



Incomes and Jobs in Global Production of Manufactures

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- > Due to international fragmentation of production standard measures of competitiveness, such as gross exports, become less informative.
- > International competition increasingly plays out at the level of *activities* within industries, rather than at the level of whole industries or products
- > This paper introduces two new measures based on activities that add value in the global production of final manufacturing goods: *GVC income* and *GVC jobs*.
- > We outline these concepts and provide trends based on a recent multi-sector input-output model of the world economy (the *World Input-Output Database*)

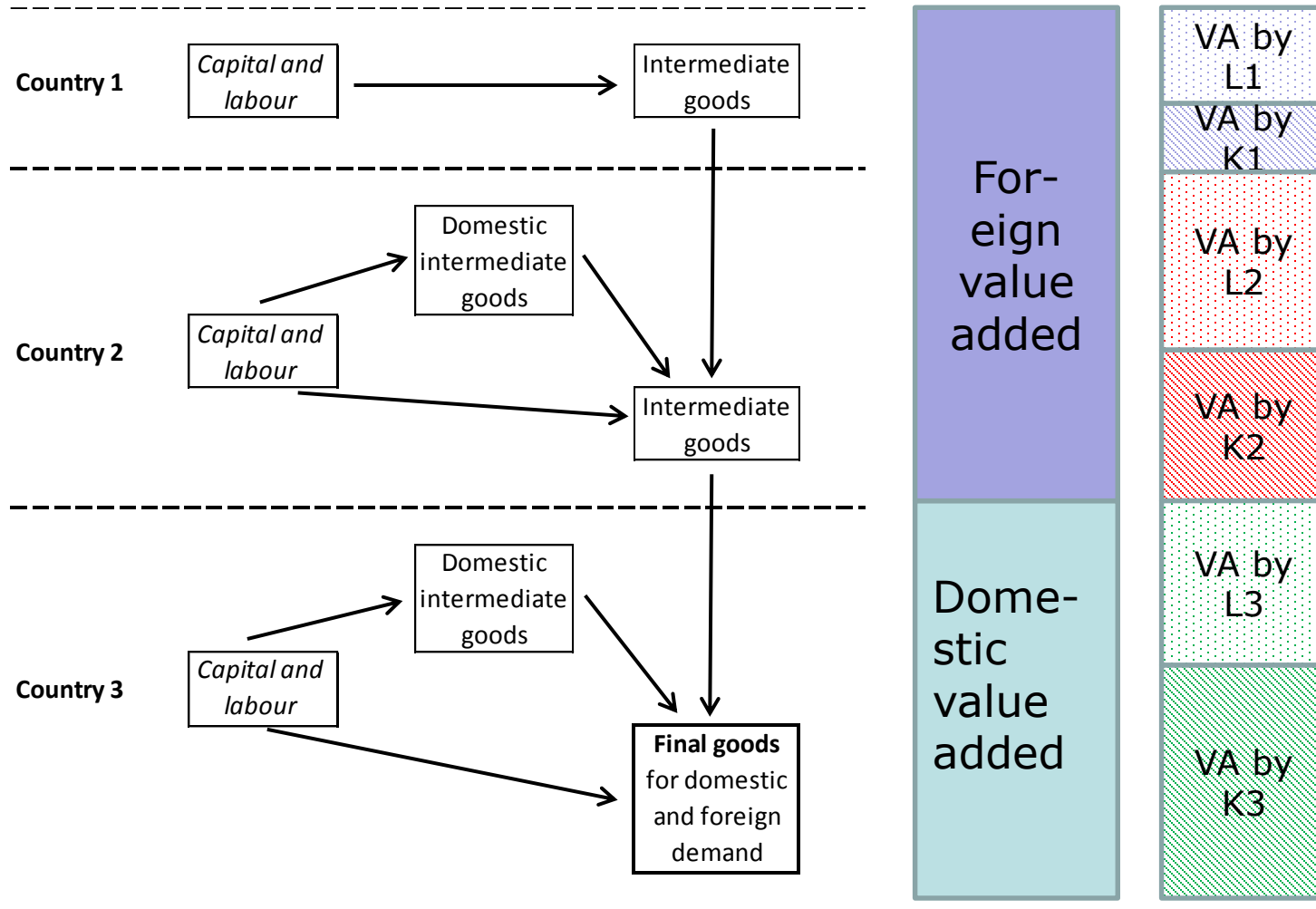


- > A **global value chain (GVC)** is identified by the *country-industry* in which the last production stage takes place (e.g. Sweden transport equipment manufacturing).
