



Extended Supply-Use Tables for Internationally Integrated Economic Accounts

GROUP OF EXPERTS ON NATIONAL ACCOUNTS

Geneva, May 2016

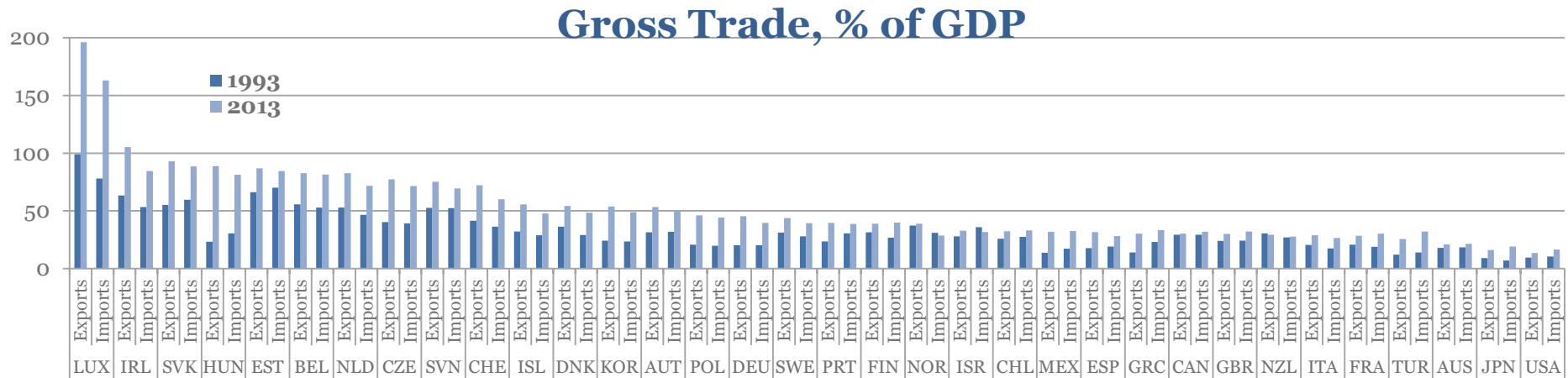
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What is TiVA and why is it useful?



- A response to the ‘distortion’ caused by international fragmentation of production

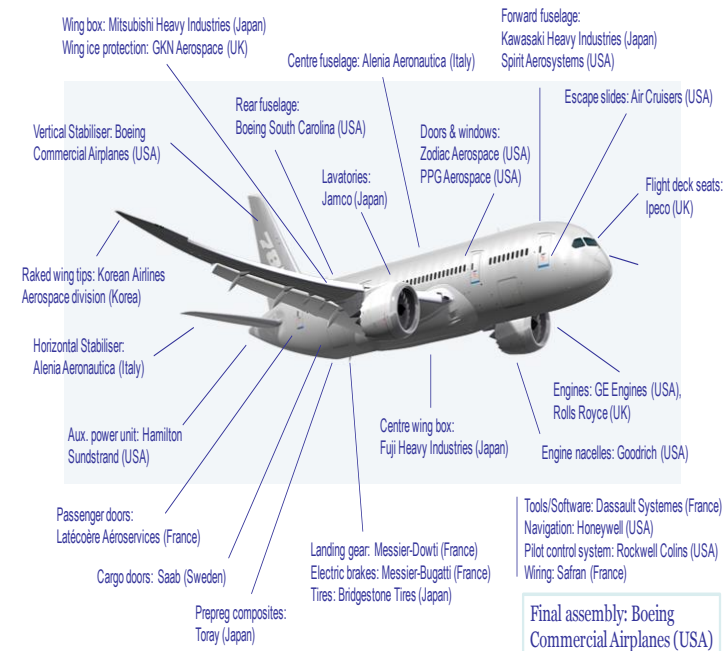


- ..that decomposes trade flows by the sources of value-added they embody



...blurring policy making

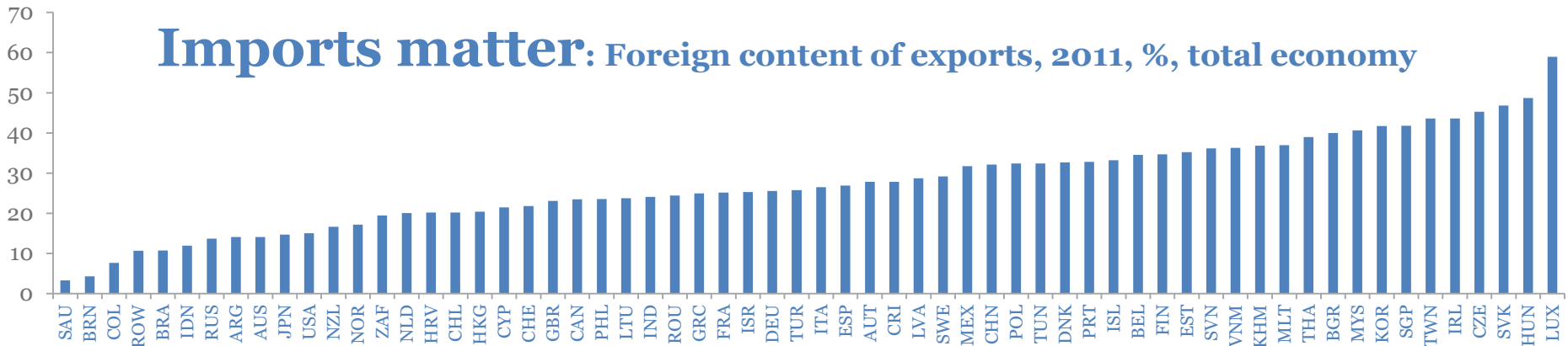
- Export driven growth strategies may target the wrong sectors
- Competitiveness:
- Bilateral trade positions: Protectionist policies can hurt domestic upstream industries and competitiveness
- Systemic risks - impact of macro-economic shocks on supply-chains
- Jobs, skills
- (lack of) integration of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



