Measuring Trade in Value Added, and Beyond

Friends of Chair Group on Internationalization
6-8 November 2013, New York

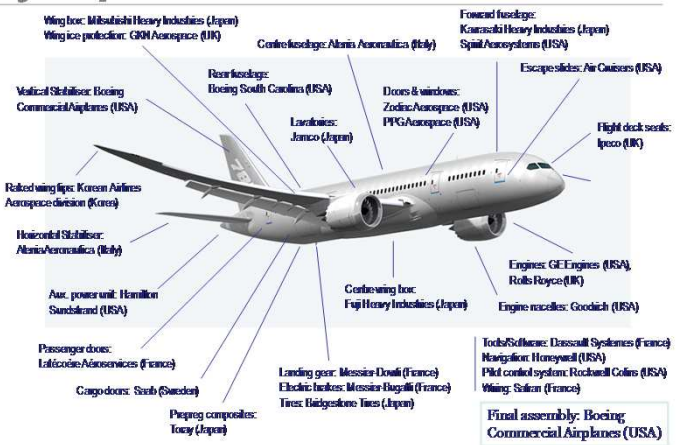
nadim.ahmad@oecd.org

OECD
BETTER POLICIES FOR BETTER LIVES

1: THE SECOND UNBUNDLING: GLOBAL VALUE CHAINS

2

The rise of GVCs: apparel, cars, toys, planes, electronics…



Source: Rivoli (2005), WTO (1998), Feenstra (1998), www.newairplane.com, Linden et al. (2009)

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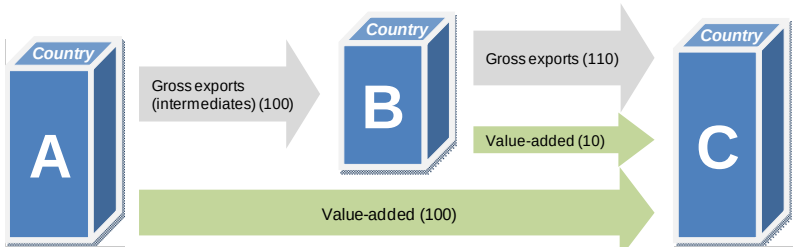
2: THE FOG – THE POTENTIAL FOR MISLEADING POLICIES

4

So…

Gross trade statistics increasingly 'multiple count' flows in intermediates as the production process develops over several countries…



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……

…meaning that gross trade statistics may create 'misleading perceptions' and imperfect policies

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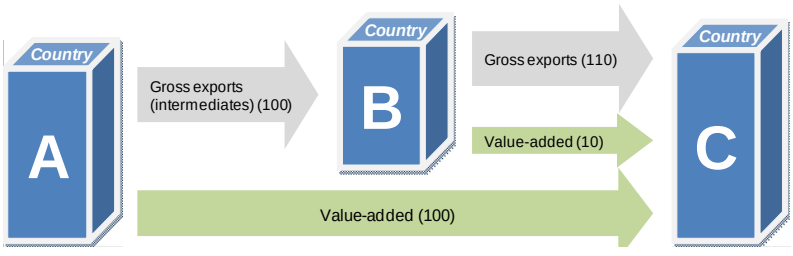
For example….

- Where are our export markets?
- What do we specialise in?
- Which sectors create most value and jobs?
- Does protectionism work? Is it counter-productive. Are imports 'bad'?
  - Are there costs on importers of intermediates, particularly when they are significant exporters.
  - What about those firms further upstream providing inputs to the imports?
- How should we interpret bilateral trade balances?

7

How can we respond?

- By measuring the **value** that is **added** by individual firms in the production process



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3: FOGLIGHTS – WHAT STATISTICS ARE NEEDED TO RESPOND TO GVCS

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How do we measure TiVA?

- Using a global Input-Output table

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OECD Inter-country I-O table

National 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)

58 countries, 1995-2009, 37 sectors, consistent with SNA

		Country A		Country B		Final Demand	
		Sector 1	Sector 2	Sector 1	Sector 2	Country A	Country B
Country A	Sector 1: Goods	Z_{11}^{AA}	Z_{12}^{AA}	Z_{11}^{AB}	Z_{12}^{AB}	F_1^{AA}	F_1^{AB}
	Sector 2: Services	Z_{21}^{AA}	Z_{22}^{AA}	Z_{21}^{AB}	Z_{22}^{AB}	F_2^{AA}	F_2^{AB}
Country B	Sector 1: Goods	Z_{11}^{BA}	Z_{12}^{BA}	Z_{11}^{BB}	Z_{12}^{BB}	F_1^{BA}	F_1^{BB}
	Sector 2: Services	Z_{21}^{BA}	Z_{22}^{BA}	Z_{21}^{BB}	Z_{22}^{BB}	F_2^{BA}	F_2^{BB}
Tax less subsidy on products		NTZ_1^A	NTZ_2^A	NTZ_1^B	NTZ_2^B	NTF^A	NTF^B
International trade margin and insurance		TIZ_1^A	TIZ_2^A	TIZ_1^B	TIZ_2^B	TIF^A	TIF^B
Value-	Labor compensation	VL_1^A	VL_2^A	VL_1^B	VL_2^B		
Added	Operating surplus	VO_1^A	VO_2^A	VO_1^B	VO_2^B		
	Tax less subsidy on production	VT_1^A	VT_2^A	VT_1^B	VT_2^B		
Output		X_1^A	X_2^A	X_1^B	X_2^B		