- > Focus on **GVCs of manufactures** which includes the value of all activities involved in the production of *final* manufacturing goods.
 - Note that this includes activities in both manufacturing and non-manufacturing sectors (materials, services).
 - Note that factors are recorded on a domestic (location), not a national (ownership) basis.
- > It does not measure *competitiveness in manufacturing* (it excludes manufacturing value added for non-manufacturing final products), nor *competitiveness in international trade* (as it includes final domestic demand, and excludes part of non-manufacturing trade)



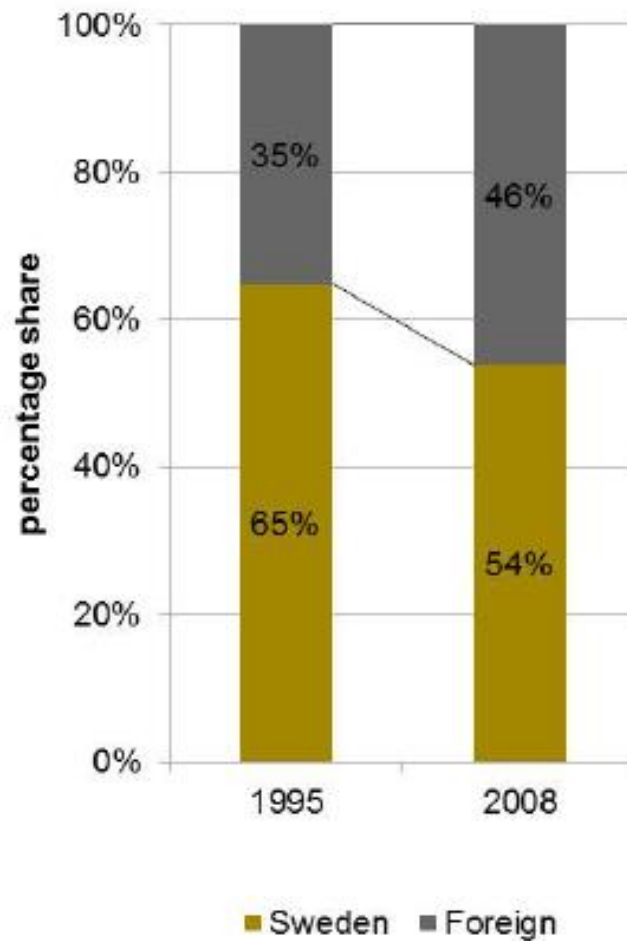
Factor content of a global value chain: graphical representation

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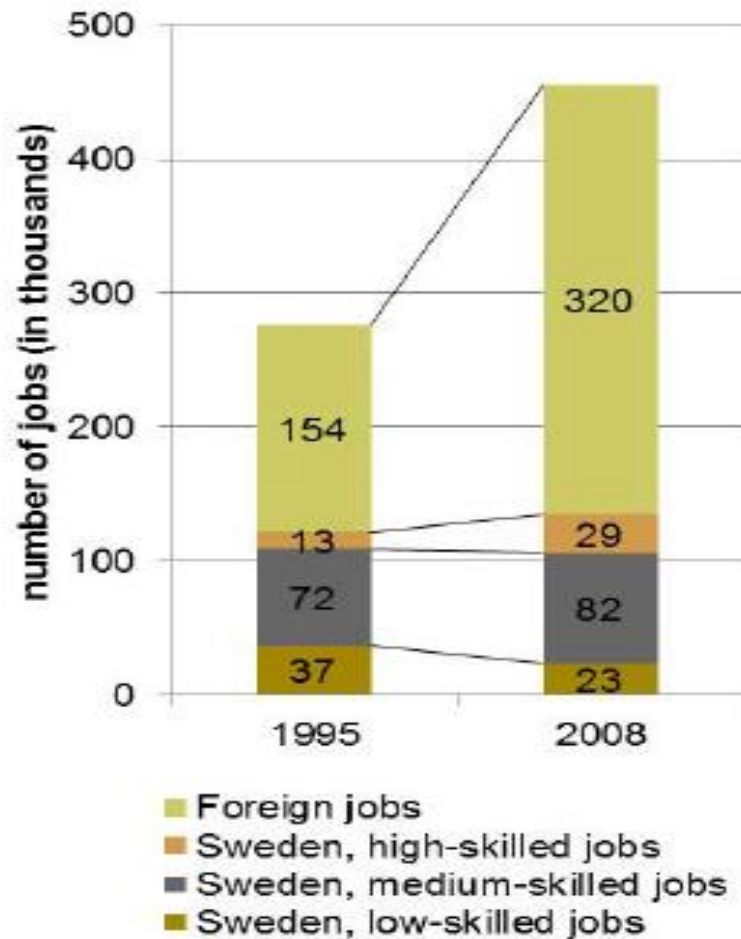
GVC income



