EVIDENCE FOR GVC POLICY MAKING: TIVA

Steering Committee of the Arab Statistics Initiative "Arabstat"
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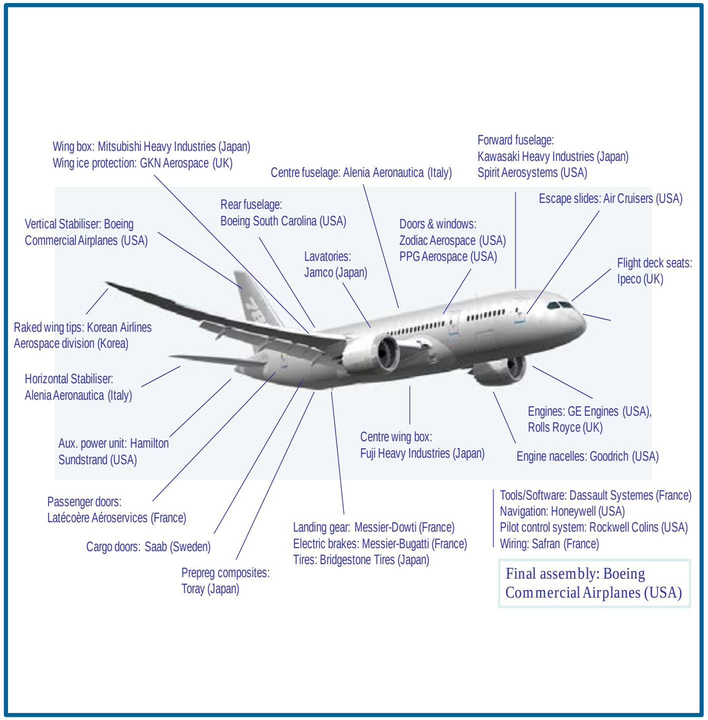
nadim.ahmad@oecd.org

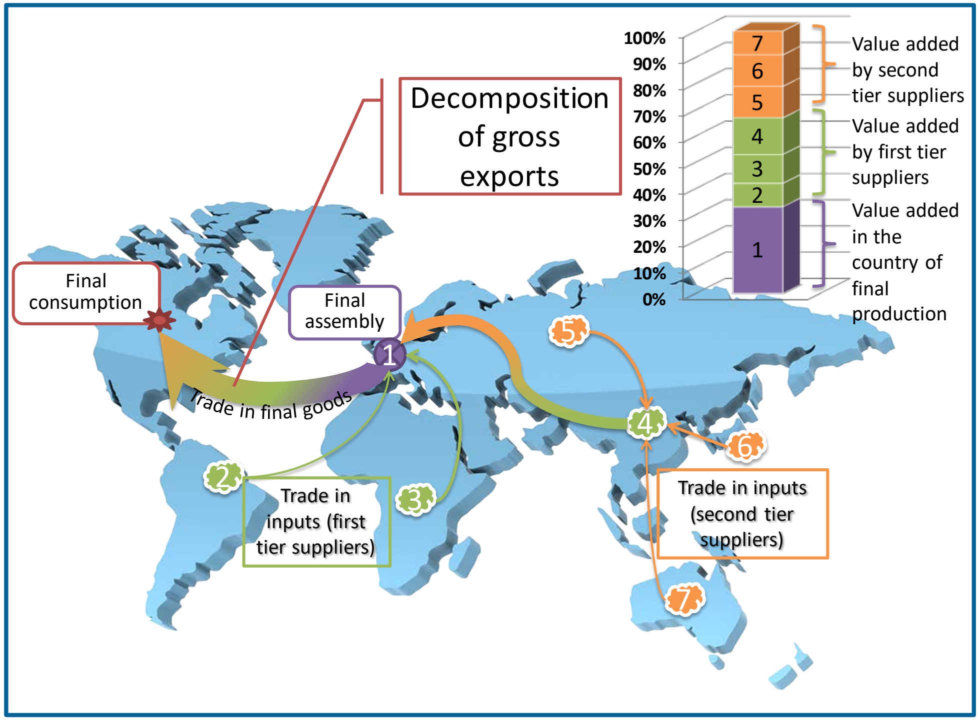
Nadim Ahmad, Head of Trade and Competitiveness Statistics Division

OCDE
DES POLITIQUES MEILLEURES POUR UNE VIE MEILLEURE

Increasing international fragmentation of production

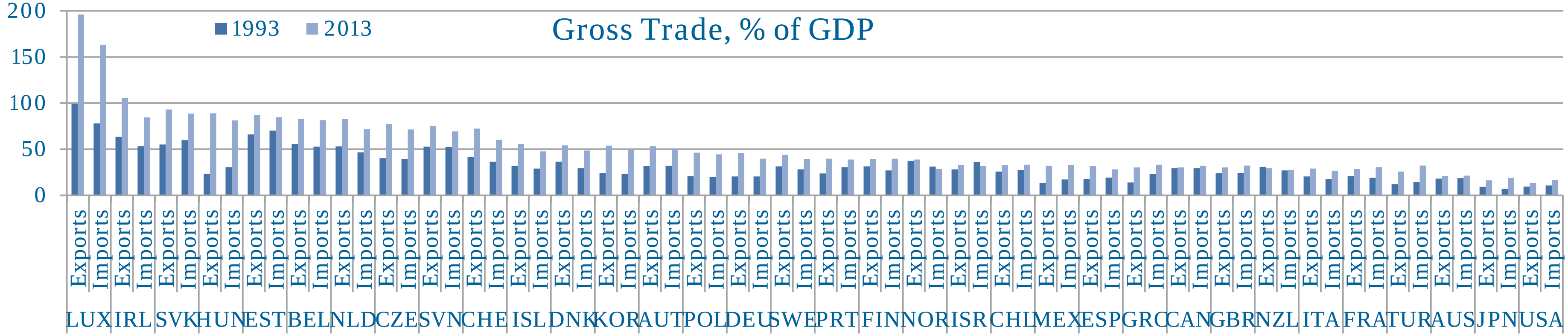
Explosion of trade in intermediates as firms specialise in stages (tasks) of production





Gross trade flows increasingly embody components (and so value) created elsewhere

But conventional trade statistics don't reflect this...



Creating 'misleading perceptions' and imperfect policies: in a GVC world, **exports require imports>>protectionism can damage domestic industries**.

Export driven growth strategies may target the wrong sectors

- High export value but low GDP contribution

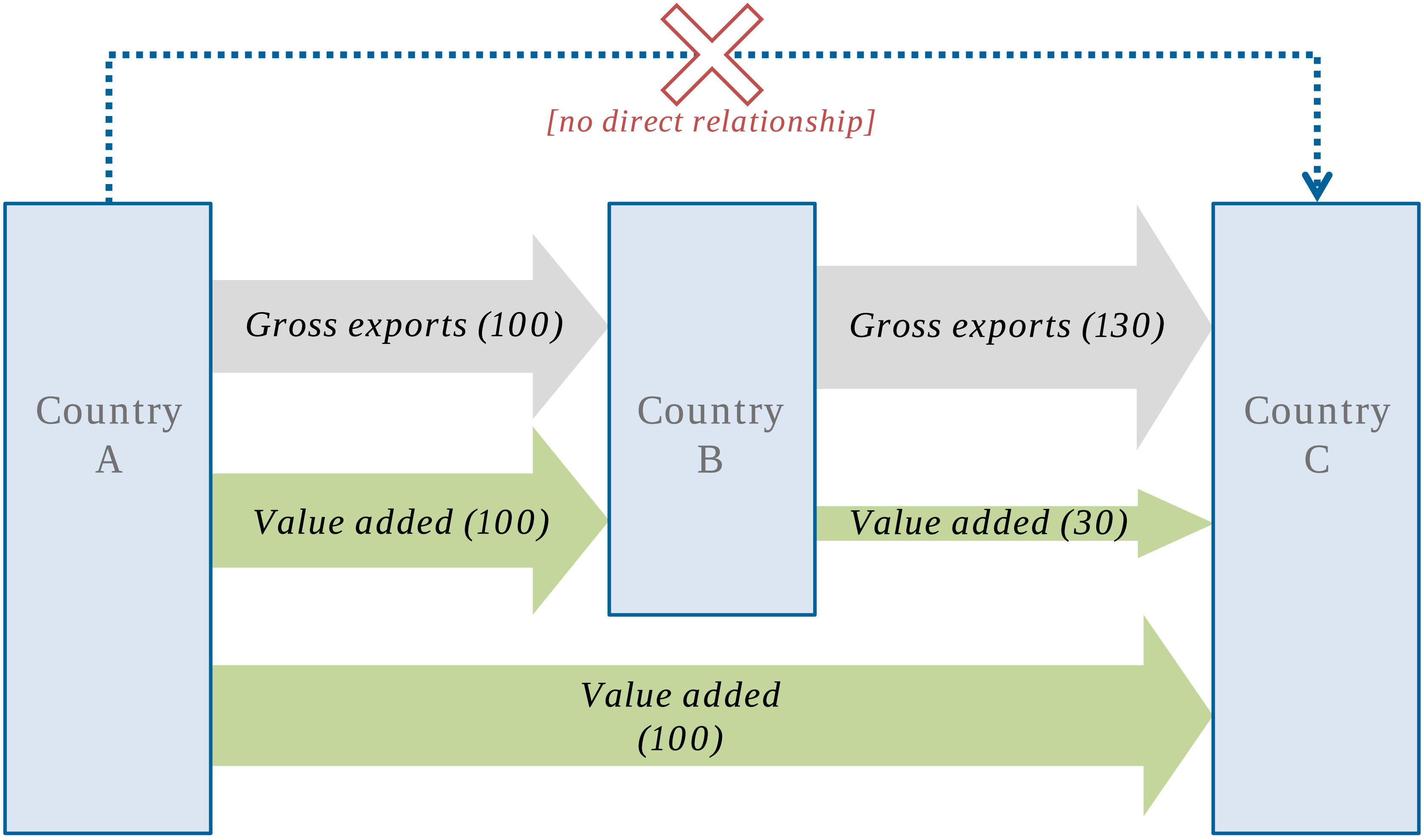
They mask:

- underlying nature of bilateral trade relationships and production inter-dependencies
  - Systemic risks - impact of macro-economic shocks on supply-chains
- And true nature of competitiveness – upstream matters as much as downstream (especially services>> **services trade restrictions can hurt exporting manufacturers**

And are silent on

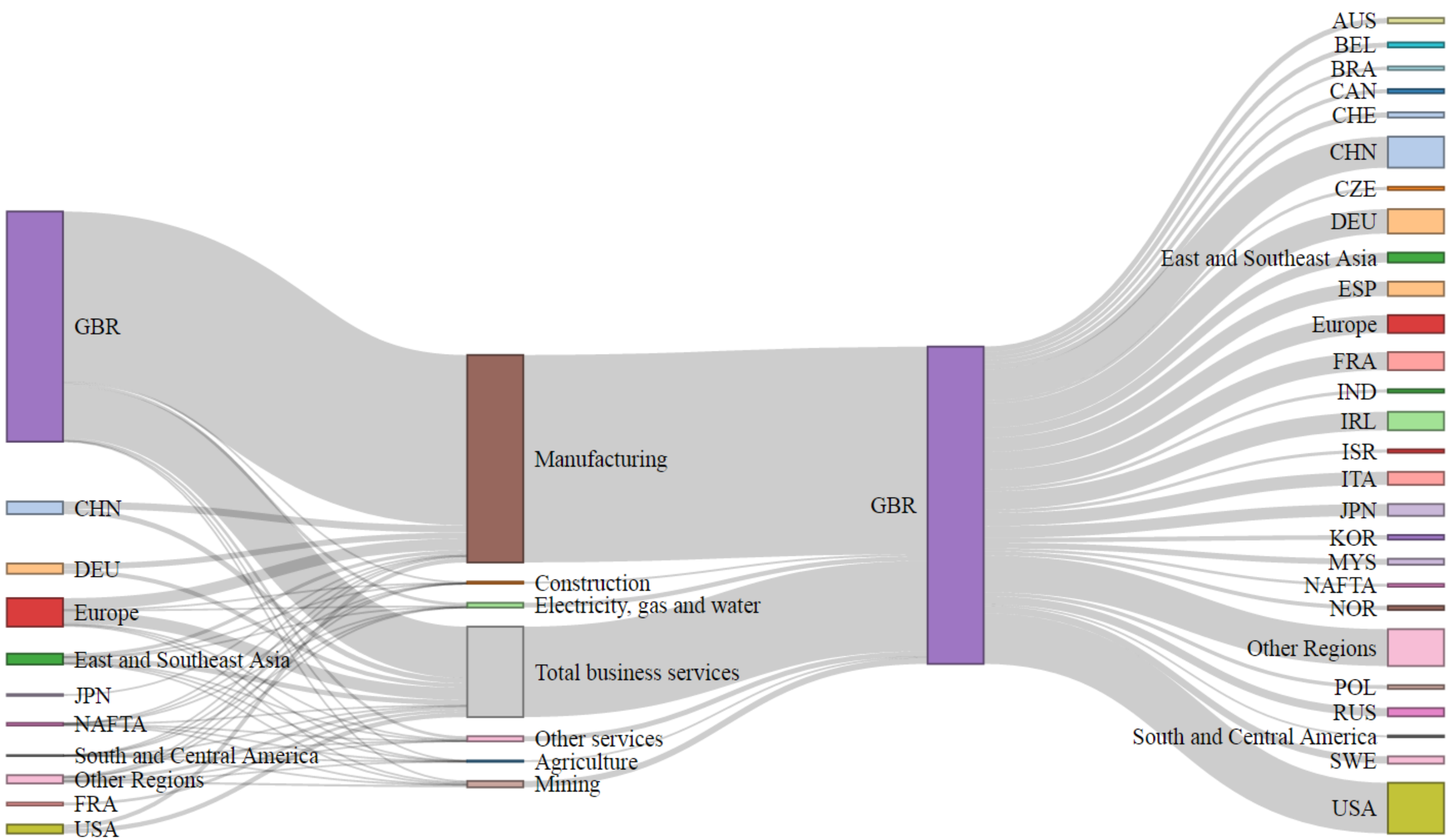
- Jobs, skills
- And the importance of regional value chains for global integration

Requiring a new statistical response: TiVA



[in value added terms, there is a direct relationship between A and C]

Origin and destination of UK's ICT exports in value-added terms



TIVA: **HOW** IS IT MEASURED?

With a global input-output table

		Country A			Country B			Country C			Final Demand		
		Sector 1	Sector 2	Sector 3	Sector 1	Sector 2	Sector 3	Sector 1	Sector 2	Sector 3	Country A	Country B	Country C
Country A	Sector 1												
	Sector 2												
	Sector 3												
Country B	Sector 1												
	Sector 2												
	Sector 3												
Country C	Sector 1												
	Sector 2												
	Sector 3												
Taxes less subsidies on products													
Value added	Labour compensation												
	Operating surplus												
	Taxes less subsidies on production												
Output													

Industry AND country dimension:

Final demand by category and country:

Value added and output (NA consistent):

Sourced from national data….

