



MEASURING GLOBAL VALUE CHAINS IN LATIN AMERICA: TIVA

Panama: 10 May 2018

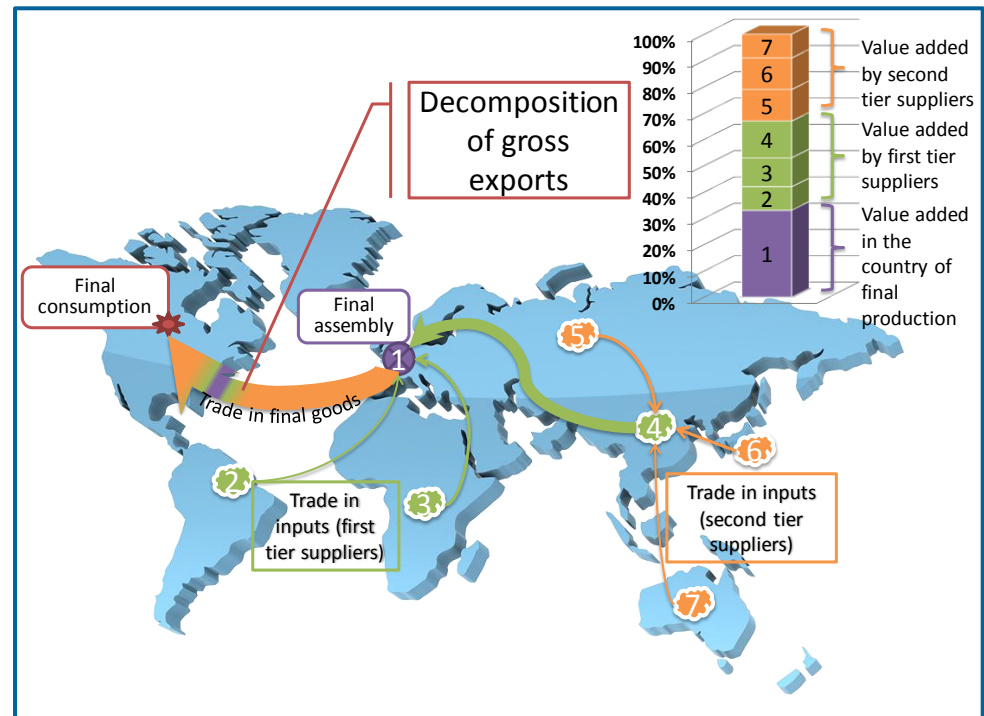
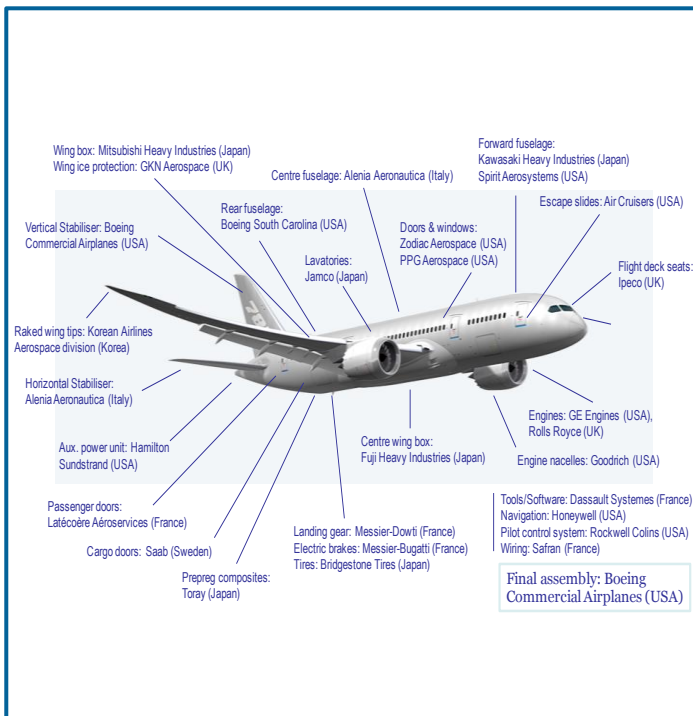
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Nadim Ahmad, Head of Trade and Competitiveness Statistics Division



Increasing international fragmentation of production

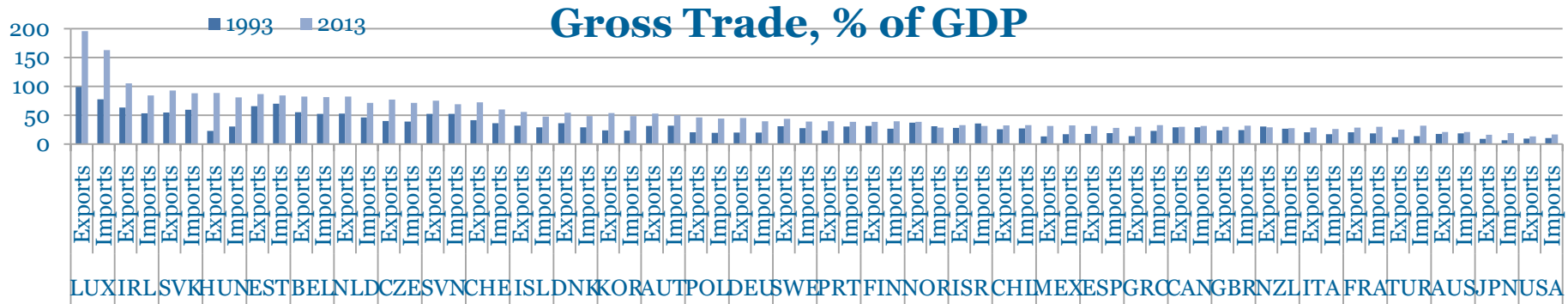
Explosion of trade in intermediates as firms specialise in stages (tasks) of production



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



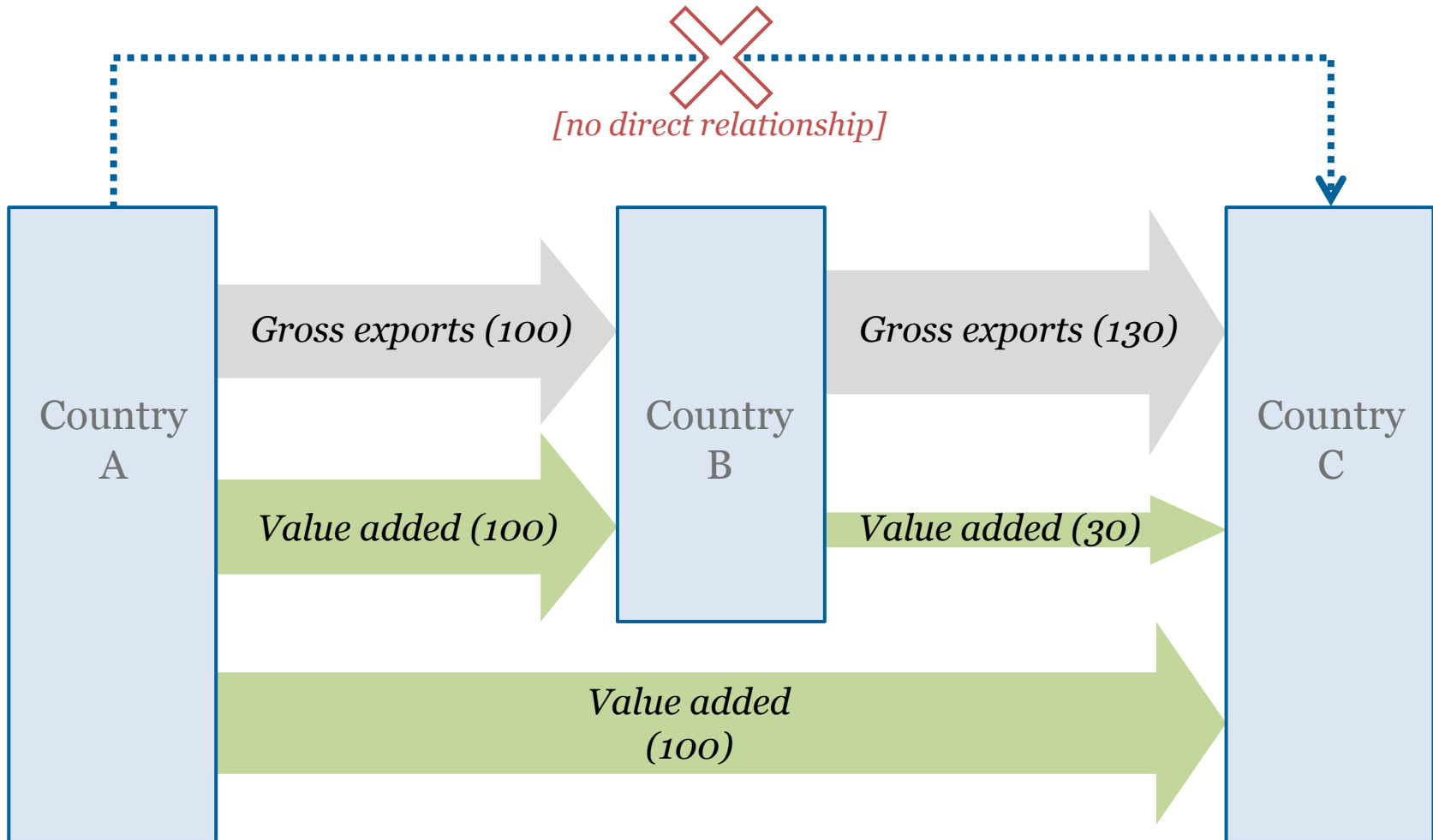
But conventional trade statistics don't reflect this...



- creating ‘misleading perceptions’ and imperfect policies:
 - Export driven growth strategies may target the wrong sectors
 - Competitiveness:
 - Bilateral trade positions: Protectionist policies can hurt domestic upstream industries and competitiveness
 - Systemic risks - impact of macro-economic shocks on supply-chains
 - Jobs, skills
 - (lack of) integration of emerging economies in GVC



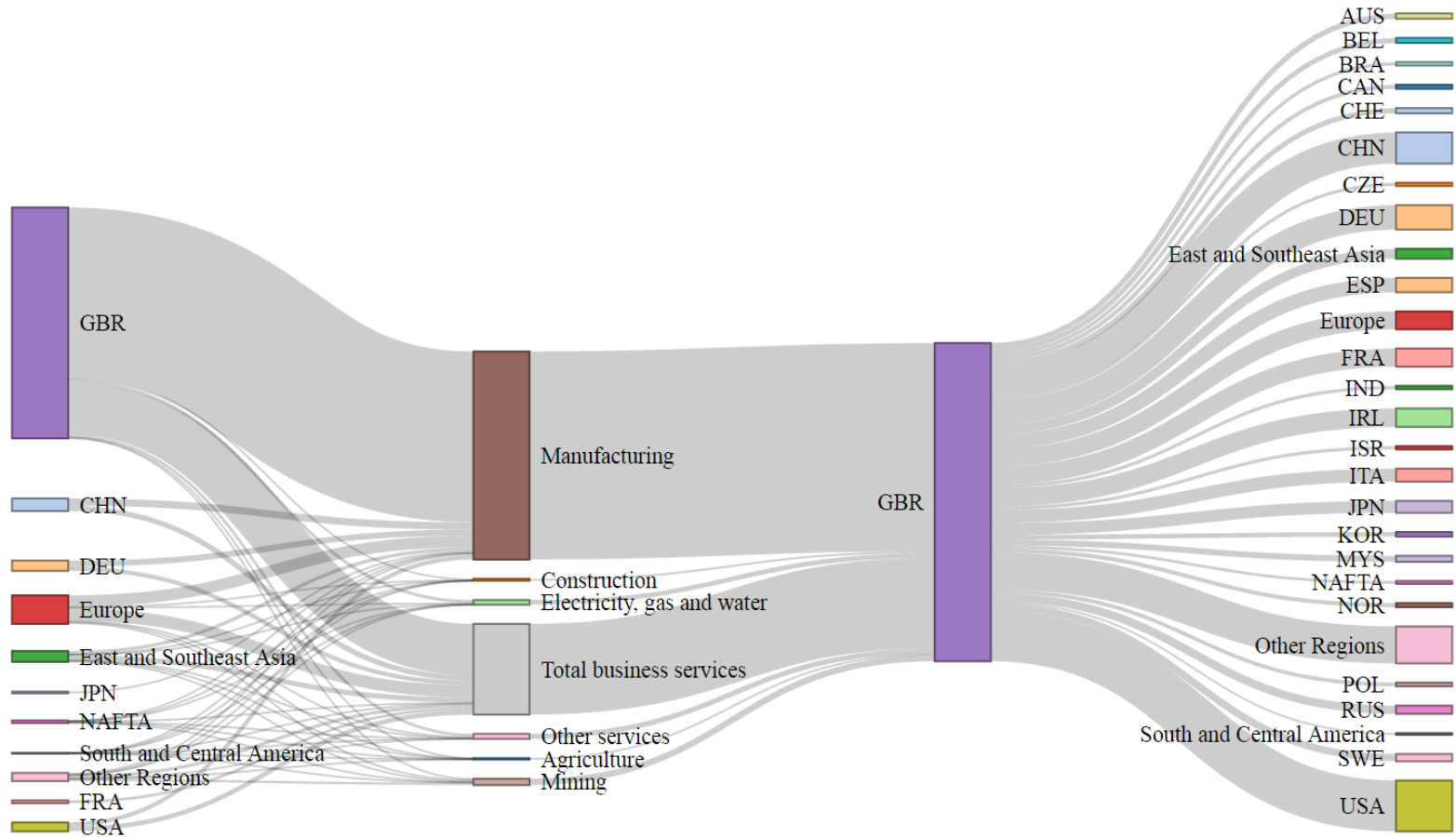
Requiring a new statistical response: TiVA



