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GLOBAL VALUE CHAINS

RELEVANCE FOR G-24 COUNTRIES

WORLD BANK GROUP
Trade & Competitiveness

Daria Taglioni

March 1, 2017

Outline

1. **What are Global Value Chains and why do they matter?**
2. What changes for policy?
3. China role in GVCs: what opportunities for the others?
4. Looking ahead: effects of technology and changes in the length of GVCs
5. Conclusions

THE THREE UNBUNDLINGS:
200 YEARS OF GLOBALIZATION IN 3 SLIDES*

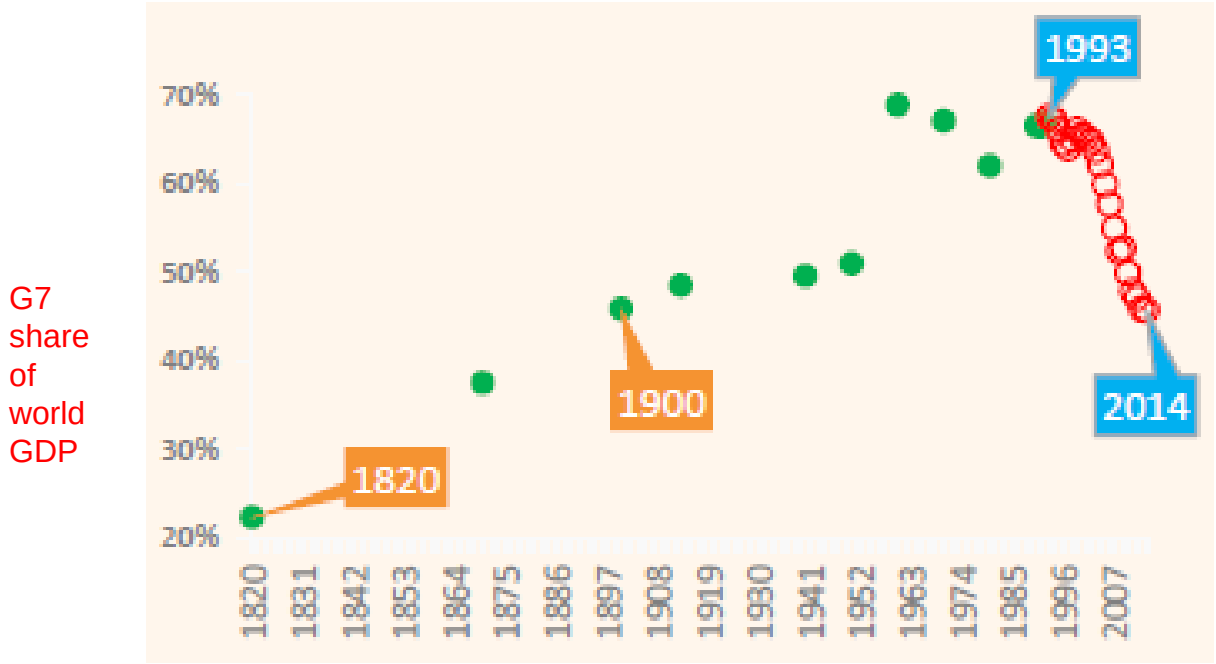
Trade costs fall in 1820 driving 'unbundling' of production and consumption (Globalisation 1.0).

* Drawing heavily on Richard Baldwin (2016)

IMPACT OF FIRST UNBUNDLING: 170 YEARS OF DIVERGENCE

Production clusters locally while markets expand globally

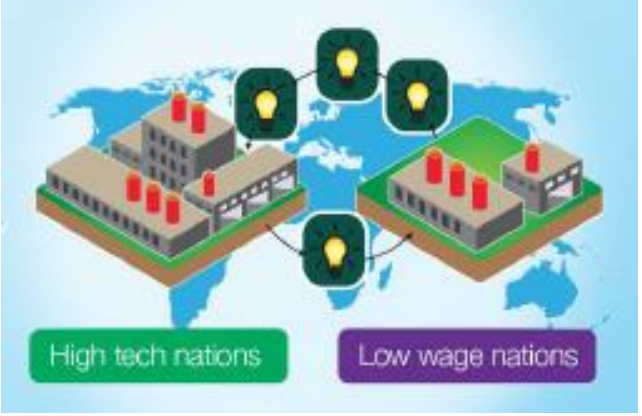
Innovation and production remain concentrated in developed world due to high communications costs



SECOND UNBUNDLING: KNOWLEDGE OFFSHORING (SINCE 1990)

ICT revolution and falling communications costs drives offshoring and unbundling of factories in developed world

→ GVCs enable knowledge dissemination along with jobs in MNC production throughout developing world (especially China)



SOME INTERESTING IMPLICATIONS

Neoclassical theory (Ricardo) is insightful, but it misses some key features of GVCs

Modes of International Engagement Have Changed

Trade (from antiquity, from Silk Road to Wool for Wine)

- Imports
- Exports

Tariffs and protection of infant industry to drive development

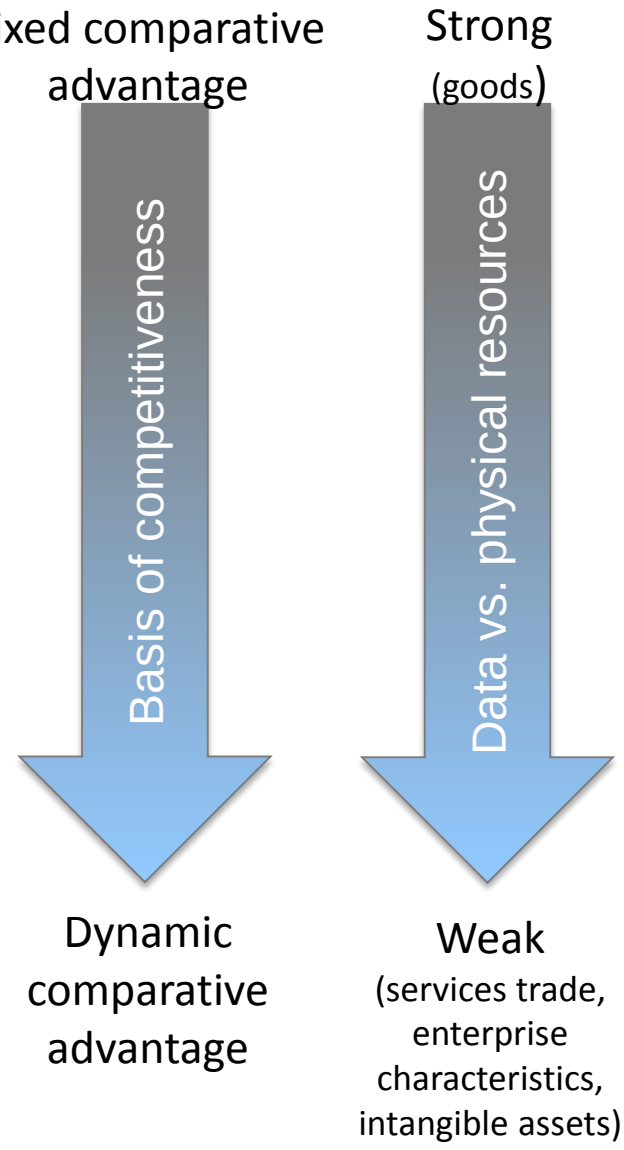
FDI (from early 20th Century – e.g. Ford Model T)

- Inward
- Outward

Local content requirements to drive development

Global Value Chains (from late 1980s, especially after 2001)

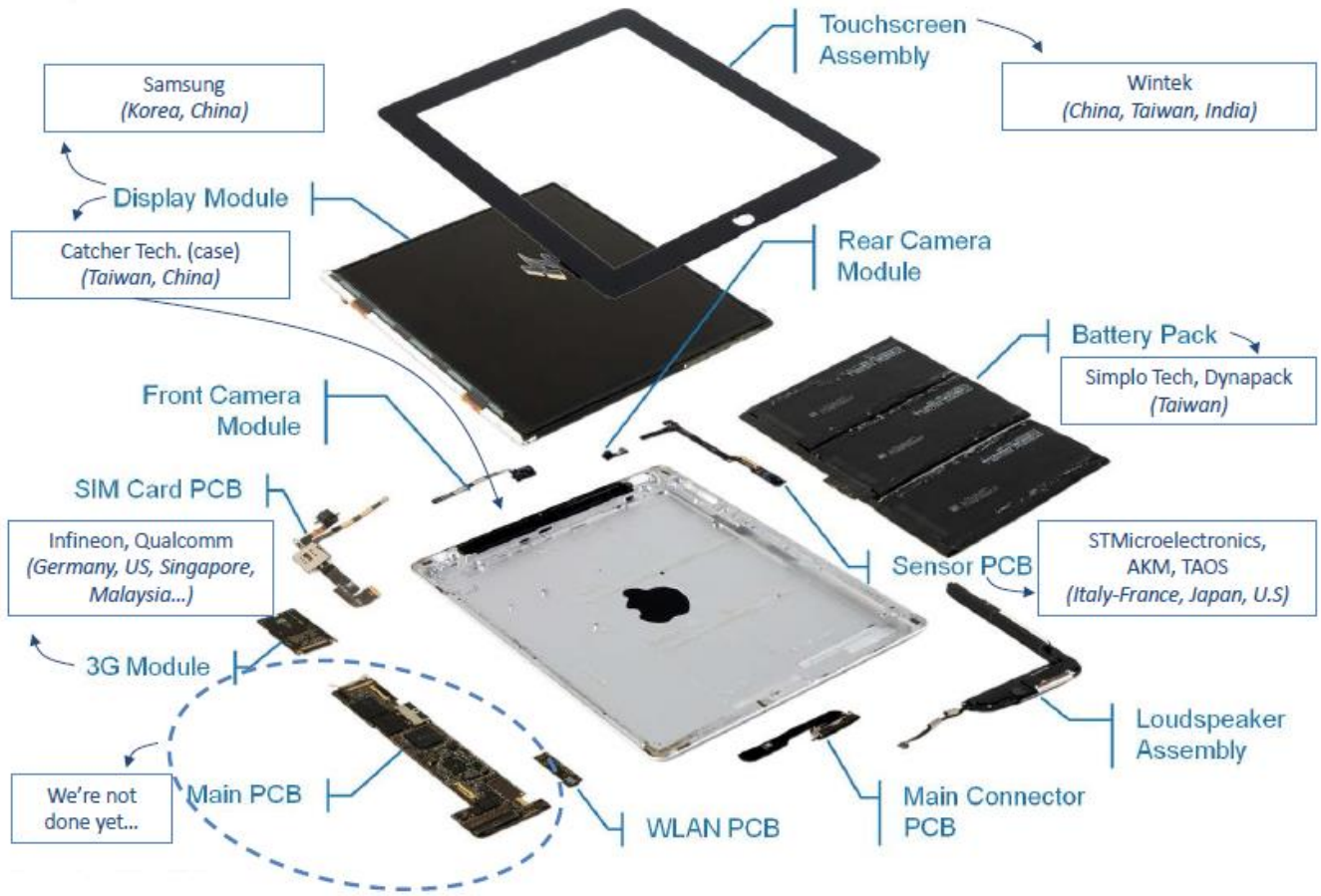
- Vertical specialization in trade
  (intermediate and final goods and services)
- Vertical specialization in FDI
  (lead firms and suppliers)
- Trade in services
  (software and other ICT-enabled services, e.g. BPO)
- Knowledge and innovation networks
  (global fragmentation of R&D)



GVCS ALLOW FOR A 'BIG PUSH' IN MANY 'SMALL NUDGES'

Reduced size of necessary 'minimum critical effort'.