		Country A			Country B			Country C			Final Demand		
		Sector 1	Sector 2	Sector 3	Sector 1	Sector 2	Sector 3	Sector 1	Sector 2	Sector 3	Country A	Country B	Country C
Country A	Sector 1												
	Sector 2		1					4			3	5	
	Sector 3												
Country B	Sector 1												
	Sector 2												
	Sector 3		6								7		
Country C	Sector 1												
	Sector 2												
	Sector 3												
Taxes less subsidies on products													
[illegible]													
Value added	Labour compensation												
	Operating surplus		2										
	Taxes less subsidies on production												
Output													

Directly from national SUTs (converted to industries):

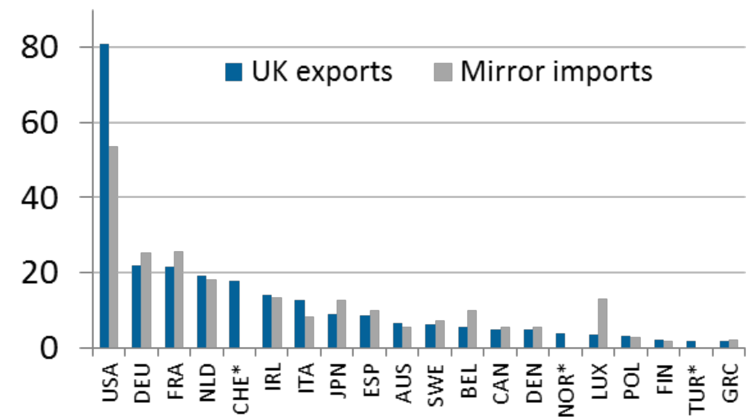
1. Intermediate domestic use; **2.** Value added, output per ind.; **3.** Final demand (**EXCL** exports)

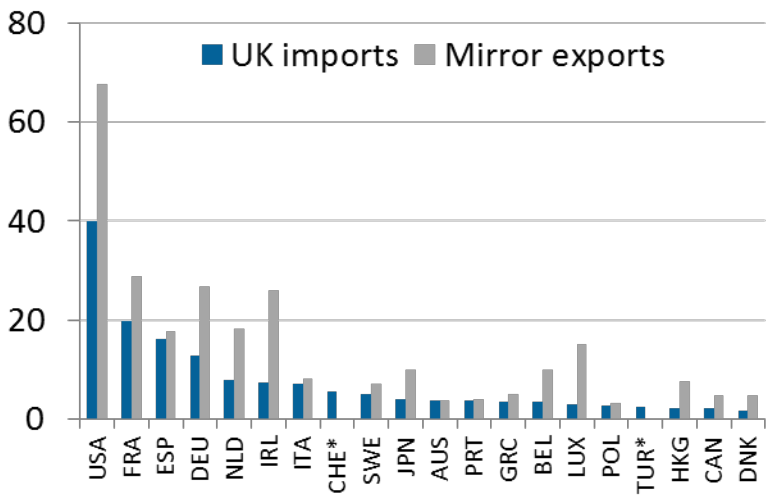
With additional assumptions on source of imports by industries:

4. Exports of intermediates to specific industries by partner country (B and C)
5. Exports of final demand by partner country (B and C).
6. Imports for intermediate use, by partner country and importing industry
7. Imports for final use, by partner country and *exporting* industry.

Requiring a balanced view of trade

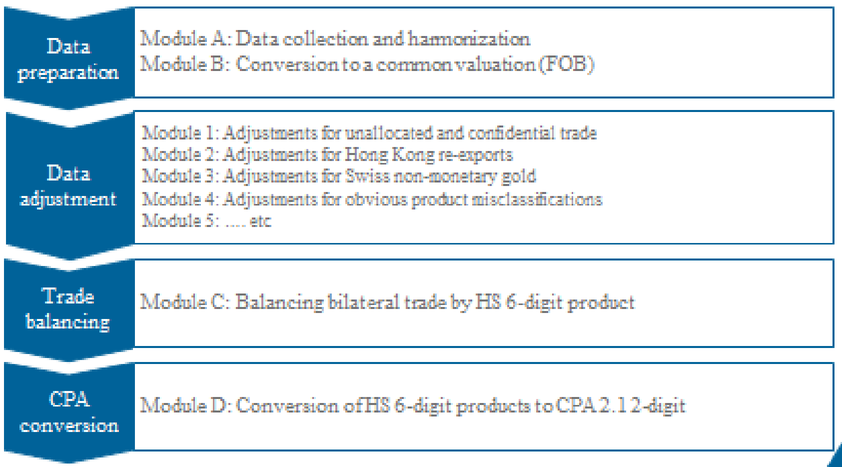
Asymmetries in services

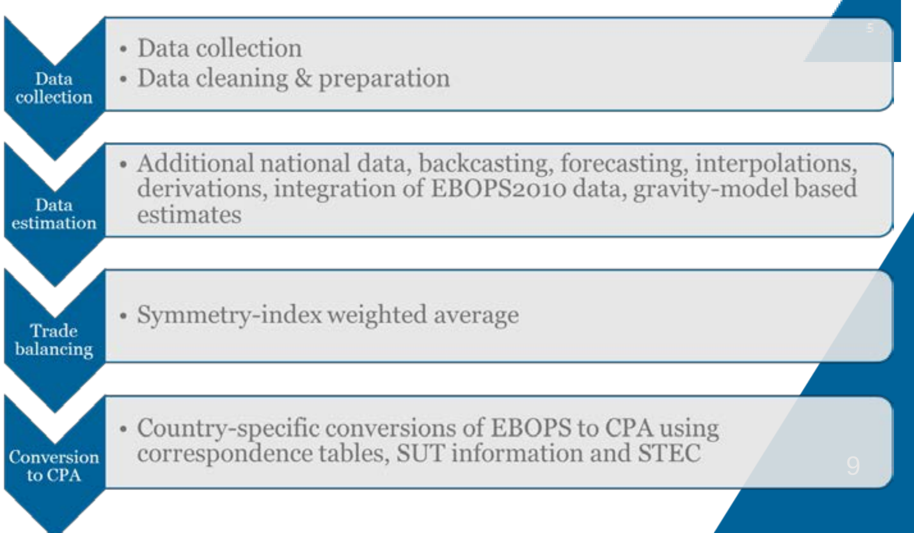




* Mirror data are missing. All values in bn USD

Schema for merchandise trade and TIS





TiVA 2016 – Coverage - Countries

OECD	All OECD 36 countries
BRIICS	Brazil, China, India, Indonesia, Russian Federation, South Africa
Other EU28	Bulgaria, Croatia, Cyprus, Malta, Romania
Other G20	Argentina, Saudi Arabia
Other South Eastern Asia	Brunei Darussalam, Cambodia, Malaysia, Philippines, Singapore, Thailand, Viet Nam
Other Eastern Asia	Chinese Taipei, Hong Kong China
Other Africa/MENA	Tunisia, Morocco
Other Central and Southern America	Colombia, Costa Rica, Peru
Other	Rest of the World

TiVA 2016 – Industry List

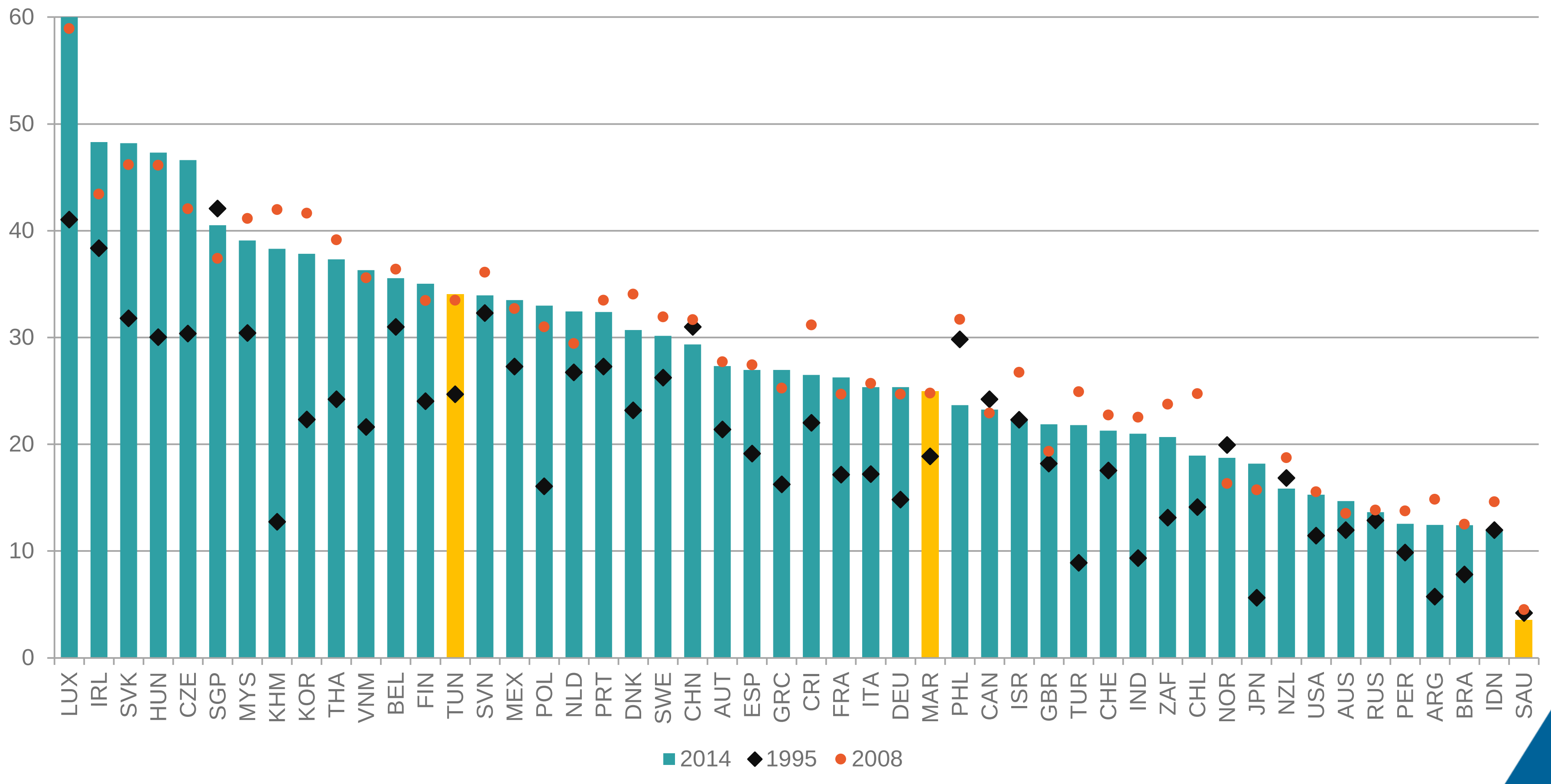
IO Ind.	ISIC Rev.3	Industry	IO Ind.	ISIC Rev.3	Industry
1	01t05	Agriculture, hunting, forestry and fishing	19	40t41	Electricity, gas and water supply
2	10t14	Mining and quarrying	20	45	Construction
3	15t16	Food products, beverages and tobacco	21	50t52	Wholesale and retail trade; repairs
4	17t19	Textiles, textile products, leather and footwear	22	55	Hotels and restaurants
5	20	Wood and products of wood and cork	23	60t63	Transport and storage
6	21t22	Pulp, paper, paper products, printing and publishing	24	64	Post and telecommunications
7	23	Coke, refined petroleum products and nuclear fuel	25	65t67	Finance and insurance
8	24	Chemicals and chemical products	26	70	Real estate activities
9	25	Rubber and plastics products	27	71	Renting of machinery and equipment
10	26	Other non-metallic mineral products	28	72	Computer and related activities
11	27	Basic metals	29	73, 74	Other Business Activities (incl. R&D)
12	28	Fabricated metal products except machinery and equipment	30	75	Public admin. and defence; compulsory social security
13	29	Machinery and equipment n.e.c	31	80	Education
14	30,32,33	Computer, electronic and optical products	32	85	Health and social work
15	31	Electrical machinery and apparatus n.e.c	33	90t93	Other community, social and personal services
16	34	Motor vehicles, trailers and semi-trailers	34	95	Private households with employed persons
17	35	Other transport equipment	19	40t41	Electricity, gas and water supply
18	36t37	Manufacturing n.e.c; recycling	20	45	Construction

Next release November 2018- ISIC REV 4

TIVA: **WHAT** DOES IT TELL US?

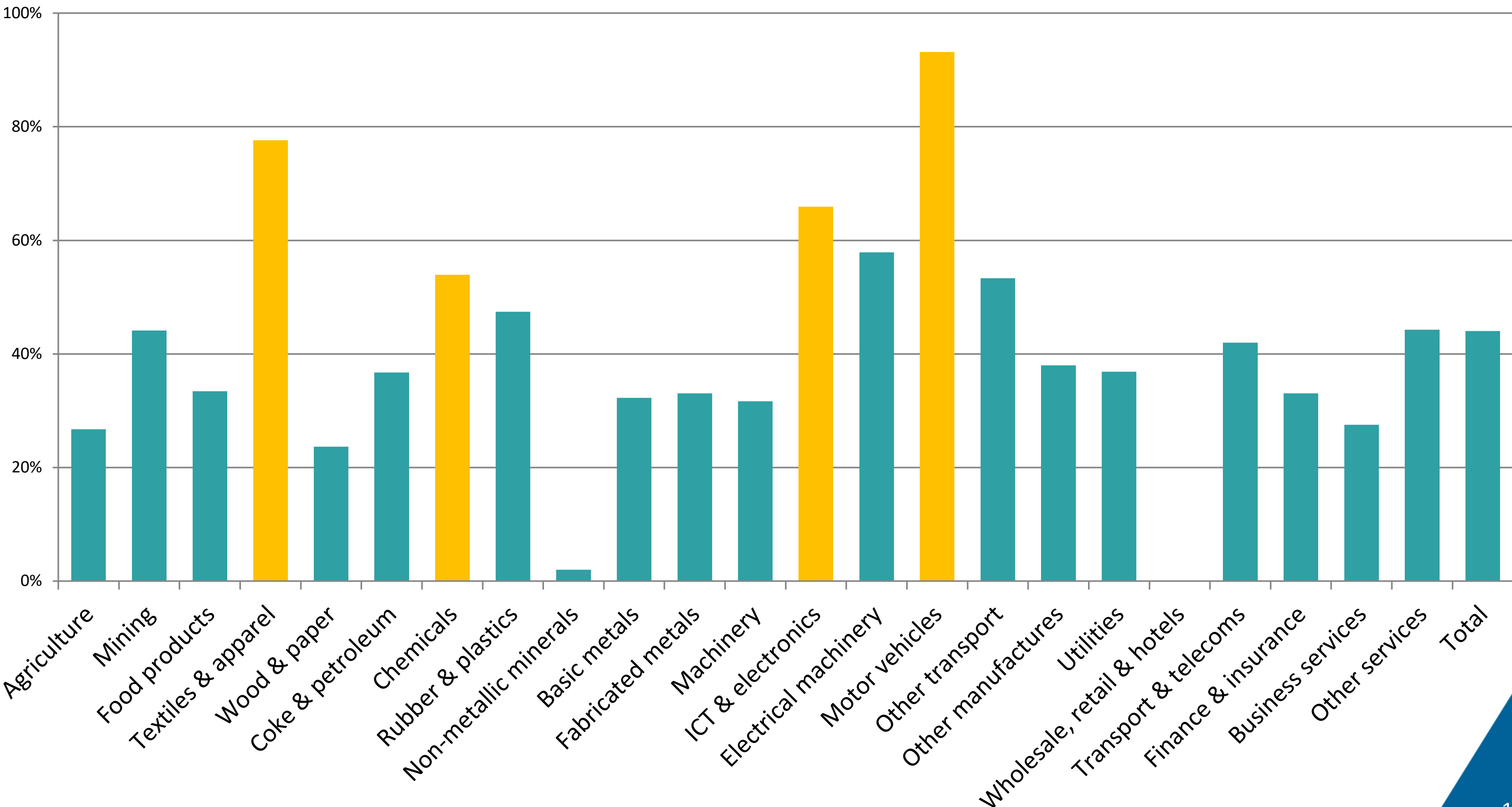
A tax on imports can be a tax on exports: Exports require imports

