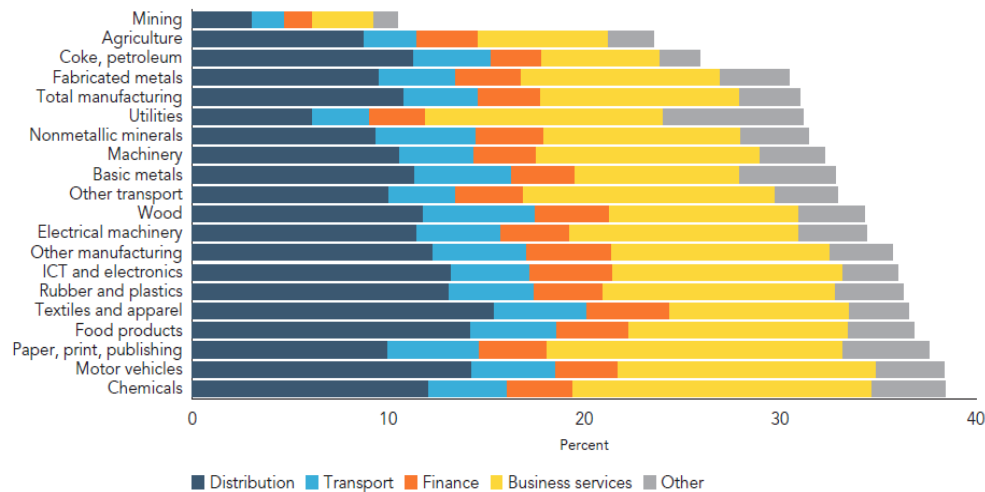


Source: United States International Trade Commission

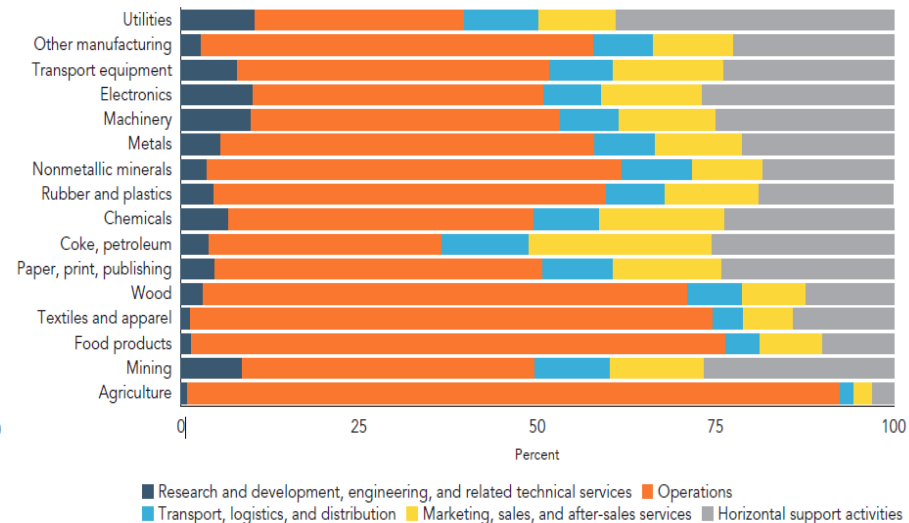


# Servicification of Manufacturing

Decomposition of services value added in world gross exports, by manufacturing industry, 2011

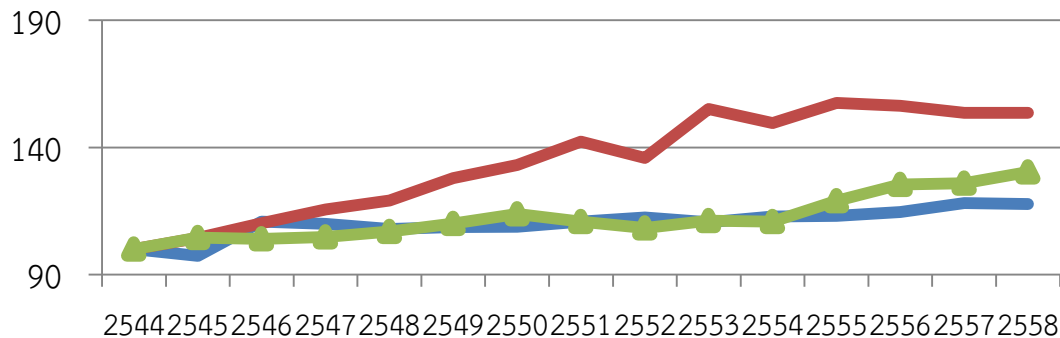


Decomposition of jobs embodied in gross manufacturing exports, by business function by industry, 2011



Distribution and business services account for 2/3 of manufacturing servicification. Transport equipment, Electronics, Machinery, Utilities are relatively R&D intensive.