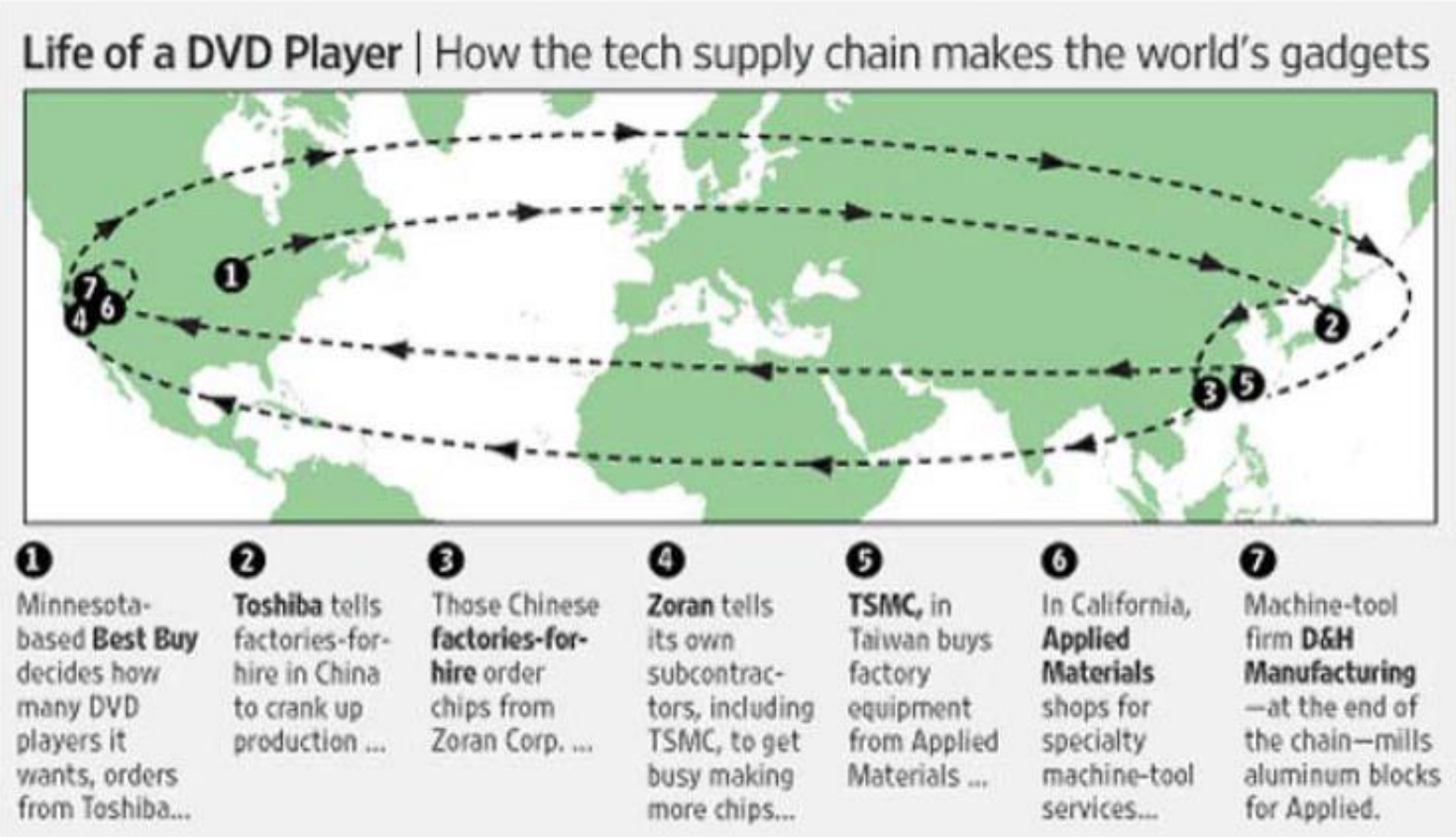
PARTS AND COMPONENTS ARE NOW FREQUENTLY CUSTOMIZED TO THE NEEDS OF THEIR INTENDED BUYERS



Source: Antras (2015)

 This fragmentation of production has macroeconomic implications

THE NATURE OF PRODUCTION IS INCREASINGLY SEQUENTIAL, FROM THE BUYER TO THE SUPPLIERS



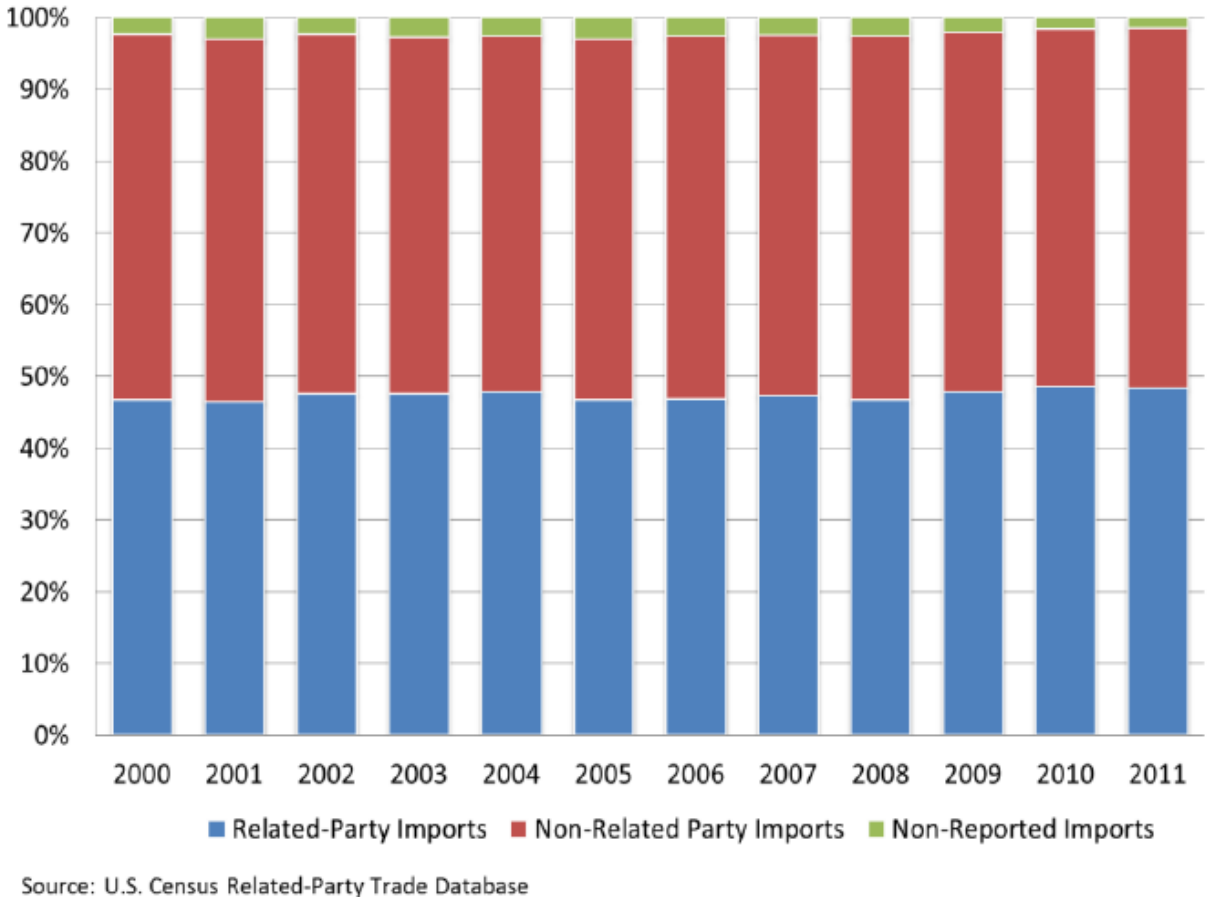
Source: WSJ "Clarity is missing link in supply chain", May 18, 2009

CONTRACTING COSTS LEAD TO FAVOR INTRA-FIRM ACTIVITY

- Contracting costs: global production entails intensive contracting between parties subject to distinct legal systems.

- Due to weak contracting environment, a significant share of global value chain trade is intra-firm

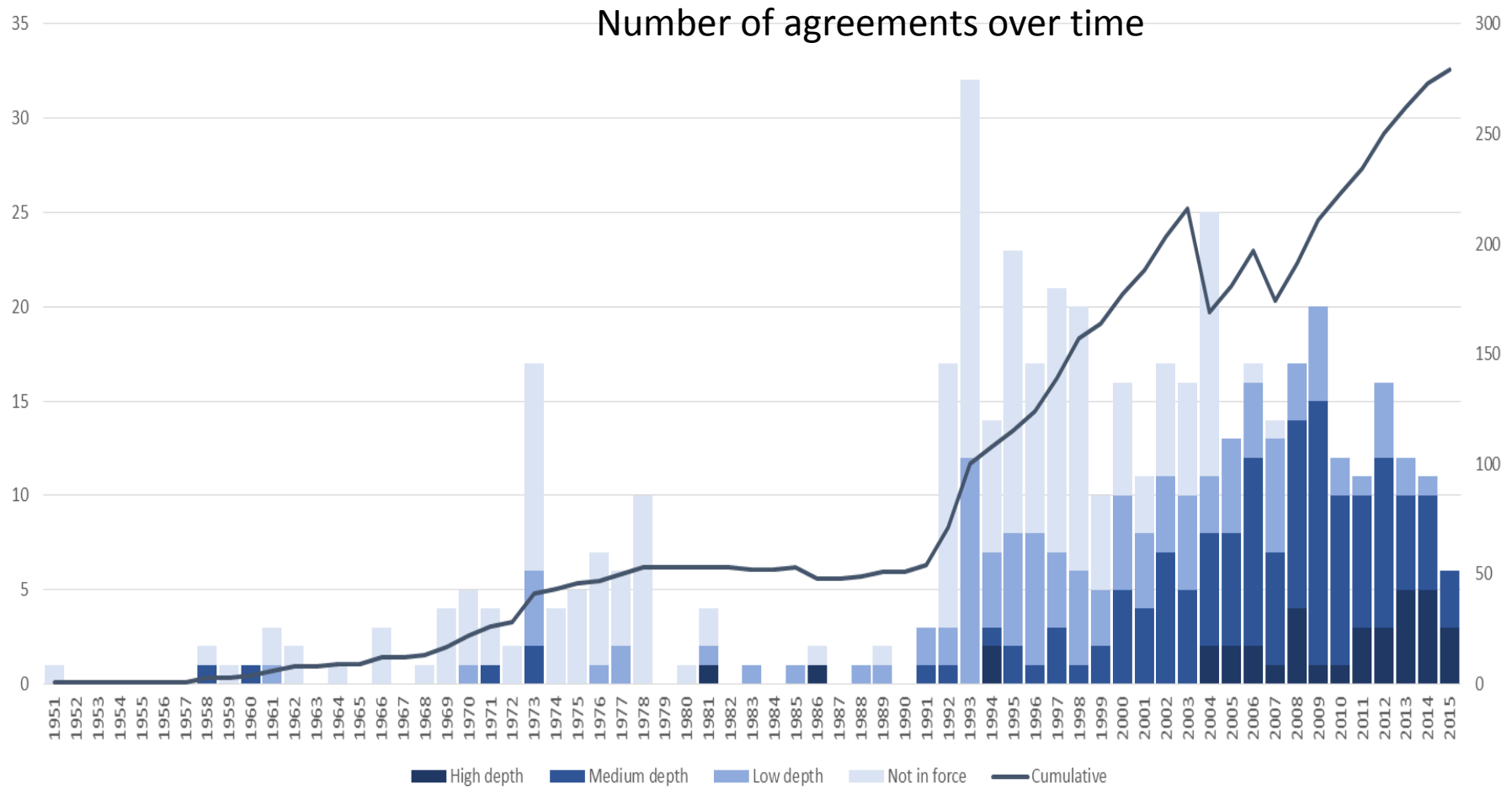
FOR EXAMPLE, INTRAFIRM TRANSACTIONS CONSTITUTE CLOSE TO 50% OF US IMPORTS AND AROUND 30% OF US EXPORTS



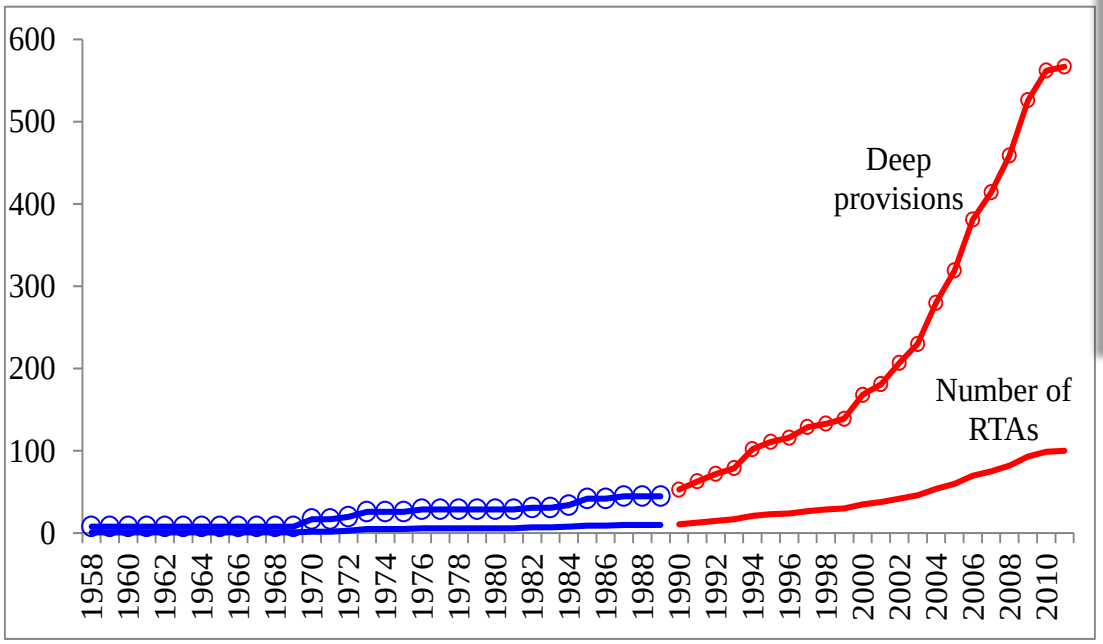
Source: Antras, 2015

Intrafirm transactions constitute close to 50% of US imports and around 30% of US exports