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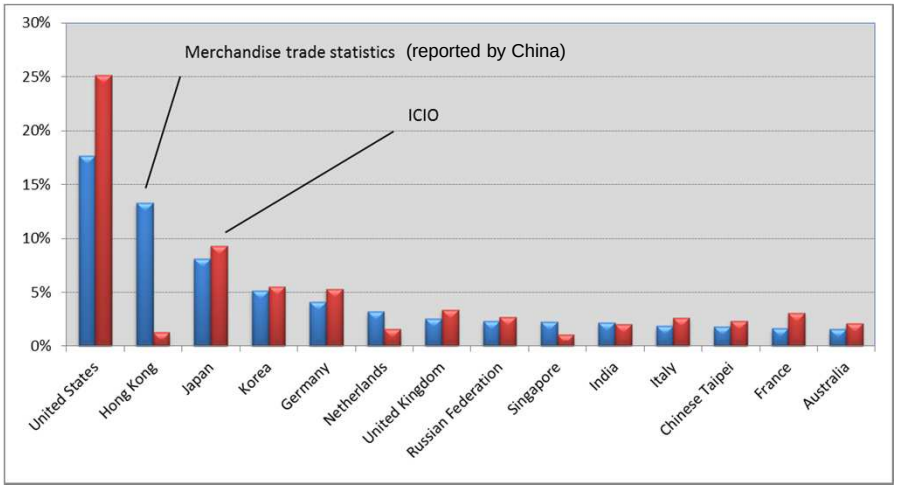
Trade partner shares of published and harmonised database (Goods, China 2008)



Sources: OECD BTDIxE 2012ed, OECD ICIO May 2013

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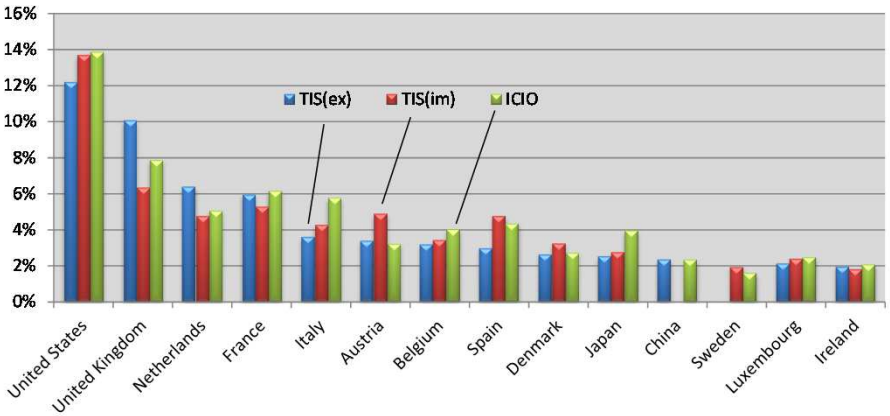
Export partner shares of published and harmonised database (Services, Germany 2008)



Sources: TIS: OECD Trade in Services by partner country, ex = exports, im = imports
OECD ICIO May 2013

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OECD Inter-Country I-O model

57 economies + Row, 1995-2009, 37 sectors

OECD	All OECD 34 countries
BRIICS	Brazil, China, India, Indonesia, Russian Federation, South Africa
Other EU27	Bulgaria, 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	Rest of the World

Industry

ISIC rev3	Industry	ISIC rev3	Industry
01,02,05	Agriculture, hunting, forestry and fishing	40 - 41	Utility
10 - 14	Mining and quarrying	45	Construction
15 - 16	Food products, beverages and tobacco	50 - 52	Wholesale and retail trade; repairs
17 - 19	Textiles, textile products, leather and footw ear	55	Hotels and restaurants
20	Wood and products of w ood and cork	60 - 63	Transport and storage
21 - 22	Pulp, paper, paper products, printing and publishing	64	Post and telecommunications
23	Coke, refined petroleum products and nuclear fuel	65 - 67	Finance and insurance
24	Chemicals	70	Real estate activities
25	Rubber and plastics products	71	Renting of machinery and equipment
26	Other non-metallic mineral products	72	Computer and related activities
27	Basic metals	73	Research and development
28	Fabricated metal products	74	Other Business Activities
29	Machinery and equipment, nec	75	Public admin. and defence; compulsory social security
30	Office, accounting and computing machinery	80	Education
31	Electrical machinery and apparatus, nec	85	Health and social w ork
32	Radio, television and communication equipment	90 - 93	Other community, social and personal services
33	Medical, precision and optical instruments	95	Private households w ith employed persons
34	Motor vehicles, trailers and semi-trailers		
35	Other transport equipment		
36 - 37	Manufacturing nec; recycling (include Furniture)		

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4: DRIVING WITH THE LIGHTS ON WHAT DOES THE TIVA DATABASE REVEAL?

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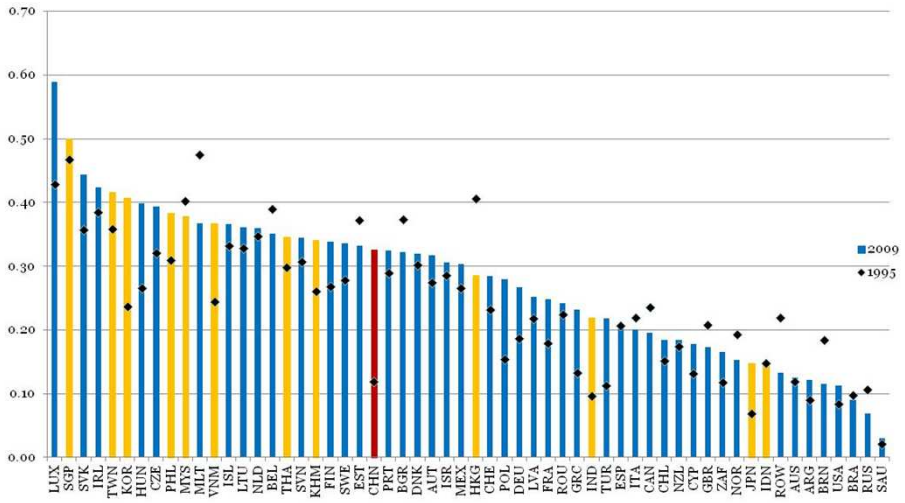
Foreign content of Exports – Factory Asia