Source: Global value chain development report 2017



Manufacturing

Service

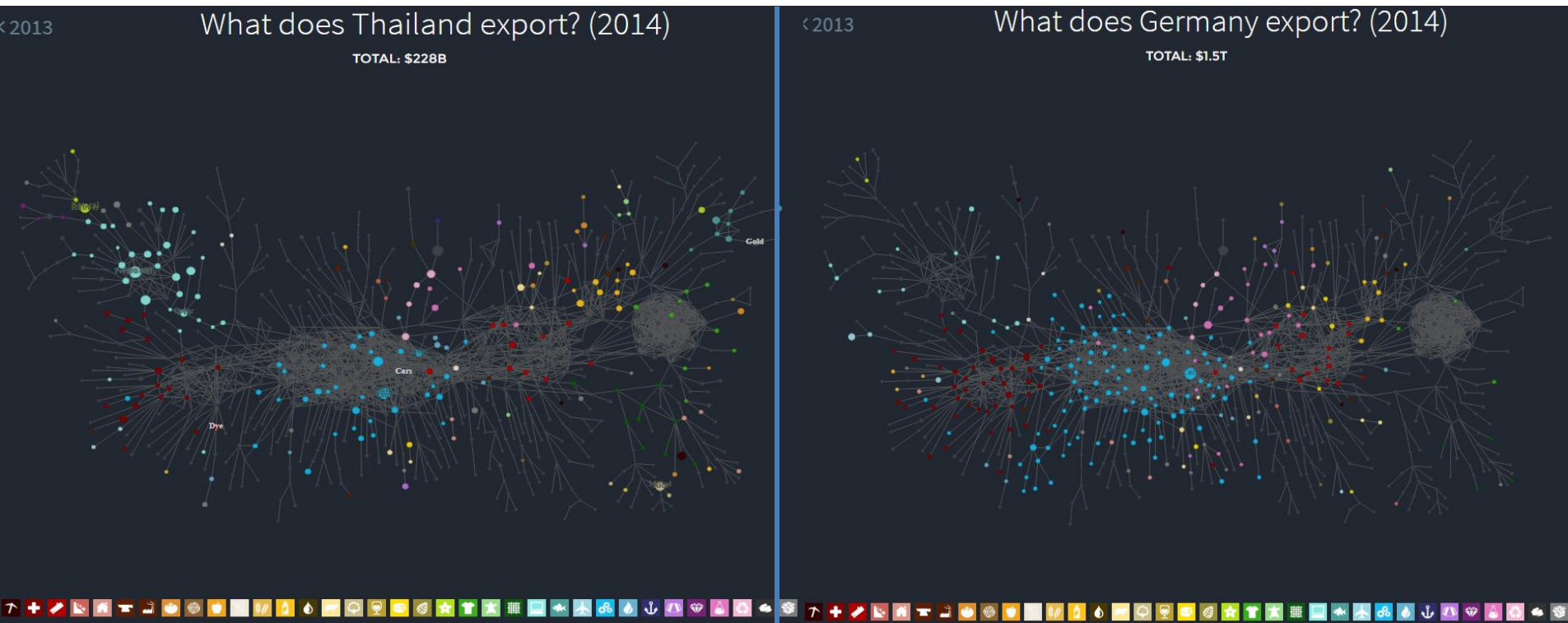
Agriculture

- Service productivity must be increased.
- Data, data, data – service data are insufficient, fragmented, and largely undisclosed.

Source: Author's calculation using data from Bank of Thailand



# Can Thailand's export structure be as sophisticated as Germany's?



Source: The Atlas of Economic Complexity



# We can do it!

When I spoke to some managers they informed me that it was impossible to change the habits of national heritage.”

**An Australian management consultant on Japan in 1915**

The Germans are a “plodding, easily contented people ... endowed neither with great acuteness of perception nor quickness of feeling ... It is long before [a German] can be brought to comprehend the bearings of what is new to him, and it is difficult to rouse him to ardour in its pursuit.”

**John Russell, an English traveller, on the Germans in 1828.**

Many Japanese “give an impression ... of being lazy and utterly indifferent to the passage of time.”

**Sidney Gulick, an American missionary on the Japanese in 1903**

The Koreans are “12 millions of dirty, degraded, sullen, lazy and religionless savages who slouch about in dirty white garments of the most inept kind and who live in filthy mud huts”.

**Beatrice Webb on the Japanese and the Koreans during her 1911–12 tour of East Asia**

Source: Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism by **Ha-Joon Chang** (2008)



# Thank you

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