WHILE TRADE AGREEMENTS HAVE PROLIFERATED OVER TIME, AND THEY ARE INCREASINGLY DEEP



REGIONAL TRADE AGREEMENTS HAVE BEEN THE MAIN VEHICLE TO BRING IN NEW DISCIPLINES THAT ALLOW CONNECTING FACTORIES ACROSS BORDERS IN A SEAMLESS WAY

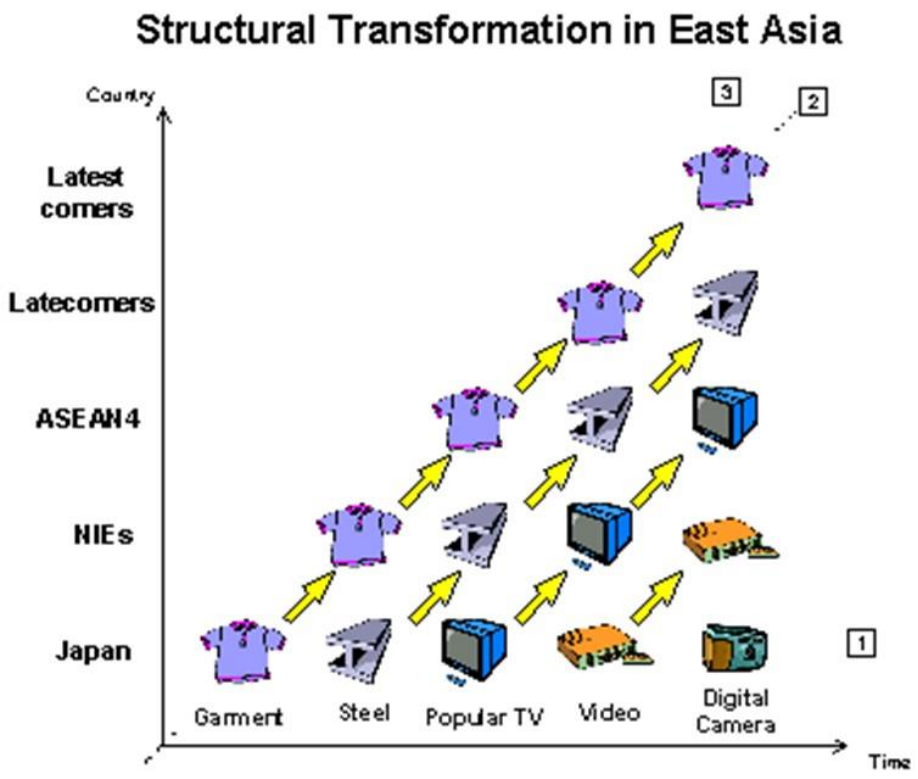


From 1990:
- Number of RTAs soars.
- Depth of RTAs soars.

SEQUENCING OF STRUCTURAL TRANSFORMATION HAS CHANGED ACCORDINGLY

Flying Geese Pattern:
By sector

Flying Starlings Pattern:
By parts

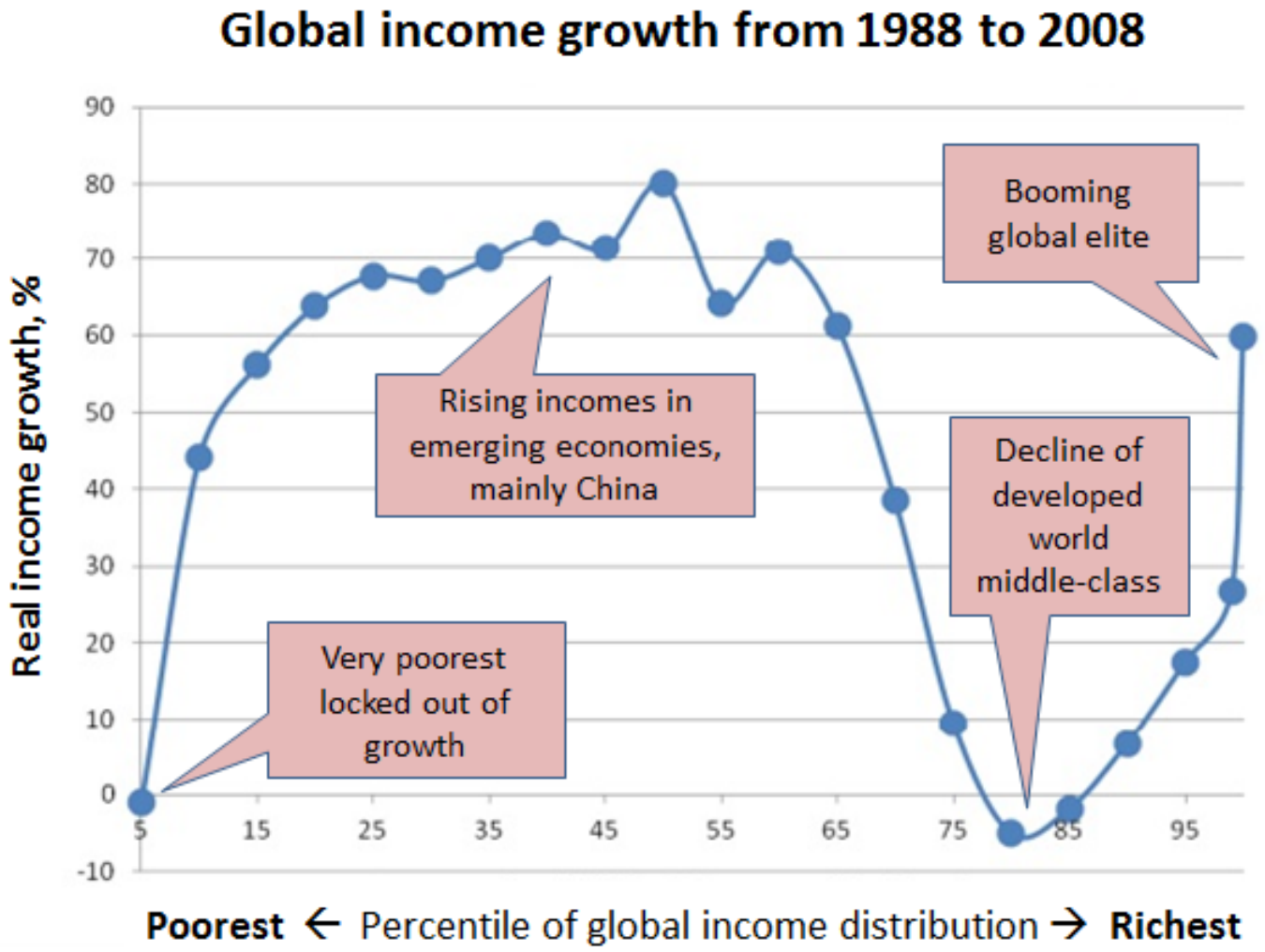


MATCHING AT THE GLOBAL LEVEL HAS PERVASIVE EFFECTS

Matching leads to globalization of production teams, delivering unprecedented skill and knowledge transfer but it has also important distributional consequences within and across countries:

- World income shifts towards countries involved in GVCs
- Superstar effect (the 1% phenomenon)

SUMMARIZED IN A ONE-CHART HISTORY OF GLOBALIZATION: THE ELEPHANT CHART OF BRANKO MILANOVIC



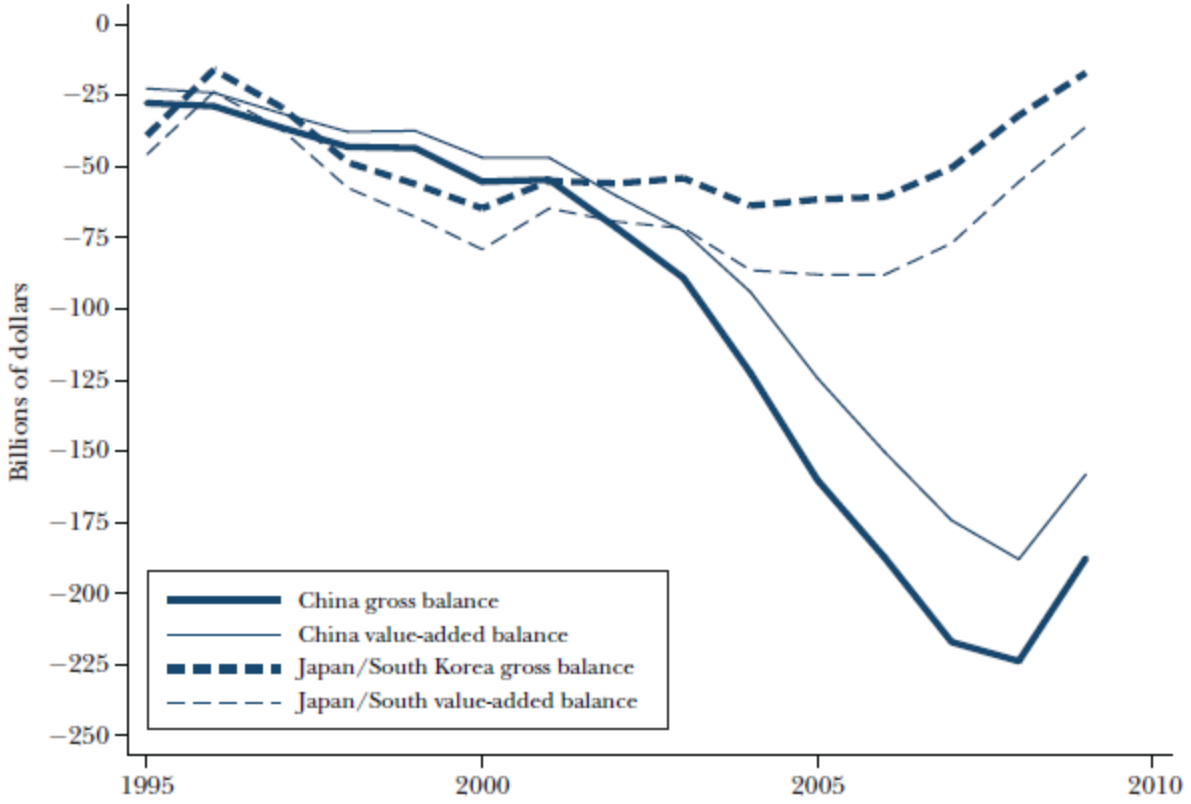
Source: Milanovic (Global Policy, 2013)

GVCS HAS SOME IMPLICATIONS FOR MACROECONOMICS

- Conventional measures of international competitiveness (e.g. REER) assume that countries compete against each other to sell ‘products’ that they produce entirely at home, using only domestic inputs.
- Bilateral trade elasticities are conventionally considered only function of bilateral trade, and of pair-specific activity and price variables.
- GDP deflators do not cover value added component embedded in traded goods
- Vertical integration is not accounted for when assessing the exchange rate pass-through