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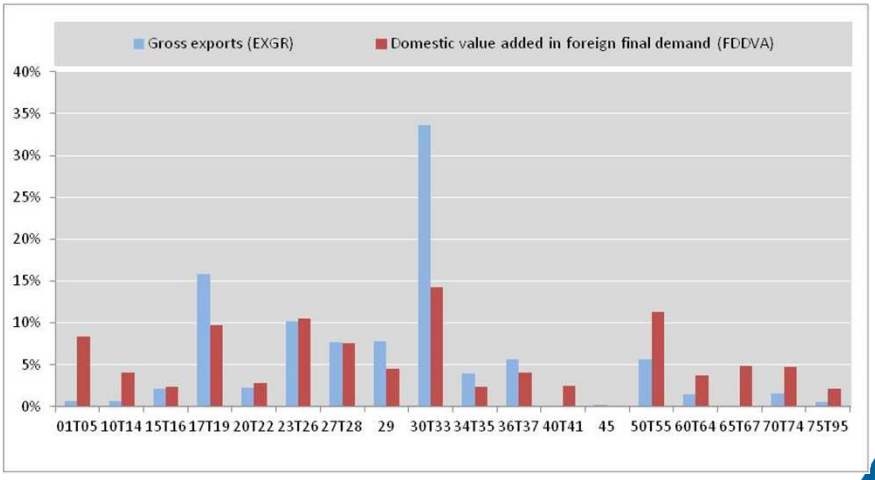
China's exports in 2009 – Gross and VA



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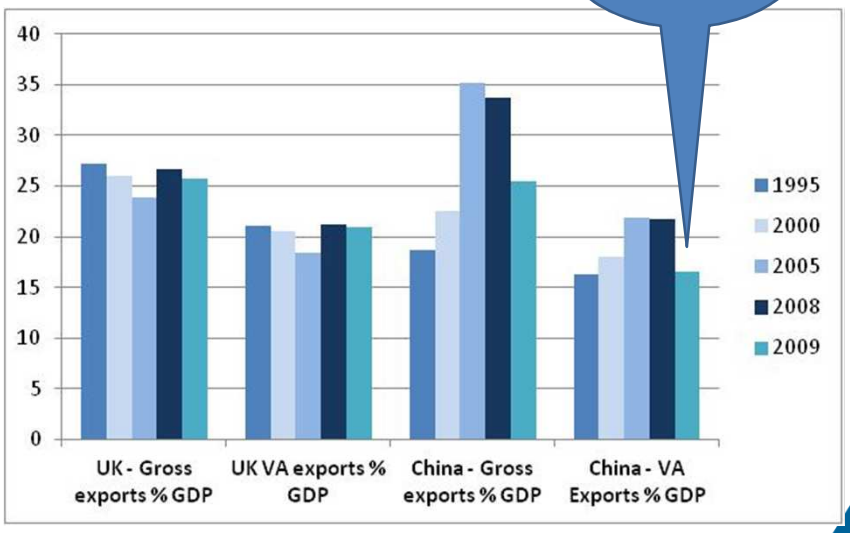
Exports - % of GDP

Only marginally higher than in 1995



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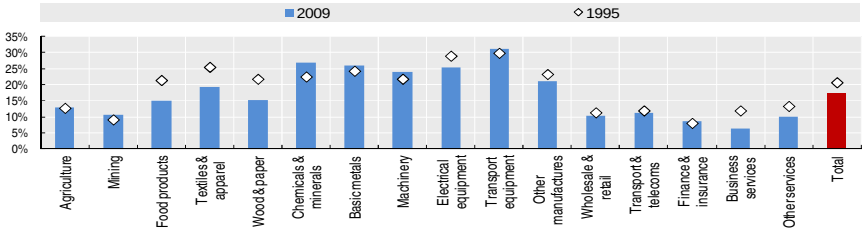
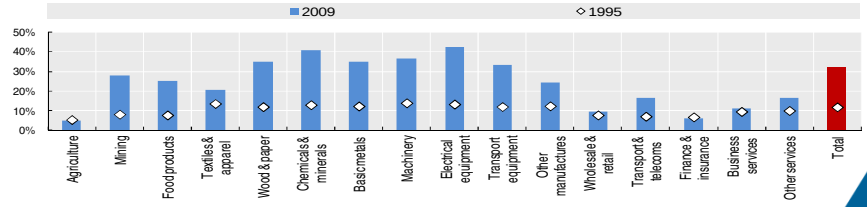
Foreign value added content of gross exports, by industry, % (EXGR_FVASH)

Exports require imports

- **UK**



- **China**



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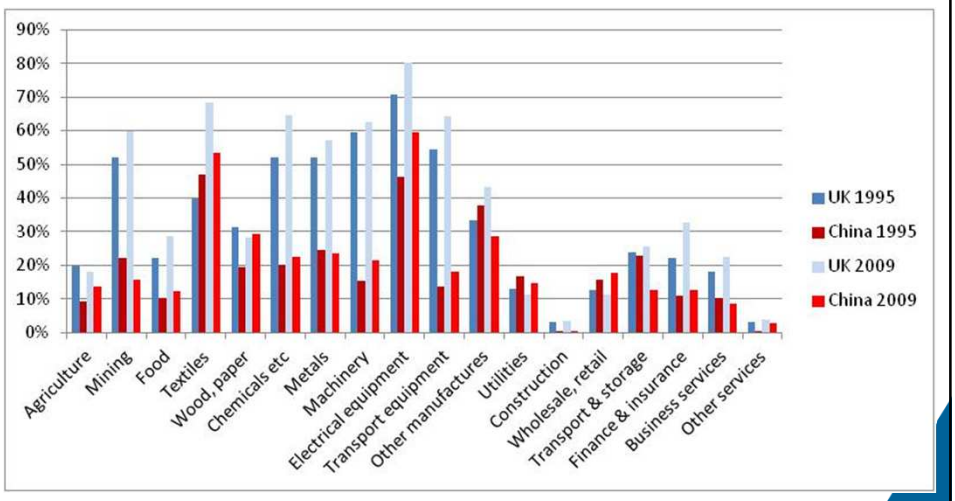
Export dependencies?