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

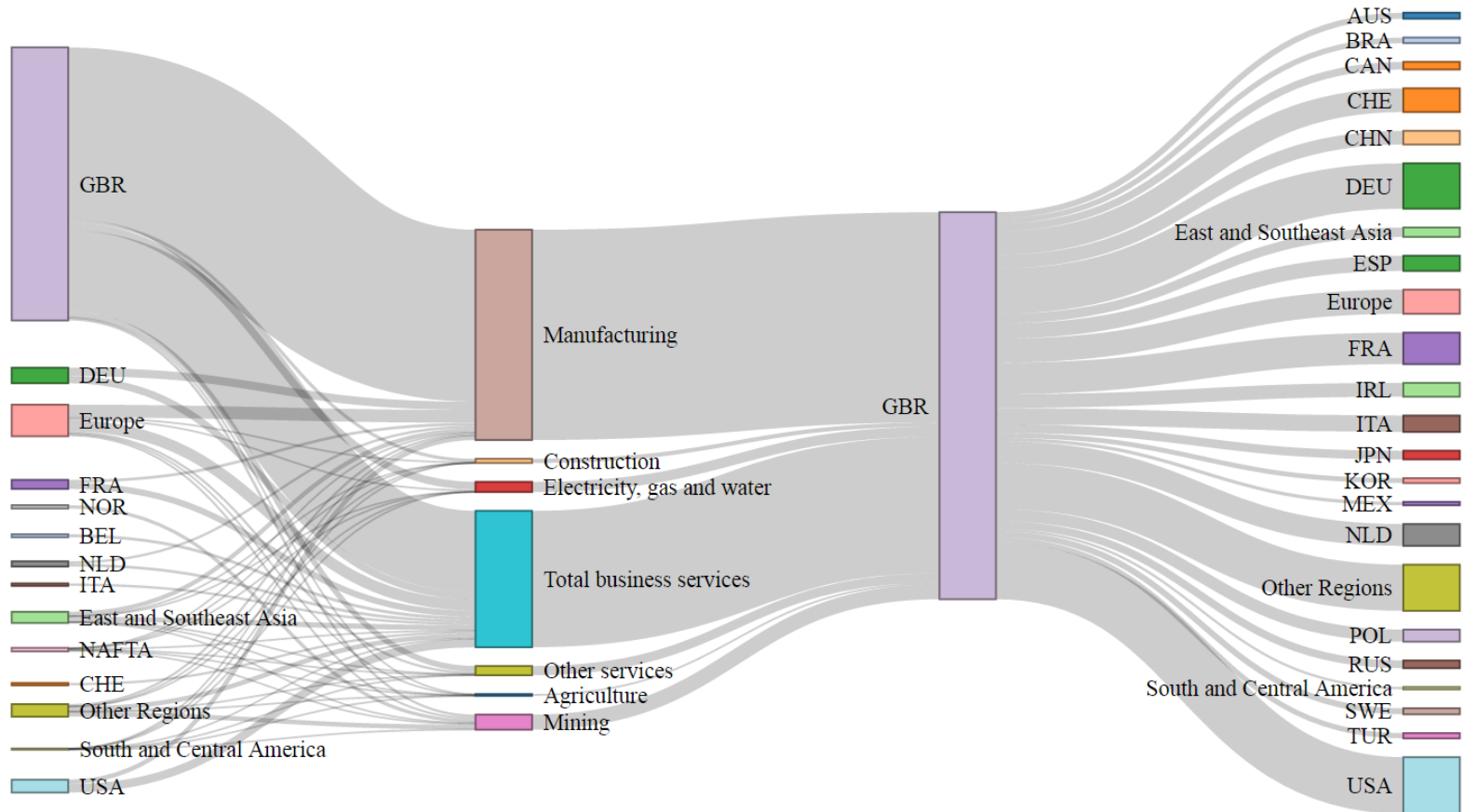


Origin and destination of UK's ICT exports in value-added terms





..and Chemicals products





TiVA: How? >> With an ICIO

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

Directly from national SUTs (converted to industries):

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

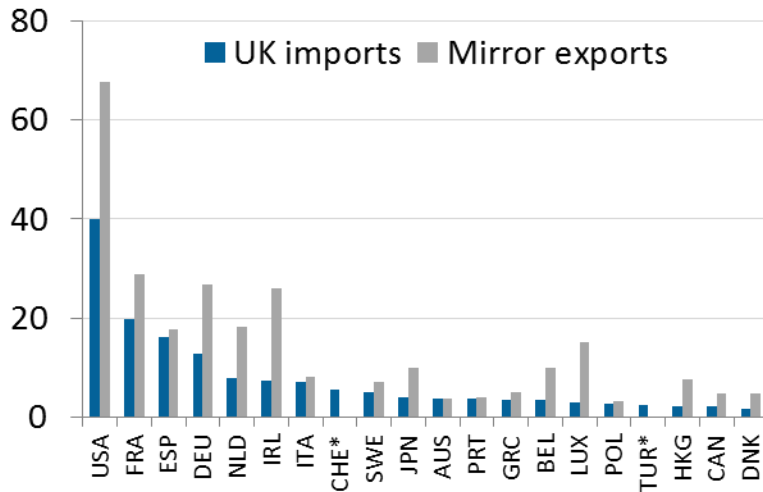
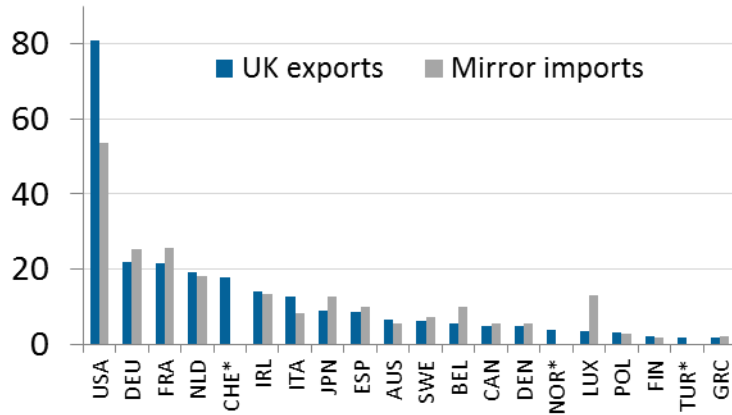
With additional assumptions:

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.



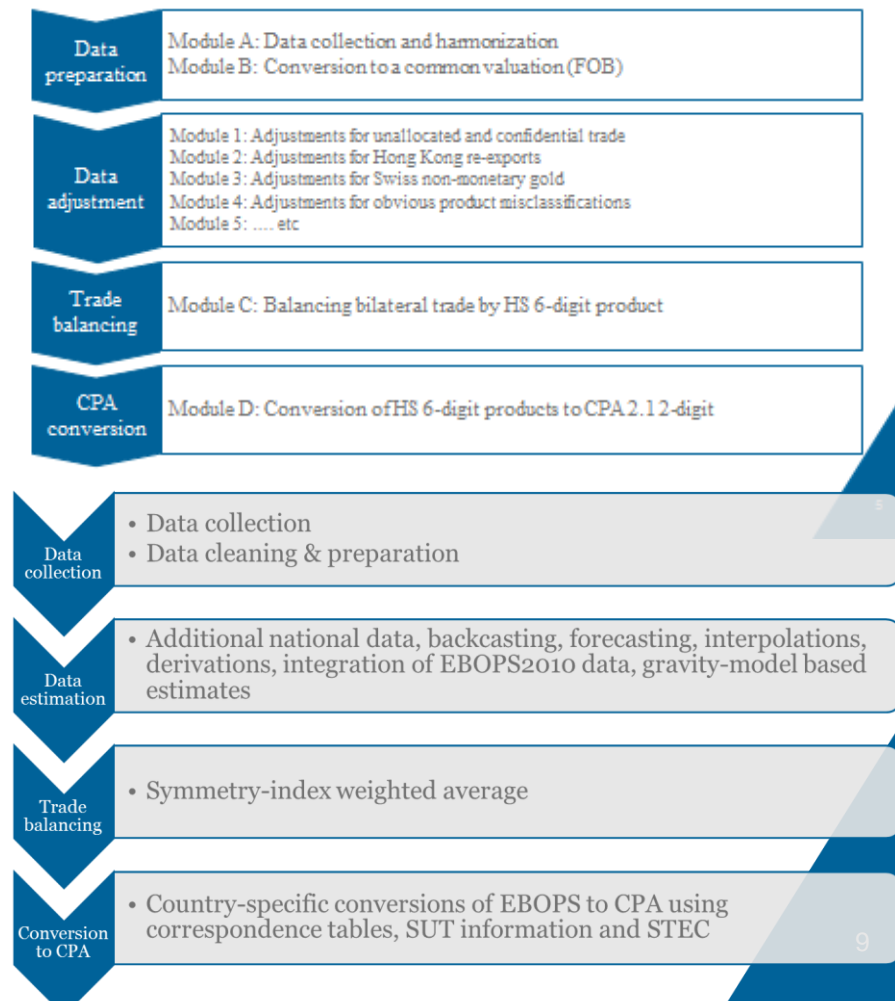
Balanced Trade databases

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 35 countries
BRIICS	Brazil, China, India, Indonesia, Russian Federation, South Africa
Other EU28	Bulgaria, Croatia, Cyprus, Lithuania, 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	Tunisia
Other Central and Southern America	Colombia, Costa Rica
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