CURRENT ACCOUNT IMBALANCES DIFFER IN GROSS VS. VALUE ADDED TERMS

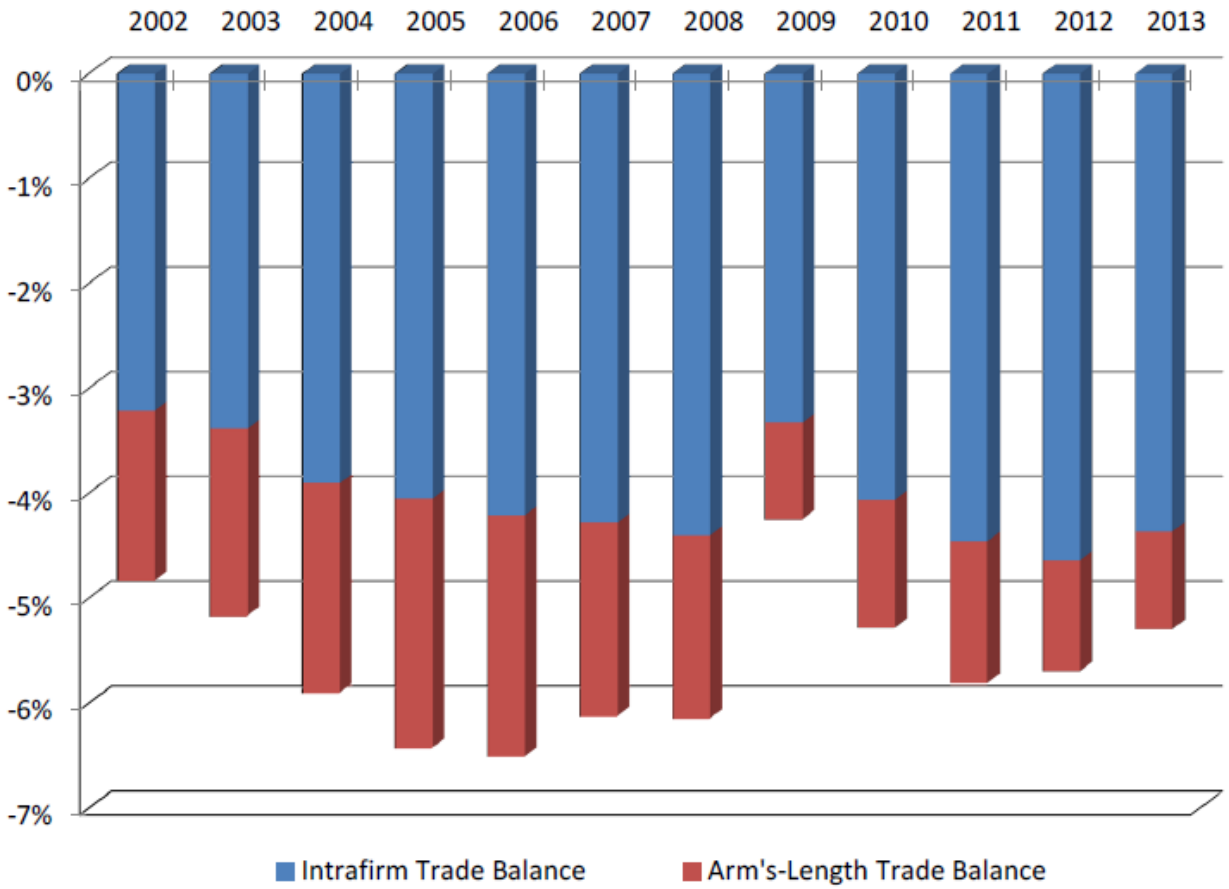
United States Trade Deficits with China, Japan, and South Korea



Sources: World Input-Output Database (WIOD) and author's calculations. Deficits for Japan and South Korea are combined in the figure.

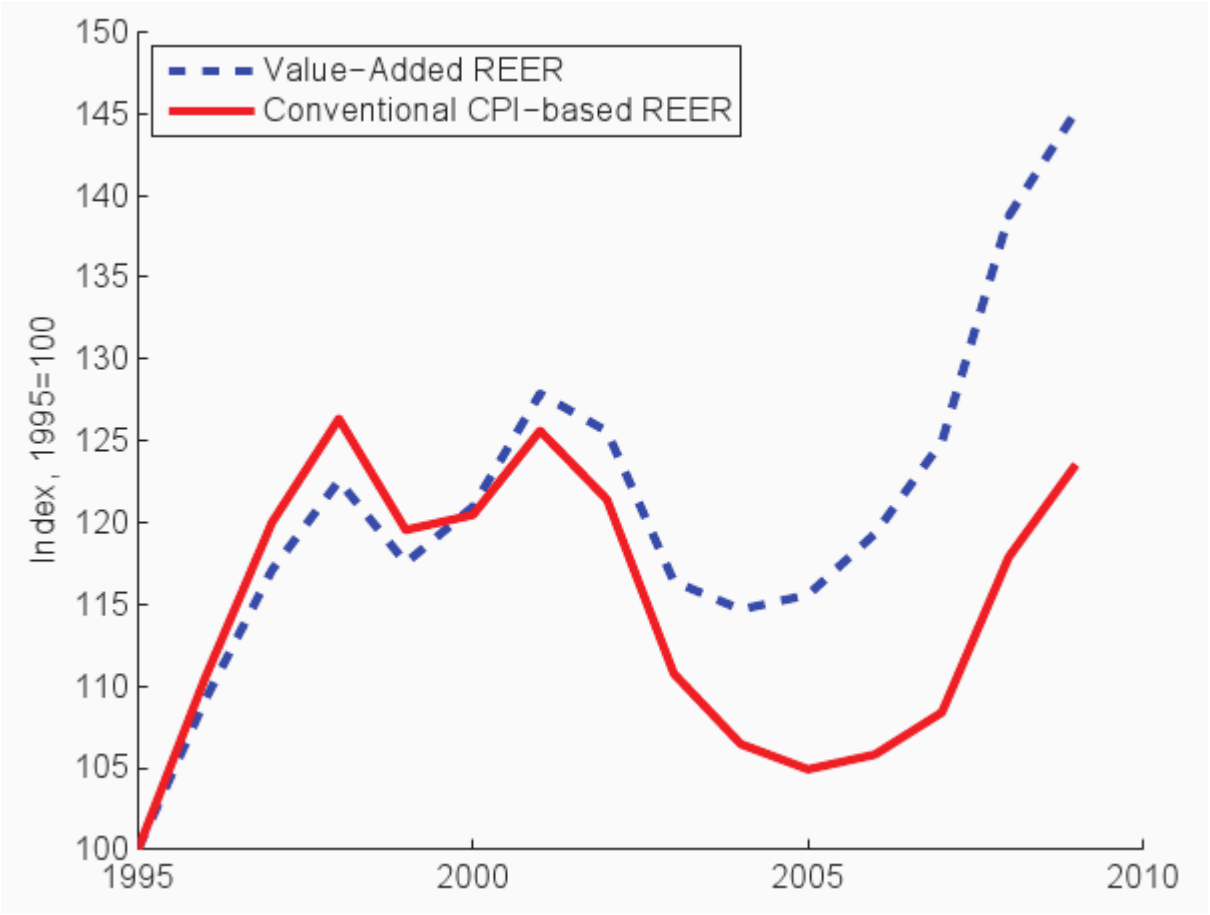
Source: Antras, 2015

DO IMBALANCES HAVE THE SAME IMPLICATIONS FOR POLICY IF MAJORITY IS INTRA-FIRM?



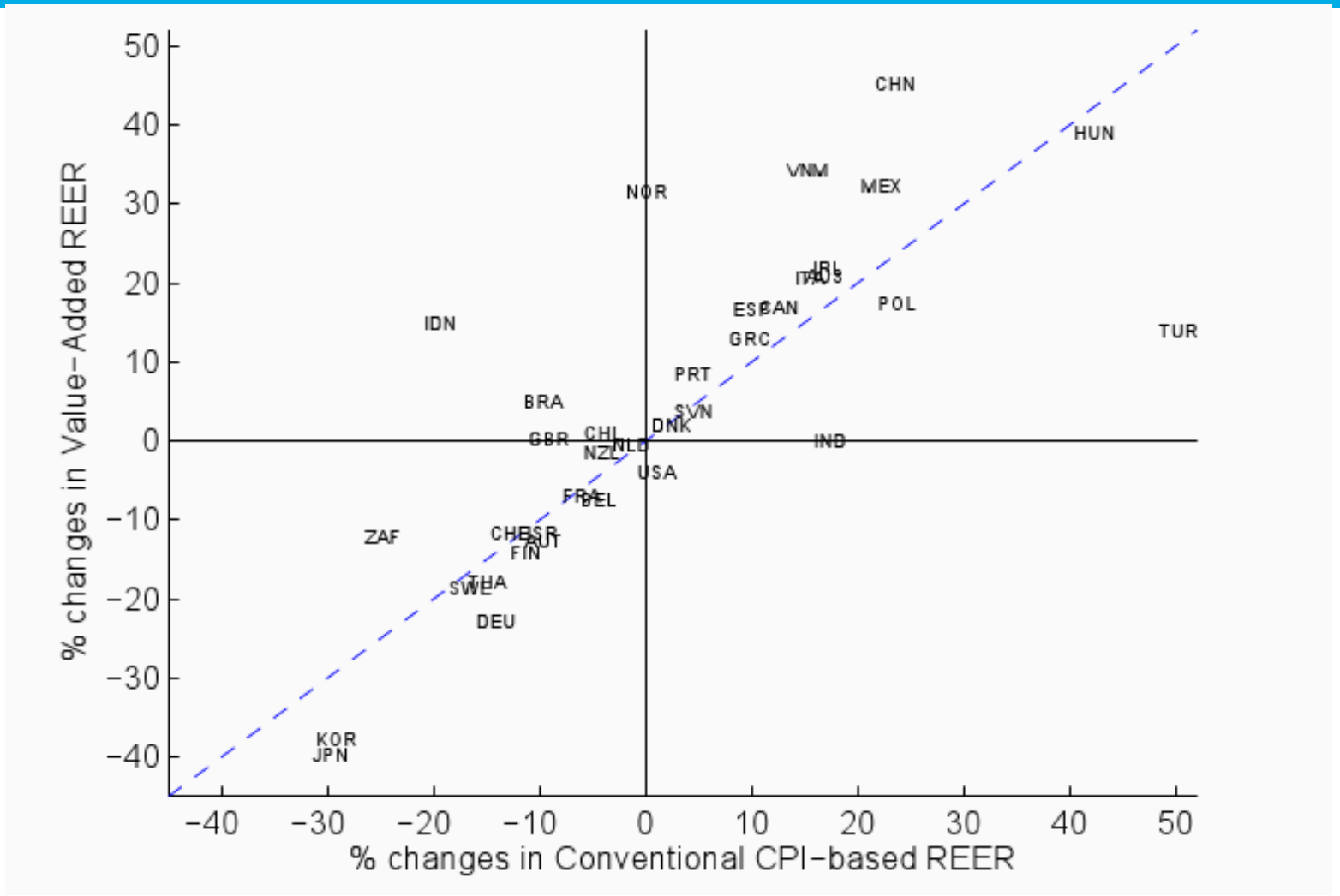
85% of US trade deficit explained by intra-firm trade