VA exports as a per cent of sector value-added



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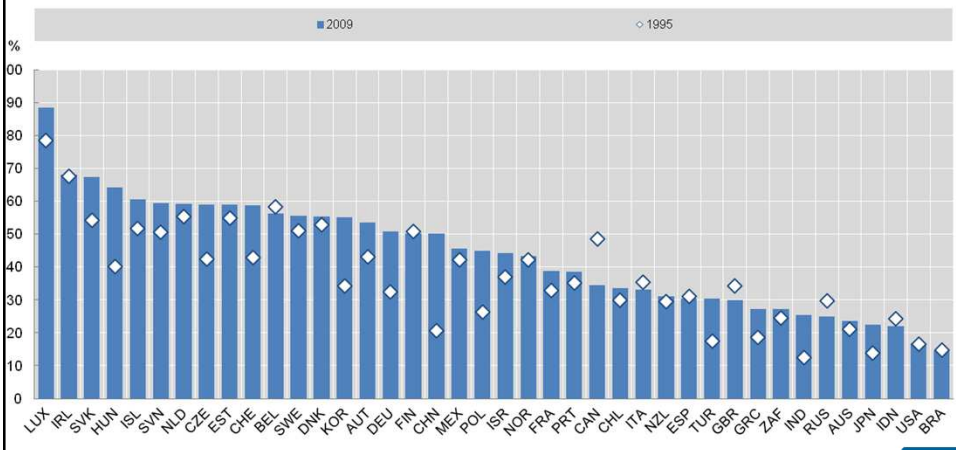
Imported intermediate inputs used in exports, 1995 and 2009



OECD Trade and Agriculture Directorate

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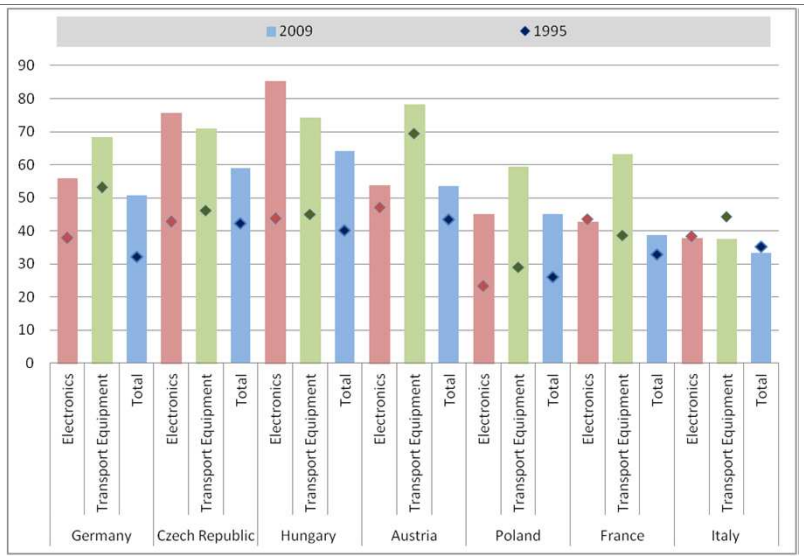
Significant share of total intermediate imports used in exports in many countries



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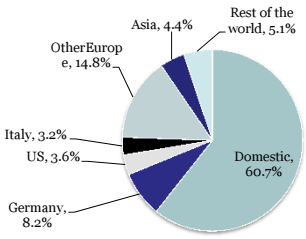
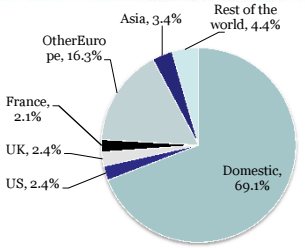
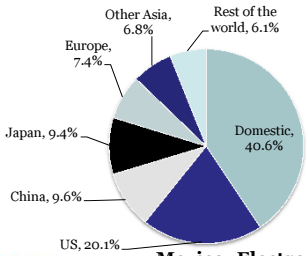
With hubs playing an important role



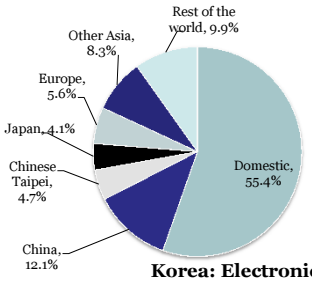
France: Motor vehicles, 2009



Germany: Motor vehicles, 2009



Mexico: Electronics, 2009



Korea: Electronics, 2009

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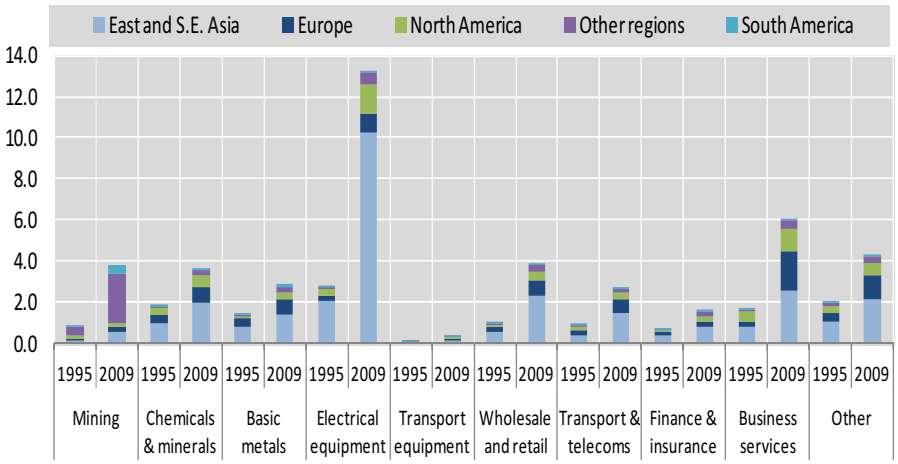
Foreign value added in Chinese Electrical equipment, by originating region & industry %