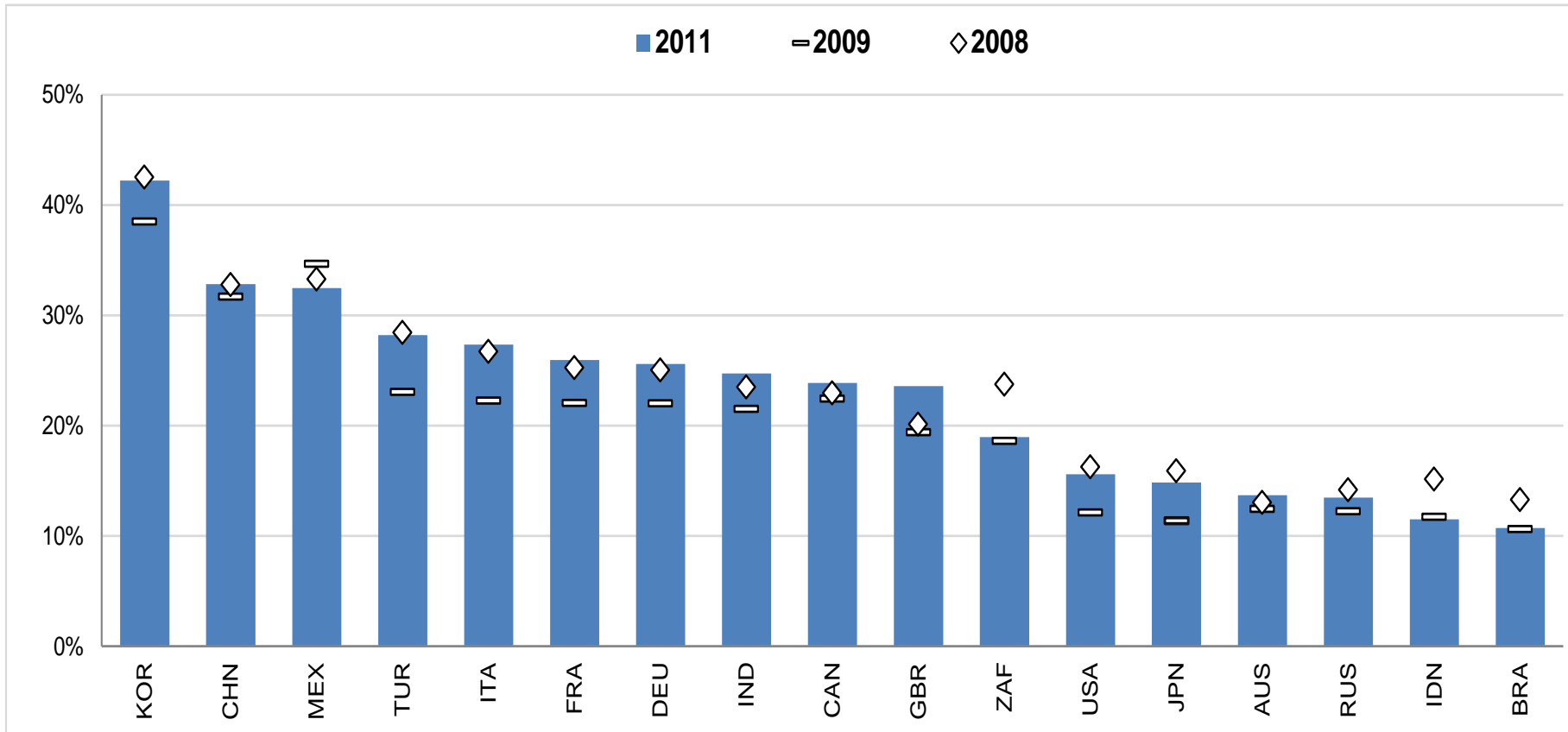
Next release in June/July 2018- ISIC REV 4



TIVA: WHAT DOES IT TELL US?



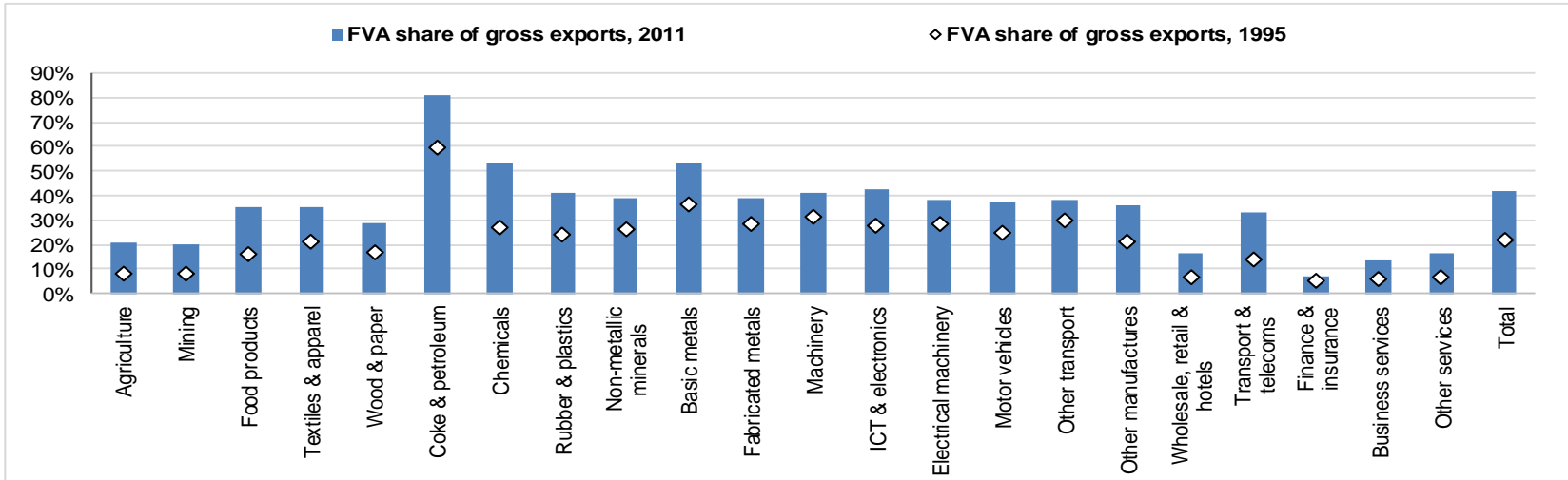
Exports require imports



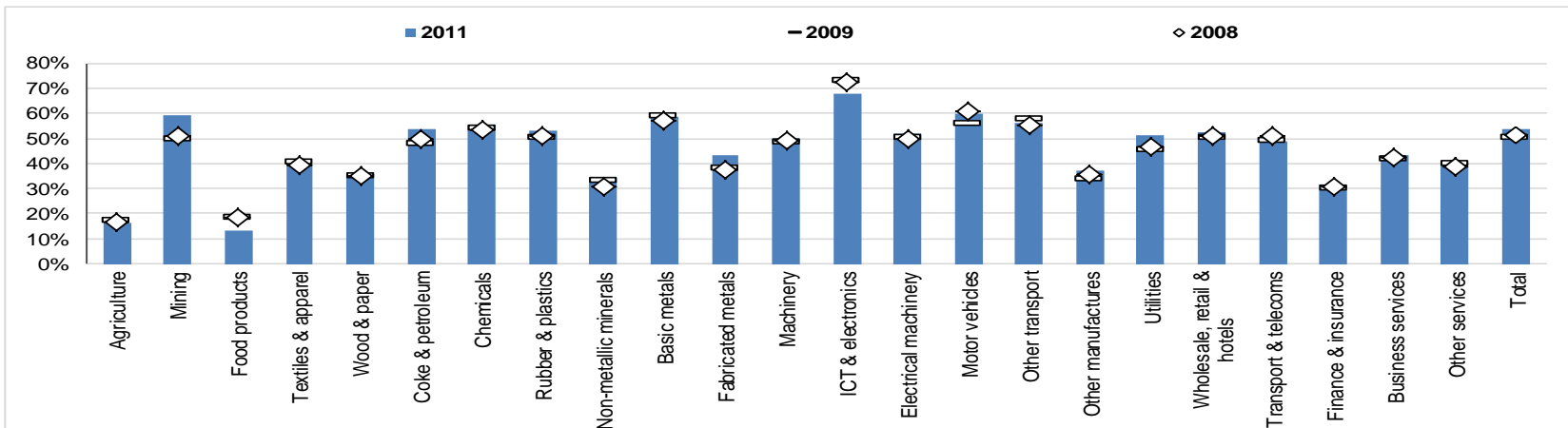


Exports require imports (2)

Korea's foreign value added content of gross exports



Korea's imported intermediate inputs used for exports, by import category
percent of intermediate imports, 2008, 2009, and 2011

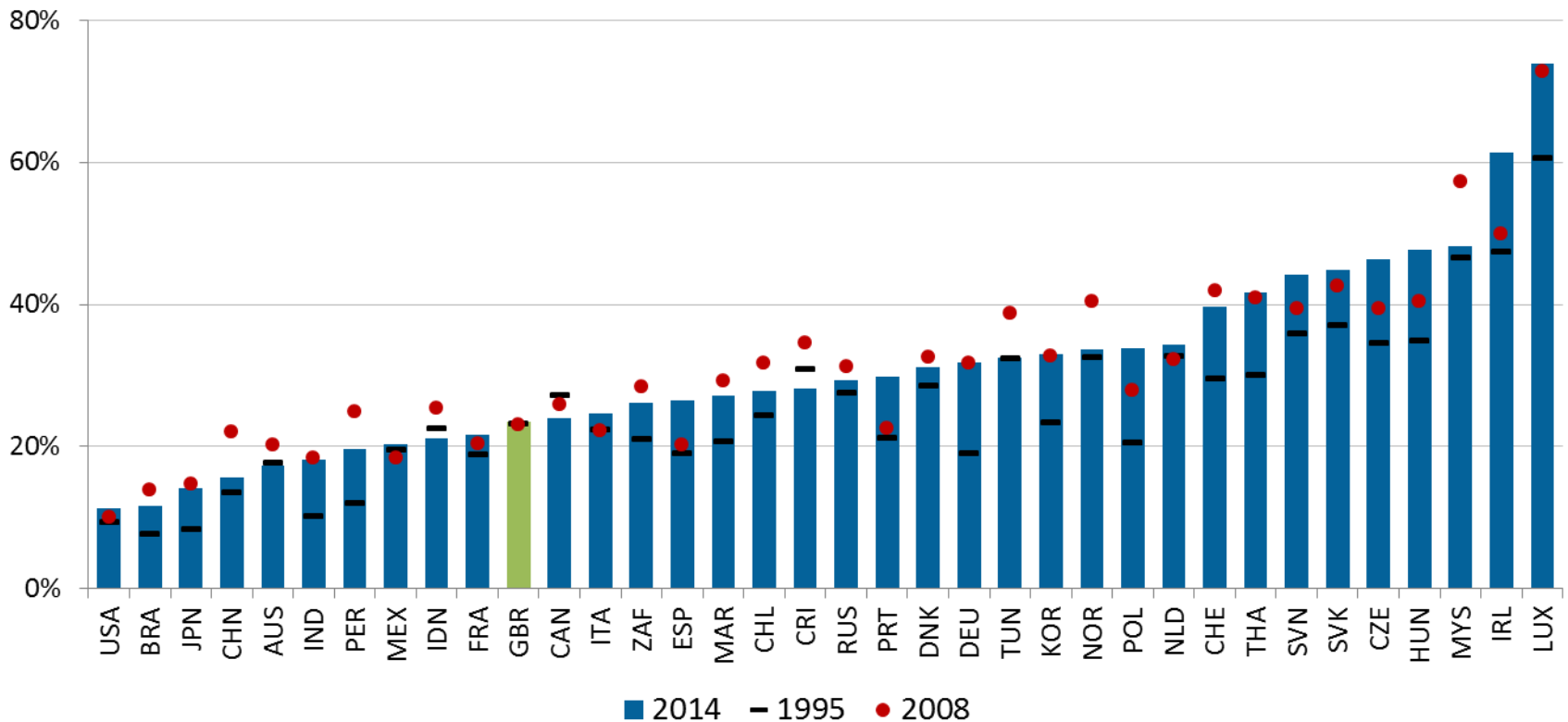






TiVA's new perspective: on export intensities...