Value added share in
Swedish transport
equipment
manufacturing (%)



GVC jobs



GVC jobs: workers directly and indirectly involved in the production of Swedish transport equipment manufacturing goods



		Sweden			Japan			USA			Sweden	Japan	USA	Tot							
		M	S	C	M	S	C	M	S	C					H	I	G	H	I	G	H	I	G
Sweden	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Japan	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USA	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

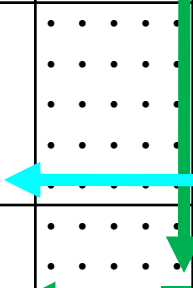
	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Value added		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

World input-output tables



		Sweden			Japan			USA			Sweden	Japan	USA	Tot
		M ... S ... C	M ... S ... C	M ... S ... C	H | I | G	H | I | G	H | I | G							
Sweden	Mining	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Steel manuf	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Car manuf	•	•	•	•	•	•	•	•	•	•	•	•	
Japan	Mining	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Steel manuf	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Car manuf	•	•	•	•	•	•	•	•	•	•	•	•	
USA	Mining	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Steel manuf	•	•	•	•	•	•	•	•	•	•	•	•	
	•	•	•	•	•	•	•	•	•	•	•	•	
	Car manuf	•	•	•	•	•	•	•	•	•	•	•	•	
Value added		•	•	•	•	•	•	•	•	•	•	•	•	
Total		•	•	•	•	•	•	•	•	•	•	•	•	
Employment		•	•	•	•	•	•	•	•	•	•	•	•	
CO2 emissions		•	•	•	•	•	•	•	•	•	•	•	•	



Swedish car manufacturing requires:
inputs from Japanese steel manufacturing

and Swedish labor

World input-output tables and satellite accounts



		Sweden			Japan			USA			Sweden	Japan	USA	Tot						
		M	S	C	M	S	C	M	S	C	H	I	G		H	I	G	H	I	G
Sweden	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Japan	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USA	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Value added		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Employment		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CO2 emissions		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Japanese steel manufacturing requires: inputs from US mining

and Japanese labor

World input-output tables and satellite accounts



		Sweden			Japan			USA			Sweden	Japan	USA	Tot						
		M	S	C	M	S	C	M	S	C	H	I	G		H	I	G	H	I	G
Sweden	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Japan	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USA	Mining	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Steel manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Car manuf	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Value added		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Employment		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CO2 emissions		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