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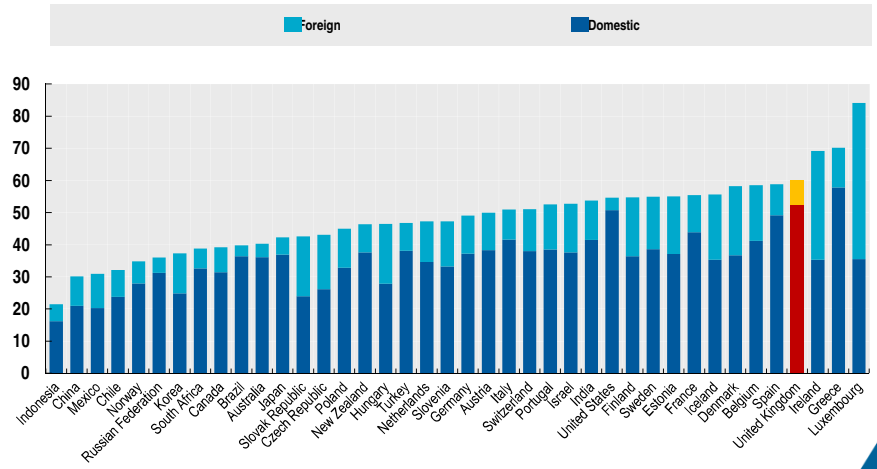
Services matter

Services Value-Added: % of exports, 2009



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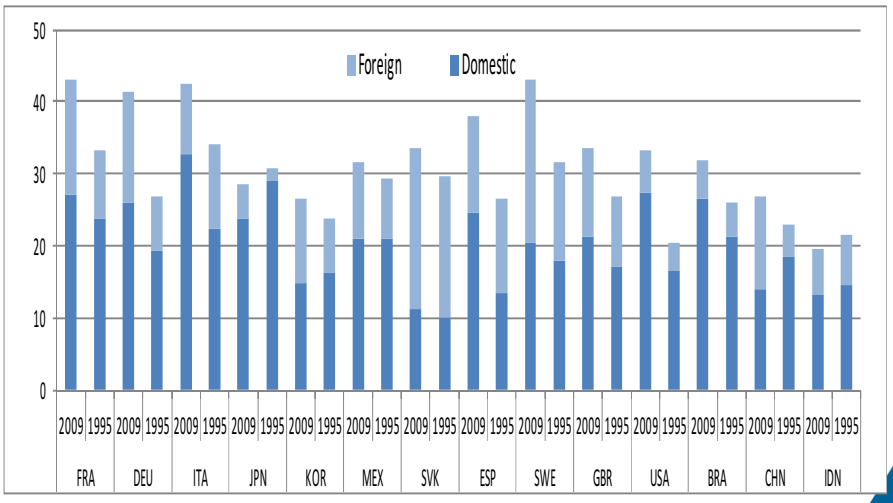
Design, R&D, software etc becoming more important - Services content of transport equipment



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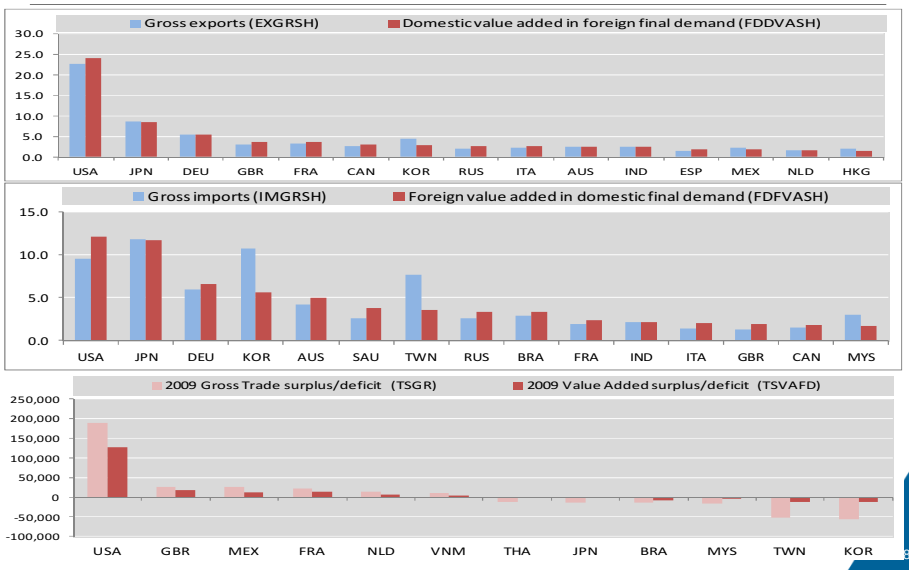
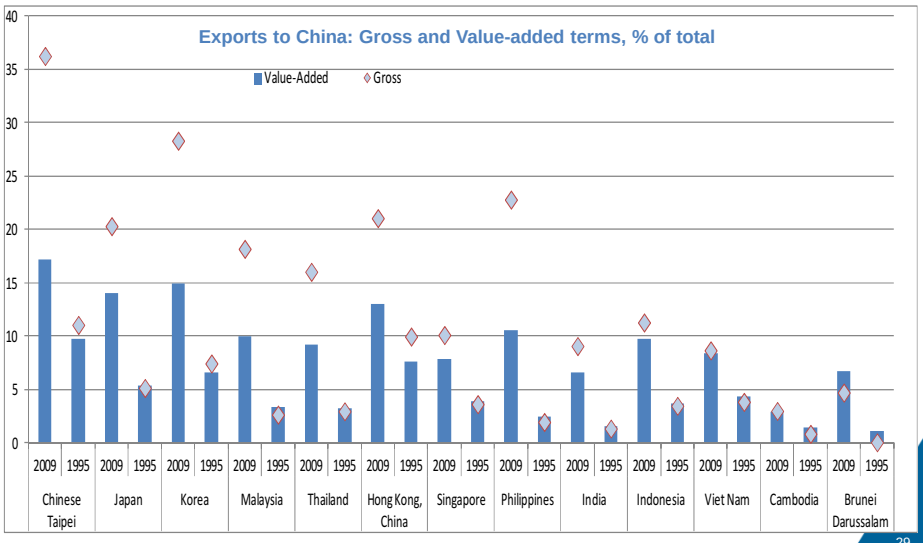
Significantly for some countries - China