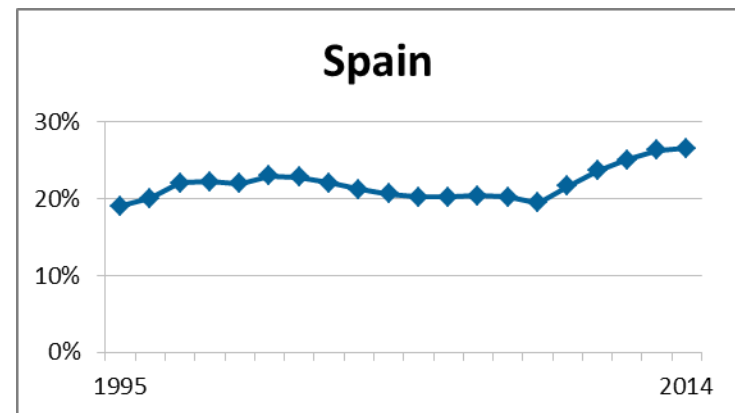
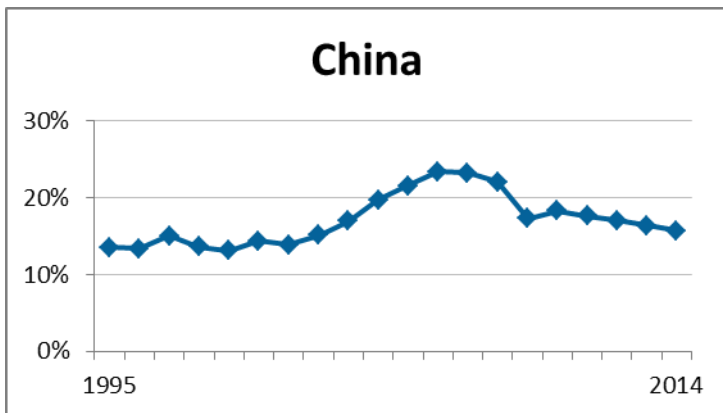
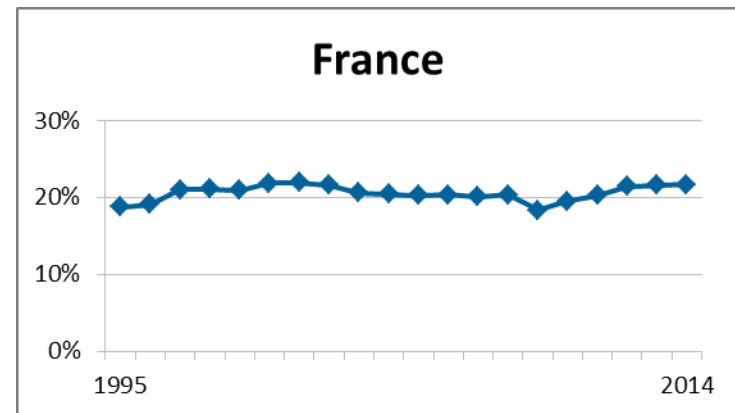
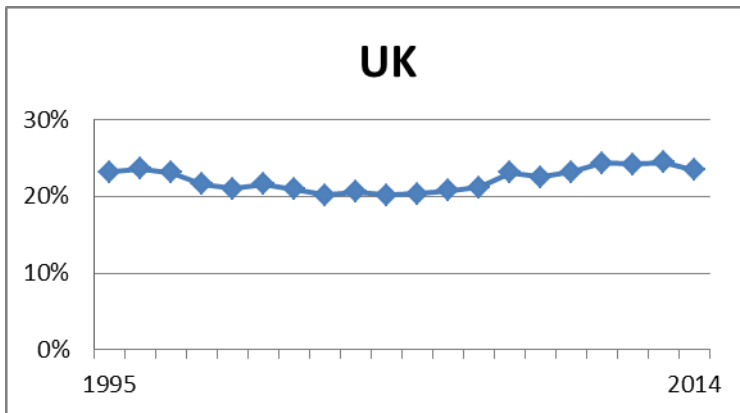
Exported domestic value added as % of GDP





...and changes over time...

Exported domestic value added as % of GDP





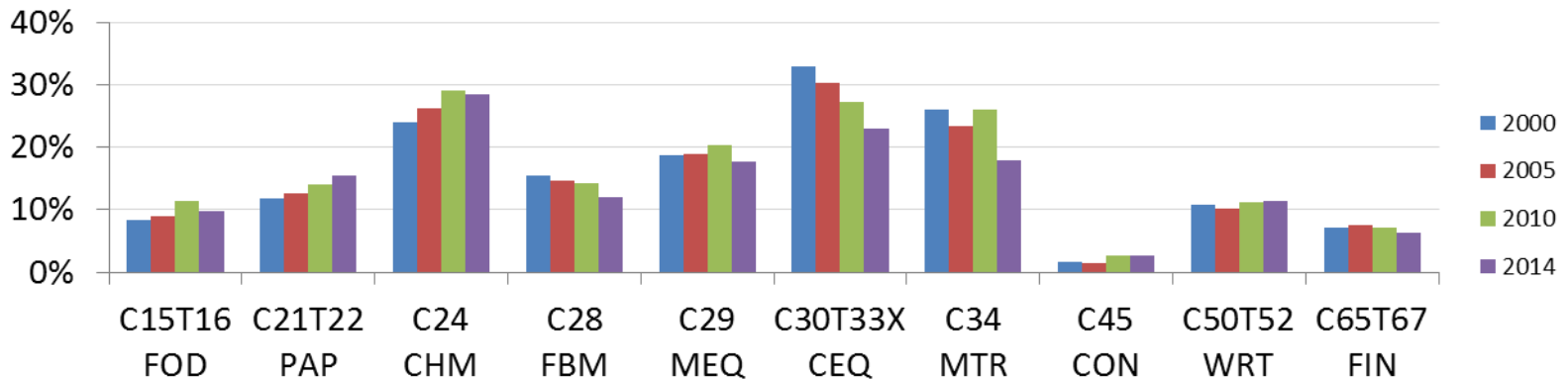




On Brexit

- **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



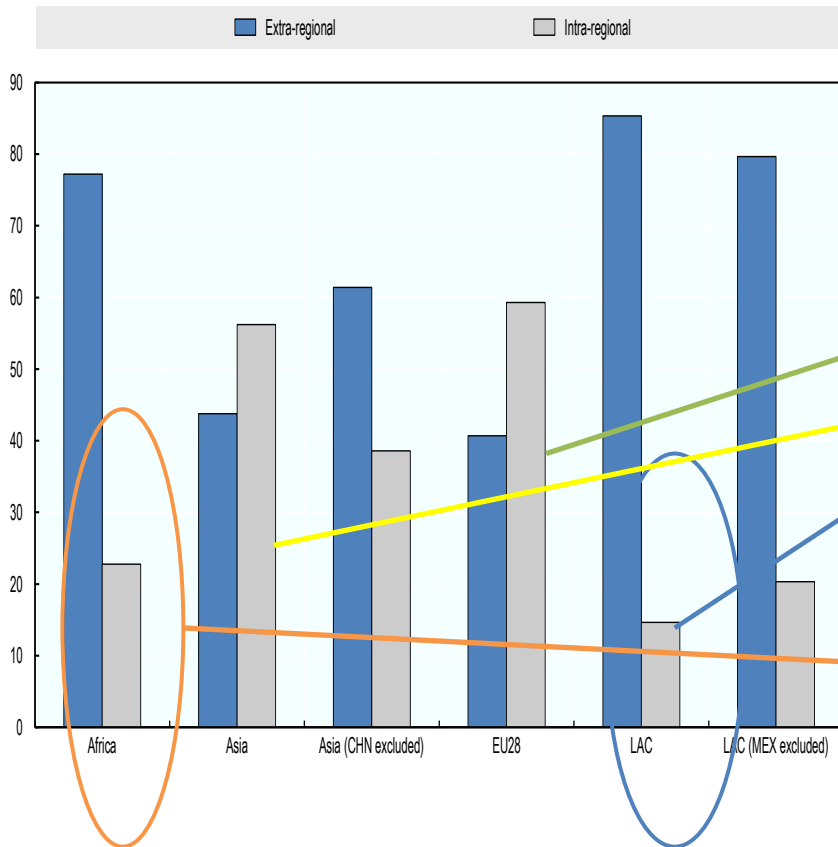
- **And an additional 2.5% (and rising) share of UK GDP is dependent on EU27 GVCs to supply non-EU markets**



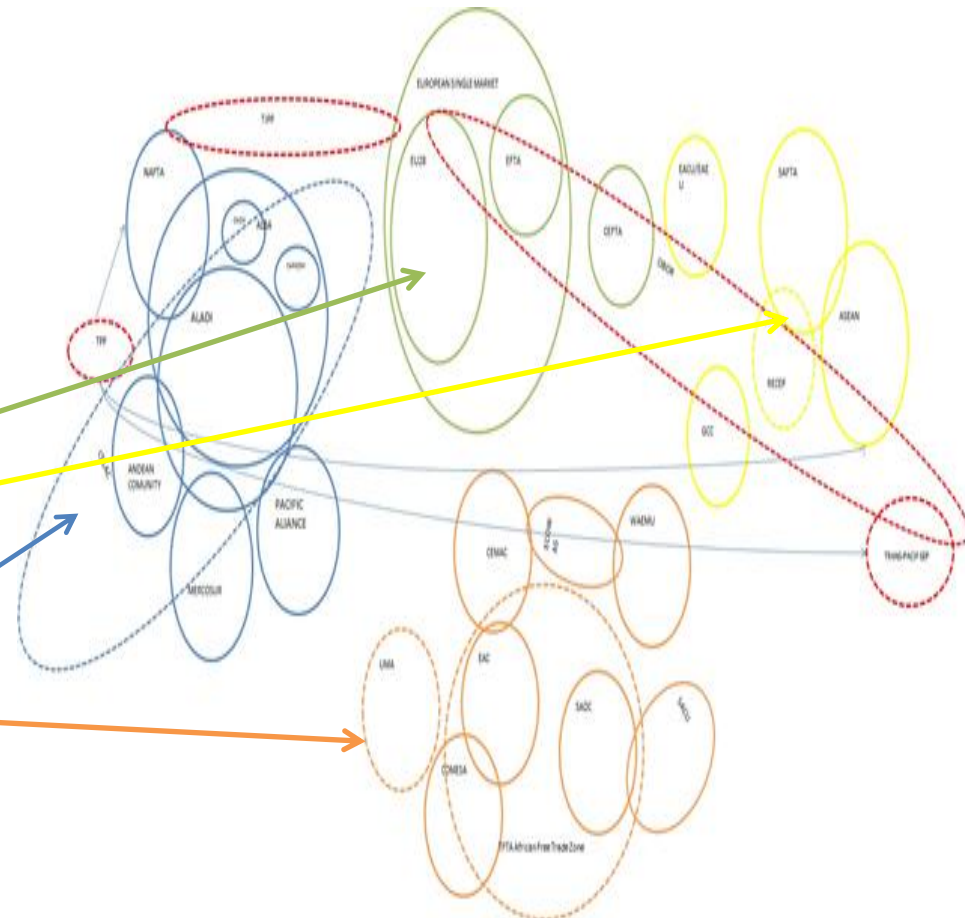


...insights elsewhere....