Foreign value added content of gross exports



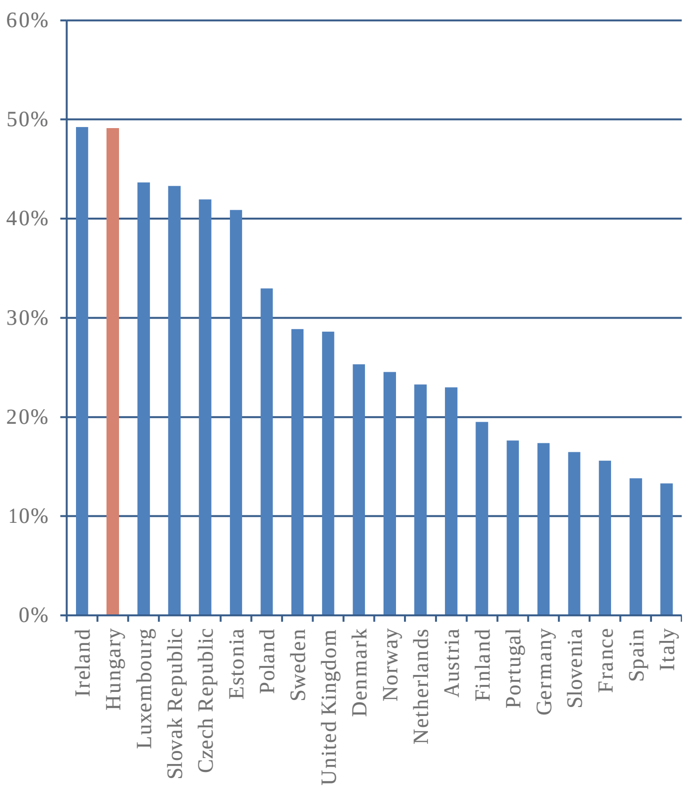
And imports can drive global integration

Morocco's imported intermediate inputs used for exports, by import category,
percent of intermediate imports,

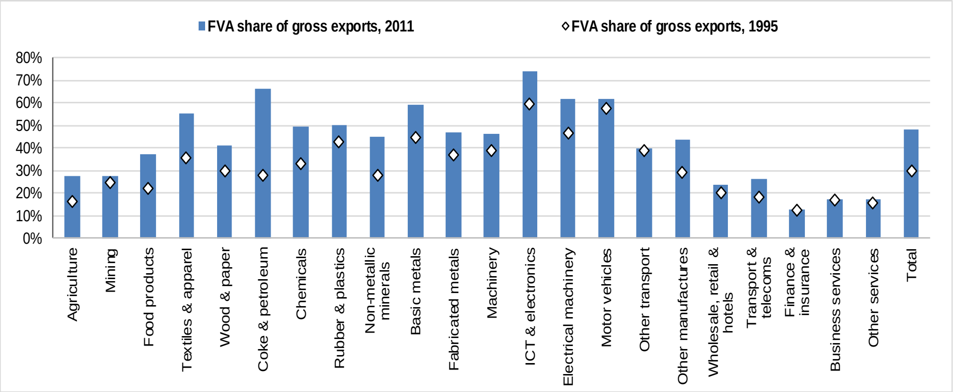


…particularly in countries with high inward FDI.

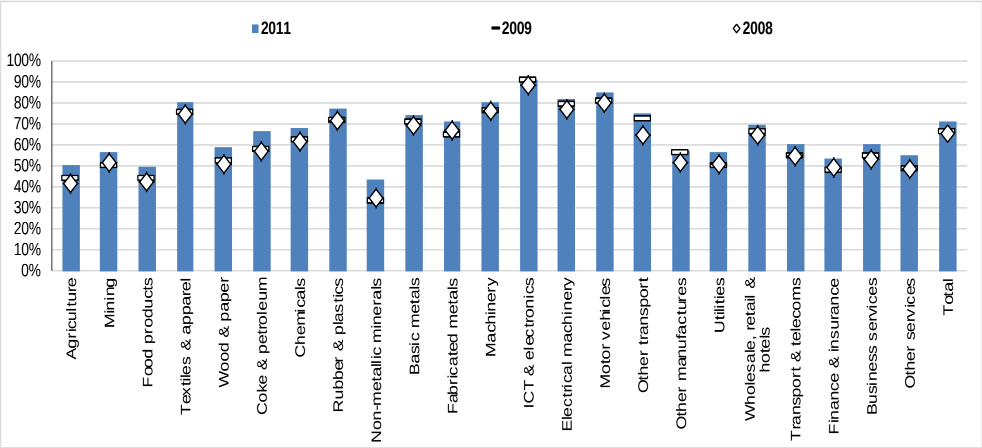
Foreign affiliate share of (ISIC B-N, ex K), GVA



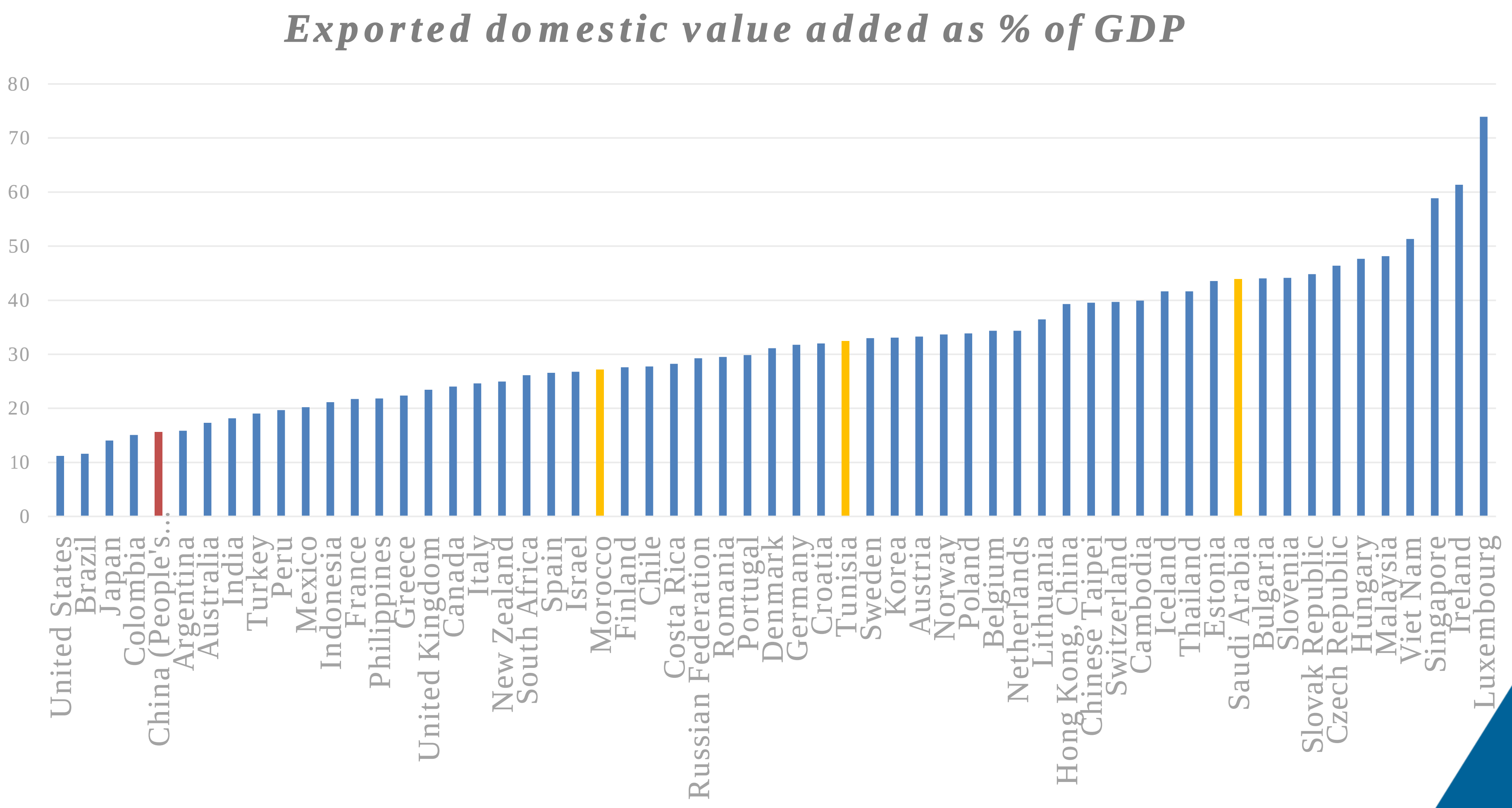
Hungary's foreign value added content of gross exports



Hungary's imported intermediate inputs used for exports, by import category

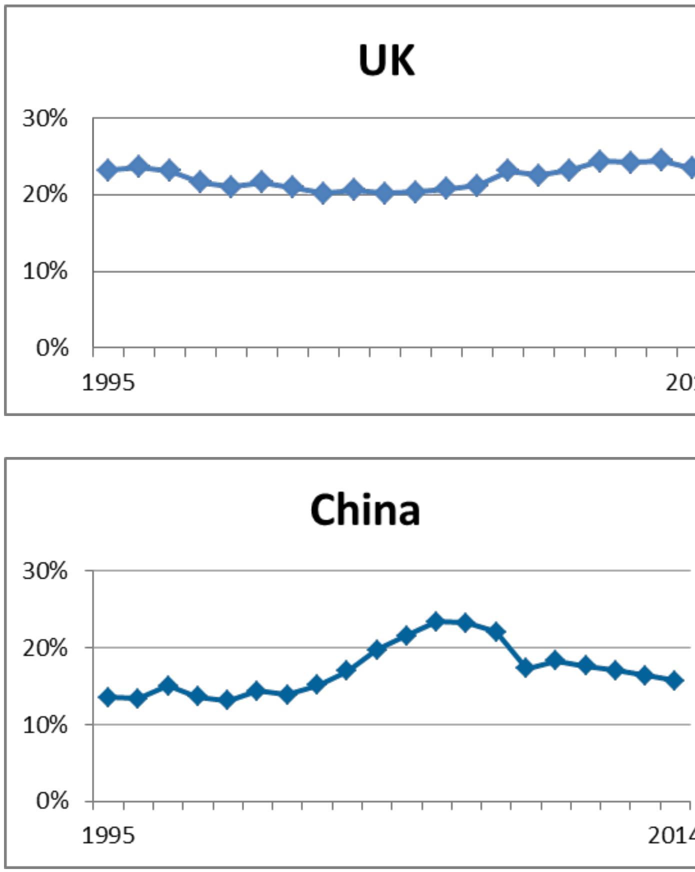


TiVA provides new perspectives: on export intensities…

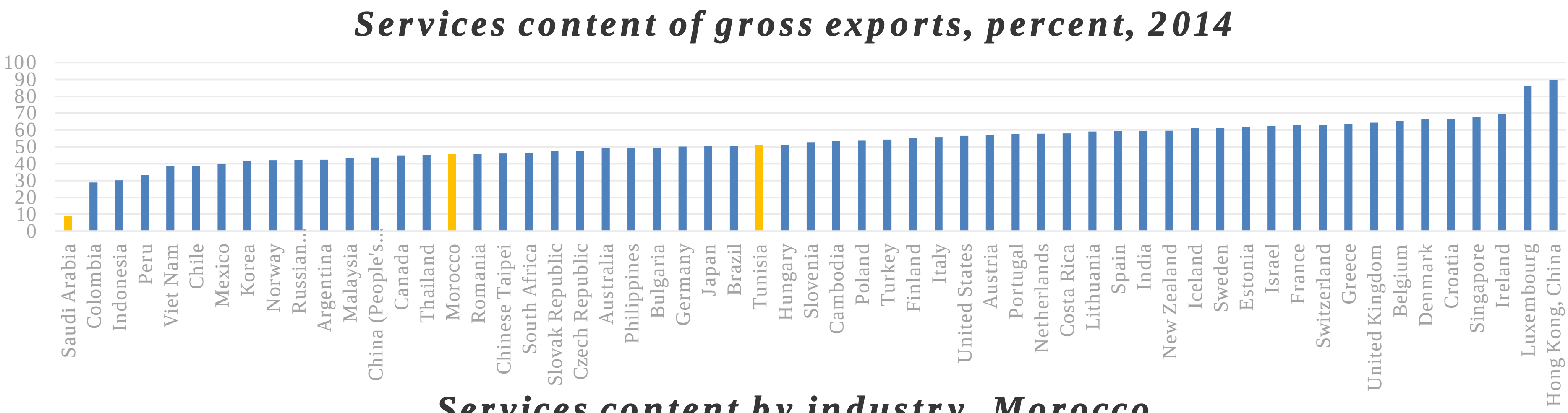


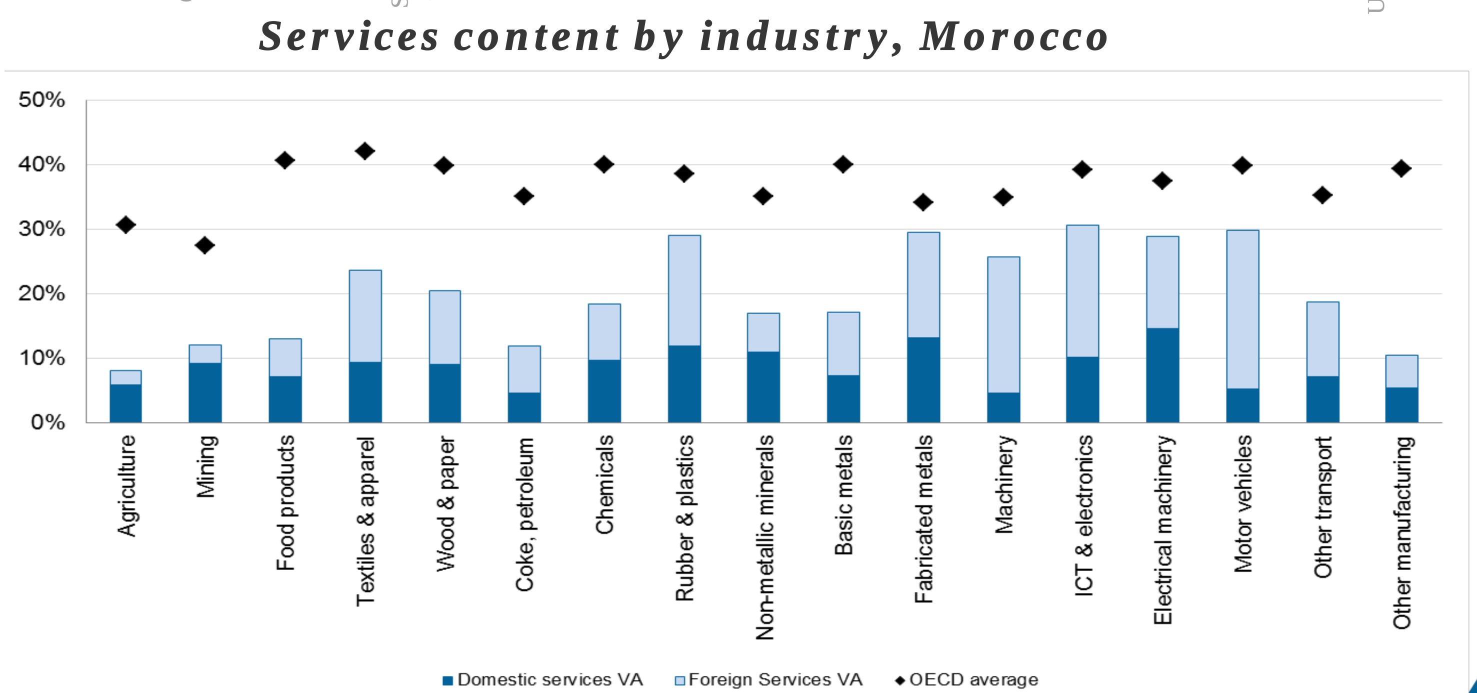
...and changes over time…

Exported domestic value added as % of GDP



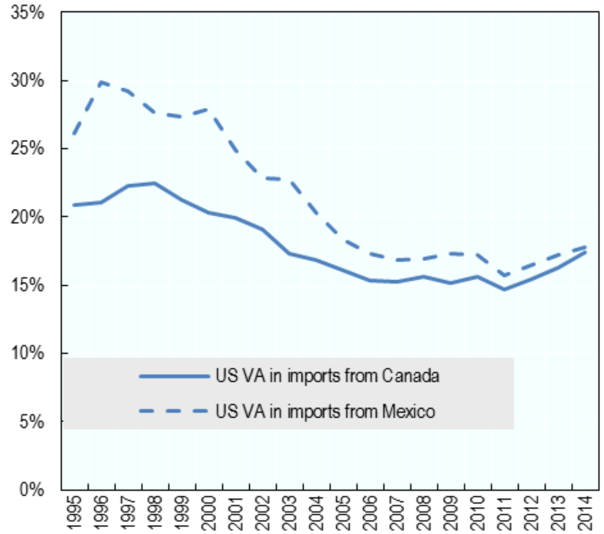
Competitiveness requires a whole of supply view of production: services matter.