And throughout Factory Asia



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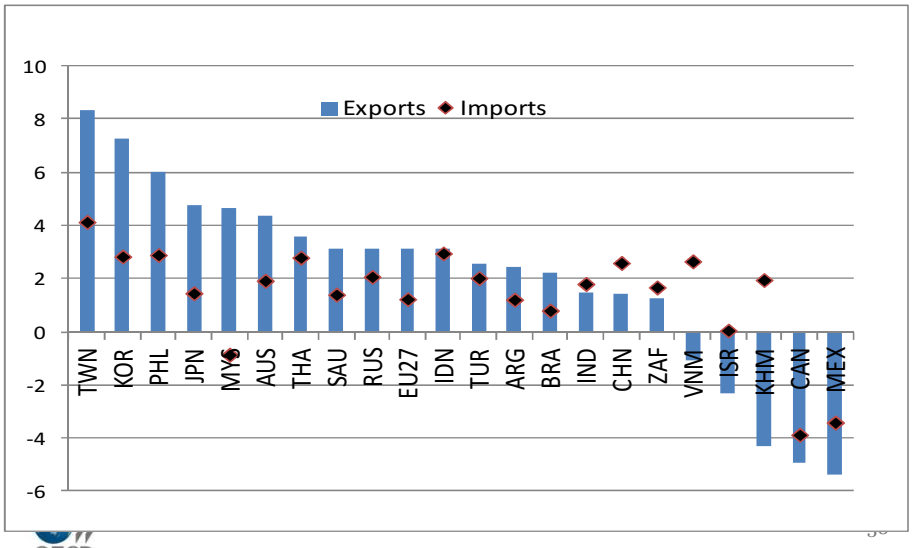
In general – **the more distant the countries the more likely that gross trade statistics underestimate the relationship**

- Change in trade shares based on Value-Added in

United States



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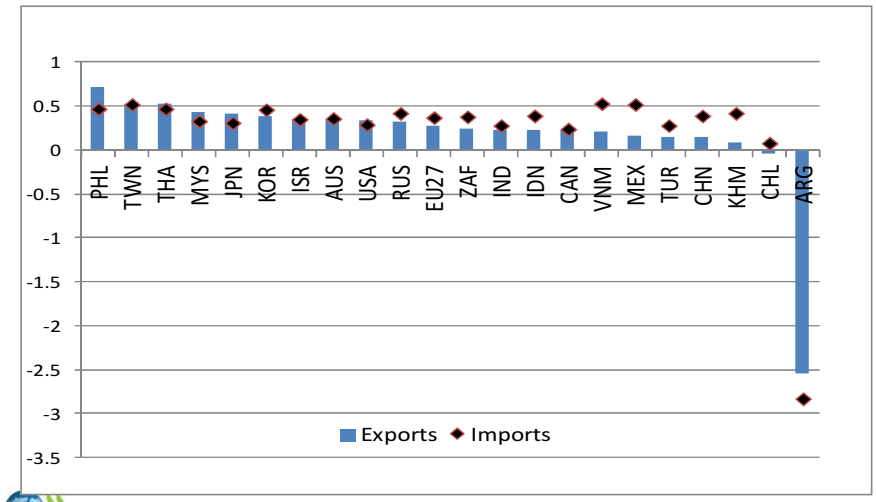
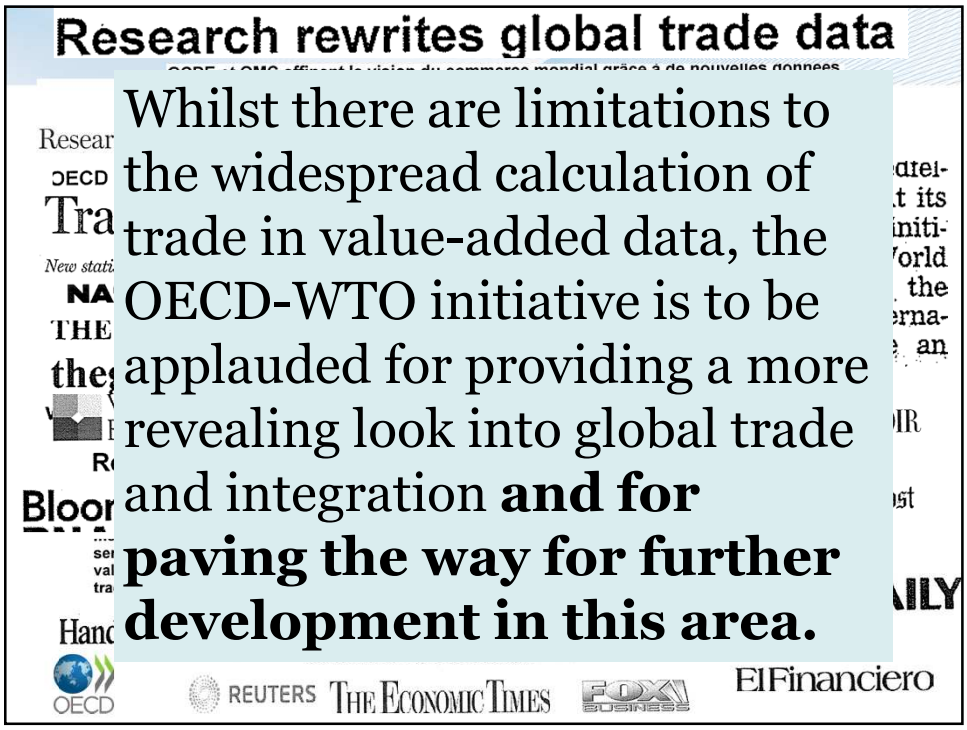