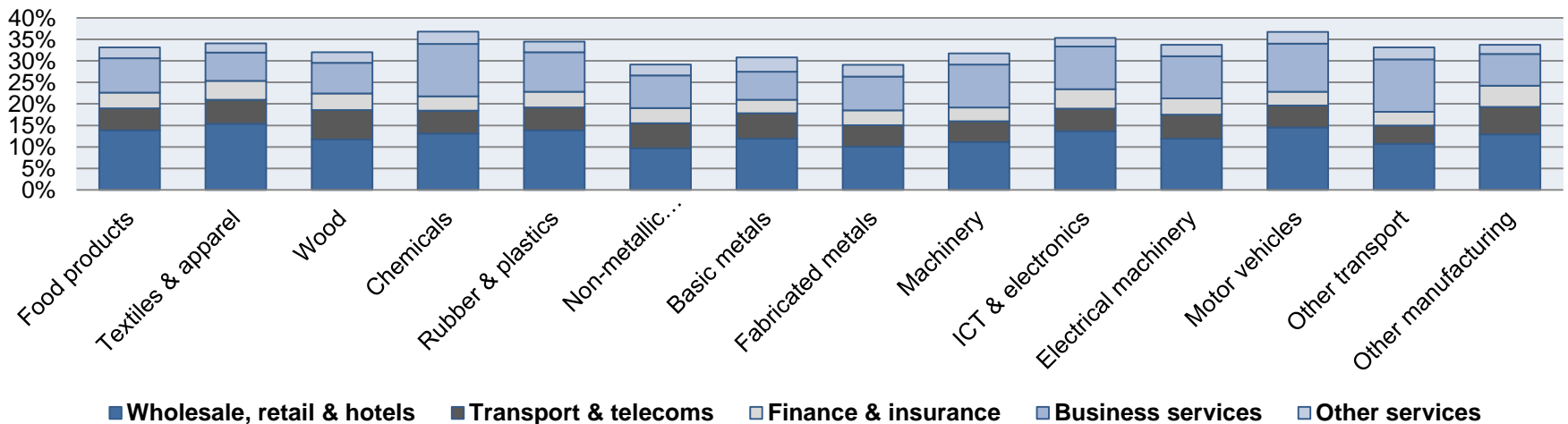


Providing new insights into GVCs..

Imports matter: Foreign content of exports, 2011, %, total economy



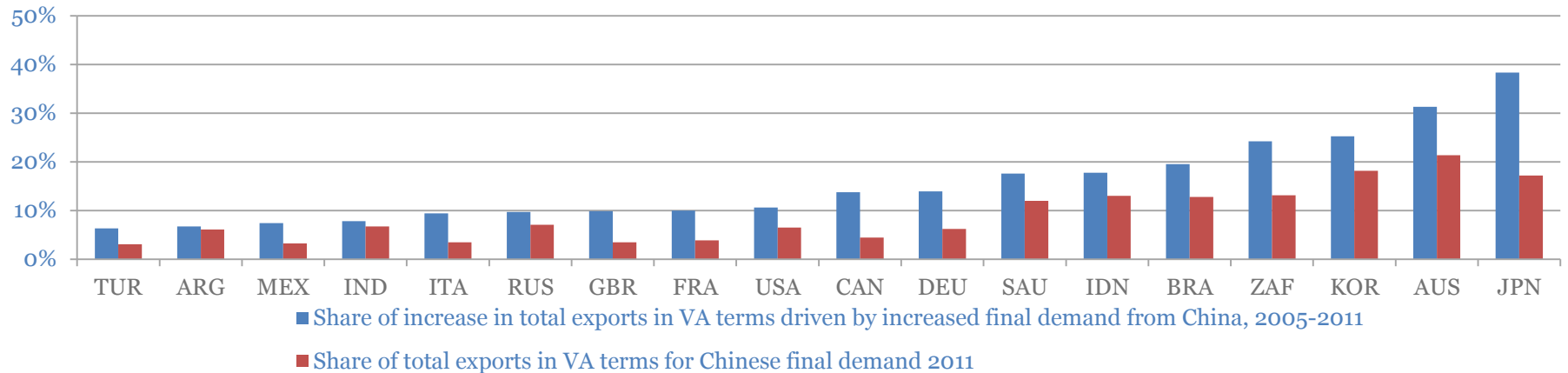
As do services: services content of manufacturing, all countries, 2011