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



Regional and mega-regional agreements, 2016

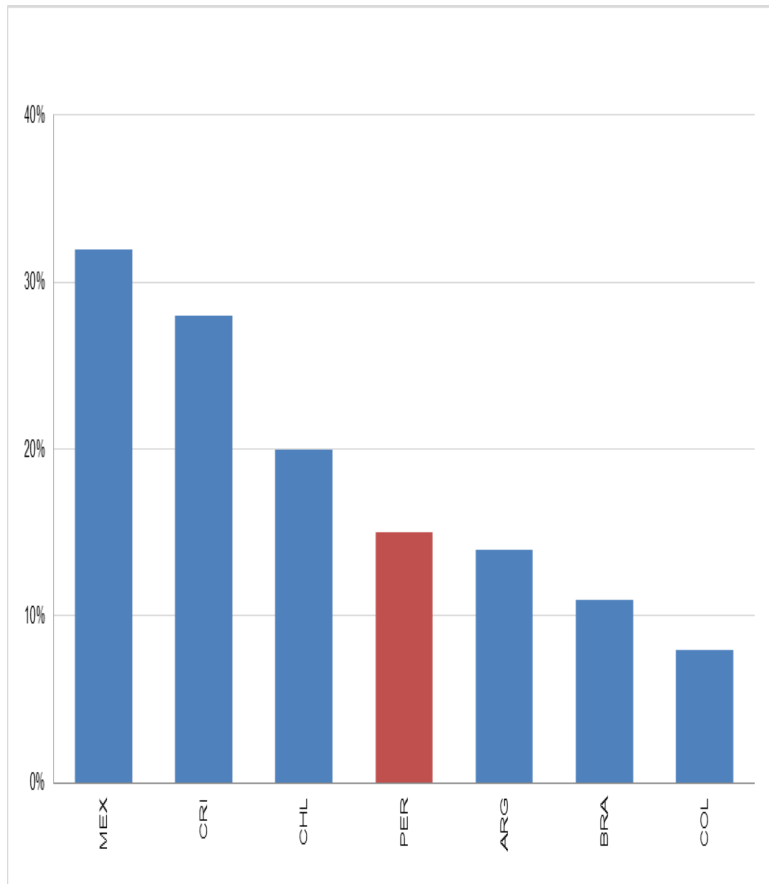




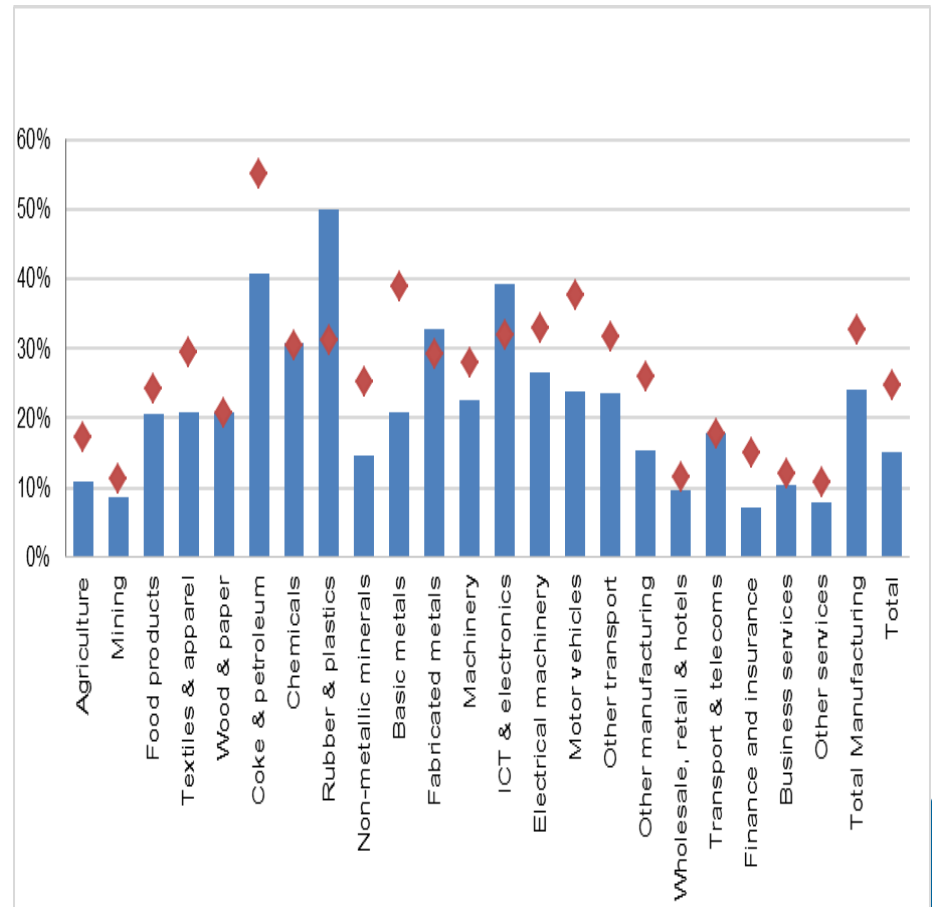
...which may be hampering integration...

Foreign value added content of gross exports 2011

By country



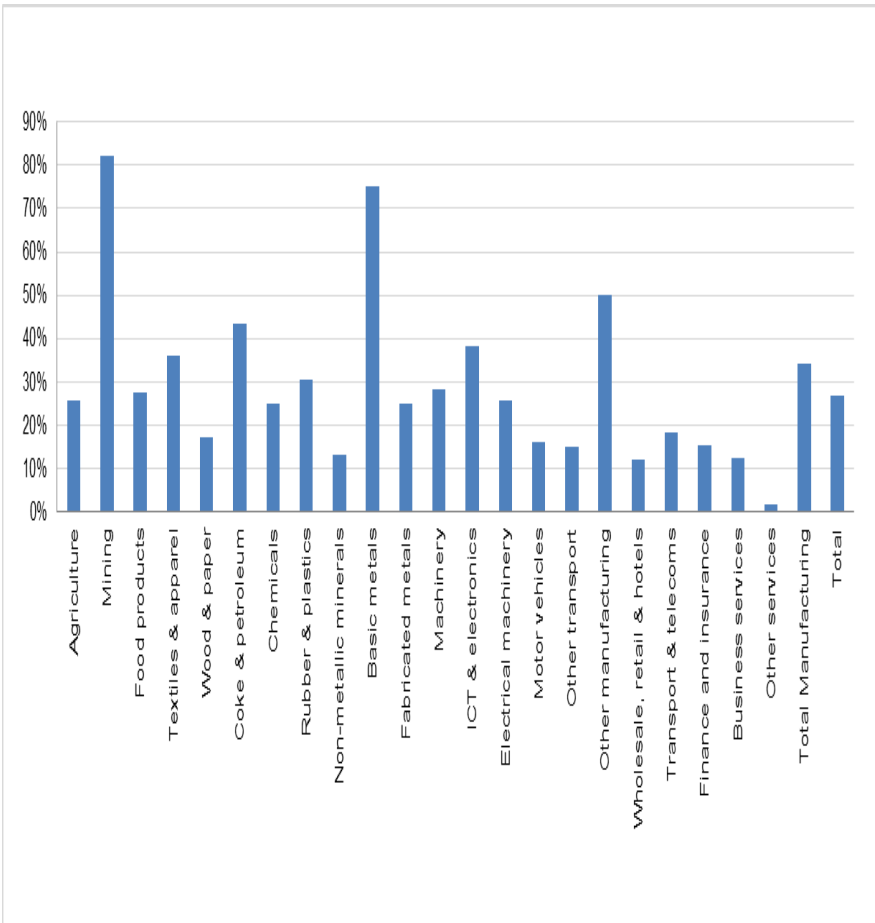
By industry, Peru (and OECD average – red dot)



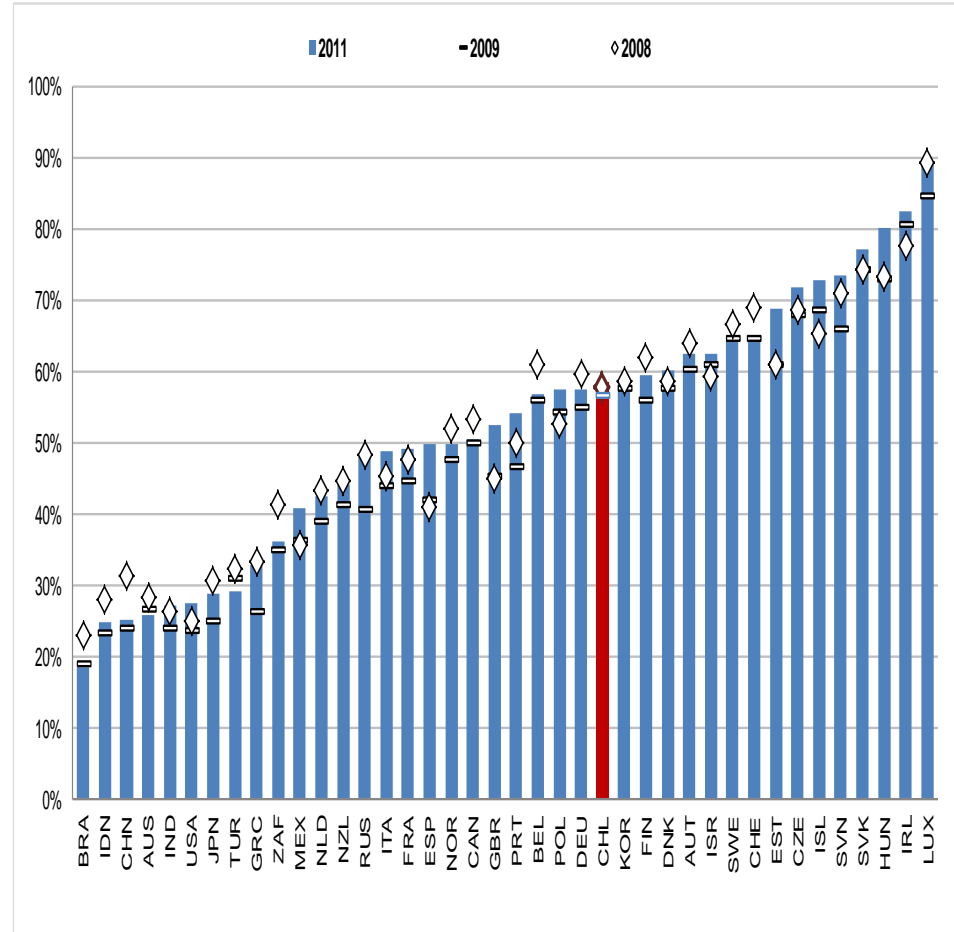


... with export orientation low outside of upstream sectors..

Peru's domestic value added in foreign final demand
percent of value added by industry, 2011



Domestic value added in manufacturing
percent of total value added in manufacturing 2011

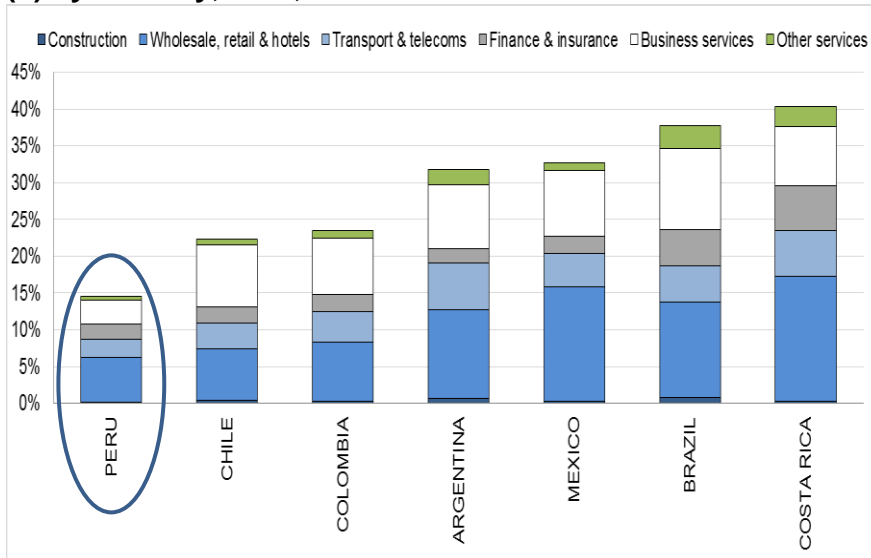




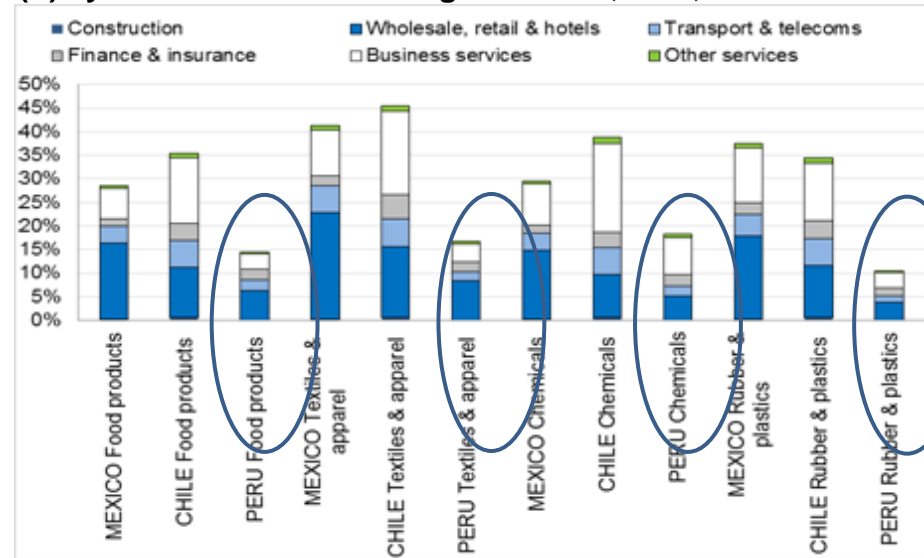
& a particularly low contribution from upstream service providers

Services value added embodied in gross exports in manufacturing

(a) by country, 2011, %



(b) by selected manufacturing industries, 2011, %





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, and ESCWA, AdB and WIOD.
- With continued push to improve quality and relevance.....