5: INCREASING THE LUMINOSITY

WHAT ASSUMPTIONS ARE USED TO CREATE TIVA AND WHAT'S NEEDED TO IMPROVE QUALITY: CHALLENGES FOR NATIONAL STATISTICS

Research rewrites global trade data
OCDE et OMC affinent la vision du commerce mondial grâce à de nouvelles données
PAGE 4
FINANCIAL TIMES
FT.com
L'OMC et l'OCDE rebattent les cartes du commerce mondial
Research reshapes debate on global trade policy
Scoop
INDEPENDENT NEWS
OECD und WTO messen Welthandel neu
Trade's added value
New statistics reveal glorious interdependence of countries
Statistics is not always the bedfellow of lies and damned lies. At its best, it brings epiphanies. An initiative by the OECD and the World Trade Organisation to map the value added embodied in international trade flows should be an eye-opener for policy makers.
NASDAQ
THE IRISH TIMES
Les Echos
DER STANDARD
theguardian
la Repubblica
WORLD ECONOMICS
THE WALL STREET JOURNAL
LE DEVOIR
Revolutionary Trade Database Launched by OECD and WTO
Bloomberg
OECD/WTO 'Value-Added' Trade Measure Shows Exchange Rate Issues Overstated
The Washington Post
services in creating goods. Whilst there are, at present, limitations to the widespread calculation of trade in value-added data, this OECD-WTO initiative is to be applauded for providing a more revealing look into global trade and integration, and for paving the way for further development in this area.
CHINA DAILY
Handelsblatt
Ces produits qui bouleversent le commerce mondial
PORTAL GOSPODARCZY
Expansión
OECD
REUTERS
THE ECONOMIC TIMES
FOX BUSINESS
El Financiero


Research rewrites global trade data
Whilst there are limitations to the widespread calculation of trade in value-added data, the OECD-WTO initiative is to be applauded for providing a more revealing look into global trade and integration **and for paving the way for further development in this area.**
OECD
REUTERS
THE ECONOMIC TIMES
FOX BUSINESS
El Financiero

But it is important to stress

- That this is **a work in progress** and that results are **estimates (with two key assumptions)**
- But they are robust enough to already begin to highlight
  - the need for policies to account for GVCs
- But perhaps more importantly, they highlight
  - the importance of capacity building and better statistics
- **Improving data quality is essential**
  - **Coherent estimates of trade in goods and services**
  - **A new approach to Supply-Use Tables?**
    - With a focus on **stages and trade** rather than industries, per se, to better reflect firm heterogeneity (particularly MNEs).
    - Import/export intensities, factoryless firms, processors, ownership

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What can be done now?

- **Improved GROSS trade data**
  - Import flow matrices
  - Better bilateral trade statistics (integrated with SU tables) and globally consistent
  - Intelligent confidentiality rules (suppress 6 digit not 2 digit HS)
  - Re-export data
  - Second hand goods, scrap and waste.
  - SERVICES –EBOPS 2012.

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Examples of current inconsistencies in bilateral trade statistics (Services 2009)

	Exports to UK	Imports by UK	Difference
USA	50,479	27,366	23,113
DEU	28,030	13,235	14,795
IRL	18,907	6,138	12,769
ESP	24,511	14,513	9,998
LUX	8,279	743	7,536
JPN	11,064	4,443	6,621
NLD	12,222	6,281	5,941
BEL	8,619	3,237	5,381
NOR	7,161	1,852	5,309
HKG	6,596	1,474	5,122
GRC	6,211	3,145	3,066
SWE	5,054	2,711	2,343
RUS	3,789	2,003	1,786
KOR	2,148	567	1,581
CAN	3,376	1,919	1,457
DNK	3,510	2,172	1,338
ITA	8,118	6,872	1,246
PRT	3,358	2,351	1,007

	Imports from UK	Exports by UK	Difference
USA	49,304	38,996	10,308
NLD	13,142	12,359	783
FRA	12,410	11,687	722
NZL	648	485	163

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What else can be done…..now?

- Capitalise on existing data to create new indicators on exporting and importing firms
- Beyond TEC: Linking trade registers, business registers and SBS
  - OECD Workshop on linking business and trade statistics: 25-26 October 2012
  - Exploring **feasibility** of creating new indicators based on export (and import) intensities**, ownership** and size.
  - And also provides stepping stone for **trade in income related to investment**
  - Changes to classification systems to better reflect globalisation**:**
    - **Factoryless producers (UNECE Task Force on Global Production)**

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6.1 GOING BEYOND TIVA – 'STAGES' AND 'TASKS'

Extensions

- Trade in jobs and skills
  - But requires
    - Coherent employment and value-added data
      - Also important for productivity estimates
    - And significant improvement in skills data (and occupations)

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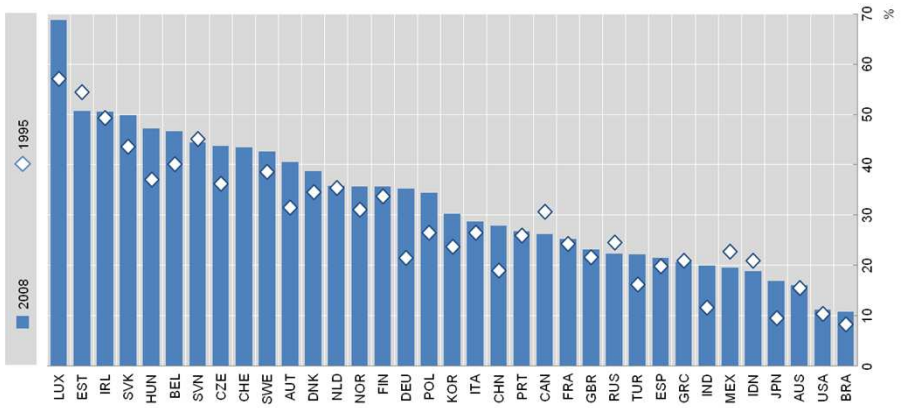
Jobs in the business sector sustained by foreign final demand, 1995 and 2008