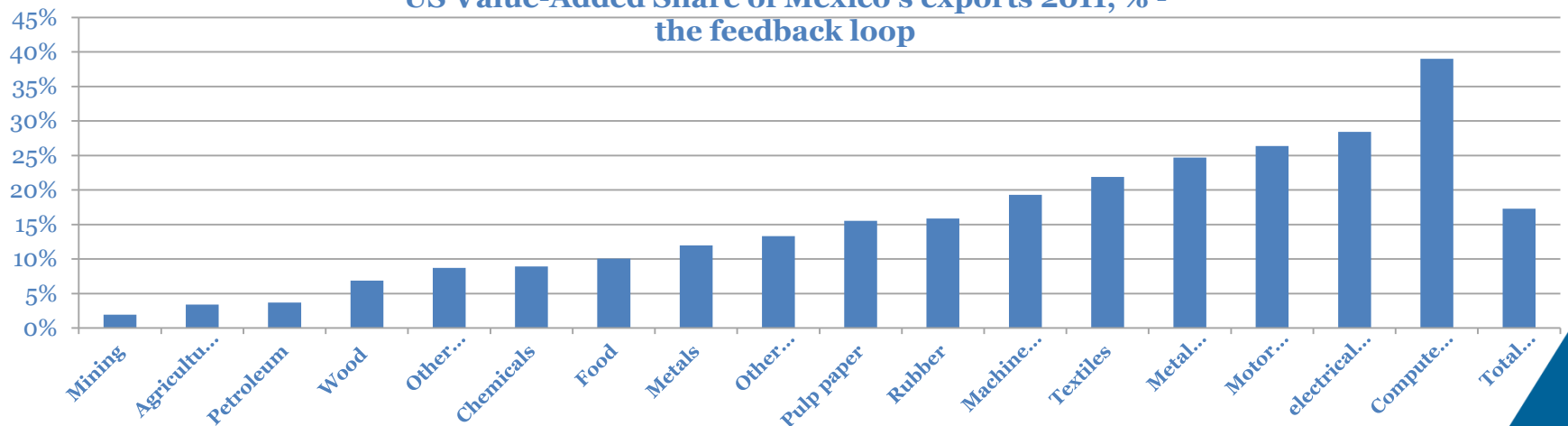


..and implications for policy making

Highlighting interconnectedness:
China's consumers have driven export growth in recent years... What impact will a slowdown have on OECD growth?



**US Value-Added Share of Mexico's exports 2011, % -
 the feedback loop**





Addressing misconceptions.....

- Despite its name TiVA is more than trade.
TiVA is in essence
 - a tool to decompose all production and consumption flows into their VA sources.
 - based on a global input-output table (and a global supply-use table).



An Inter-country I-O 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													
Cif-fob adjustments													
Value added	Labour compensation												
	Operating surplus												
	Taxes less subsidies on production												
Output													



National SU/I-O tables

Production linkage
Final expenditure
Income (Value-added)
Import procurement info

Bilateral Trade Database

by industry and end-use categories (intermediates, capital and consumption goods)



ICIO – Coverage - Countries

OECD	All OECD 34 countries
BRIICS	Brazil, China, India, Indonesia, Russian Federation, South Africa
Other EU28	Bulgaria, Croatia, Cyprus, Latvia, 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



ICIO – Industry List

IO Ind	ISIC Rev.3	Industry
1	01t05	Agriculture, hunting, forestry and fishing
2	10t14	Mining and quarrying
3	15t16	Food products, beverages and tobacco
4	17t19	Textiles, textile products, leather, footwear
5	20	Wood and products of wood and cork
6	21t22	Pulp, paper, paper products, printing and publishing
7	23	Coke, refined petroleum products, nuclear fuel
8	24	Chemicals and chemical products
9	25	Rubber and plastics products
10	26	Other non-metallic mineral products
11	27	Basic metals
12	28	Fabricated metal products except machinery and equipment
13	29	Machinery and equipment n.e.c
14	30,32t33	Computer, electronic and optical products
15	31	Electrical machinery and apparatus n.e.c
16	34	Motor vehicles, trailers and semi-trailers
17	35	Other transport equipment

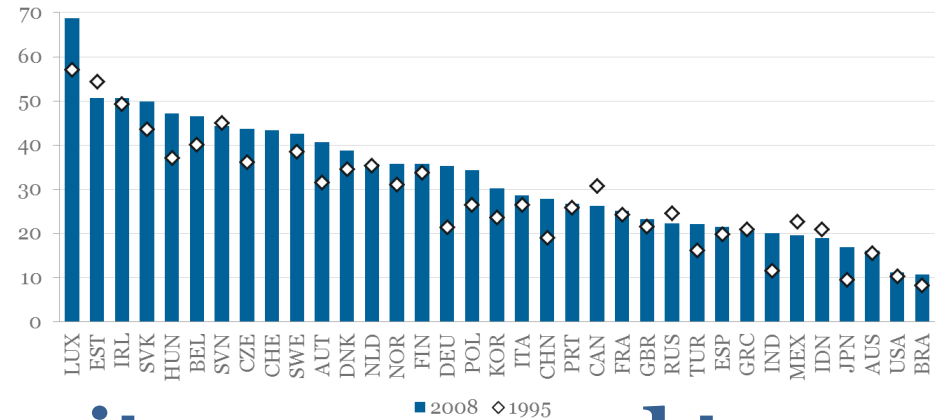
IO Ind	ISIC Rev.3	Industry
18	36t37	Manufacturing n.e.c; recycling
19	40t41	Electricity, gas and water supply
20	45	Construction
21	50t52	Wholesale and retail trade; repairs
22	55	Hotels and restaurants
23	60t63	Transport and storage
24	64	Post and telecommunications
25	65t67	Finance and insurance
26	70	Real estate activities
27	71	Renting of machinery and equipment
28	72	Computer and related activities
29	73t74	Other Business Activities (incl. R&D)
30	75	Public admin. & defence; compulsory social security
31	80	Education
32	85	Health and social work
33	90t93	Other community, social and personal services
34	95	Private households with employed persons



So TiVA ICIO can be used to respond to many other policy questions:

- Jobs and skills

Percentage of jobs in the private sector (ISIC Rev3 10-74) sustained by foreign final demand, 1995 and 2008



- Carbon footprints
- **But with extensions it can respond to others too.**
 - GVCs and investment
 - GVCs and SMEs
- Providing scope for improved and coherent accounts!



An Interconnected (Fragmented) World requires an Interconnected (Integrated) approach

- **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 response burdens
- **By capitalising on existing data sources**
 - FATS, SBS, TEC
- **To develop indicators that can respond to the globalisation agenda, and at the same time improve the quality of current TiVA estimates.**



Extended?