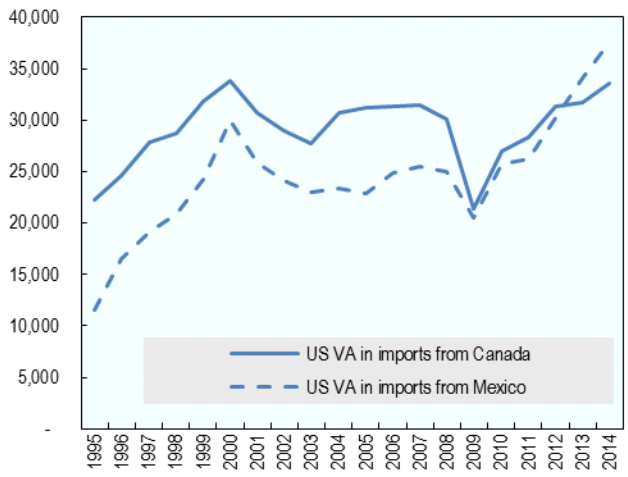




Production is fragmented and inter-connected:
Who does protectionism hurt

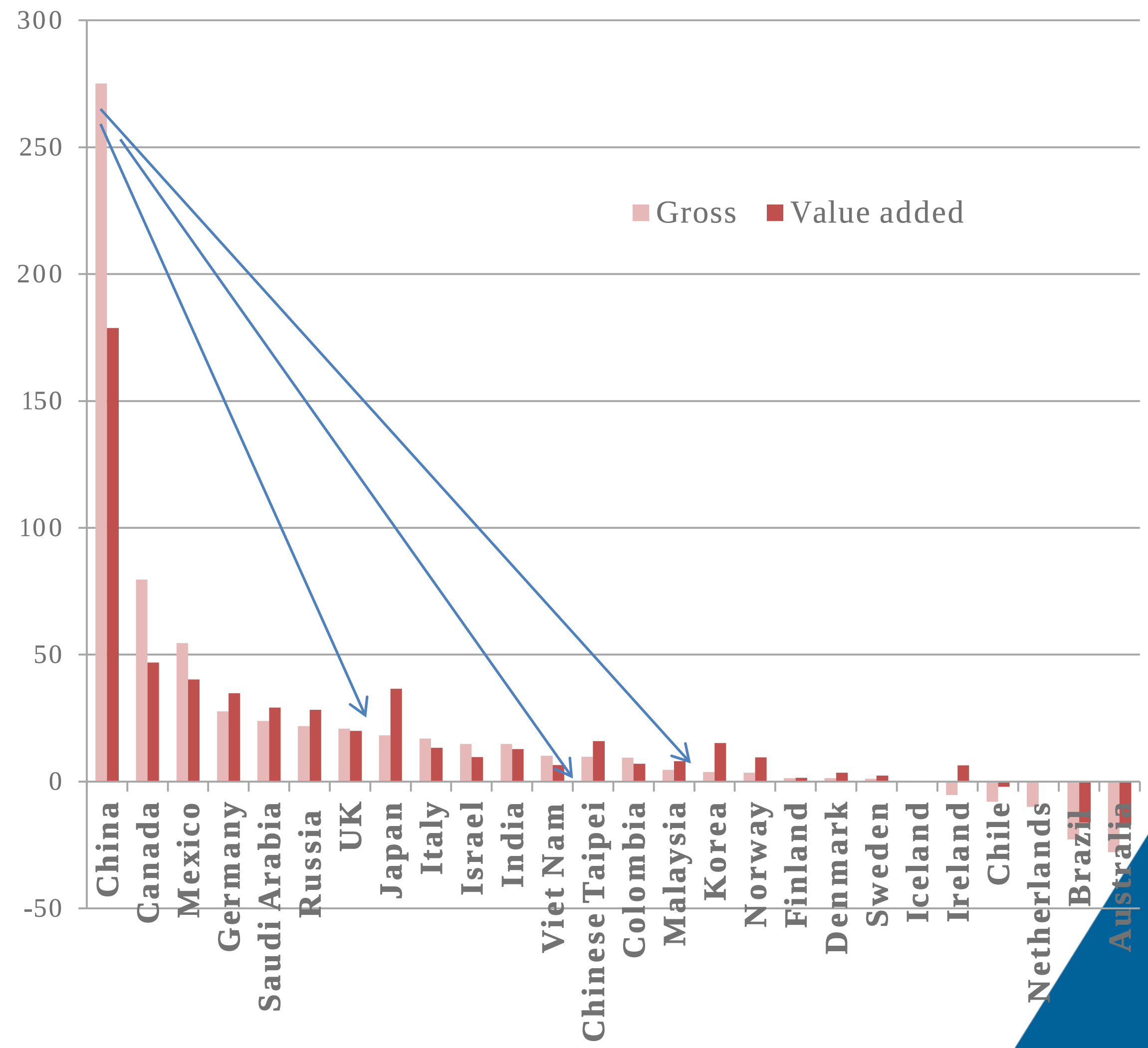
US VA content in US manufacturing imports from NAFTA





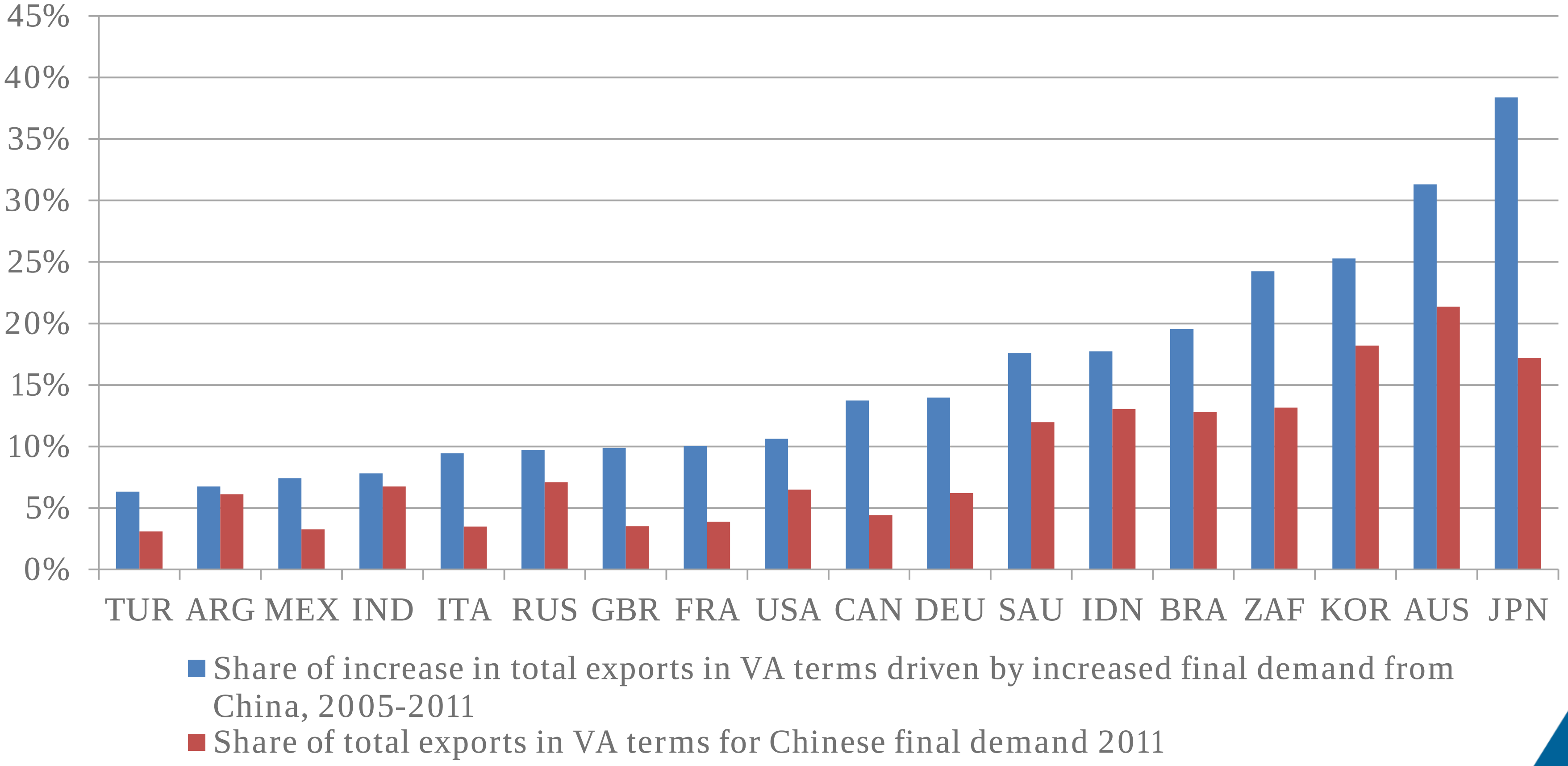
In million USD

US trade deficit with selected partners



Interconnectedness and interdependencies (i)

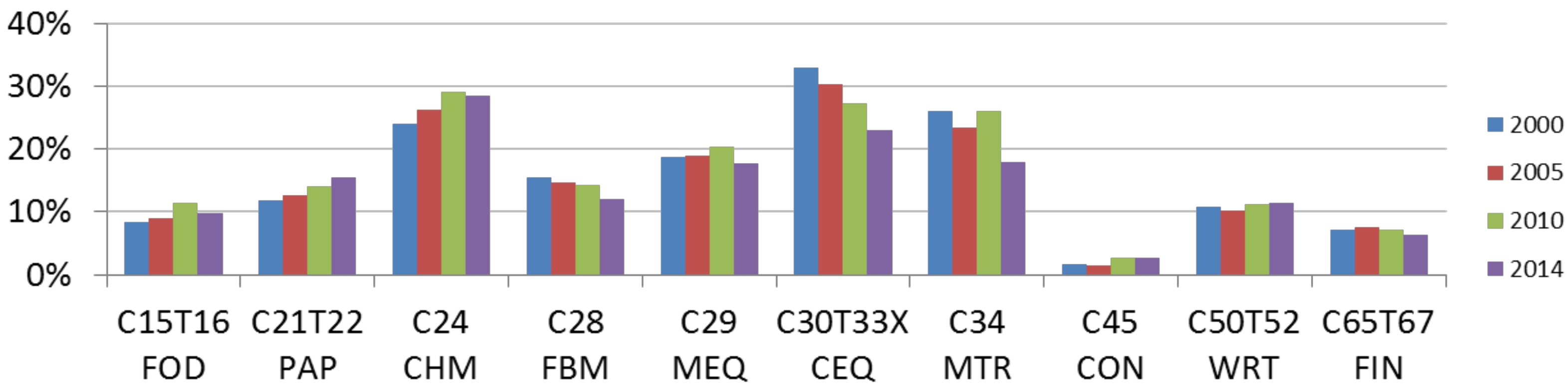
Chinese households have been important drivers of export growth in recent years.....what does a slowdown imply?



Interconnectedness and interdependencies (ii)

- **EU27 final demand drives 9% of GDP…compared to only 2% of EU27 GDP driven by UK** final demand
- … with even higher values in several sectors:

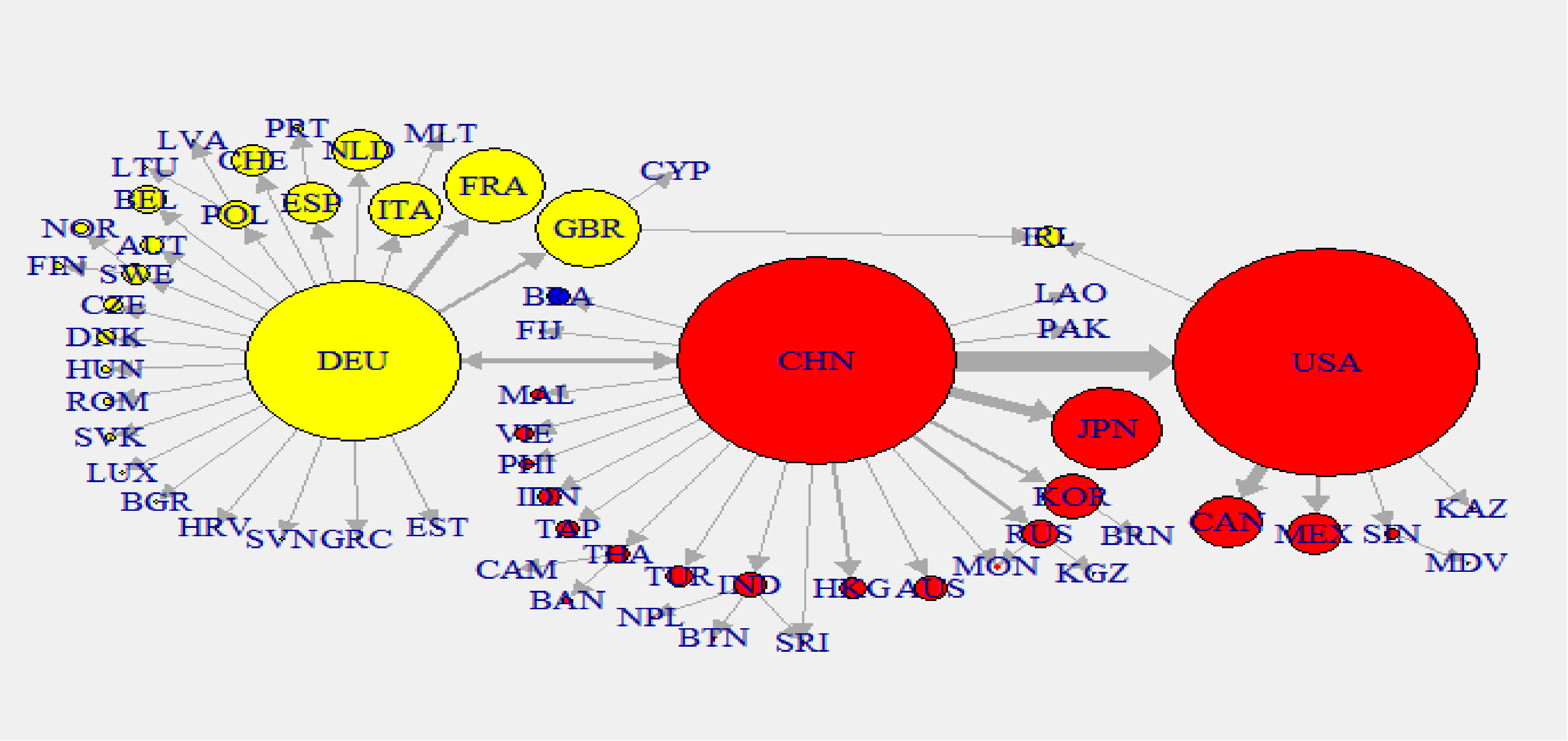
% of value added in selected UK industries dependent on EU27 final demand