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6.2 GOING BEYOND TIVA INVESTMENT

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Extensions

- Trade in Income related to Investment: Ownership matters:
  - Because value added does not always stick (compensation for use of knowledge based assets – where increasingly registration is determined by tax environment)
  - And because flows for use of IPPs are often recorded as property income and not trade in services.
  - 30% of total business sector VA in 2009 in the UK generated by foreign owned firms, 15% of GDP. Accounting for the underlying flows could further change trade relationships, even though differences between GNI and GDP are small.
  - In Japan for example Primary income flows (GNI minus GDP) were equivalent to about one-quarter of total TiVA flows.
- Need better FATS data, particularly on value-added and employment.
  - MSITS 2010 Compilers Guide

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Trade in Income?

- How important is it?
  - Potentially – Very
    - About 70% of China's gross exports made by foreign affiliates
    - E.g. between 1995 and 2007, Japanese foreign affiliates increased their employment in China eightfold from just over 100,000 employees to over 1000,0000 and by 300,000 (to over 400,000) in Thailand, with similar patterns in other ASEAN countries, such as the Philippines, Malaysia and Indonesia.
    - And Japan's primary income trade surplus increased by around $100 billion over the period to 2009, more than offsetting the $50 billion reduction in its gross trade surplus over the same period.

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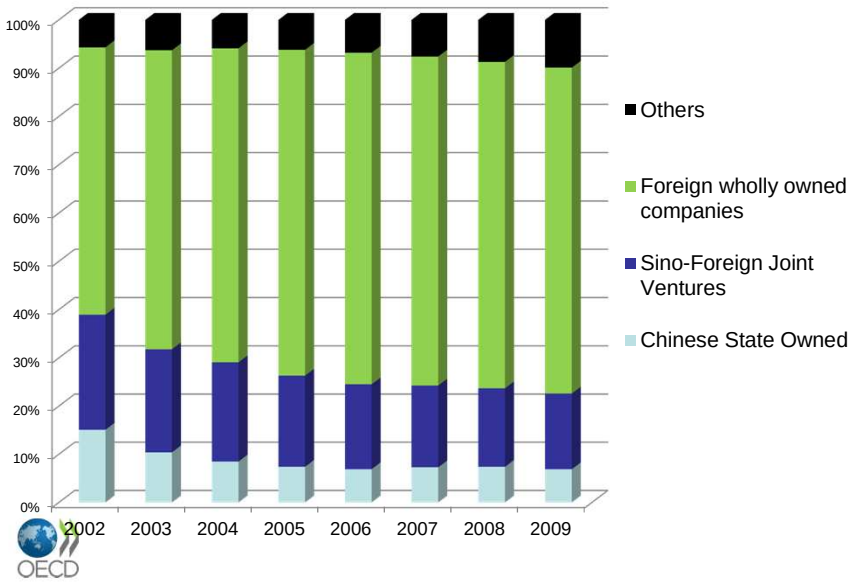
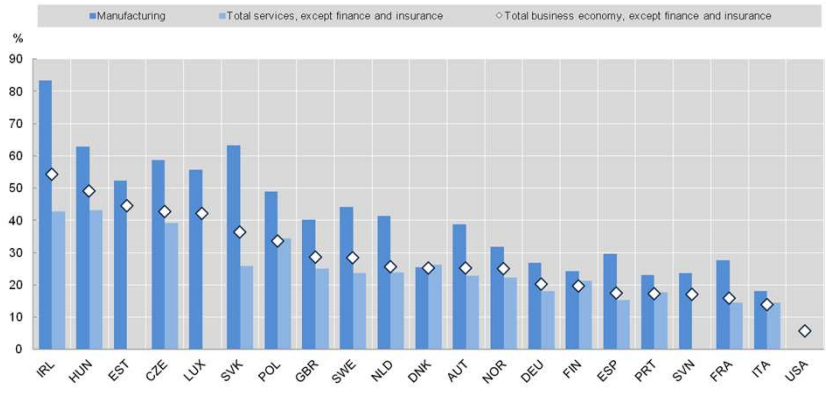
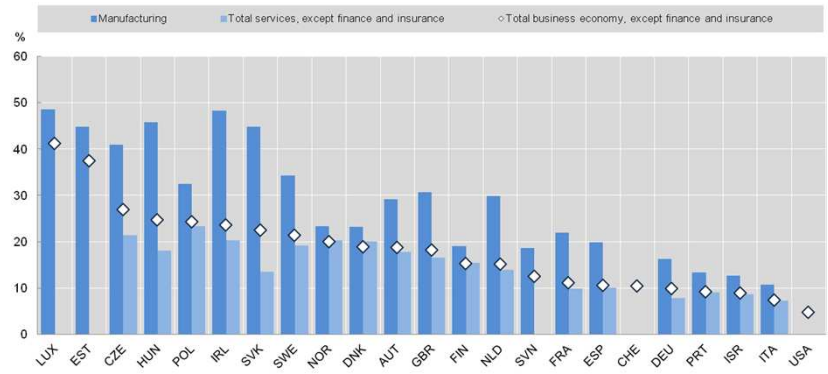
Chinese High Tech Exports by Ownership (% of the total)



Share of national value added under control of foreign affiliates, 2010



Share of national employment under control of foreign affiliates, 2010



Summary – What's needed

- New thinking on SU tables
- Better gross trade data
- Links to microdata
- Income, Ownership and FATS

Further information

- www.oecd.org/trade/valueadded
- Video: http://www.youtube.com/watch?feature=player_embedded&v=RZKX-0SK41U
- **OECD Workshop on Measuring TiVA 5-6 December 2013**