Foreign Owned						Domestically owned MNE						Domestic Owned					
With high Export orientation 'Exporters'			With low Export orientation 'Non-Exporters'			With high Export orientation 'Exporters'			With low Export orientation 'Non-Exporters'			With high Export orientation 'Exporters'			With low Export orientation 'Non-Exporters'		
Low import orientation	High import orientation		Low import orientation	High import orientation		Low import orientation	High import orientation		Low import orientation	High import orientation		Low import orientation	High import orientation		Low import orientation	High import orientation	
S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L



But a full breakdown isn't feasible nor necessary

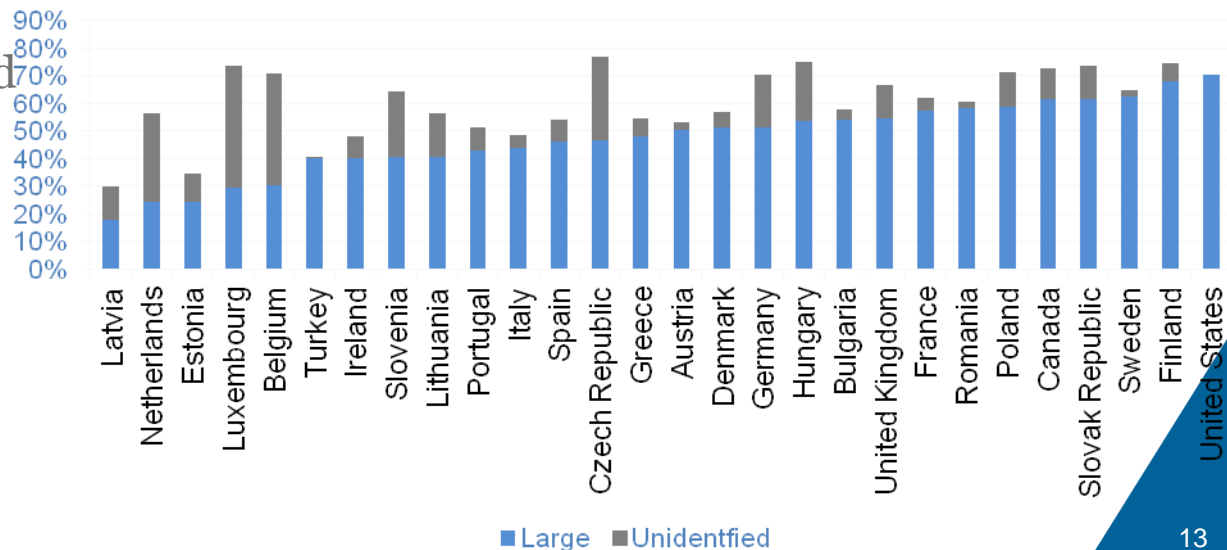
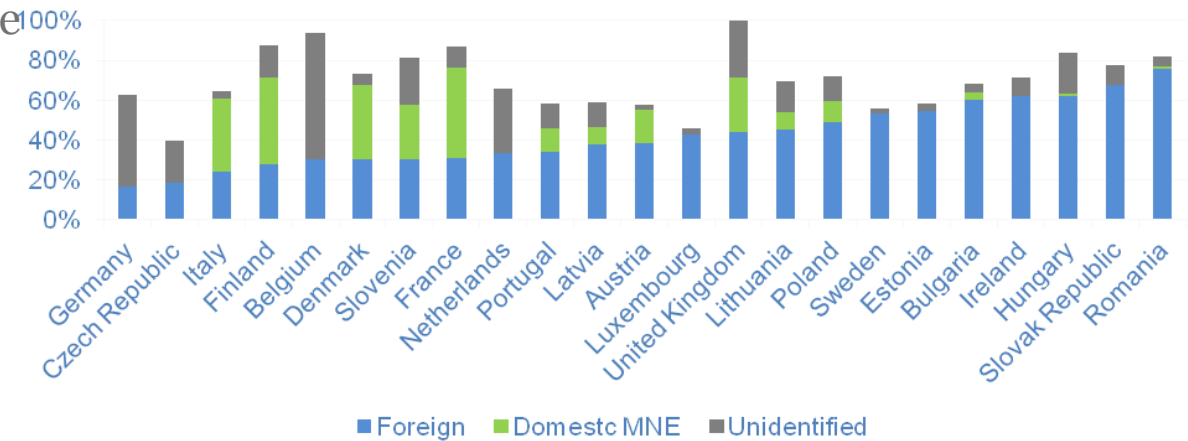
In many countries:

- Most imports and exports are from MNEs and large firms

- So focusing on either **size**, **ownership** or **exporting breakdowns** can address a large part of heterogeneity, including relating to import use (where other challenges also prevail).

And because most foreign and domestic MNEs are large, large foreign and large domestic MNEs may be sufficient?

Export shares





Supply and import flow – links to TEC

Reference Year	Year'															
ISIC Code equivalent	Product	Industry 1		Industry 2	Total domestic output of products at basic prices	Total imports: cif products (fob total)	memo item: imports at fob prices	of which residents expenditure abroad	of which reimports	Taxes and subsidies on products	of which taxes and subsidies on imports	Distribution margins				Total Supply at Purchasers prices
		Exporter	Non-Exporter	Exporter								Wholesale	Retail	Transport	Other	
Please insert ISIC equivalent code below																
	ISIC ?	Product (Industry) 1														
	ISIC ?	Product (Industry) 2														
cif/fob adjustment																
Total																

Reference Year	Year'	Imports - all transactions at FOB prices													
ISIC Code equivalent	Product	Industry 1		Industry 2		Total intermediate consumption	Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Non-residents expenditure	Re-exports	Total Imports
Please insert ISIC equivalent code below		Exporter	Non-Exporter	Exporter	Non-Exporter										
ISIC ?	Product (Industry) 1														
ISIC ?	Product (Industry) 2														
Total Imports															