- **And an additional 2.5% (and rising) share of UK GDP is dependent on EU27 GVCs to supply non-EU markets**

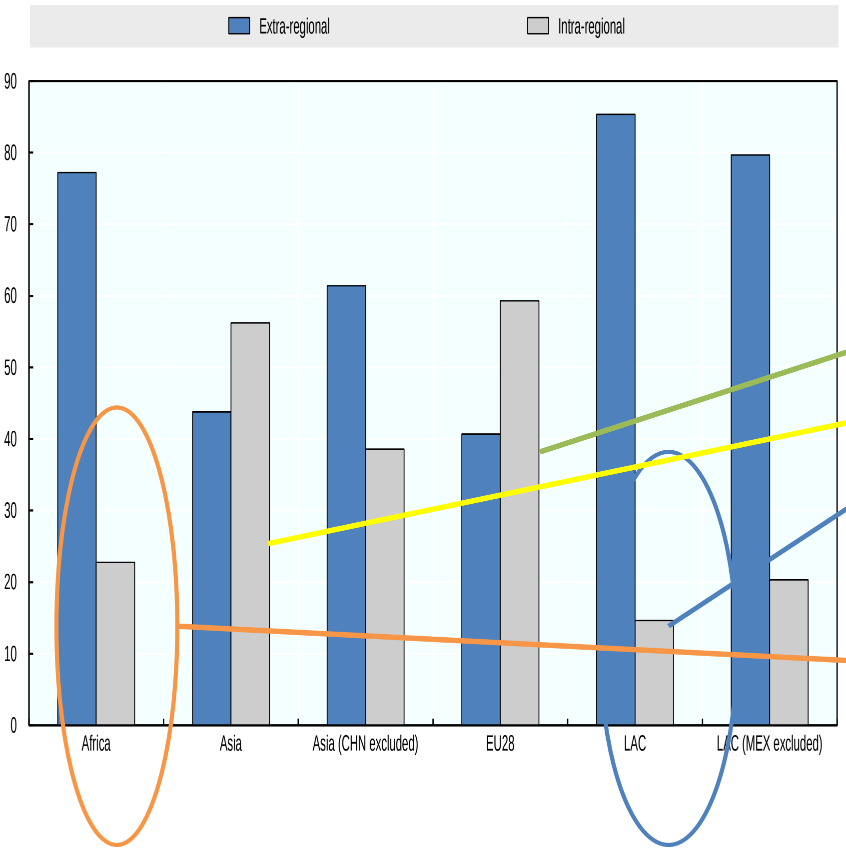
Distance still matters – GVCs require regional integration

Significant trade relationships in value-added terms

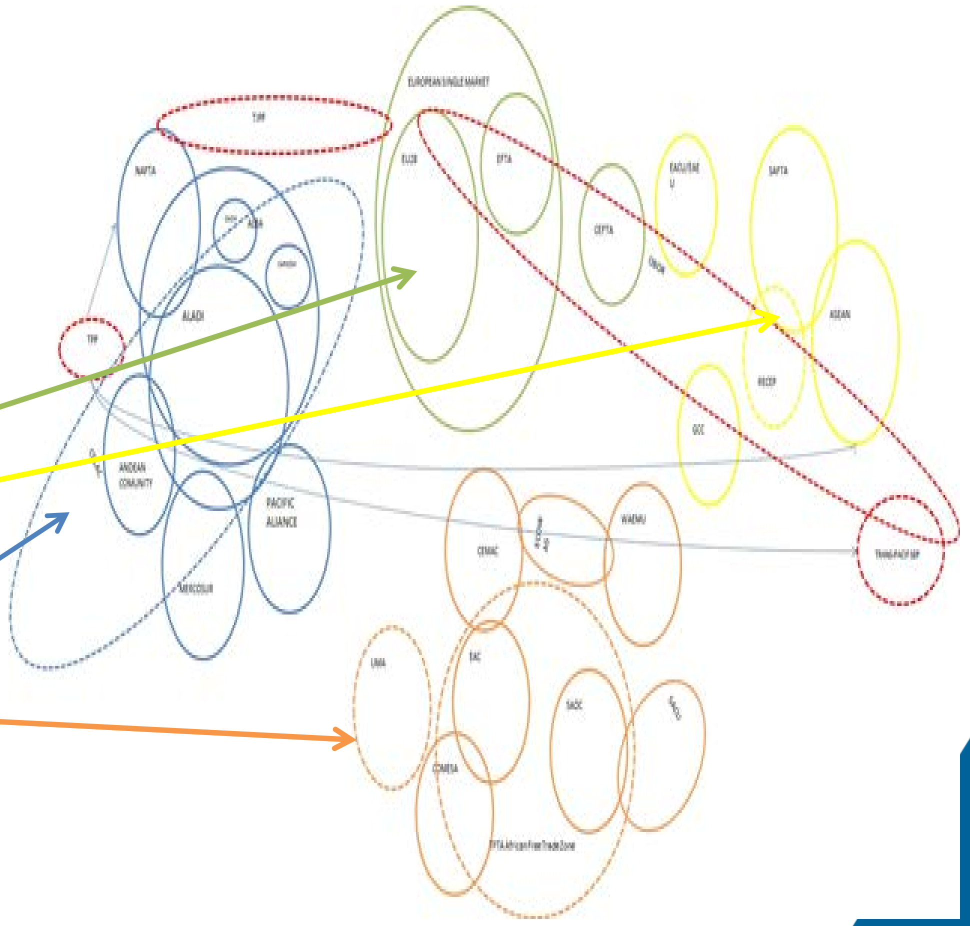


But some regions are more integrated than others:
And more is not necessarily better

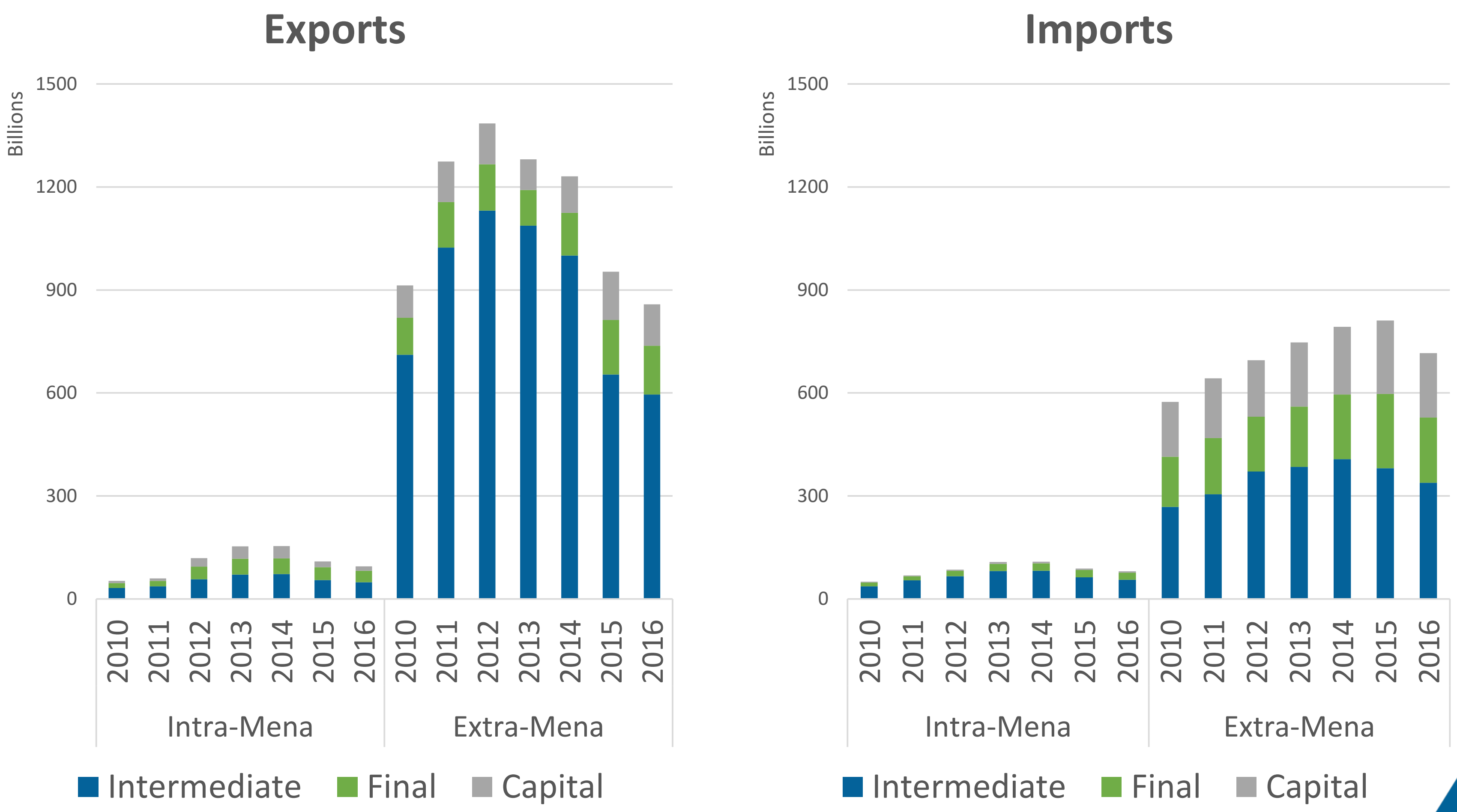
Extra-regional and intra-regional trade in intermediates, selected regions, 2014
% of total intermediate trade



Regional and mega-regional agreements, 2016



Intra-MENA integration is very low > which may hamper diversification



TIVA: **WHAT'S NEXT?**

Next steps on TiVA

- Mainstreamed in the OECD
- And mainstreaming globally > with a network of partners for a truly global TiVA: EU Figaro, APEC-TIVA, NA-TIVA, ECA, ECLAC, AdB and WIOD.
- With continued push to improve quality and relevance…..

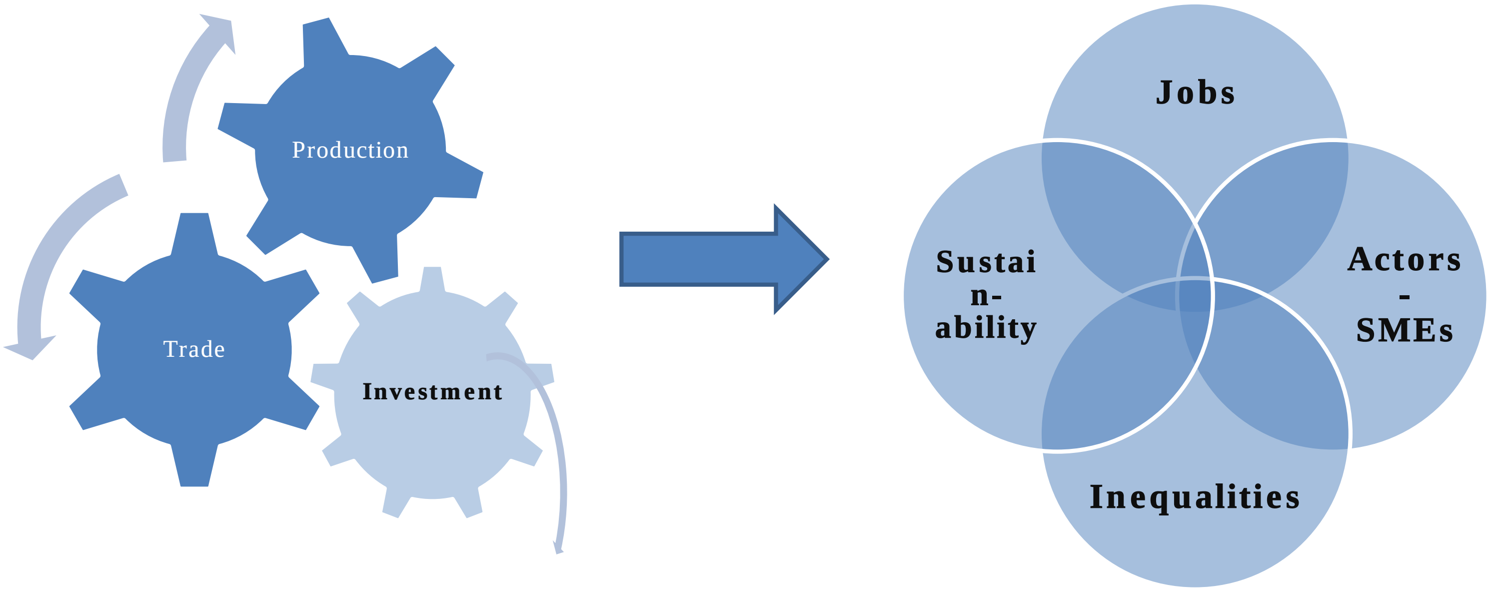
Moving forward with GCC?

- **What would we like?**
  - **Improved information for the region on GVCs**
  - **All countries**
  - Supported by **optimum quality SUT tables**
    - More timely, more regular, more detailed.
  - OECD has developed a SUT questionnaire with Eurostat being promoted as an international benchmark
  - **OECD willing to** engage in 'technical' support programmes (as seen in Morocco):bilateral and regional GCC workshops?

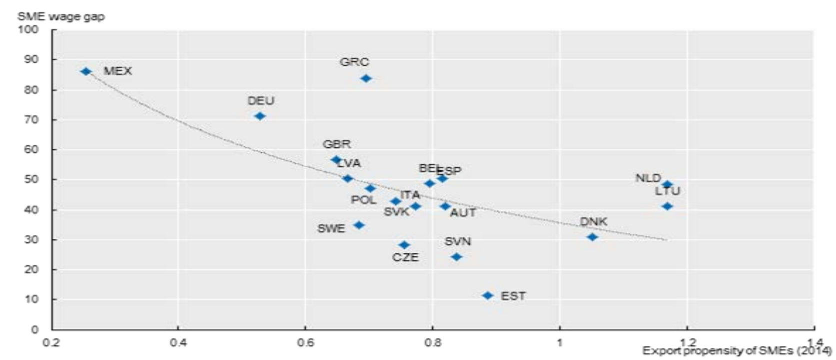
FIND OUT MORE
www.oecd.org/trade/valueadded

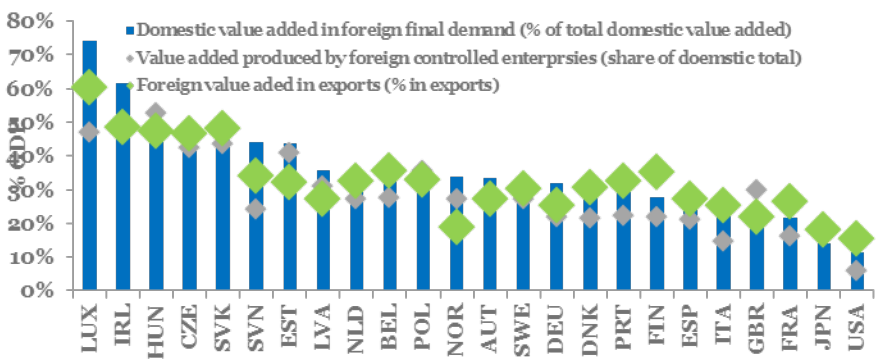
But…. TiVA is….