US mining requires:
 US labor

World input-output tables and satellite accounts

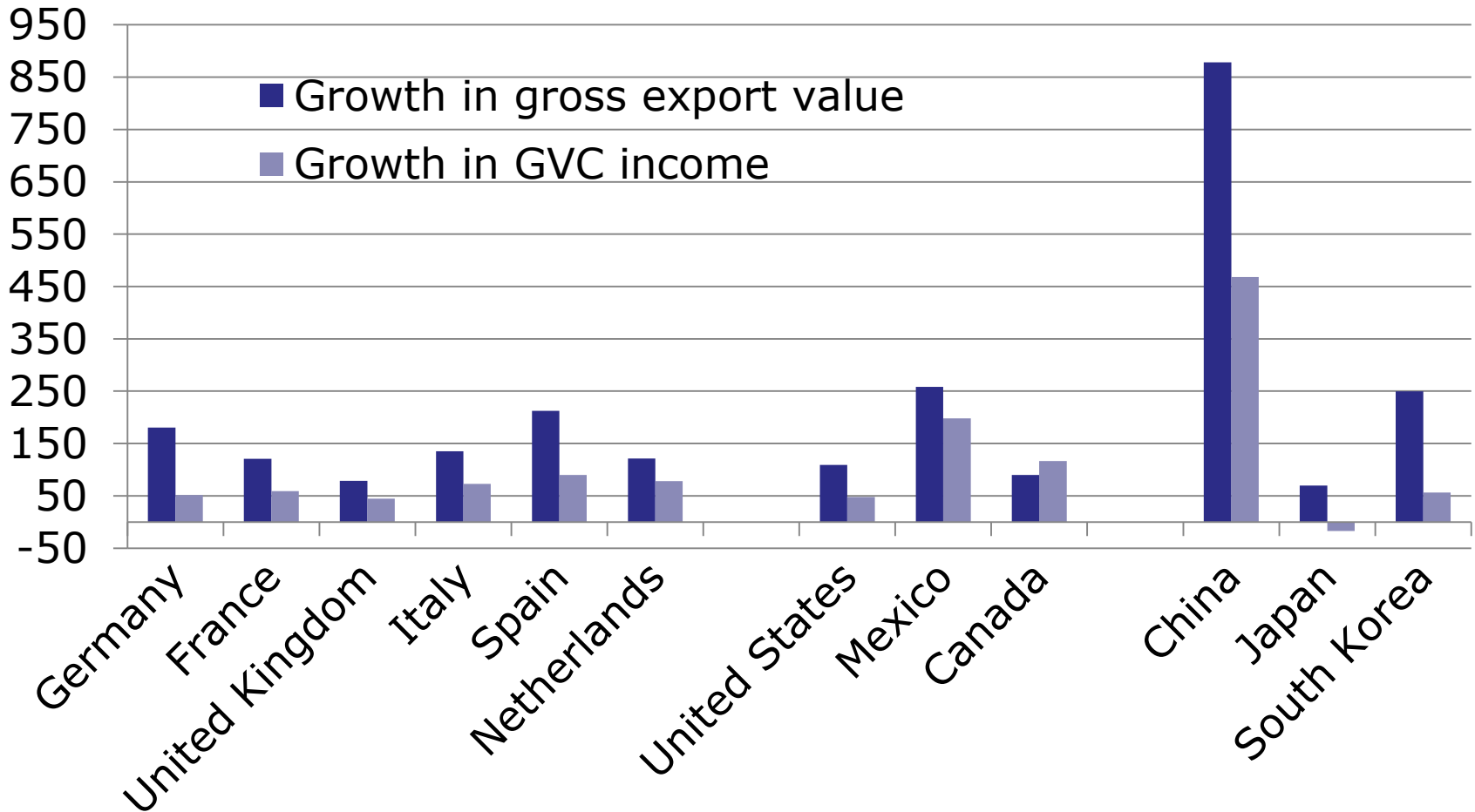


- > **World Input-Output Table (WIOT)** represents flows of goods and services across industries *and* countries (40 countries and rest-of-the-world region, 1995-2011). Construction based on official public statistics with two major challenges:
 - **Time-series consistency of national input-output tables:** benchmark national supply and use tables (34 industries and 59 product groups) adjusted to National Accounts time series (industry output and main final demand)
 - **Disaggregation of imports by country and use category:**
 - based on bilateral trade statistics on goods and services (export shares by mirroring imports) (COMTRADE HS 6-digit level)
 - Allocation of imports to intermediate, consumption and investment use categories using modified BEC-classification rather than standard proportionality assumption
- > WIOD is a 'proof-of-concept'. Ongoing efforts at OECD/WTO to improve upon this initiative