Use (export focus) – purchasers prices

Reference Year	Year'	Domestic Use at Purchasers prices														
ISIC Code equivalent	Product	Industry 1		Industry 2		Total intermediate consumption	Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Exports	of which non-residents expenditure	of which re-exports	Total Demand at Purchasers prices
		Exporter	Non-Exporter	Exporter	Non-Exporter											
ISIC ?	Product (Industry) 1															
ISIC ?	Product (Industry) 2															
Total Imports																
Total Intermediate consumption at purchasers prices																
Gross Value added - Basic Prices																
Gross Operating surplus																
Mixed Income																
Compensation of Employees																
Other Taxes on Production																
Other subsidies on production																
Total Output at Basic Prices																
exports by product																
Primary product																
Other products																
Product (Industry) 1																
Product (Industry) 2																
own-account production of:																
software																
R&D																
other																



Use (export focus) – Basic prices

Reference Year	Year'	Domestic Use at Basic prices														
ISIC Code equivalent	Product	Industry 1	Industry 2	Total intermediate consumption	Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Exports	of which non-residents expenditure	of which re-exports	Total Demand		
Please insert ISIC equivalent code below		Exporter	Non-Exporter												Exporter	Non-Exporter
	ISIC ?	Product (Industry) 1														
	ISIC ?	Product (Industry) 2														
Total Imports																
Taxes and Subsidies on Products																
on imports																
on domestic transactions																
Gross Value added - Basic Prices																
Gross Operating surplus																
Mixed Income																
Compensation of Employees																
Other Taxes on Production																
Other subsidies on production																
Total Output:Basic Prices																
of which																
exports by product																
Primary product																
Other products																
Product (Industry) 1																
Product (Industry) 2																
own-account production of:																
software																
R&D																
other																



Use – Basic Prices (export focus) Stage 2

Reference Year	Year'	Domestic Use at Basic prices																		
ISIC Code equivalent	Product	Industry 1				Industry 2				Total intermediate consumption	Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Exports	of which non-residents expenditure	of which re-exports	Total Demand
Product	Product produced by:	Exporter	Non-Exporter	Exporter	Non-Exporter															
Product (Industry) 1	Exporter																			
	Non-Exporter																			
Product (Industry) 2	Exporter																			
	Non-Exporter																			
Imports																				
Taxes and Subsidies on Products																				
on imports																				
on domestic transactions																				
Gross Value added - Basic Prices																				
Gross Operating surplus																				
Mixed Income																				
Compensation of Employees																				
Other Taxes on Production																				
Other subsidies on production																				
Total Output:Basic Prices																				
of which																				
own-account production of:																				
software																				
R&D																				
other																				



Reference Year	Year	Domestic use at purchasers prices																
ISIC Code equivalent	Product	Industry 1			Industry 2			Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Exports	of which non-residents expenditure	of which re-exports	of which intra-firm exports	Total Demand at Purchasers prices
Please insert ISIC equivalent code below		Foreign	Domestic MNE	Domestic ally owned	Foreign	Domestic MNE	Domestic ally owned											
ISIC ?	Product (Industry) 1																	
ISIC ?	Product (Industry) 2																	
Total Imports																		
Total Intermediate consumption at purchasers prices																		
Gross Value added - Basic Prices																		
Gross Operating surplus																		
Mixed Income																		
Compensation of Employees																		
Other Taxes on Production																		
Other subsidies on production																		
Total Output at Basic Prices																		
exports by product																		
Primary product																		
Other products																		
Product (Industry) 1																		
Product (Industry) 2																		
own-account production of:																		
software																		
R&D																		
other																		



	Industry 1				Industry 2			
	Foreign		Domestic		Foreign		Domestic	
	Exporter	Non-Exporter	Exporter	Non-Exporter	Exporter	Non-Exporter	Exporter	Non-Exporter
Property income payments - to abroad								
<i>of which</i>								
<i>Interest</i>								
<i>Distributed Income of Corporations</i>								
<i>Reinvested Earnings on FDI</i>								
<i>Investment Income Disbursements</i>								
Property Income payments - to abroad								
<i>of which</i>								
<i>Interest</i>								
<i>Distributed Income of Corporations</i>								
<i>Reinvested Earnings on FDI</i>								
<i>Investment Income Disbursements</i>								
Current taxes on income and wealth								
Employment								
Employees								
Hours worked								
Co2 emissions								