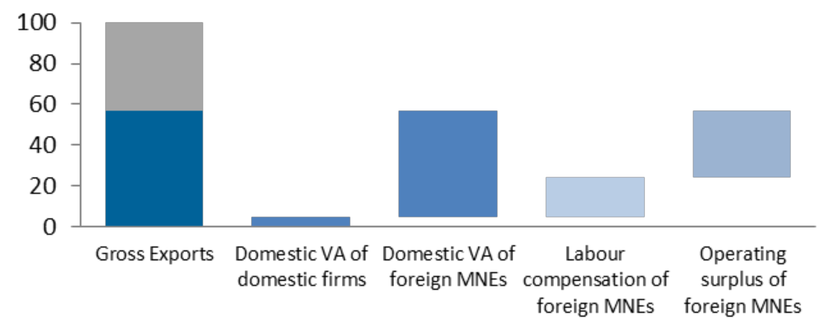
- **Only an estimate** >> likely underestimating the degree of global integration
- **And only scratches the surface of what's needed**




WHAT ?
99%
1%
MIKE LUCKOVICH


SME wage gap
100
90
80
70
60
50
40
30
20
10
0
MEX
GRC
DEU
GBR
LVA
BEL
ESP
ITA
POL
SVK
AUT
SWE
CZE
SVN
EST
NLD
LTU
DNK
0.2
0.4
0.6
0.8
1
1.2
1.4
Export propensity of SMEs (2014)


80%
70%
60%
50%
40%
30%
20%
10%
0%
% GDP
Domestic value added in foreign final demand (% of total domestic value added)
Value added produced by foreign controlled enterprsies (share of doemstic total)
Foreign value aded in exports (% in exports)
LUX
IRL
HUN
CZE
SVK
SVN
EST
LVA
NLD
BEL
POL
NOR
AUT
SWE
DEU
DNK
PRT
FIN
ESP
ITA
GBR
FRA
JPN
USA


100
80
60
40
20
0
Gross Exports
Domestic VA of domestic firms
Domestic VA of foreign MNEs
Labour compensation of foreign MNEs
Operating surplus of foreign MNEs

Global production requires

- that we put ‘global’ at the heart of national
  - But with a granularity that provides insights on the actors and their heterogeneity
  - Improving our understanding of interconnectedness and benefits, challenges and consequences of globalisation

Extended Supply-Use tables: Two birds with one stone..

- Extended Supply-Use Tables
  - An approach to bring together ‘disparate’ statistics under a common coherent umbrella
  - A mechanism to respond to policy demands related to globalisation
  - Without increasing business response burdens
  - Whilst also improving the quality of GDP and TiVA

- By capitalising on existing data sources
  - FATS, SBS, TEC, and improving business registers

Four levels of extensions:

- Simple - no further activity or product breakdown
- Level 1 - capturing heterogeneity in activities (column breakdown)
- Level 2 - From production to income
- Level 3 – Heterogeneity in purchases (the row breakdown)

‘Simple’

Complementary items for Supply

	Imports of goods valued at FOB	CIF/FOB component allocated to specific service category	CIF/FOB domestic adjustment	Residents' expenditure abroad	Goods imported under processing arrangements (i.e. no change of ownership)	Import duties
Goods						
Services						

Complementary ietms for Demand

	Exports of manufacturing services on goods owned by others	Customs value of goods exported under processing arrangements	Adjustments made for merchanting transactions crossing over two periods	Merchanting services included in goods	Non-residents' expenditure	Re-exports
Goods						
Services						

Import flow matrix broken down by country/region

		Intermediate Use						HHFC	NPISH	GGFC	FCF	(Re) Exports
		Industry 1	Industry 2	...	Industry i	...	Industry N					
Country/Region 1	Goods											
	Services											
Country/Region 2	Goods											
	Services											
Country/Region 3	Goods											
	Services											
Country/Region i	Goods											
	Services											
Country/Region K	Goods											
	Services											

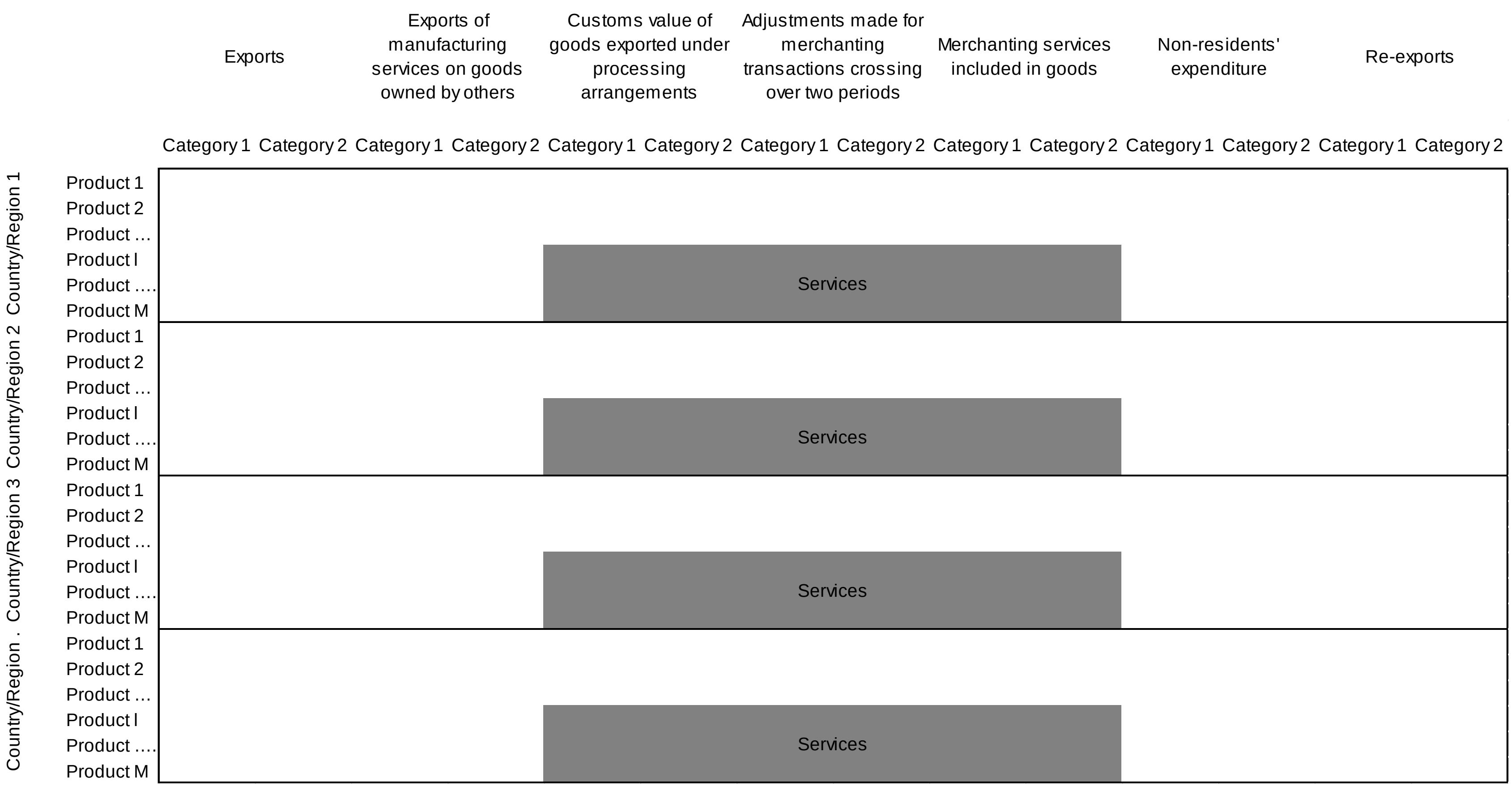
Level 1

	Industry 1		Industry 2		Industry …		Industry k		Industry …		Industry N		Total Output	Imports		Margins	Taxes and Subsidies	Total Supply
	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2		Category 1	Category 2			
Product 1																		
Product 2																		
Product …																		
Product I																		
Product ….																		
Product M																		
Total Output																		

	Industry 1		Industry …		Industry k		Industry …		Industry N		HHFC + NPISH	GGFC	FCF		Exports		Total Demand
	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2			Category 1	Category 2	Category 1	Category 2	
Product 1																	
Product 2																	
Product …																	
Product I																	
Product ….																	
Product M																	
Total IC																	
Value Added																	
Output																	
Of which: exports																	

	Industry 1		Industry …		Industry k		Industry …		Industry N		HHFC + NPISH	GGFC	FCF		(Re)Exports		Total Imports
	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2			Category 1	Category 2	Category 1	Category 2	
Product 1																	
Product 2																	
Product …																	
Product I																	
Product ….																	
Product M																	

Level 1+



Exports
Exports of manufacturing services on goods owned by others
Customs value of goods exported under processing arrangements
Adjustments made for merchanting transactions crossing over two periods
Merchanting services included in goods
Non-residents' expenditure
Re-exports
Category 1
Category 2
Category 1
Category 2
Category 1
Category 2
Category 1
Category 2
Category 1
Category 2
Category 1
Category 2
Category 1
Category 2
Country/Region 1
Product 1
Product 2
Product ...
Product I
Product ....
Product M
Services
Country/Region 2
Product 1
Product 2
Product ...
Product I
Product ....
Product M
Services
Country/Region 3
Product 1
Product 2
Product ...
Product I
Product ....
Product M
Services
Country/Region .
Product 1
Product 2
Product ...
Product I
Product ....
Product M
Services

Level 2

		Industry 1		Industry ...		Industry N	
		Category 1	Category 2	Category 1	Category 2	Category 1	Category 2
Resources	Property Income						
	Interest						
	Distributed Income of Corporations						
	Reinvested Earnings on FDI						
	Investment Income Disbursements						
	Rent						
Uses	Property Income						
	Interest						
	Distributed Income of Corporations						
	Reinvested Earnings on FDI						
	Investment Income Disbursements						
	Rent						
From abroad	Property Income						
	Interest						
	Distributed Income of Corporations						
	Reinvested Earnings on FDI						
	Investment Income Disbursements						
To Abroad	Property Income						
	Interest						
	Distributed Income of Corporations						
	Reinvested Earnings on FDI						
	Investment Income Disbursements						
	Current Taxes on Income and Wealth						
	Persons Employed						
	By Occupation (ISCO)						
	Employees						
	By Occupation (ISCO)						
	Hours Worked						
	By Occupation (ISCO)						
	CO_2 emissions						

Level 3

		Industry 1		Industry 2		Industry …		Industry k		Industry …		Industry N		Total Output	Imports		Margins	Taxes and Subsidies	Total Supply
		Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2		Category 1	Category 2			
Product 1	Category 1																		
	Category 2																		
Product …	Category 1																		
	Category 2																		
Product M	Category 1																		
	Category 2																		
Total Output																			

		Industry 1		Industry …		Industry k		Industry …		Industry N		HHFC + NPISH	GGFC	FCF		Exports	
		Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2			Category 1	Category 2	Category 1	Category 2
Product 1	Category 1																
	Category 2																
Product …	Category 1																
	Category 2																
Product M	Category 1																
	Category 2																
	Value Added																
	Output																
	Of which: exports																
Resources	Property Income																
	Interest																
	Distributed Income of Corporations																
	Reinvested Earnings on FDI																
	Disbursements																
	Rent																
Uses	Property Income																
	Interest																
	Distributed Income of Corporations																
	Reinvested Earnings on FDI																
	Disbursements																
	Rent																
From abroad	Property Income																
	Interest																
	Distributed Income of Corporations																
	Reinvested Earnings on FDI																
	Disbursements																
To Abroad	Property Income																
	Interest																
	Distributed Income of Corporations																
	Reinvested Earnings on FDI																
	Disbursements																
	Current Taxes on Income and Wealth																
	Persons Employed																
	By Occupation (ISCO)																
	Employees																
	By Occupation (ISCO)																
	Hours Worked																
	By Occupation (ISCO)																
	CO2 emissions																

How?

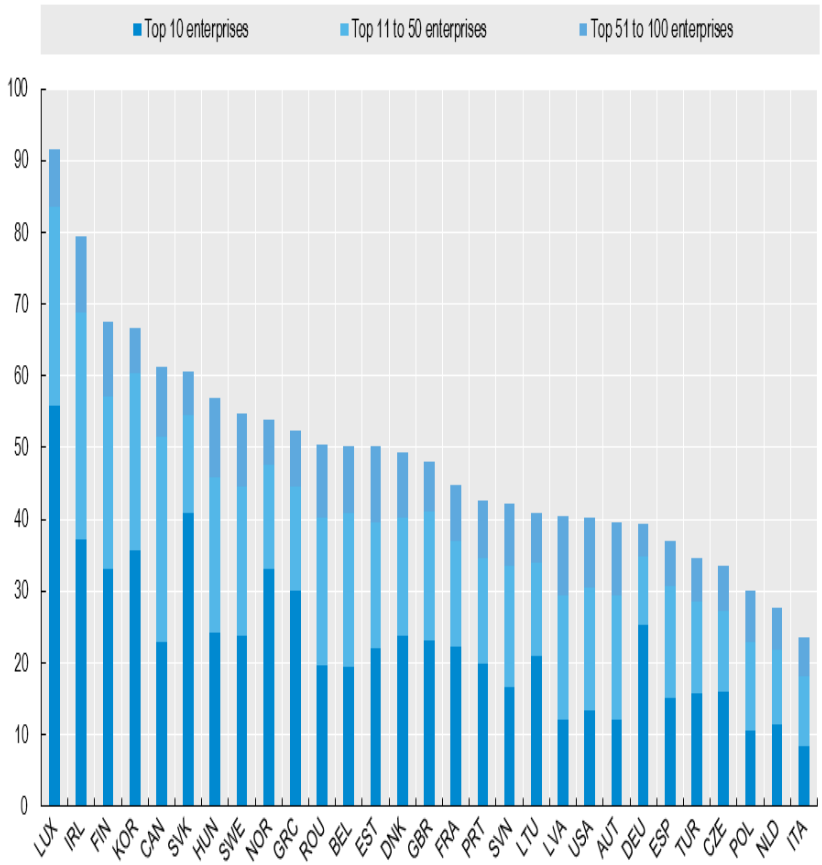
Important to note that breakdowns not needed everywhere!– only where they matter or where they can be done (re confidentiality)