Moving forward with ECLAC/CEPAL

- 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
- **Would welcome inclusion of CEPAL region**
 - **OECD willing to engage in bilateral support programmes (as seen in Peru)**



FIND OUT MORE

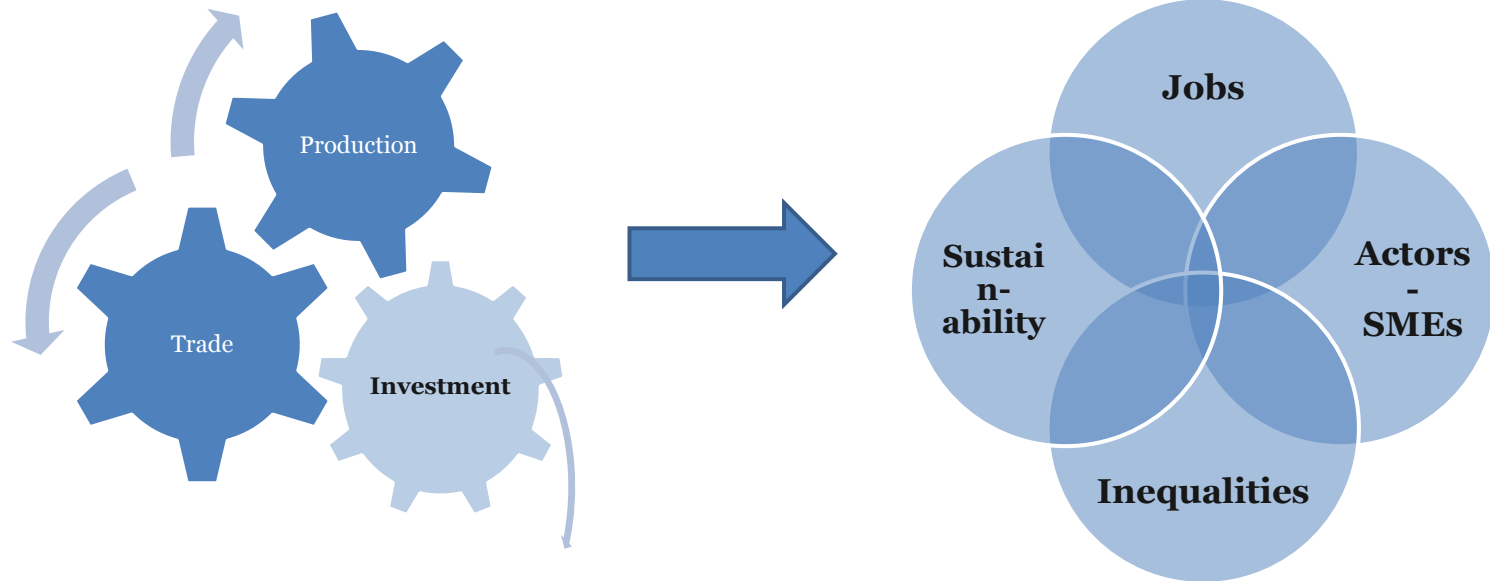
www.oecd.org/trade/valueadded

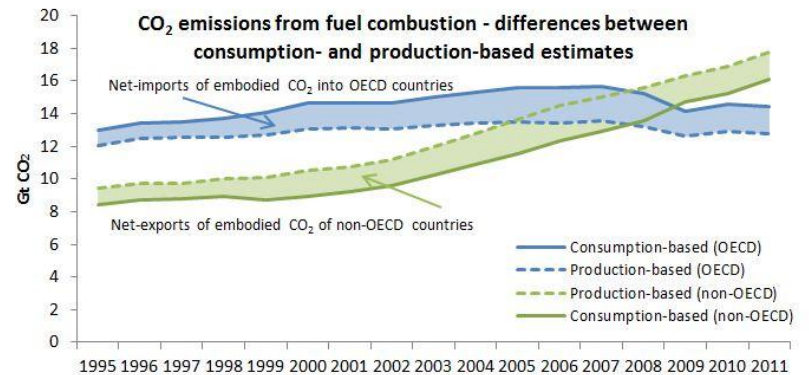
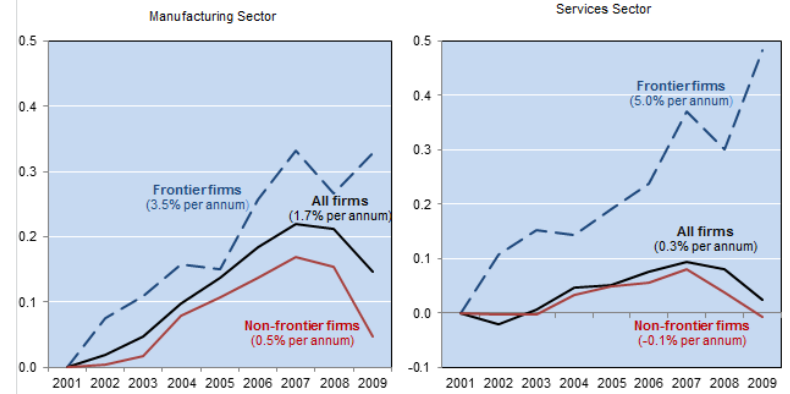
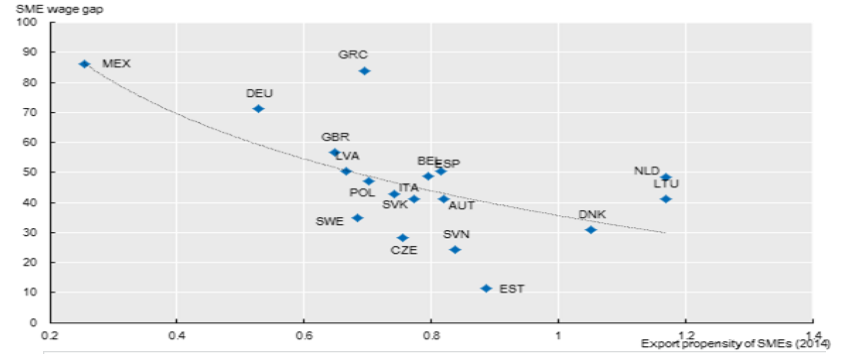
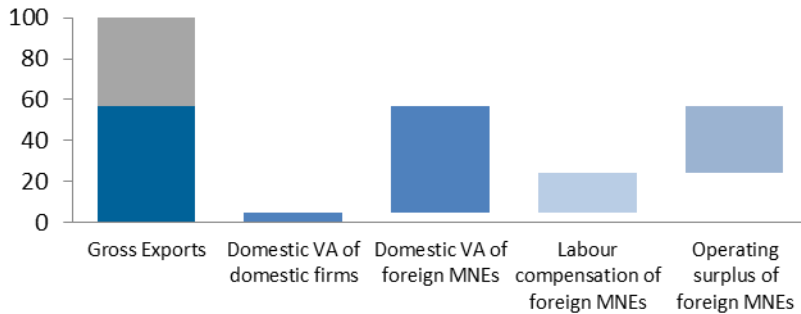
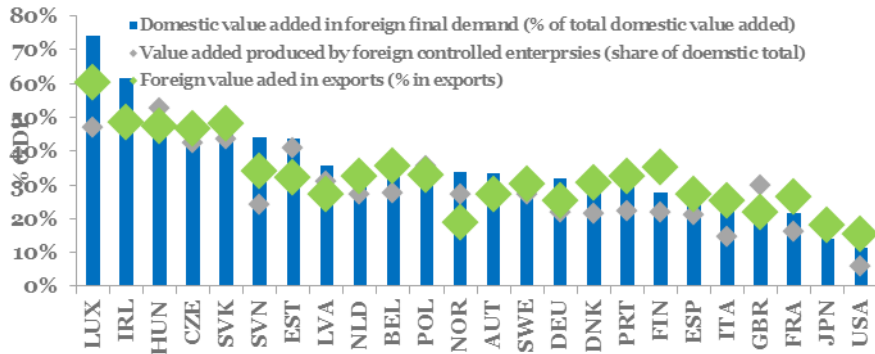




But.... TiVA is....

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







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
- Whilst...ideally...
 - also improving interpretability and quality of GDP and TiVA



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



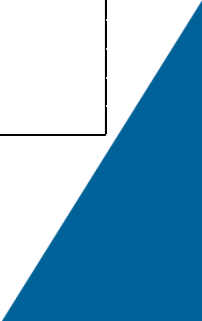
Four levels of extensions:

- **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)



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 ... Country/Region 3 Country/Region 2 Country/Region 1	Product 1														
	Product 2														
	Product ...														
	Product I														
	Product														
	Product M														
	Product 1														
	Product 2														
	Product ...														
	Product I														
	Product														
	Product M														
	Product 1														
	Product 2														
	Product ...														
Product I															
Product															
Product M															





Level 1++

Gross Fixed Capital Formation

Industry 1 Industry ... Industry N

Category 1 Category 2 Category 1 Category 2 Category 1 Category 2

Country/Region ...	Domestic	Gross Fixed Capital Formation						
		Industry 1	Industry ...	Industry N	Category 1	Category 2	Category 1	Category 2
Country/Region ...	Domestic	Product 1						
		Product 2						
		Product ...						
	Country/Region 1	Domestic	Product I					
			Product					
			Product M					
	Country/Region 2	Domestic	Product 1					
			Product 2					
			Product ...					
	Country/Region 2	Domestic	Product I					
			Product					
			Product M					
Country/Region ...	Domestic	Product 1						
		Product 2						
		Product ...						
Country/Region ...	Domestic	Product I						
		Product						
		Product M						

Net Capital Stock

Industry 1 Industry ... Industry N

Category 1 Category 2 Category 1 Category 2 Category 1 Category 2

Country/Region ...	Domestic	Net Capital Stock						
		Industry 1	Industry ...	Industry N	Category 1	Category 2	Category 1	Category 2
Country/Region ...	Domestic	Product 1						
		Product 2						
		Product ...						
	Country/Region 1	Domestic	Product I					
			Product					
			Product M					
	Country/Region 2	Domestic	Product 1					
			Product 2					
			Product ...					
	Country/Region 2	Domestic	Product I					
			Product					
			Product M					
Country/Region ...	Domestic	Product 1						
		Product 2						
		Product ...						
Country/Region ...	Domestic	Product I						
		Product						
		Product M						



Level 2

		Industry 1	Industry ...	Industry N	
		Category 1	Category 2	Category 1	Category 2
Resources	Property Income				
	Interest				
	Distributed Income of Corporations				
	Reinvested Earnings on FDI				
	Investment Income Disbursements				
Uses	Rent				
	Property Income				
	Interest				
	Distributed Income of Corporations				
	Reinvested Earnings on FDI				
Investment Income Disbursements					
From abroad	Rent				
	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)					
CO2 emissions					



Level 3

Product Product 1 ... M	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			
	1	2	1	2	1	2	1	2	1	2		
Category 1												
Category 2												
Category 1												
Category 2												
Category 1												
Category 2												
Total Output												

Product Product 1 ... M	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										
Category 1										
Category 2										
Value Added										
Output										
Of which: exports										
Property Income										
Interest										
Distributed Income of Corporations										
Reinvested Earnings on FDI										
Disbursements										
Rent										
Property Income										
Interest										
Distributed Income of Corporations										
Reinvested Earnings on FDI										
Disbursements										
Rent										
Property Income										
Interest										
Distributed Income of Corporations										
Reinvested Earnings on FDI										
Disbursements										
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)

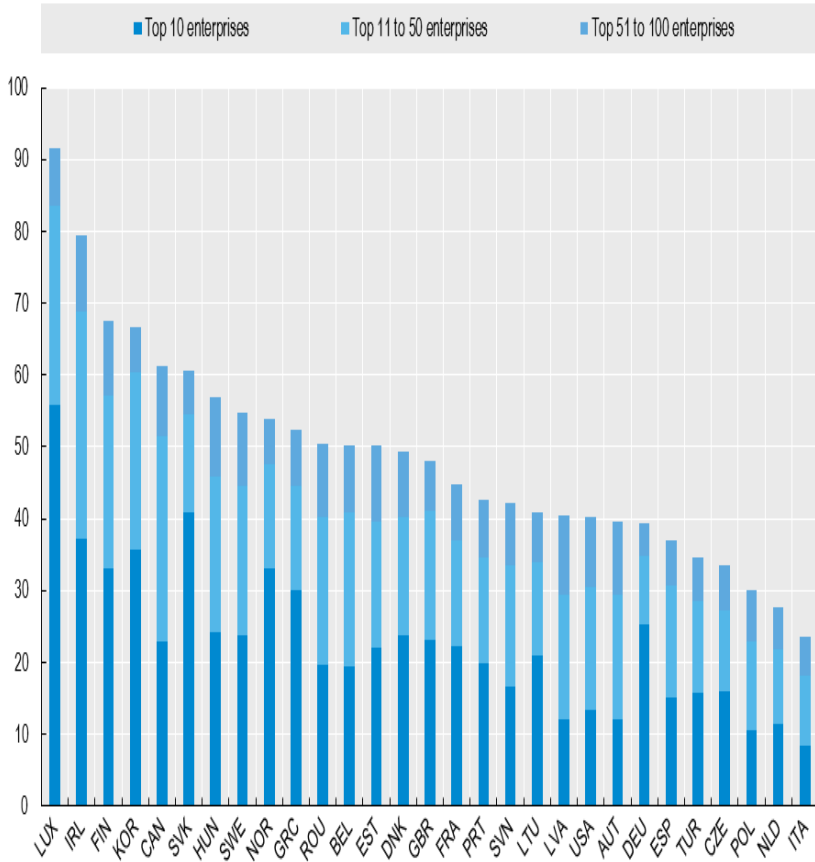
Level 1: >> Various approaches are feasible in many countries