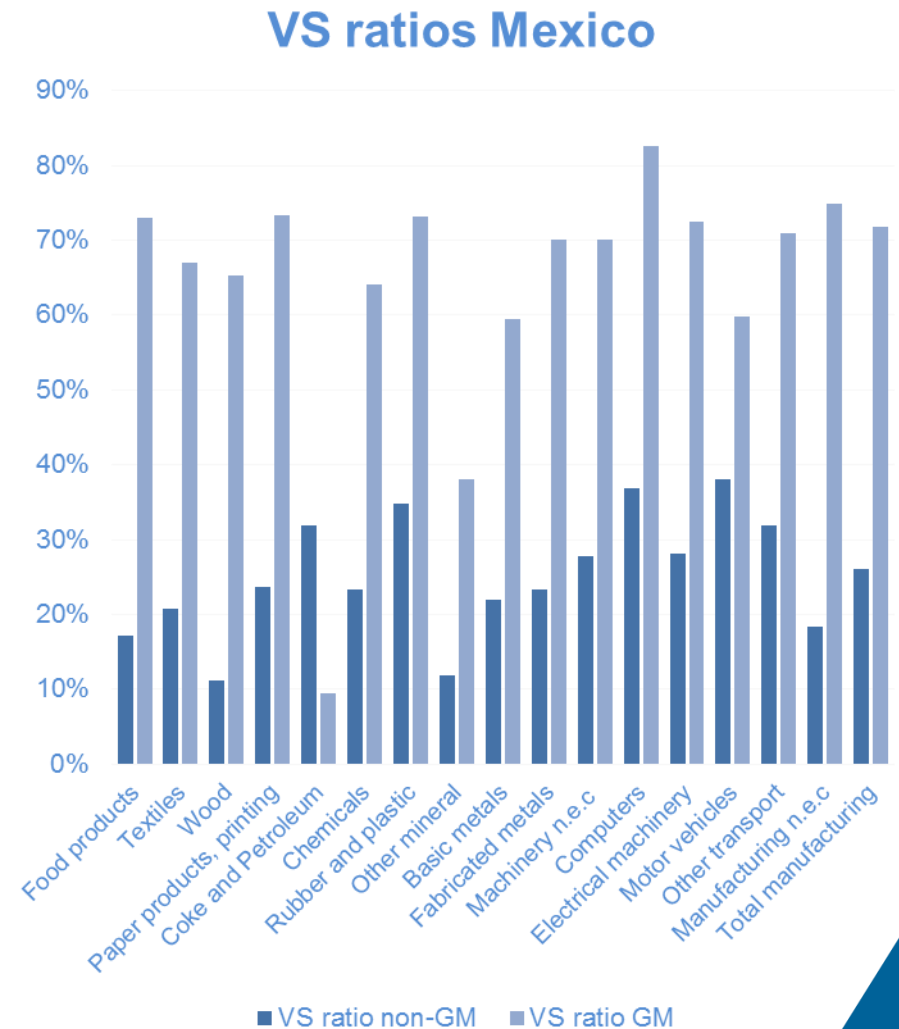
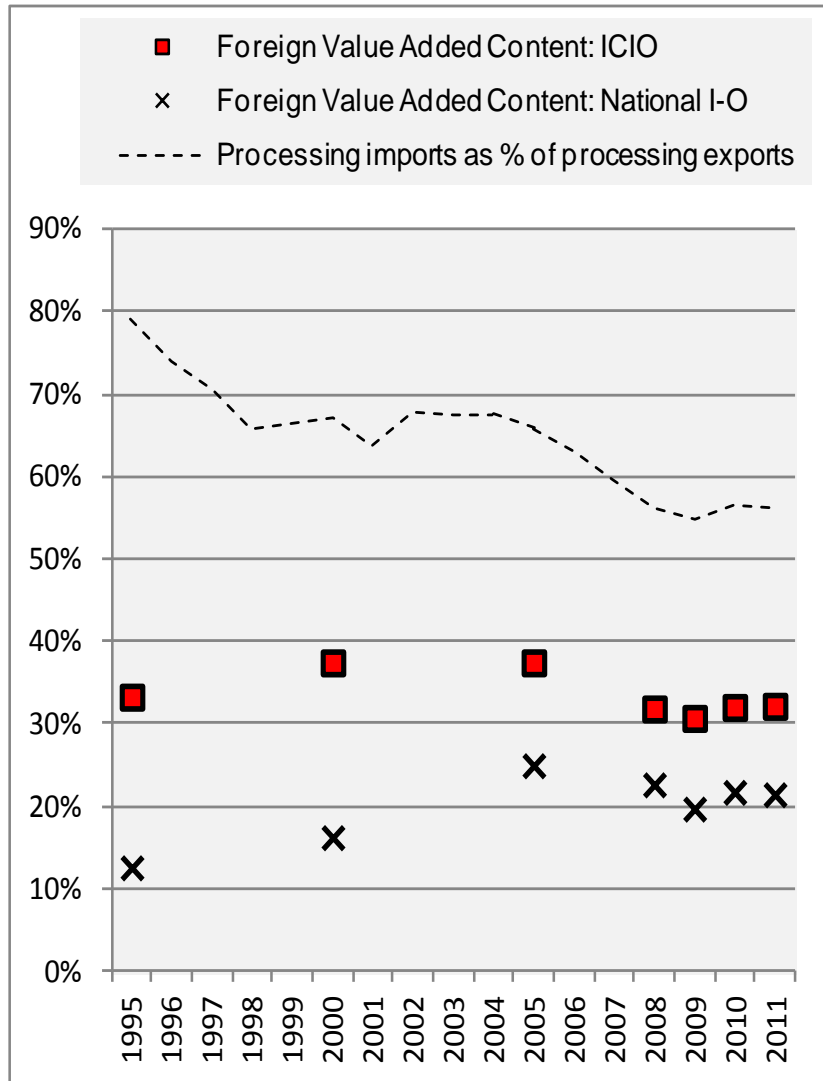


Reference Year	Year	Domestic use at purchasers prices																
ISIC Code equivalent	Product	Industry 1			Industry 2			Household final consumption	NPISH	GGFC	GFCF	Valuables	Changes in Inventories	Exports	of which non-residents expenditure	of which re-exports	of which intra-firm exports	Total Demand at Purchasers prices
Please insert ISIC equivalent code below		Foreign	Domestic MNE	Domestic ally owned	Foreign	Domestic MNE	Domestic ally owned											
ISIC ?	Product (Industry) 1																	
ISIC ?	Product (Industry) 2																	
Total Imports																		
Total Intermediate consumption at purchasers prices																		
Gross Value added - Basic Prices																		
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Primary product																		
Other products																		
Product (Industry) 1																		
Product (Industry) 2																		
own-account production of:																		
software																		
R&D																		
other																		



Does heterogeneity matter?