Various approaches are feasible in many countries

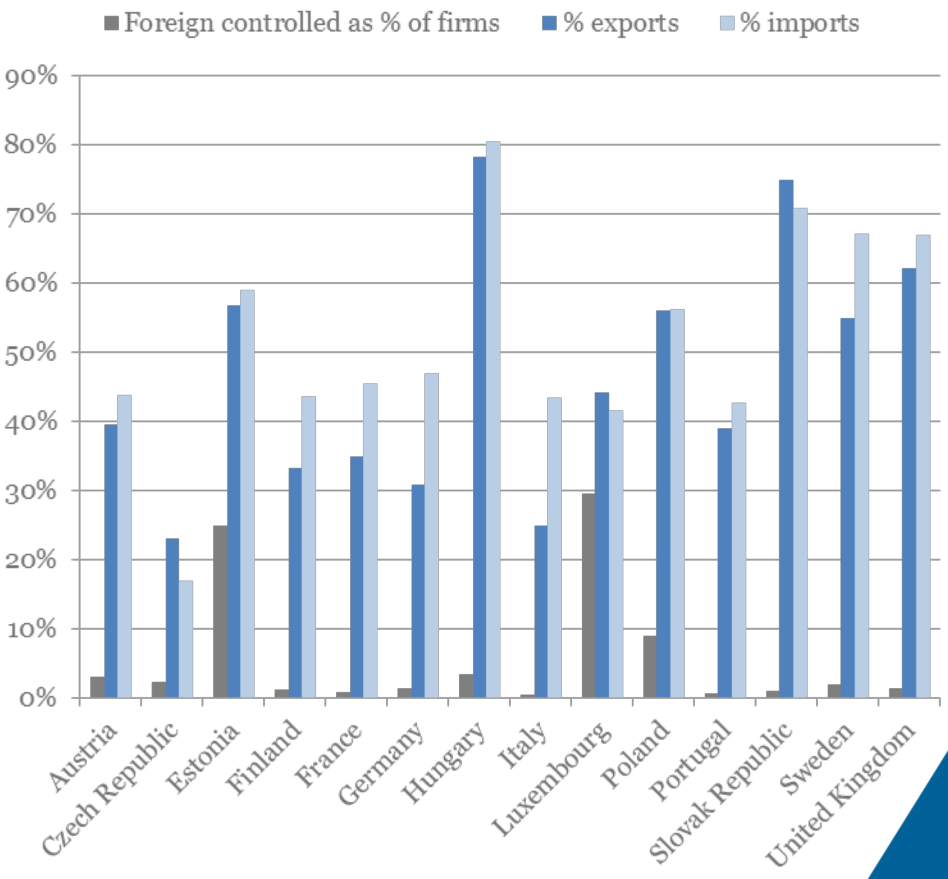
- **By trading status – through customs linking**
- **By ownership, through (eg) FATS linking**
- **By size class, through SBS/Census data**
- **By level of formality**

Statistical burdens need not be large

Concentration of exports by exporting enterprises, total economy , 2015



Foreign owned firms across economies (2011)



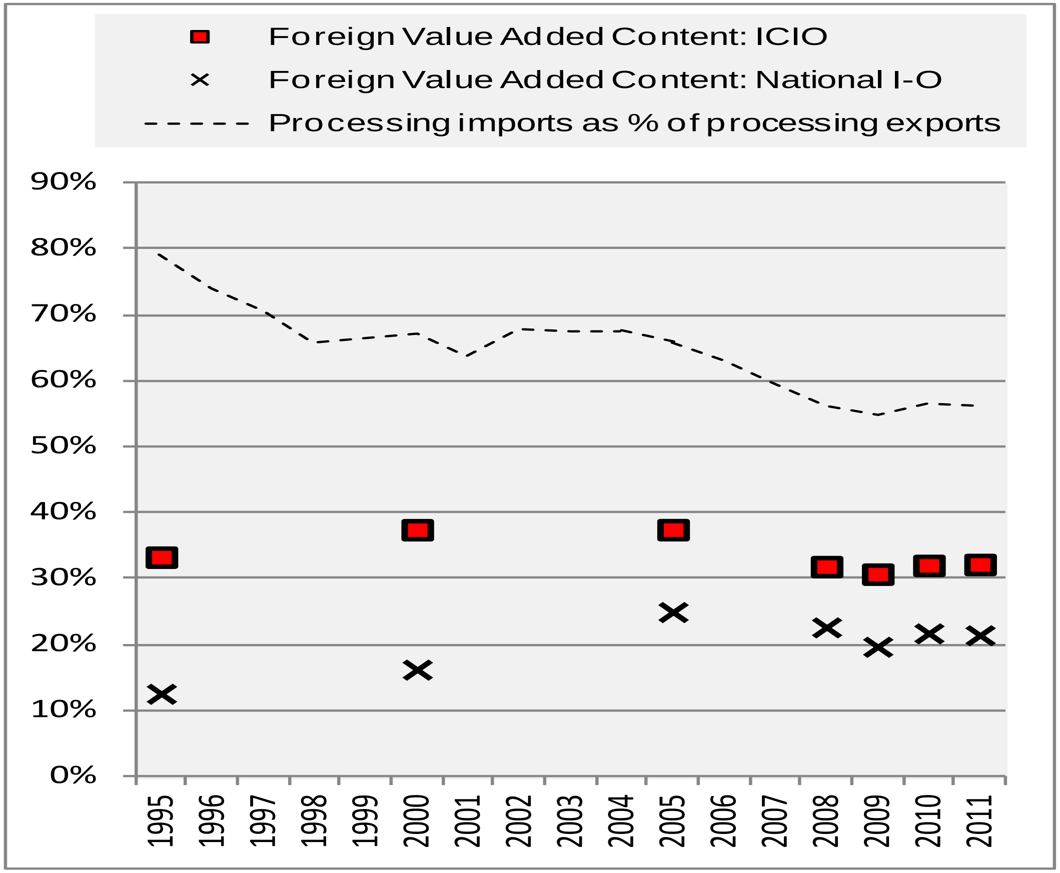
Improving quality…

- Note too that higher granularity with a global angle provides the basis for higher quality national import flow matrices (e.g. through TEC) and national IO tables.
  - And **by extension TiVA**

China

- *Processing firms*
  - *Non-processing exporters*
  - *Domestic-only firms*

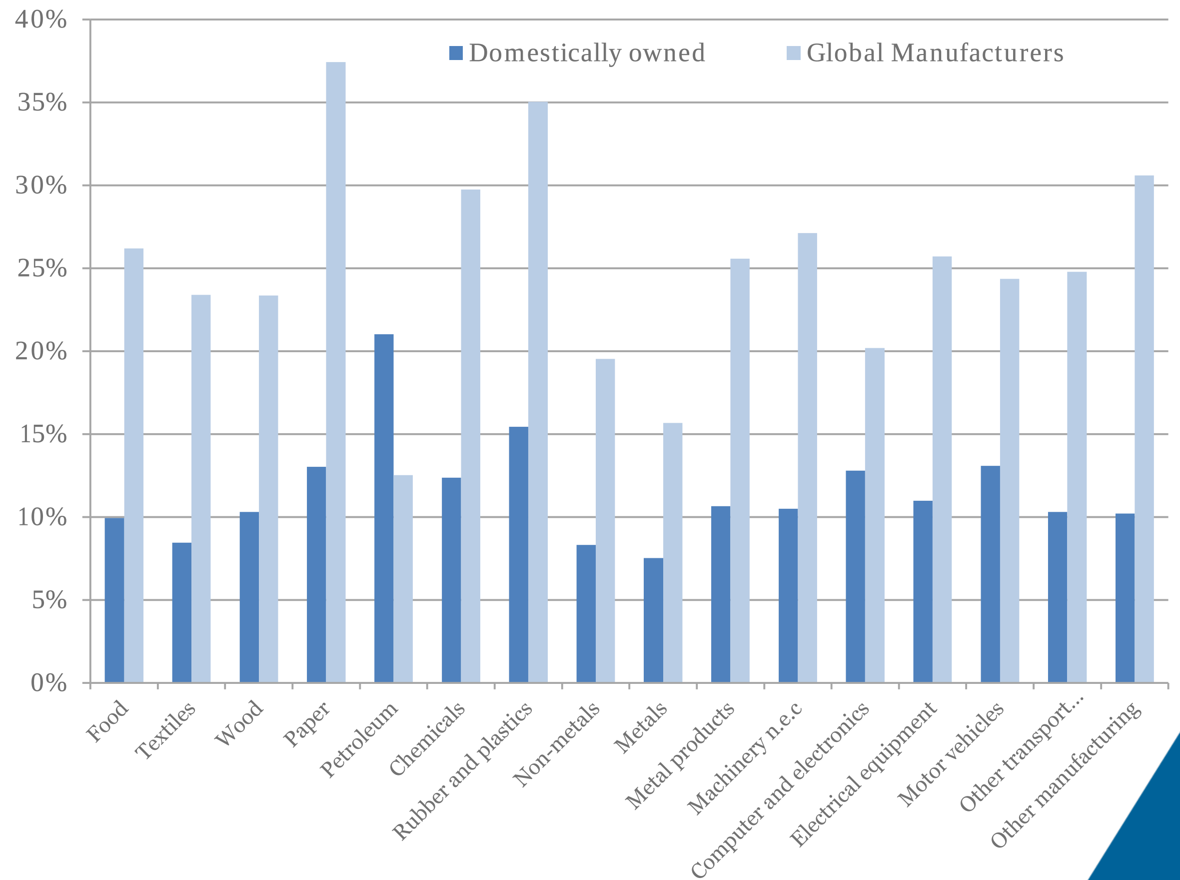
China: Foreign Value Added content of exports, with and without accounting for heterogeneity



Mexico

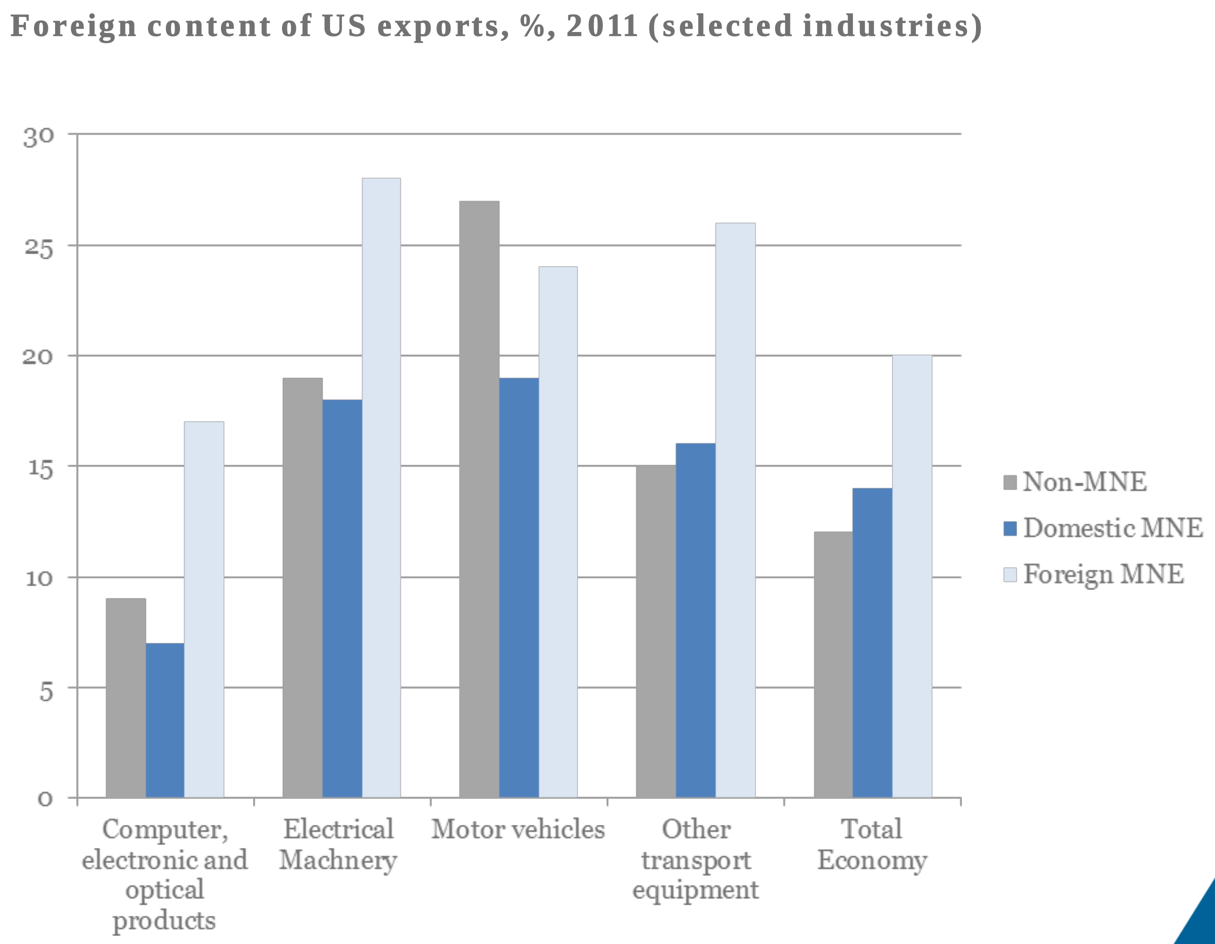
- *Global manufacturers*

US VA content of Mexico's exports %, 2011, (By industry and 'ownership' of Mexican exporters)