CHINA'S CURRENCY IS NOT SO UNDERVALUED AFTER ALL: VALUE-ADDED VS. CONVENTIONAL REERS



Source: Bems and Johnson, 2012

VALUE-ADDED VS. CONVENTIONAL REERS, 42 COUNTRIES

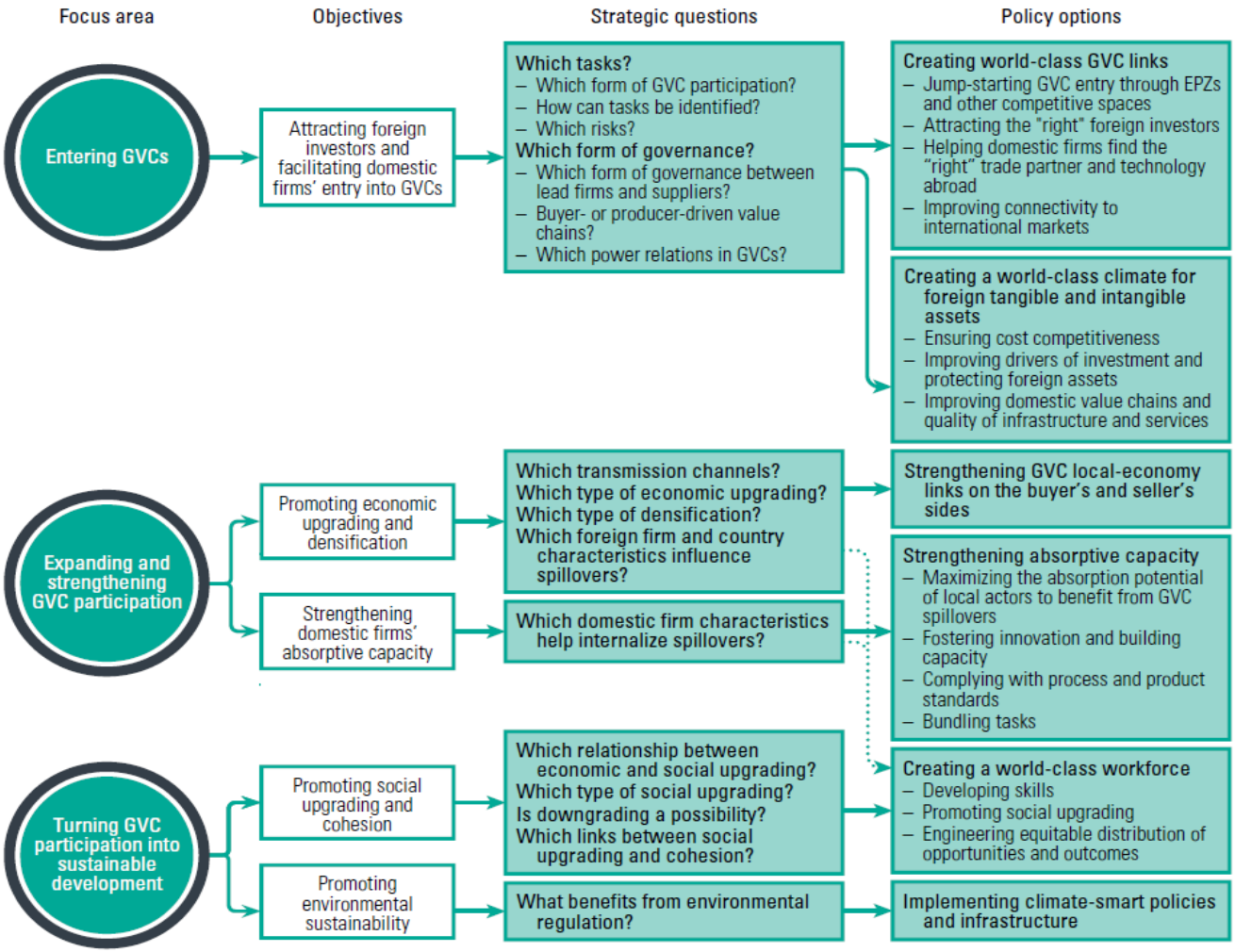


Source: Bems and Johnson, 2012

Outline

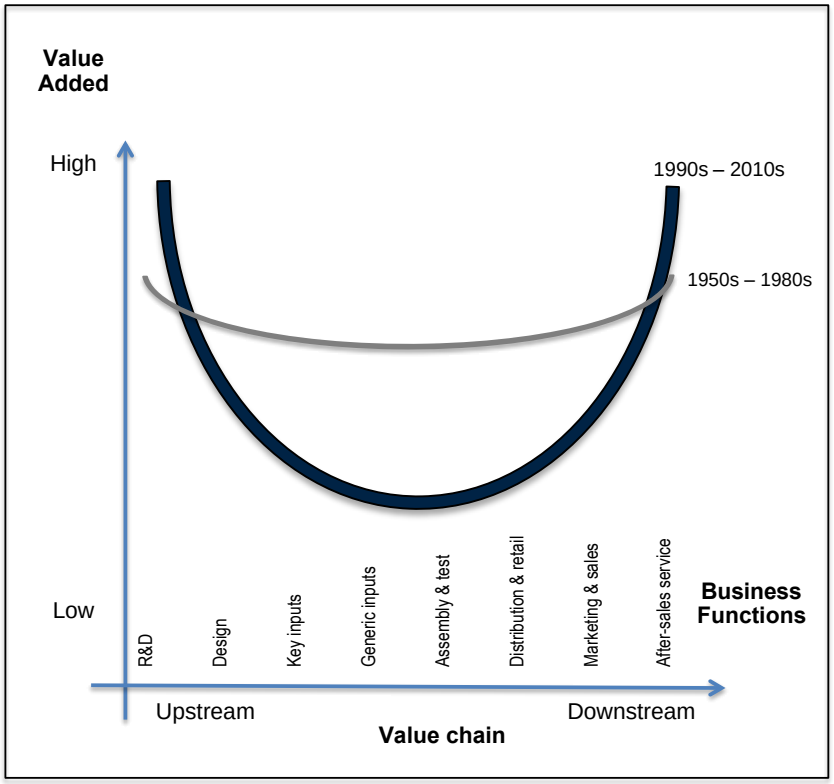
1. What are Global Value Chains and why do they matter? (5')
2. **What changes for policy? (10')**
3. China role in GVCs: what opportunities for the others? (2')
4. Looking ahead: effects of technology and changes in the length of GVCs (1)
5. Conclusions (2')

HOW DO WE GET AROUND THINKING ABOUT POLICY IMPLICATIONS OF GVC ENGAGEMENT?



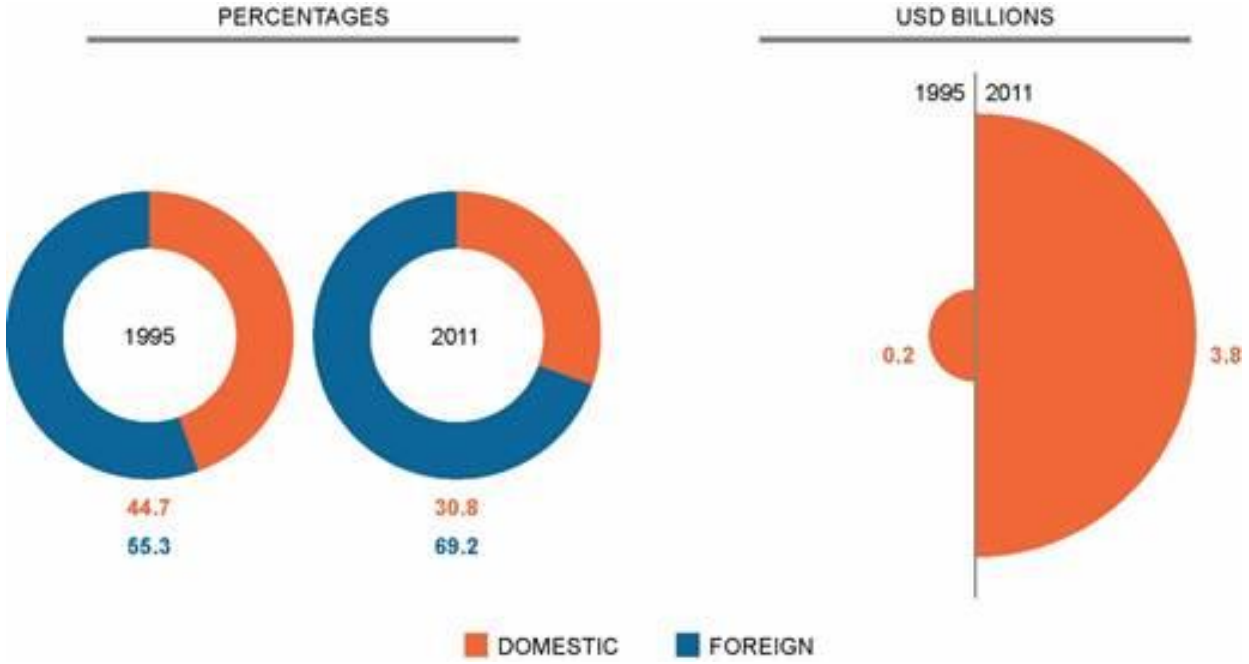
Source: Taglioni and Winkler (2016, 146).

DISTRIBUTION OF VALUE ADDED ALONG THE GVC HAS BECOME A "SMILEY"

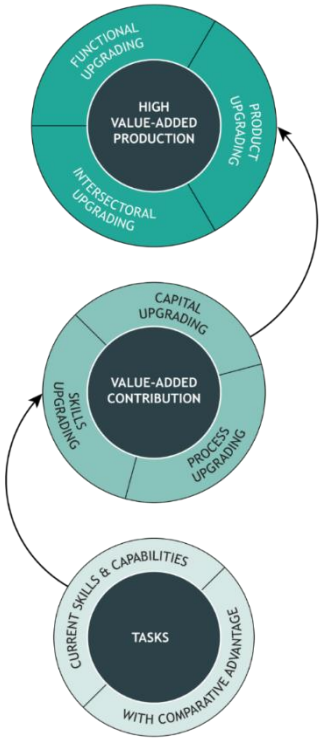


HOW CAN WE CAPTURE MORE VALUE ADDED IN GVCS?

A bigger share or a bigger pie? Electrical and optical equipment in Vietnam



SO, ALL WE NEED IS LOVE AND GVCS?



Economic upgrading in GVCs allows to achieve higher value-added production in the form of

- product upgrading
- functional upgrading, and
- intersectoral upgrading

via better

- skills and know-how
- capital and technology, and
- processes

based on a country's current

- tasks with comparative advantage, and
- skills and capabilities.

National characteristics can influence foreign and domestic firm characteristics and the transmission channels for knowledge diffusion.

Asset protection and competition encourage foreign investment in general and investment that comprises technology transfer in particular.

The **tax regime** can be a barrier to upgrading if it discriminates against production for the export market in the form of taxes on exports or international trade more widely.

Global connectivity —comprising services and the ICT infrastructure— ensure timeliness in GVCs and expand the demand for domestic value added.

Innovation and quality as well as the **education and learning infrastructure** influence the share of human capital in firms and the demand for domestic value added.

Source: Taglioni and Winkler (2016, 146).

HENCE, POLICY MATTERS: THE MICROECONOMIC DIMENSION

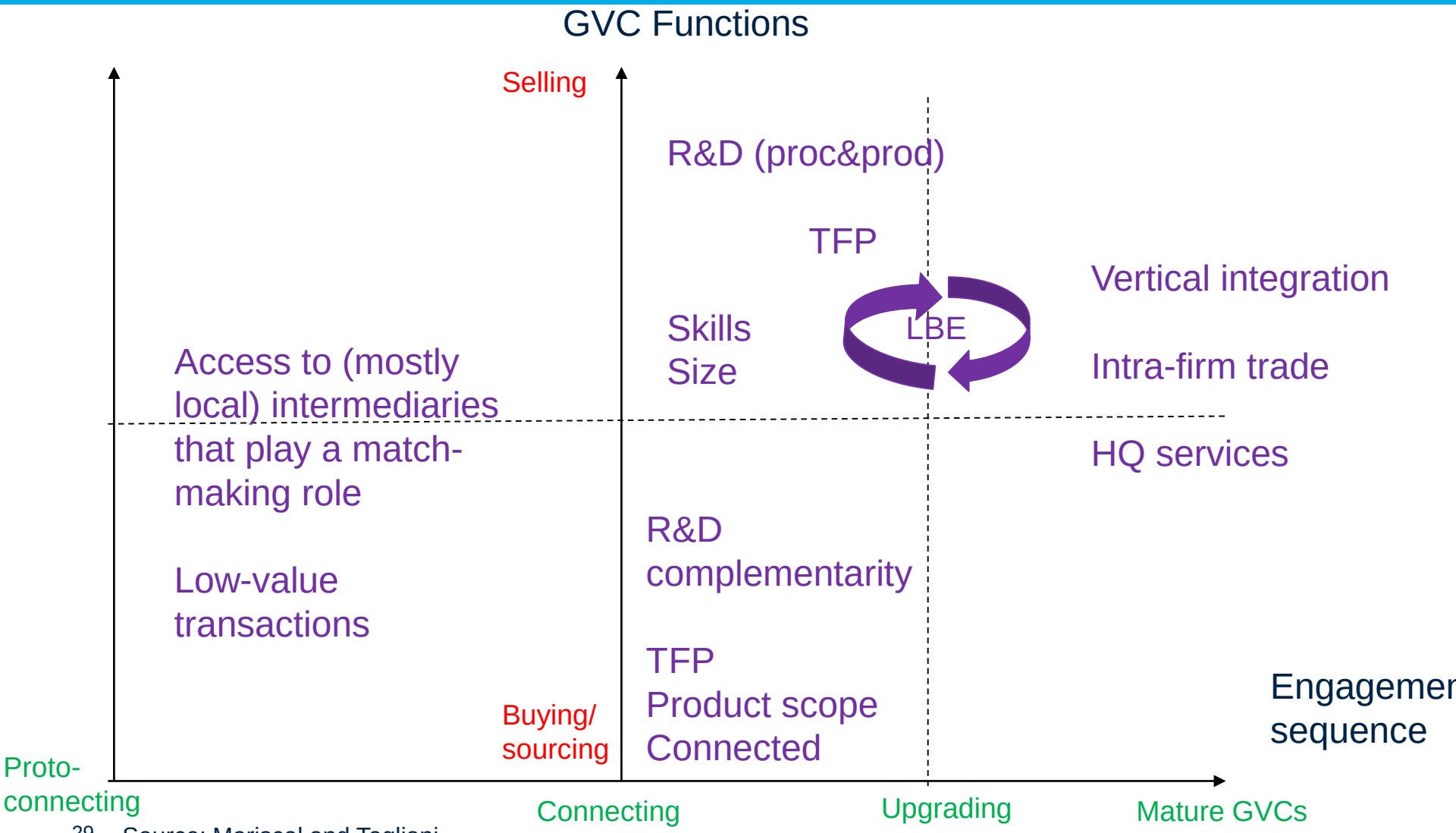
- **FDI attraction** matters most strongly for resource-intensive sellers. Once they diversify into manufacturing, **connectivity** as measured by the LPI becomes more important than FDI.
- **Education quality** becomes very relevant for manufacturing buyers, but they also need to rely on good connectivity.
- Finally, to become a manufacturing seller or hub, countries need to have strong **innovative capabilities** – besides world-class connectivity, education quality (and FDI attraction).