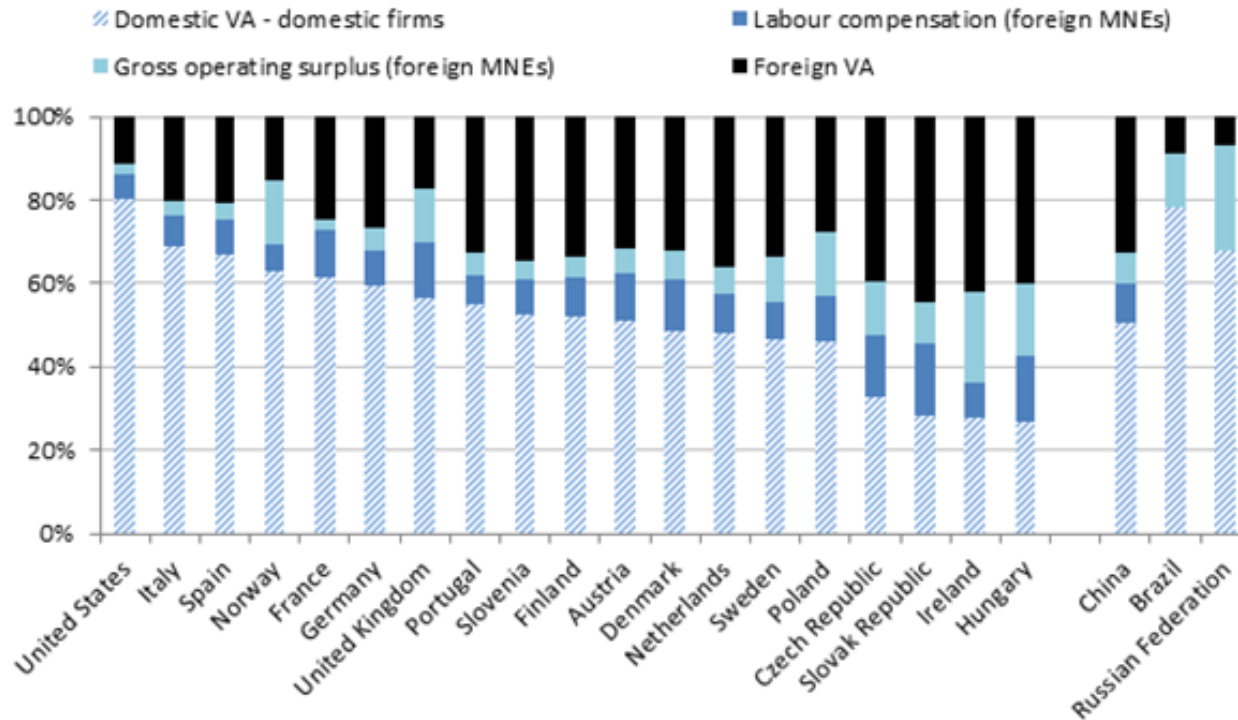
Yes, for quality of TiVA





Yes for policy – not all VA sticks.

The contribution of foreign affiliates to domestic value added in exports, 2009.

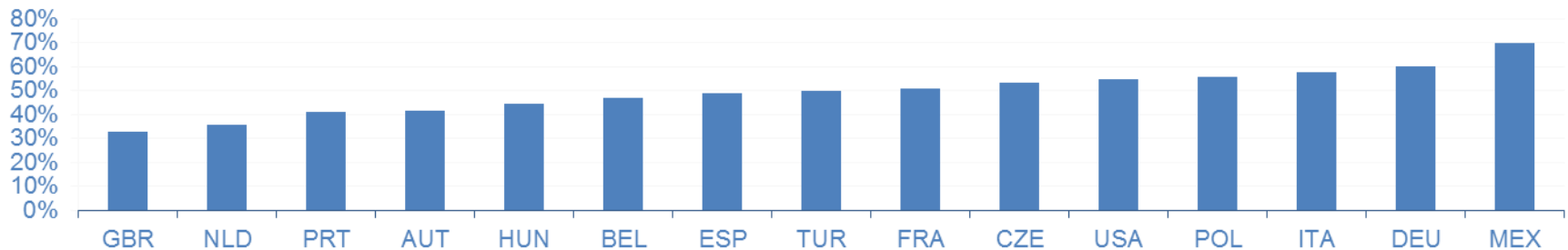


And trade between affiliates is not always recorded consistently - services and income flows are becoming increasingly blurred.