US

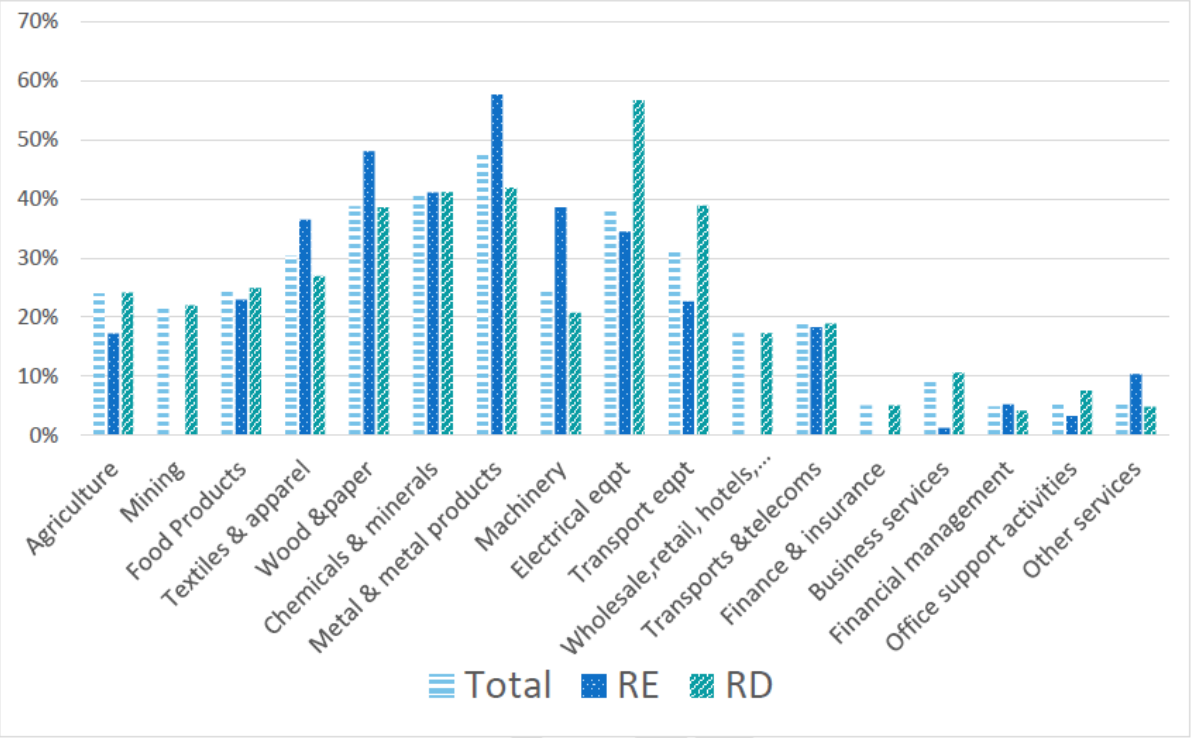
- *Ownership*



Costa Rica

- *Exporter status*

Foreign content of Costa Rica's exports, %, 2012

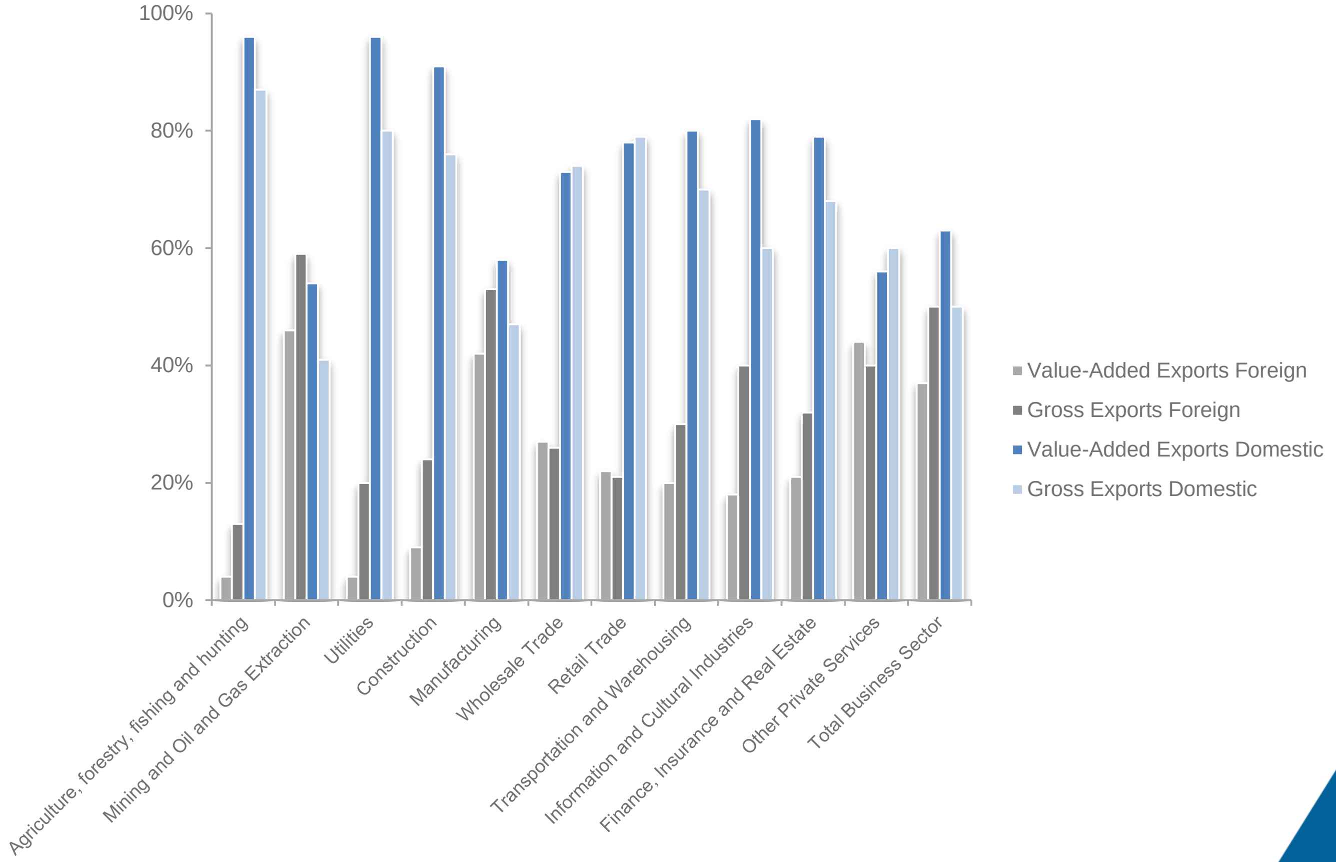


Source: Prepared with data from the Banco Central de Costa Rica.

Canada

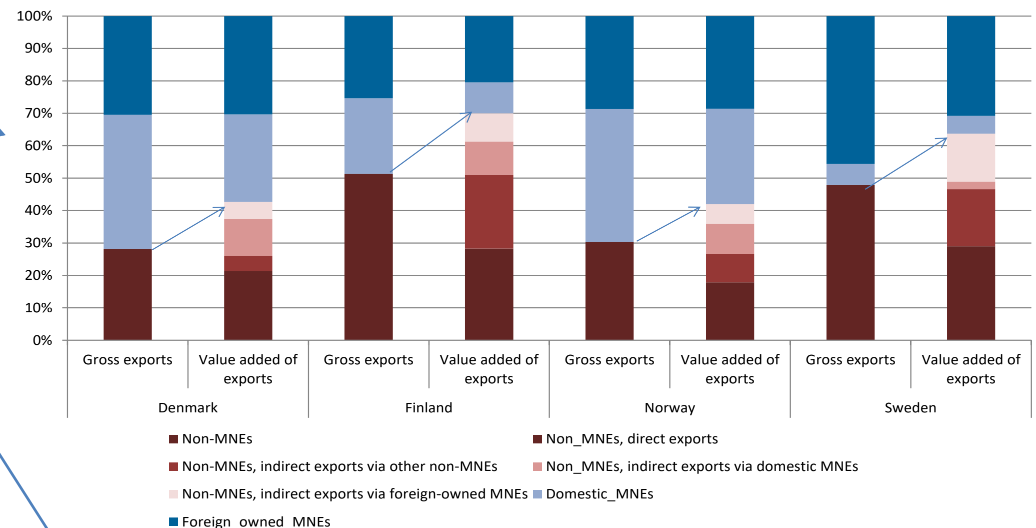
- *Ownership status*

Share of gross and value-added exports by ownership status, %, 2010 (industries within business sector)

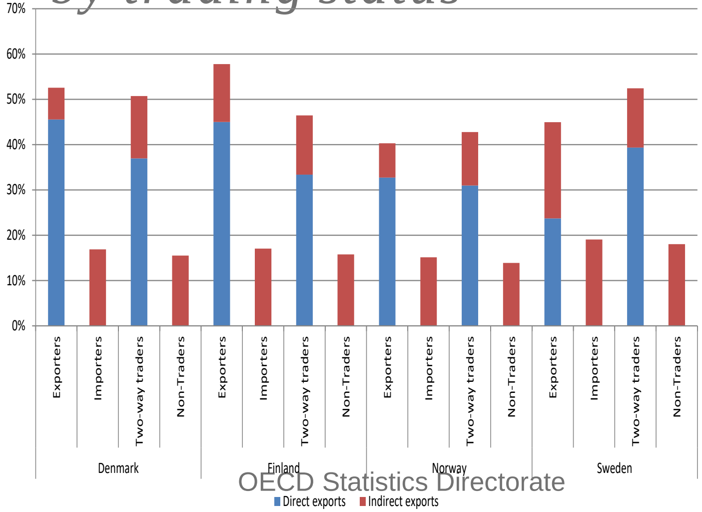


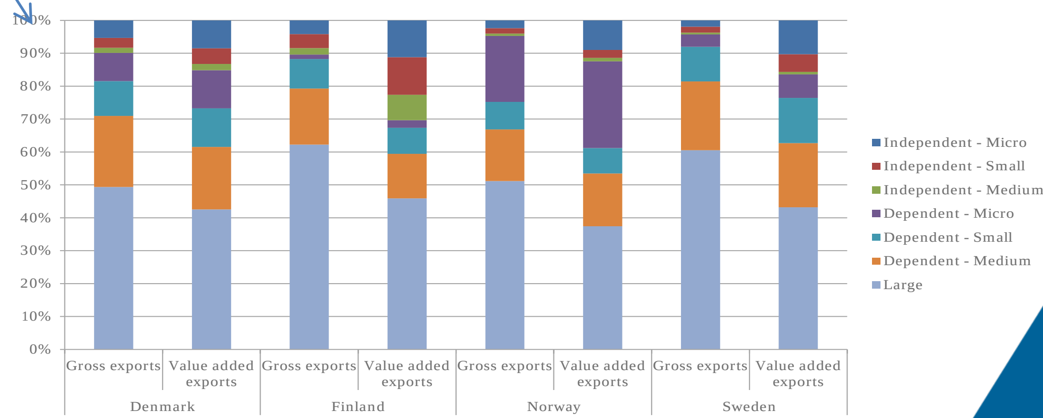
Nordics

Exports (gross and value-added) by firm category

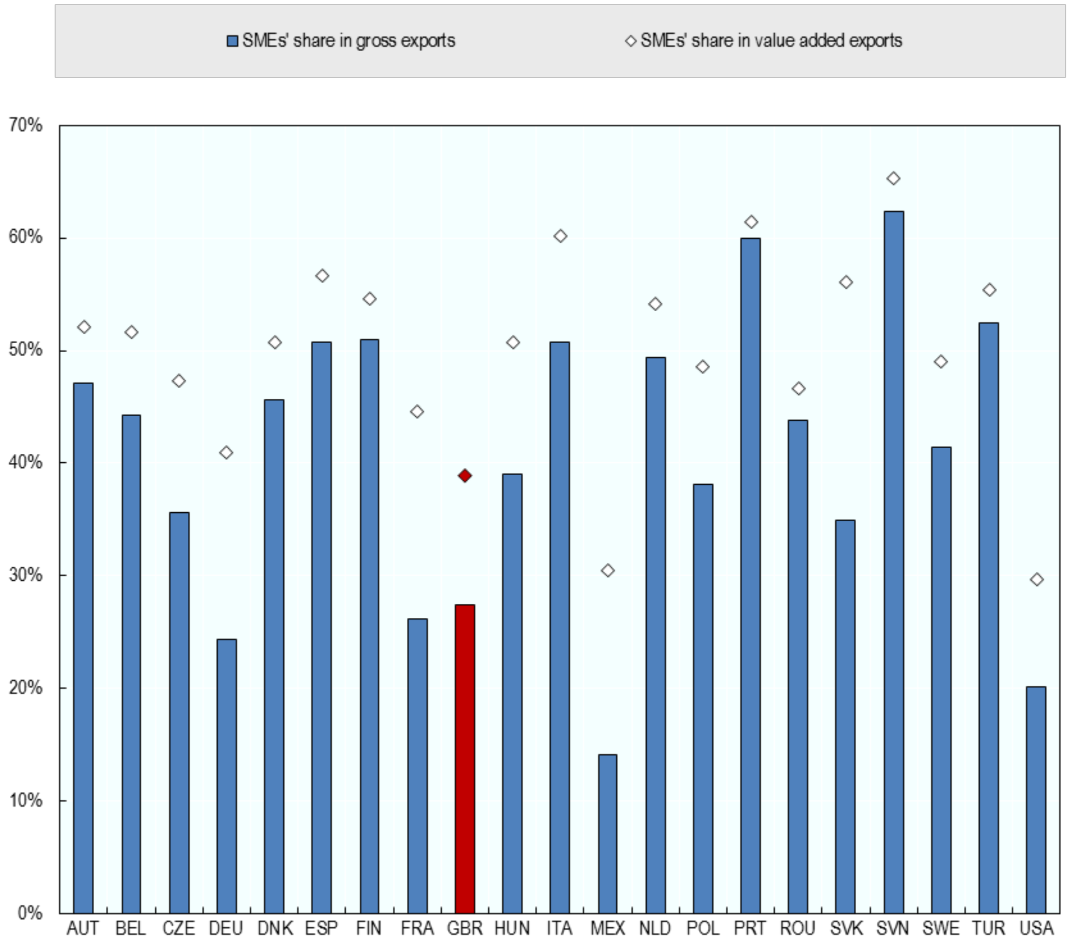


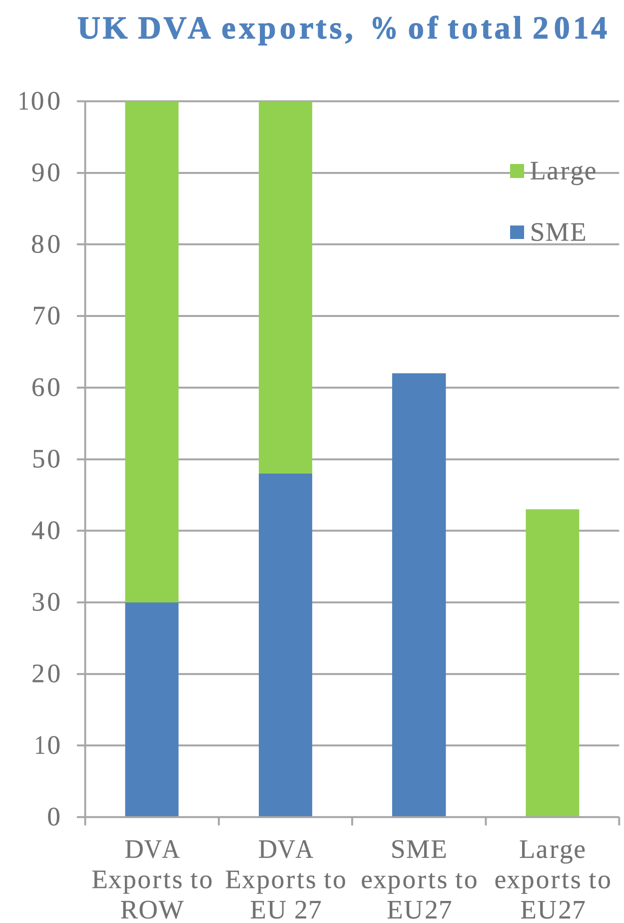
Jobs dependent on foreign final demand by trading status





SMEs are highly integrated in GVCs





ESUTs

- Provide scope for **improved integrated economic accounts** - that respond to the global production-trade-investment-inequalities agenda.
- But they also provide basis for improved:
  - productivity analysis (world KLEMS)
  - improved quality in GDP and Trade stats (especially services)
  - better understanding of GDP/GNI wedges and IPP intra-firm transactions

Expert Group on Extended SUTs

Overview of ongoing work by Expert Group members

	Industry dimension	Additional dimensions
Austria	Combined Ownership - Exporter status	
Belgium	Firm size; Exporter status; Env. product producers	
Canada	Ownership; Firm size; Exporter status	SEEA Emissions (11 pollutants)
Chile	Ownership; Firm size; Exporter status	
Denmark	Ownership; Firm size; Exporter status	
France	Not yet finalized	
Japan	Exporter status	
Korea	Exporter status	Employee compensation
Mexico	Global Manufacturers; Formal/informal	
Netherlands	Combined Firm size - Ownership	
UK	Exporter status	
USA	Ownership	
Costa Rica	Export processing firms	
Lithuania	Not yet finalized	
China (NBS)	Not yet finalized	
RIETI Japan	Exporter	
CAS China	Ownership; Processing firms	CO2 emissions

- Costa Rica, Netherlands published results; 4 others plan dissemination
- 3 countries intend to produce ESUTs as part of their future regular work program