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

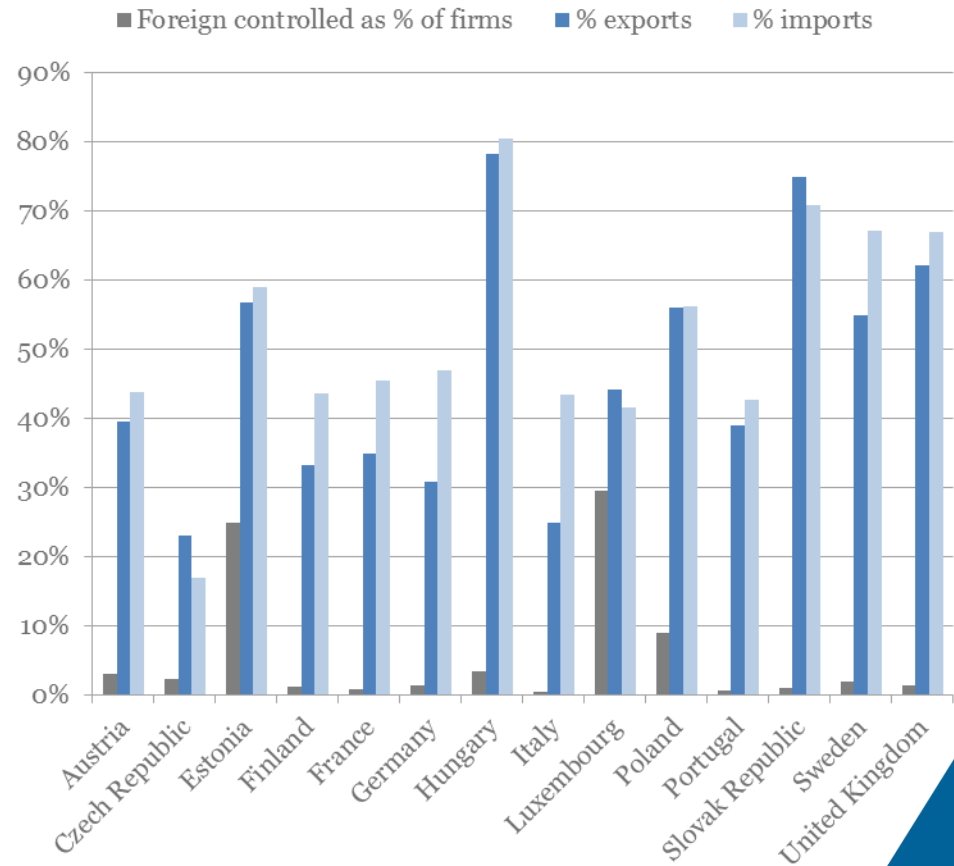


And many can be grateful for the few

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**



Level 2

- Still virgin territory at the national level:
 - But much can be done (especially with the ownership dimension)
 - OECD Trade and Investment Country Notes
 - OECD Trade in jobs, CO₂ emissions
 - WIOD > skills.

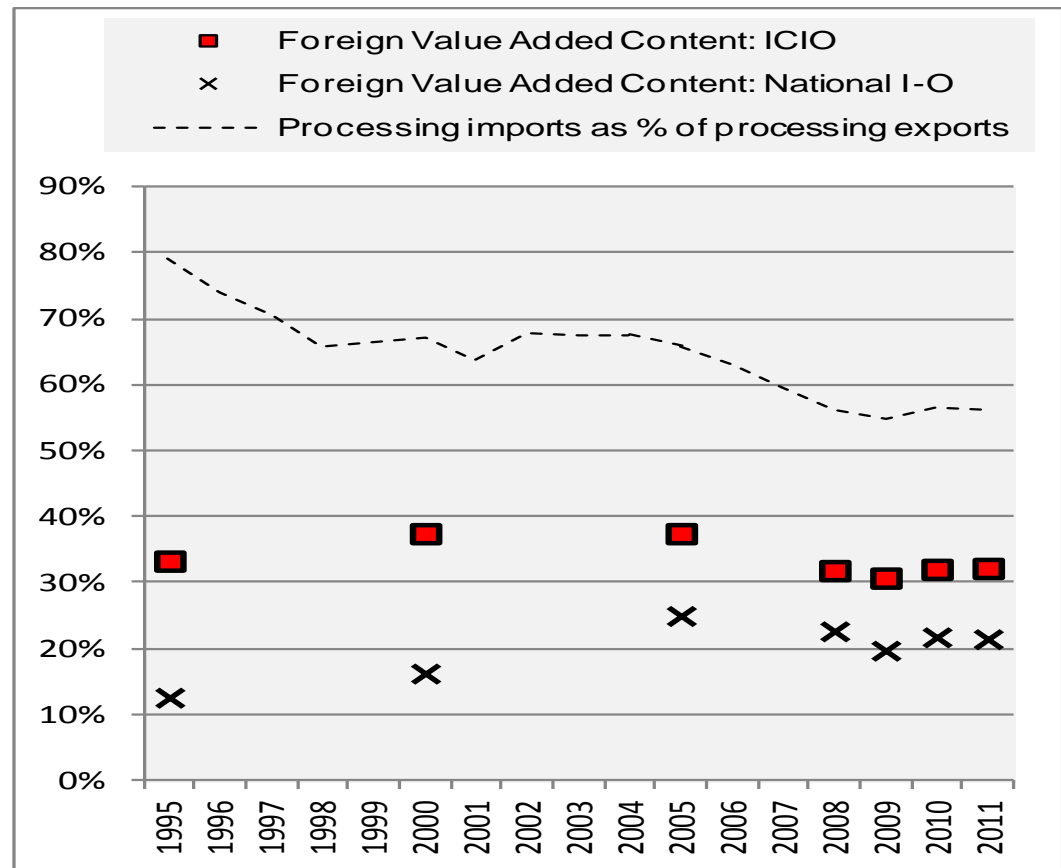


Level 3

- How far countries are able to go depends greatly on national information sets and approach taken in option 1:
 - Unless full firm-to-firm invoicing information is available (through e.g. VAT) data, some assumptions will be needed.
 - But these may not be so severe if the focus on heterogeneity is specific: e.g. strong export orientation (including MNE status), as by definition little of what this group produces will be sold on domestic markets
 - This was the approach adopted by China and Mexico in TiVA,

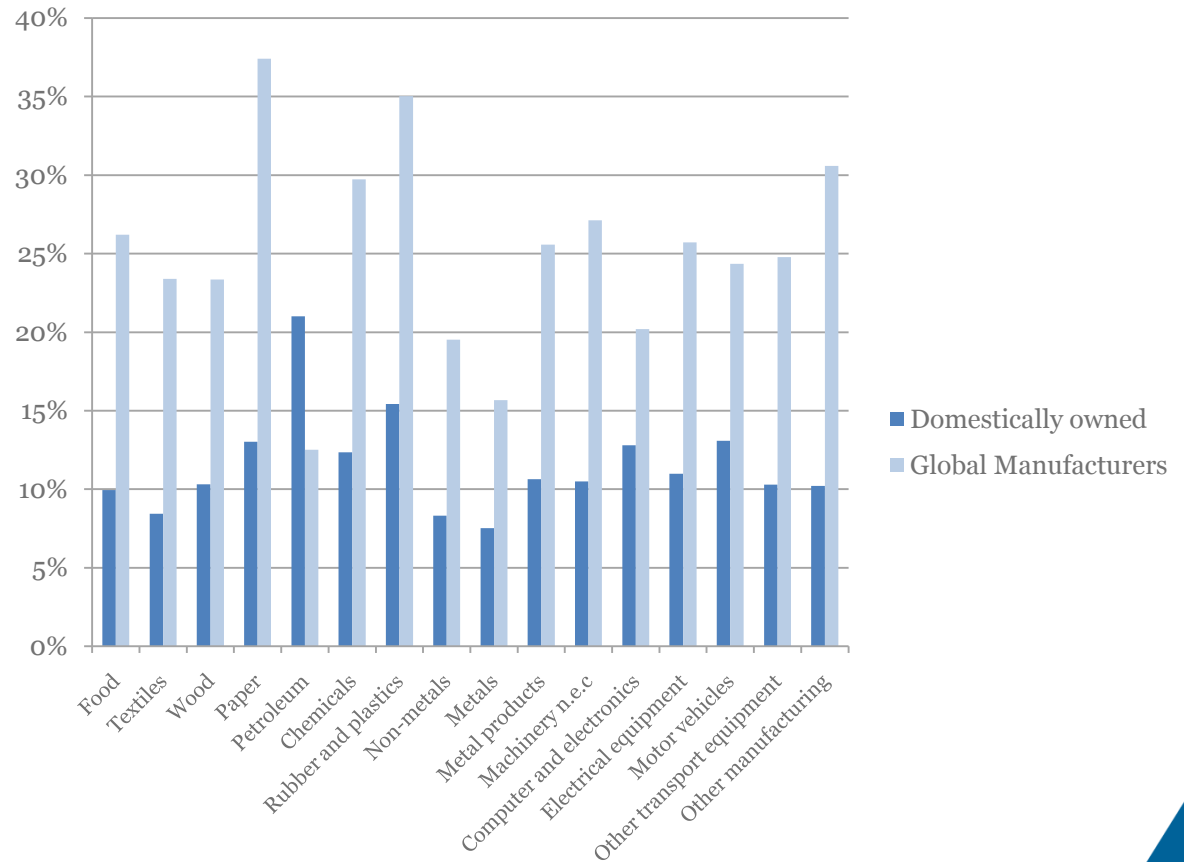
- *Processing firms*
 - *Non-processing exporters*
 - *Domestic-only firms*

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



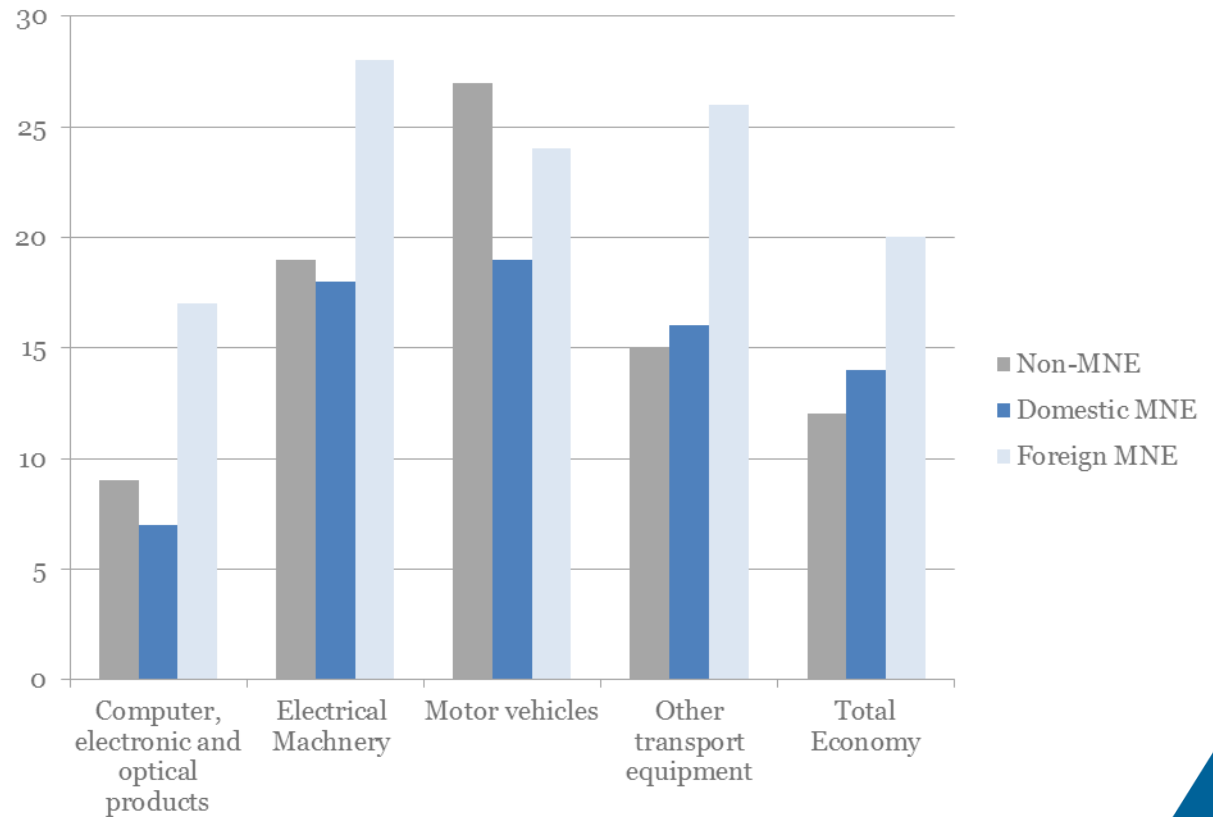
- Global manufacturers*

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



- Ownership

Foreign content of US exports, %, 2011 (selected industries)