Selected policy indicators, average by GVC type, 2011

GVC type	FDI	LPI	Educ quality	Innovation
buyer_agr_mfg	**4.97**	2.52	3.17	2.77
buyer_mfg	5.82*	3.21	**4.31**	3.48
buyer_mfg_serv	4.53	3.06	**4.33**	3.57
hub	1.97	3.85	4.77	**5.09**
seller_agr	**4.05**	2.37	3.15	2.77
seller_agr_mfg	3.00	**2.54**	3.40	2.92
seller_comm	**5.61**	2.56	3.55	3.01
seller_comm_mfg	3.06	**2.78**	3.62	3.04
seller_comm_mfg_serv	3.63	**3.14**	3.91	3.42
seller_comm_serv	4.53	2.71	**3.99**	3.43
seller_mfg_serv	5.55	3.84	5.08	**4.71**

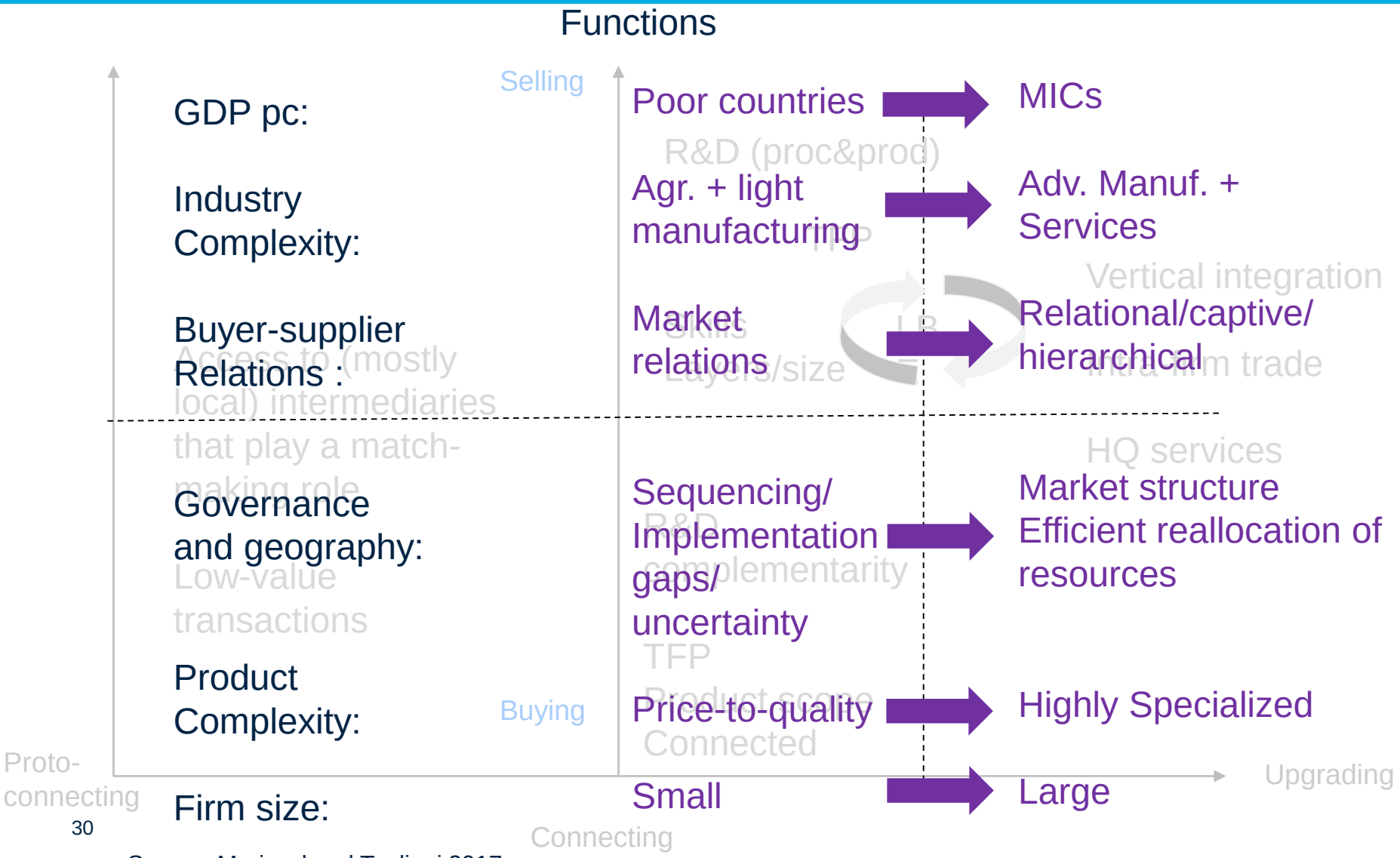
Note: Green refers to high values, red to low values. Most important policy objective by GVC type highlighted in bold. *Average higher due to two outliers Ireland and Singapore with average FDI inflows of 18-19%. FDI = Avg. FDI inflows (% of GDP) between 2000-2011 from WDI. LPI = Avg. Logistics Performance Index of 2007 and 2011 (1-5=high) from WDI. Education quality = Avg. index of educational quality, 1-7(best), between 2006-2011 from WEF. Innovation =Avg. index on innovation environment, 1-7(best), between 2006-2011 from WEF.

THE FIRM PERSPECTIVE EXPLAINS WHY POLICY PRIORITIES ARE DIFFERENT AT DIFFERENT STAGES OF ENGAGEMENT IN GVCS



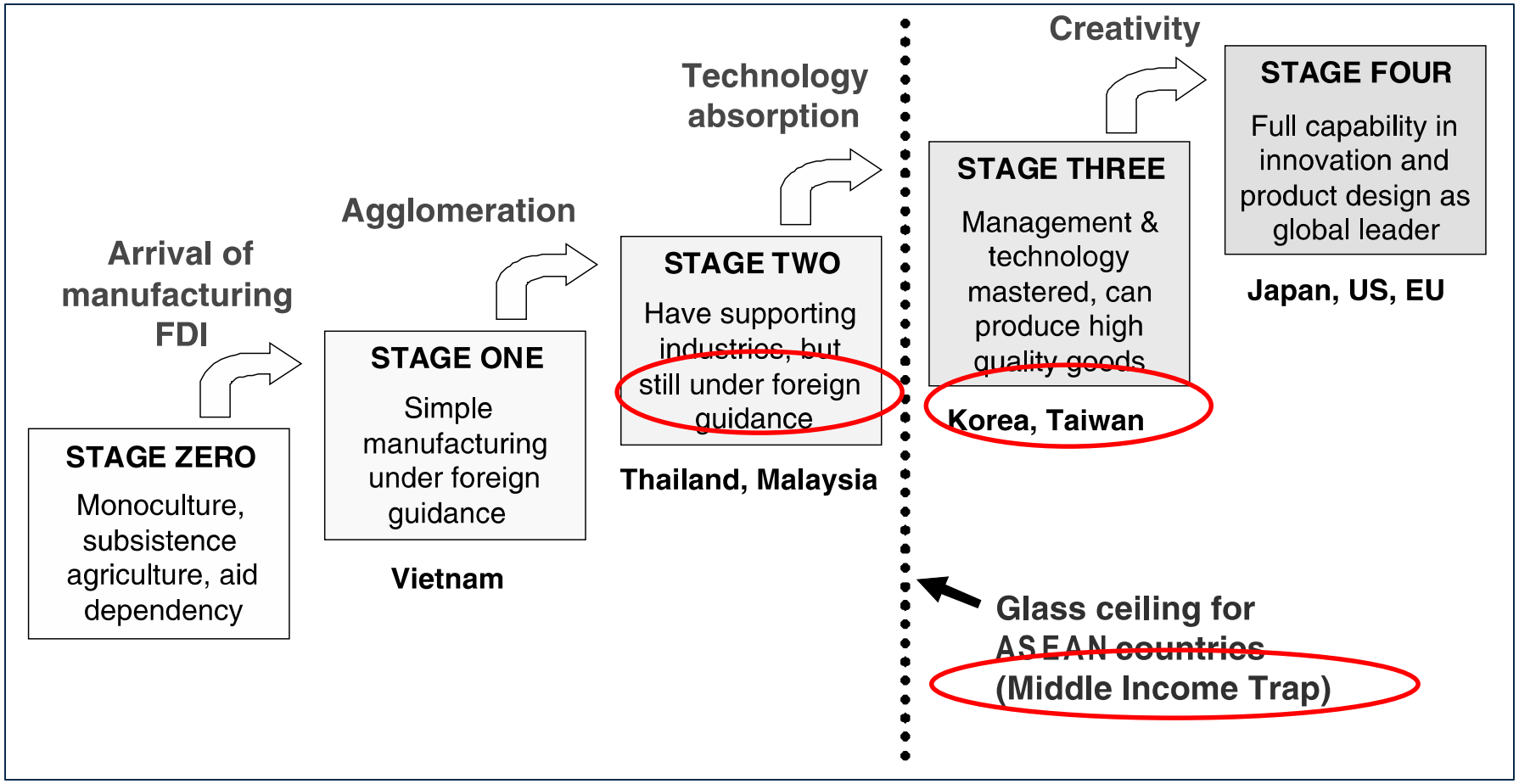
Source: Mariscal and Taglioni 2016

And All this does not Happen in Perfect Competition: The Conditioning Factors are Many



Source: Mariscal and Taglioni 2017

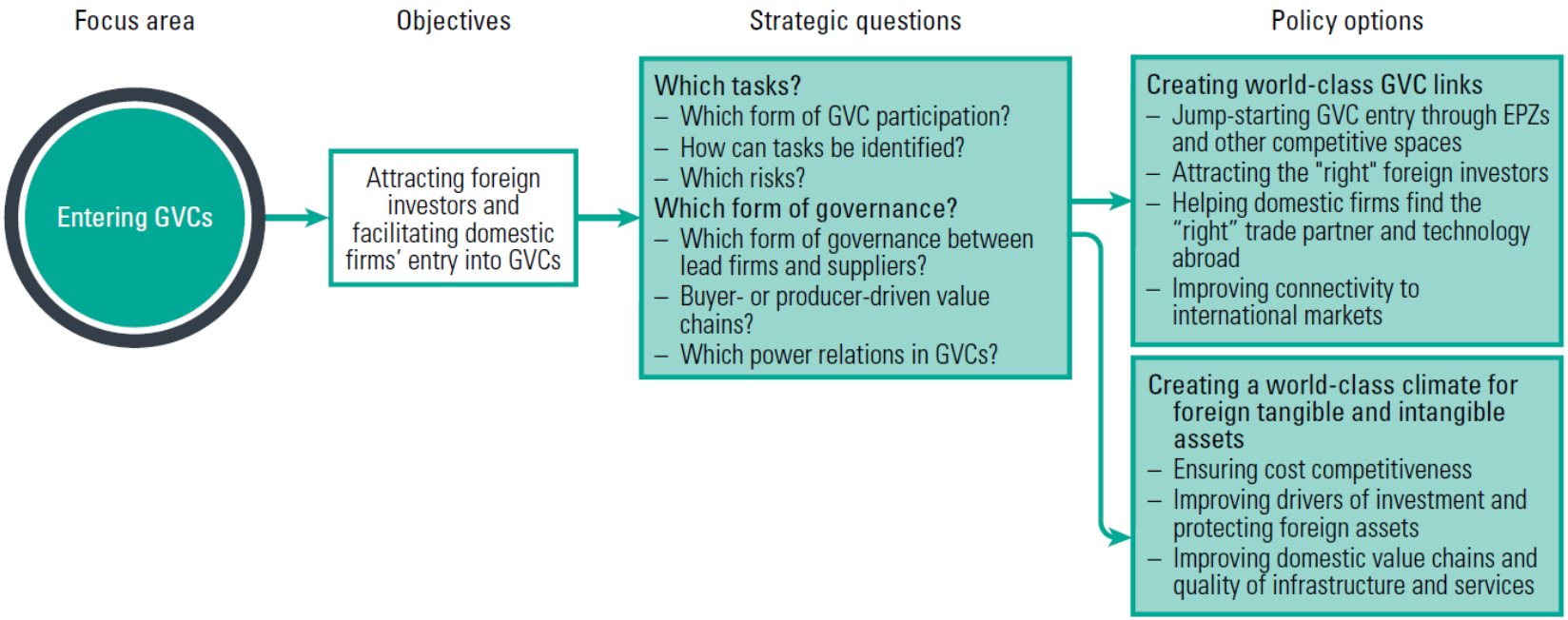
Ohno's Stages of Catch-up Industrialization



STRATEGIC POLICY FRAMEWORK

Entering GVCs:

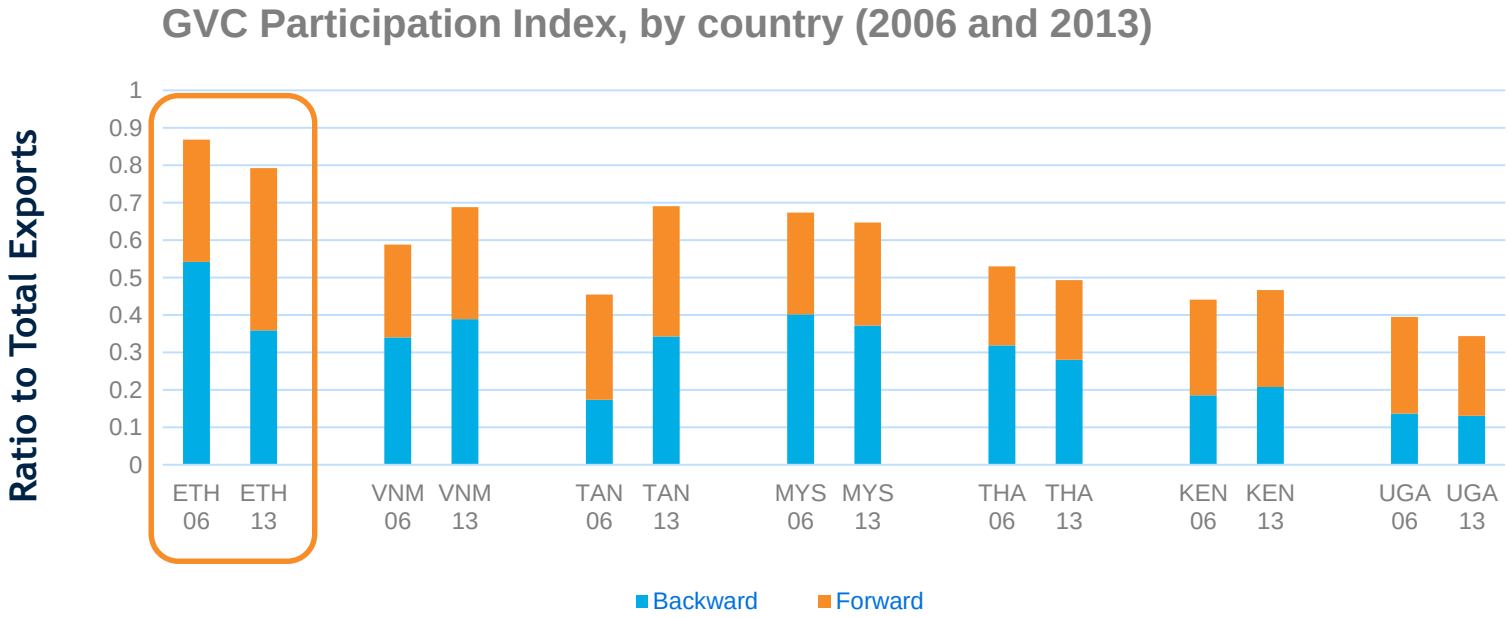
- Which policies help (i) create world-class GVC links and (ii) a world-class climate for foreign tangible and intangible assets?



Source: Taglioni and Winkler (2016, 146).

A TALE OF GVC ENTRY FROM ETHIOPIA: CURRENT POSITION IN GVCS

- Ethiopia has increasingly integrated into GVCs between 2000 and 2013, both on the buying (backward) and seller (forward) side.
- The foreign value added portion of exports grew by 11.9% which is on the medium spectrum among peers.
- Although the percentage of foreign value added in gross exports went down from 54 to 43%, GVC integration is still highest on the buying side, and almost double other East African countries.



WHAT DOES ETHIOPIA TRADE IN GVCS?

Trade in Main Global Value Chains (1997-2013)

	Exports		Imports	
	1997	**2013**	**1997**	**2013**
Textiles/Apparel				
Final	0.1	3.3	0.9	0.8
Intermediate	1.6	1.8	4.3	1.3
Footwear				
Final	0	1.1	0.8	0.1
Intermediate	0	0	0.1	0
Electronics				
Final	1.4	0.1	4.6	2.5
Intermediate	0.2	0.2	1.3	0.5
Motor vehicles				
Final	0	0	0.8	0.1
Intermediate	0.1	0.1	0.1	0
Total X-M (US$ million)	**528**	**2,061**	**1,047**	**6,362**

KEY CHALLENGES FOR ETHIOPIA'S FURTHER INTEGRATION IN GVCS

- High cost, long time to trade across borders
- Low total factor productivity, especially in agriculture
- Vulnerability to external shocks, e.g., commodity prices
- Regional competition in similar sub-sectors
- Impact of slowing global trade and new protectionism
- Poor quality infrastructure
- Slow structural transformation, even with rising FDI inflows

HOW CAN ETHIOPIA STRENGTHEN COMPARATIVE ADVANTAGES AND UPGRADE IN GVCS?

Improve **connectivity and logistics performance**, in particular the time to import and export.

Attract more **foreign investment** by improving investment freedom, ease of doing business, investor protection, property rights, market institutions that enforce foreign competition, and trade openness.

Facilitate **access to services** by lowering services trade restrictiveness and improving ICT connectivity.

Improve **access to finance, banking efficiency and financial freedom**.

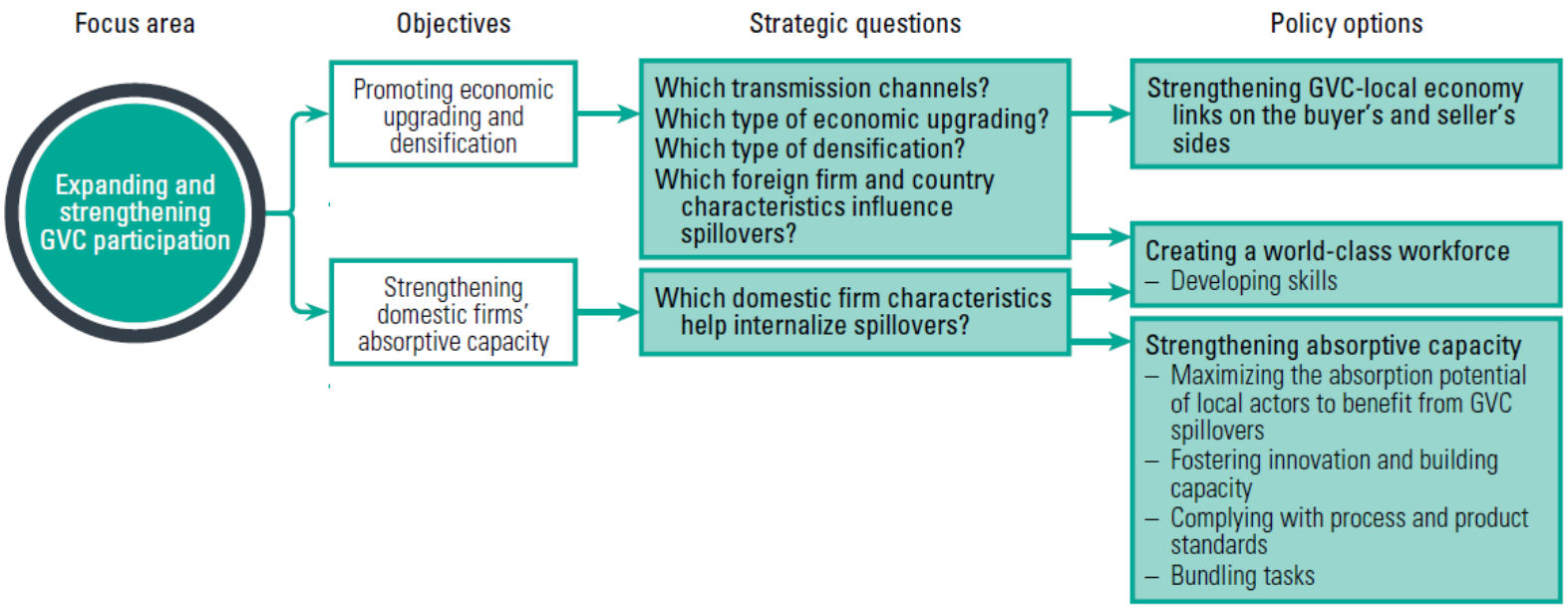
Foster **skills** upgrading by improving the quality of education, on the job training, and the availability of new technologies.

Adjusting **regulations** on market entry and qualification requirements for professions, licensing, competition, taxation, and on foreign providers, and by offering training opportunities

STRATEGIC POLICY FRAMEWORK

Expanding and strengthening GVC participation:

- Which policies help strengthen (i) existing GVC-local economy links and (ii) absorptive capacity of local actors?



Source: Taglioni and Winkler (2016, 178).

A TALE OF STRENGTHENING PARTICIPATION FROM BRAZIL: RELATIVE TO PEER COUNTRIES, BRAZIL IS LEAST SPECIALIZED IN GVC TRADE

GVC exports and market share, Brazil vs. comparators

All GVCs combined	Exports 2007	Market Share 2007	Exports 2013	Market Share 2013	CAGR 2007-2013
Turkey	30,270	28.7	35,974	24.2	2.9%
Mexico	73,316	32.3	100,411	30.6	5.4%
Argentina	7,558	10.3	9,976	10.2	4.7%
Thailand	26,627	19.0	36,783	17.5	5.5%
Indonesia	225,854	32.3	365,580	29.9	8.4%
South Africa	5,843	8.2	10,513	7.9	10.3%
China	277,799	25.9	434,622	21.8	7.7%
India	21,126	14.5	45,003	13.4	13.4%
Brazil	15,154	9.6	15,375	6.6	0.2%

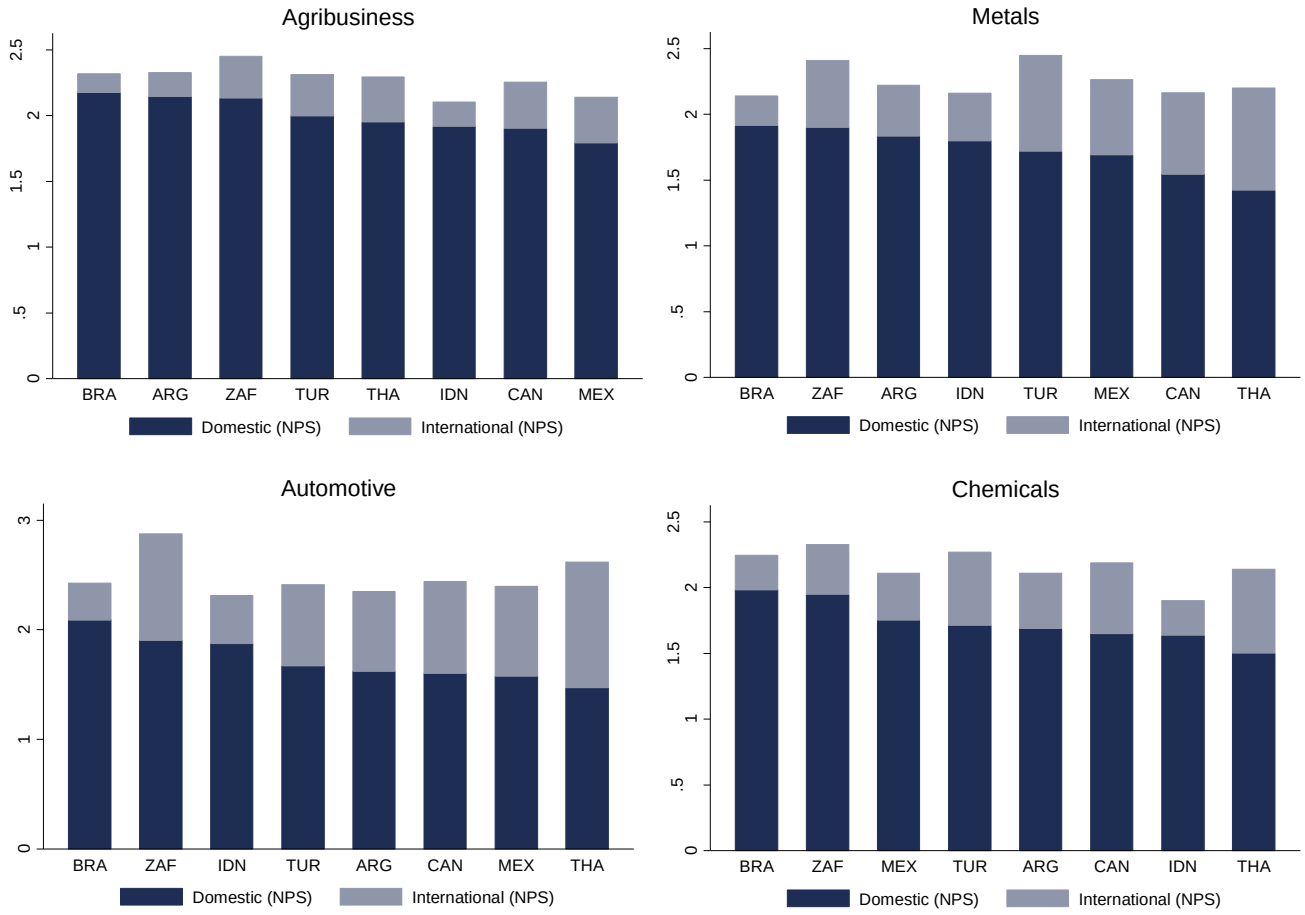
Growth rate of Brazil's GVC exports

	CAGR 2007-2013
Intermediate apparel	-6.6
Final apparel	-9.2
Intermediate footwear	4.9
Final footwear	-8.9
Intermediate electronics	-1.9
Final electronics	-14.8
Intermediate autos	1.2
Final autos	2.6