Divergence in growth of manufacturing exports and manufactures GVC income

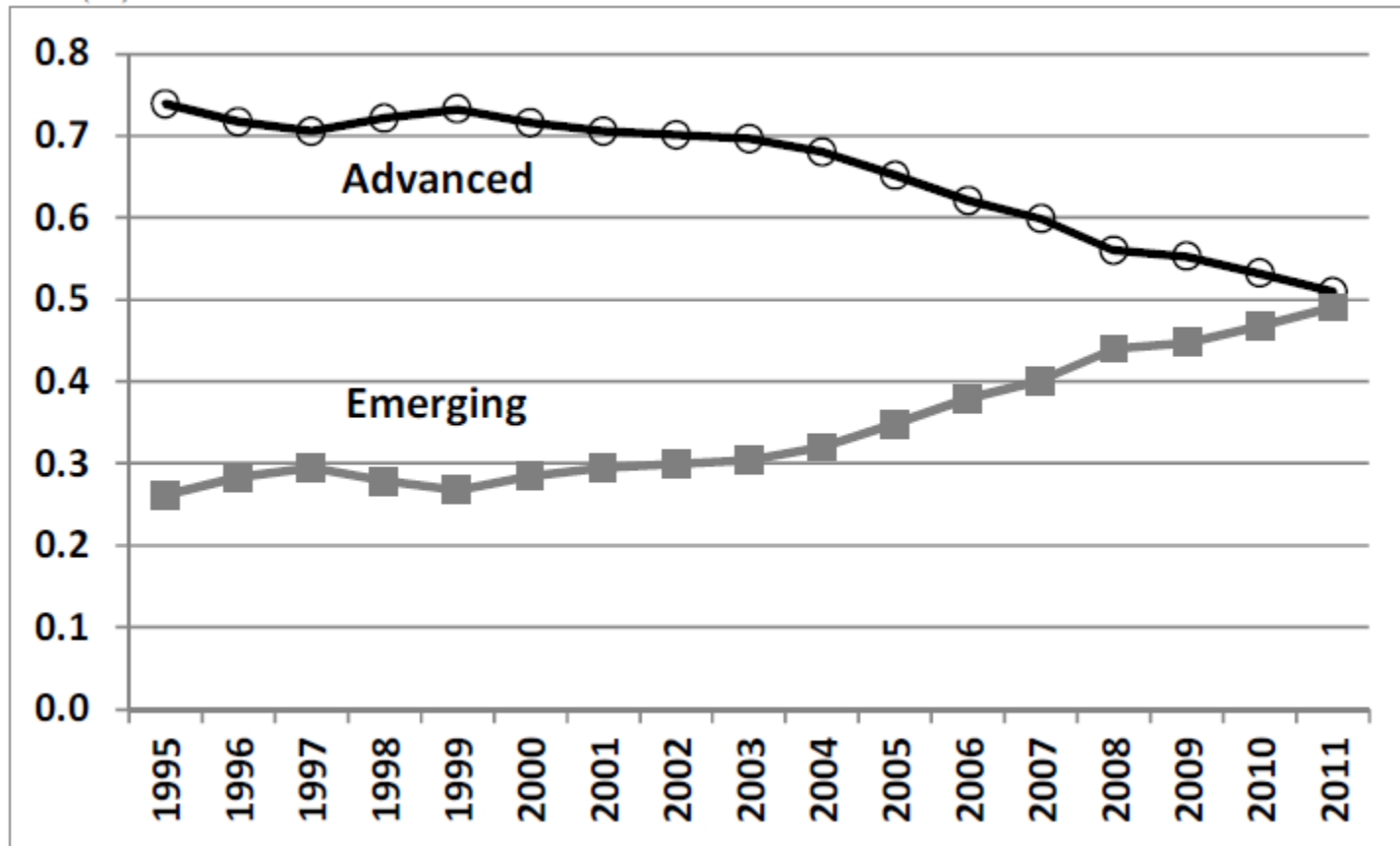
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Note: Growth in manufacturing exports and manufactures GVC income between 1995 and 2008 (%).