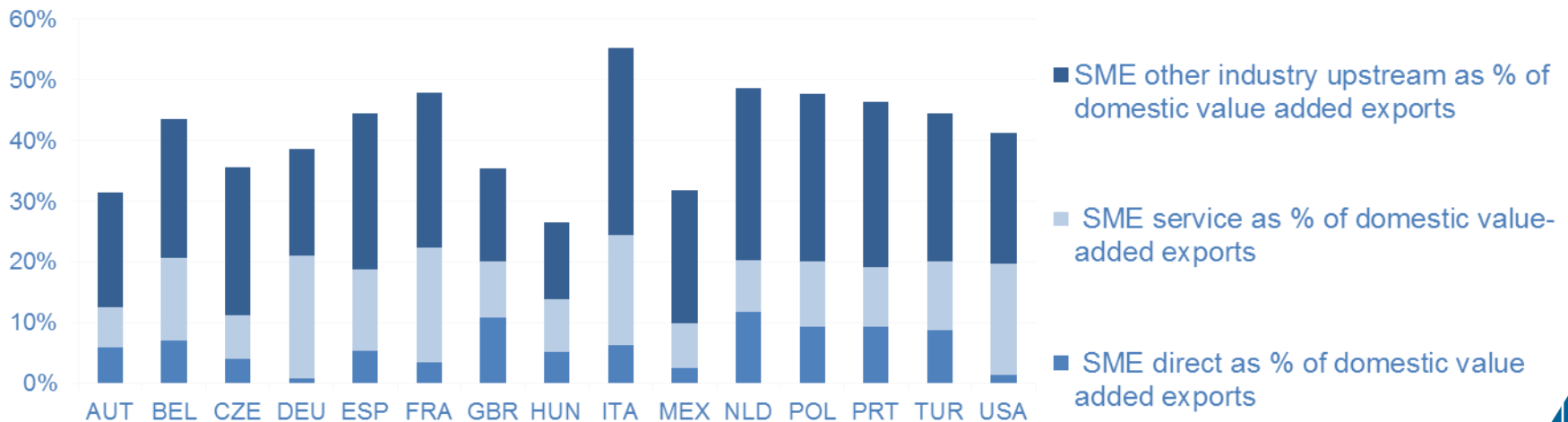


And yes for policy

Upstream exports of SMES via large firms, share of total exports of Value-Added by SMEs
2009



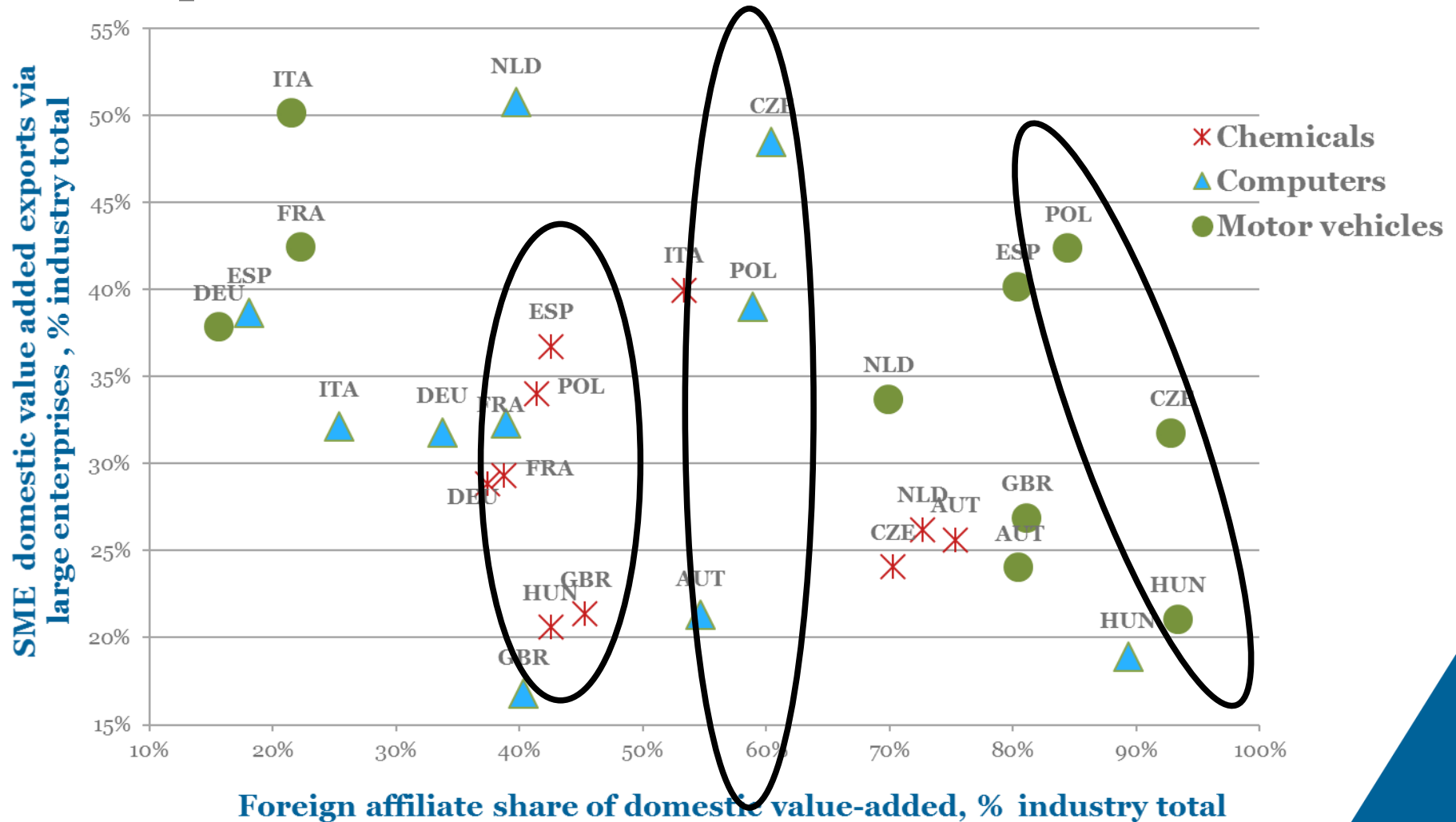
SME share of total domestic value added of exports of transport eqpt, 2009





Full integration provides a powerful tool

SME upstream value-added and MNEs, 2009





- Provide scope for improved integrated economic accounts - that respond to the global production-trade-investment 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
 - IPP intra-firm transactions



Additional implications of Extended tables

- Highlight potential need to review the way we stratify firms in surveys and identify them in registers – size and industry ‘may’ no longer be sufficient.
- Enterprise or establishment? Which unit?



Extensions to the extensions

- Work is on-going to develop national ‘investment flow’ matrices that can be integrated with ICIO to provide deeper insights into the contribution of capital exporting countries within GVCs and capital stock estimates for MFP by industry.



What are we doing?

- EGE_{ExSUTs} – around 15 countries exploring feasibility
- Expanding the ICIO – mainstreaming the initiative with regional partners
- Developing methods and tools to deliver single internationally recognised estimates of bilateral and coherent trade statistics