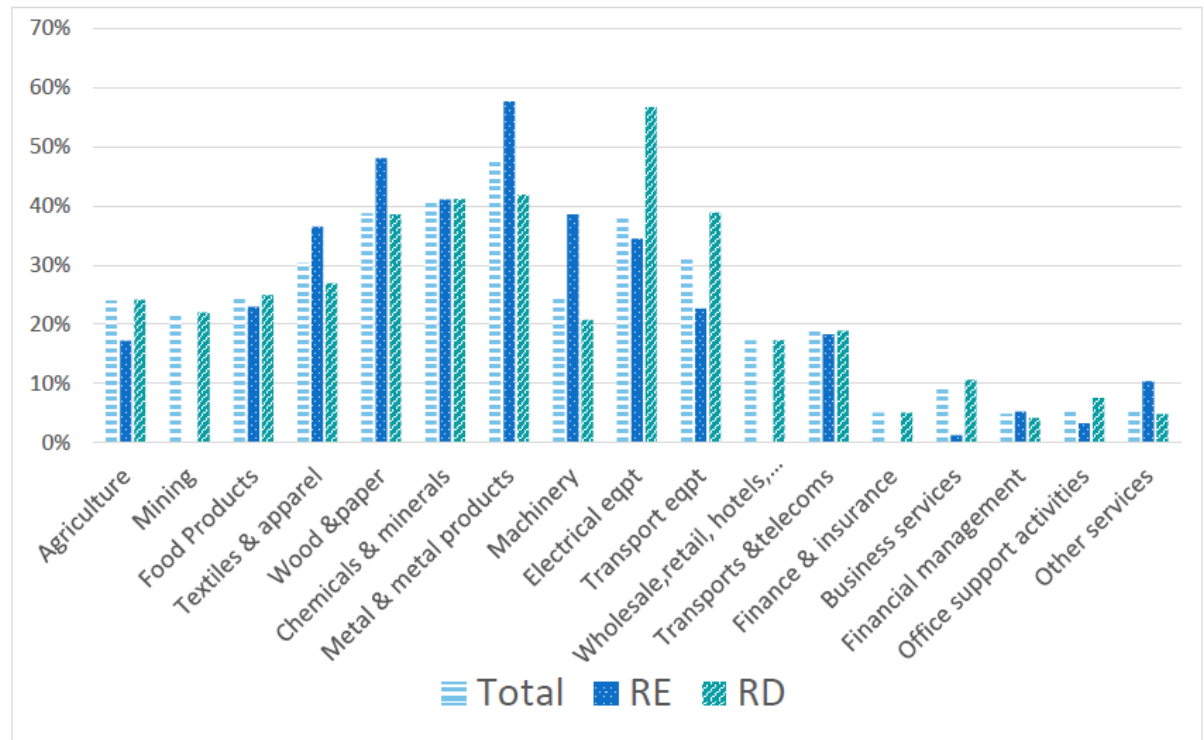




Costa Rica

- Exporter status*

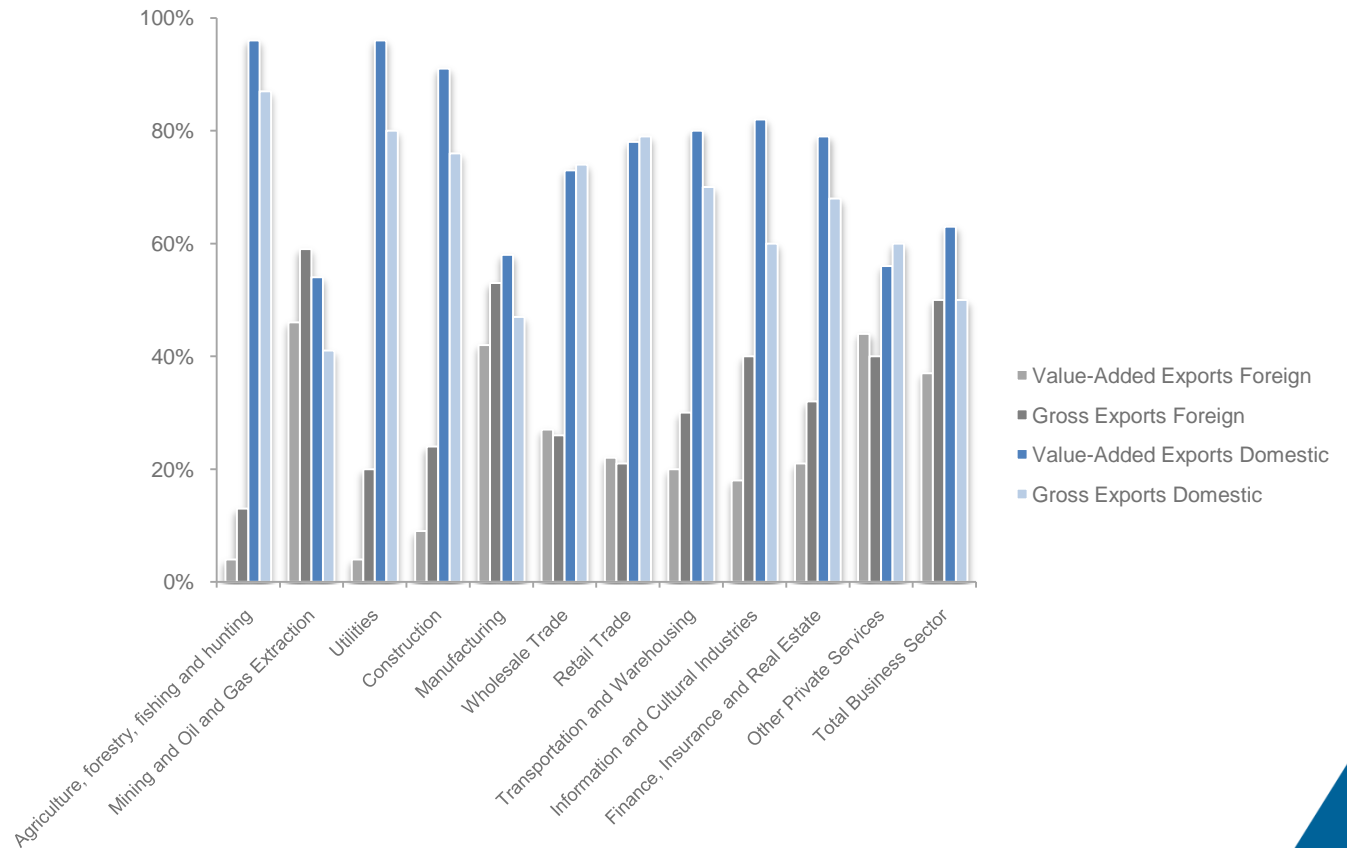
Foreign content of Costa Rica's exports, %, 2012



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

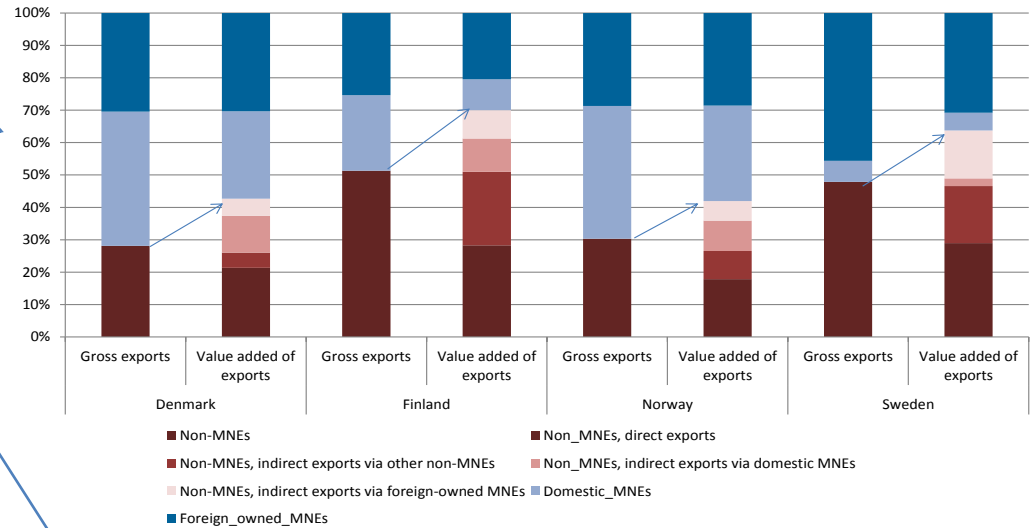
- Ownership status*

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

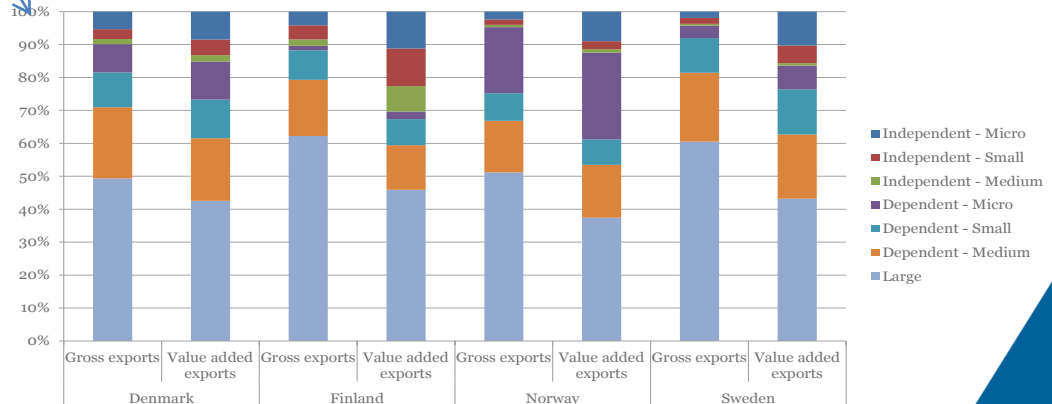
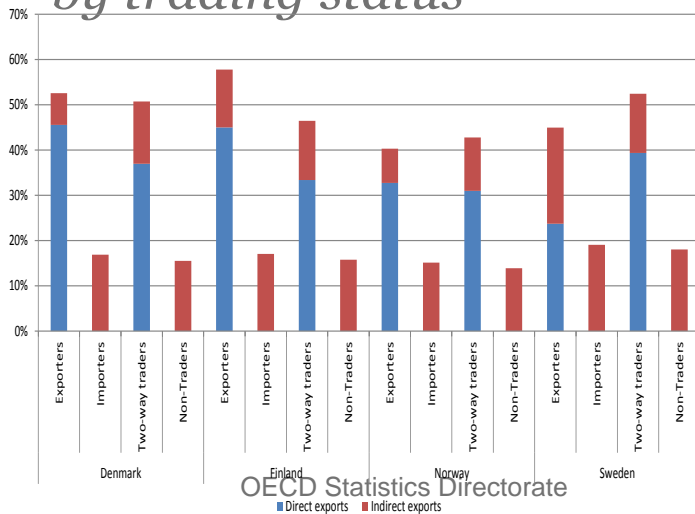




Exports (gross and value-added) by firm category



Jobs dependent on foreign final demand by trading status







- 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



ESUTS in CEPAL

- **Countries invited to express interest in joining the Expert Group**