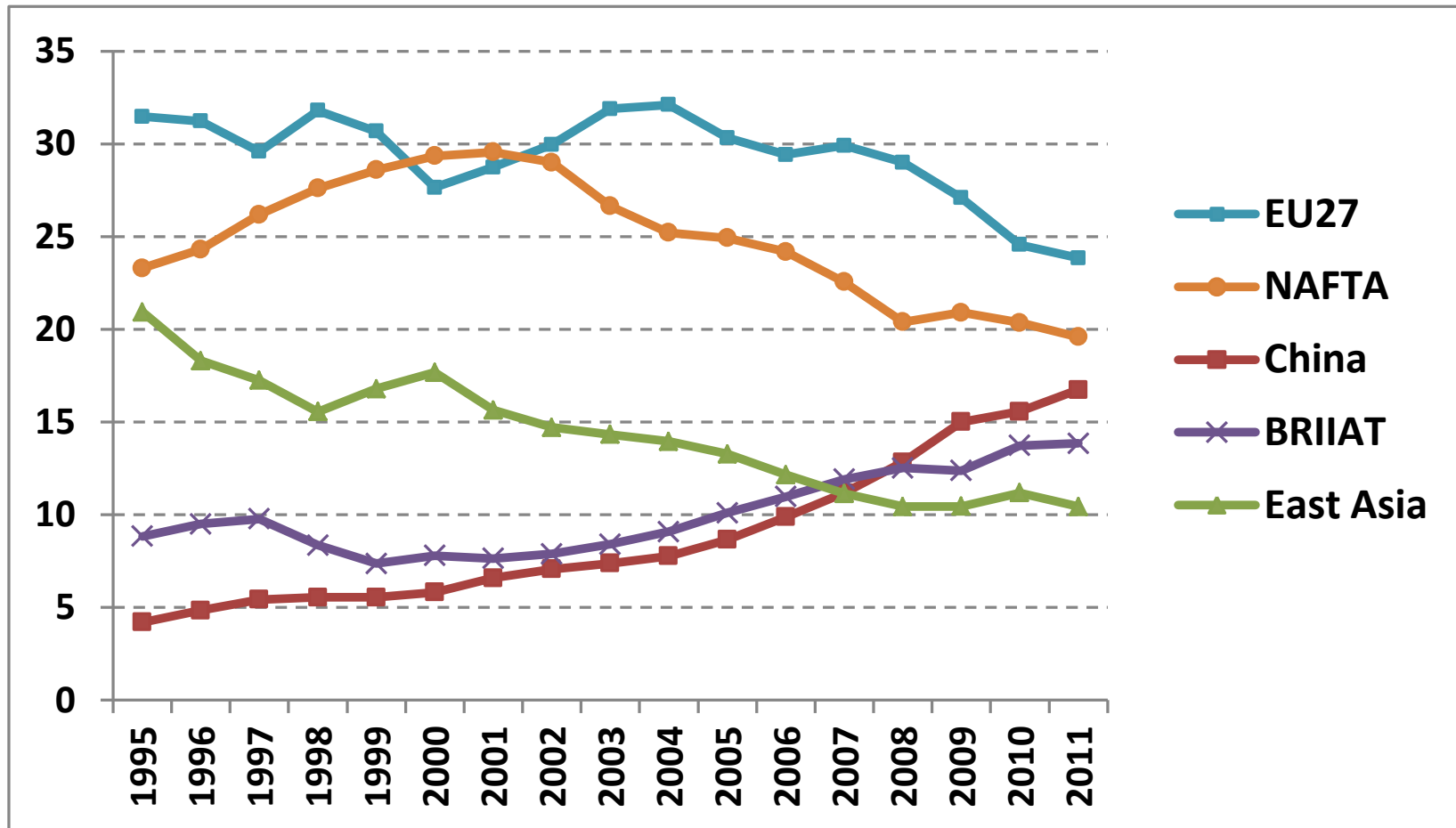


Shares in world GVC income



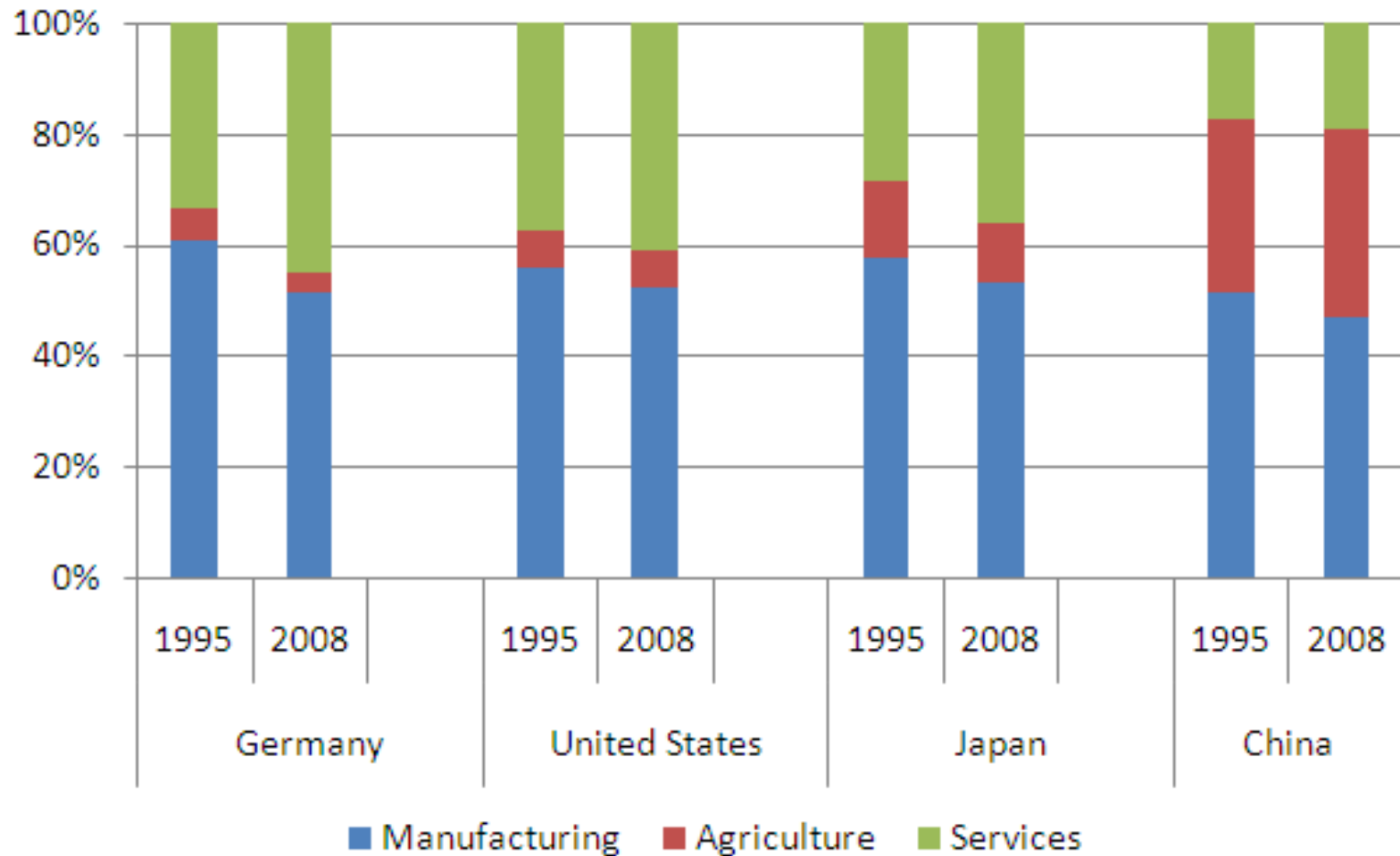


Regional share in world GVC income for all manufactures (%)





Manufactures GVC workers (thousands) by sector





Specialization in high-skilled jobs in mature economies

10-12-2012

	Low	Medium	High	Total
United States	-1,125	-3,286	-201	-4,612
Japan	-1,834	-1,399	361	-2,871
Germany	-168	115	614	561
France	-768	52	566	-151
United Kingdom	-1,236	-560	172	-1,624
Italy	-1,201	853	439	91
Spain	-507	391	556	440
Canada	-118	-105	177	-45
Australia	-84	141	94	150
South Korea	-1,110	-335	766	-679
Netherlands	-119	-54	202	29
Other ten advanced	-1,441	425	840	-176
<i>Total 21 advanced</i>	<i>-9,711</i>	<i>-3,762</i>	<i>4,587</i>	<i>-8,886</i>
<i>All other countries</i>	<i>56,214</i>	<i>64,370</i>	<i>19,393</i>	<i>139,977</i>
<i>World</i>	<i>46,503</i>	<i>60,607</i>	<i>23,981</i>	<i>131,091</i>



- Increasing fragmentation of production requires a new metrics of competitiveness: *GVC income and GVC jobs.*
- We found that for manufactures GVCs
 - Major shifts in value added being generated in global value chains between advanced and emerging countries
 - The structure of jobs is shifting towards
 - Jobs in non-manufacturing activities
 - high-skilled workers (increasing specialisation)



> Policy implications

- Extend analysis of competitiveness currently based on gross export data to analyzing specialization in activities (functional specialization in international trade)
- Examine implications of specialization for wage distribution
- Production fragmentation increasingly requires multilateral assessment and coordination of industry and trade policy

> www.wiod.org → Dedicated webpage with Global Value Chain indicators

Thanks for you attention