Source: World Bank GVC Dashboard

BRAZIL EXHIBITS LOWER INTERNATIONAL ENGAGEMENT IN EACH OF THE SELECTED GVC SECTORS, REFLECTED WHEN LOOKING AT THE ENTIRE "CHAIN" OF PRODUCTION LINES

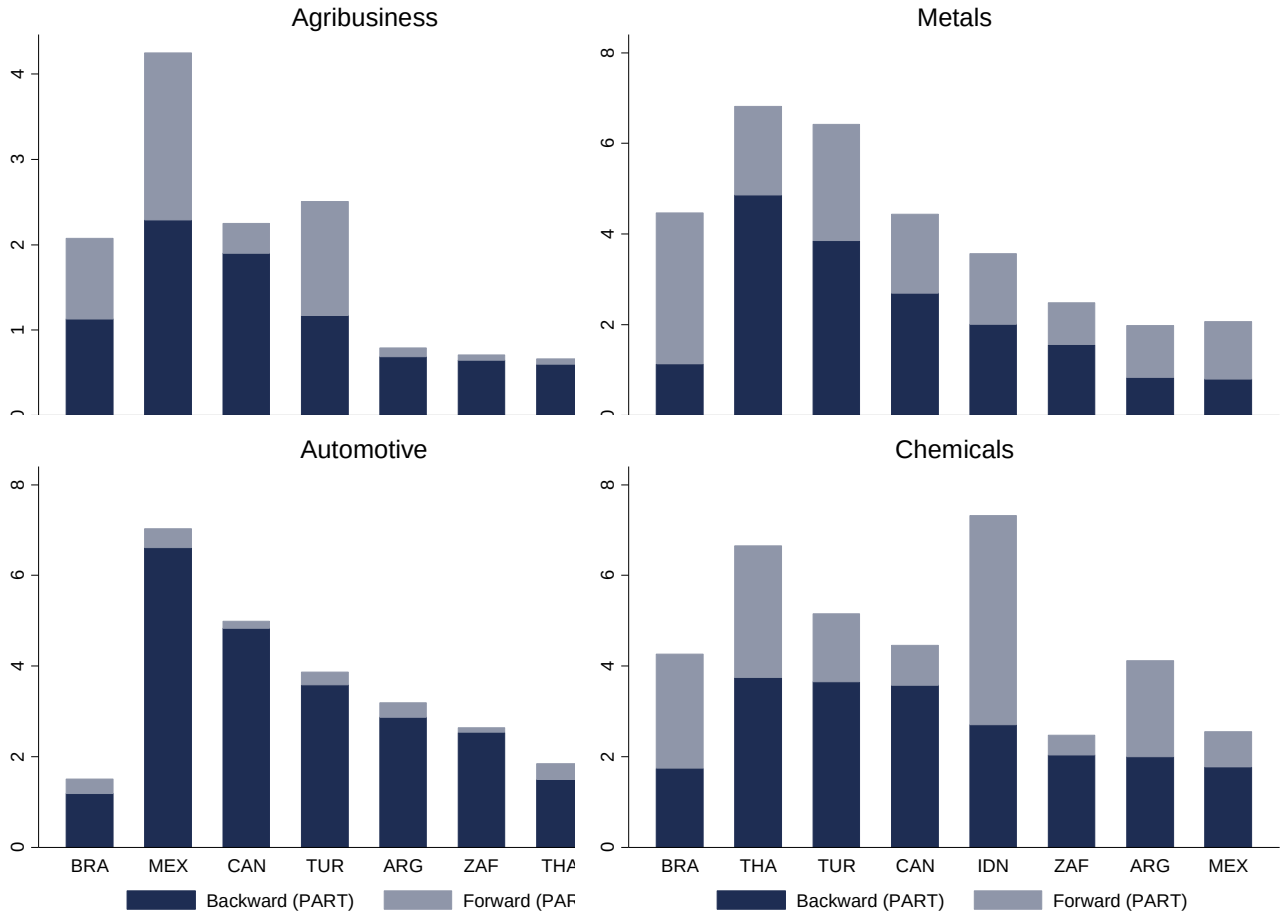
Average length of the value chain, by sector and country



Source: Authors' calculations using OECD/WTO TiVA
*No updates for 2011

AS A RESULT, BRAZIL' S PARTICIPATION IN GVCS VARIES ACROSS SECTORS, BUT TENDS TO BE STRONGER AS A SELLER THAN AS A BUYER…

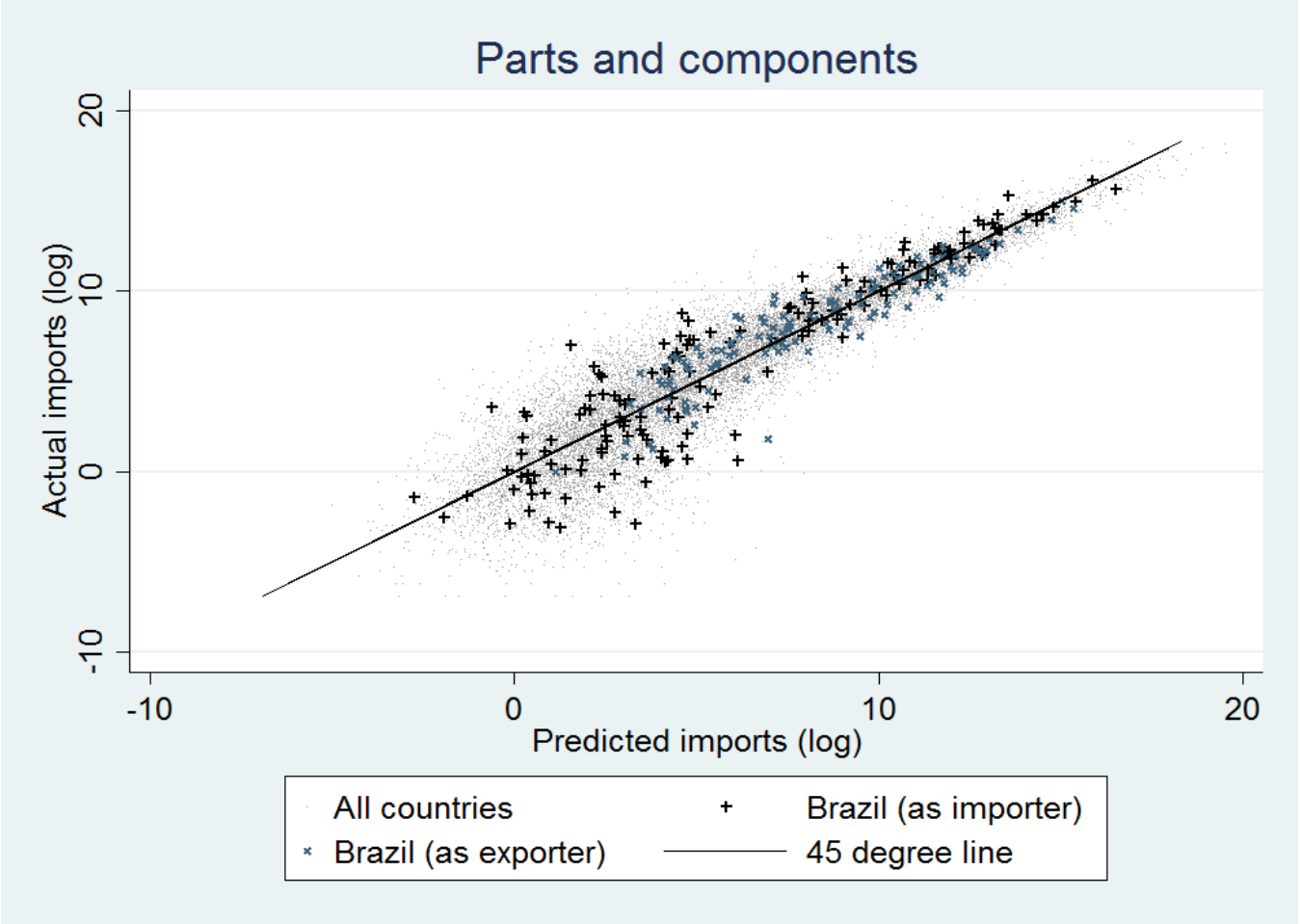
Participation by sector and country (Backward and Forward)



Source: Authors' calculations using OECD/WTO TiVA
*No updates for 2011

BRAZIL IS MORE LIKELY TO UNDER TRADE AS AN IMPORTER THAN AS AN EXPORTER OF PARTS AND COMPONENTS

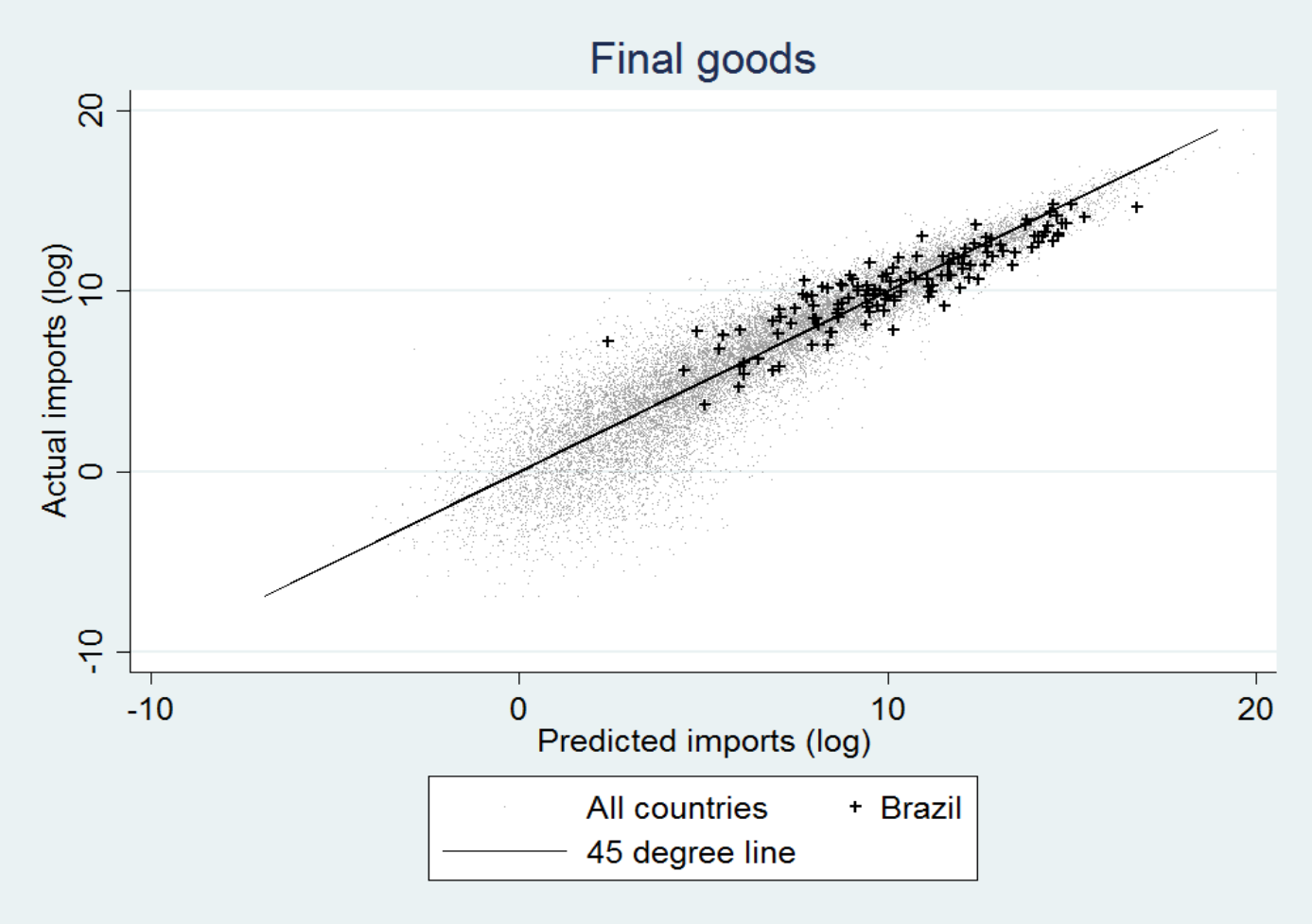
Gravity model of trade for parts and components



Authors' calculations using data from UN Comtrade and Ruta, Rocha and Osnago (2016).
Note: Intermediate goods include BEC 42, 53 and SITC 65

THERE ARE FEW COUNTRIES THAT BRAZIL SIGNIFICANTLY UNDER TRADES WITH IN FINAL GOODS EXPORTS

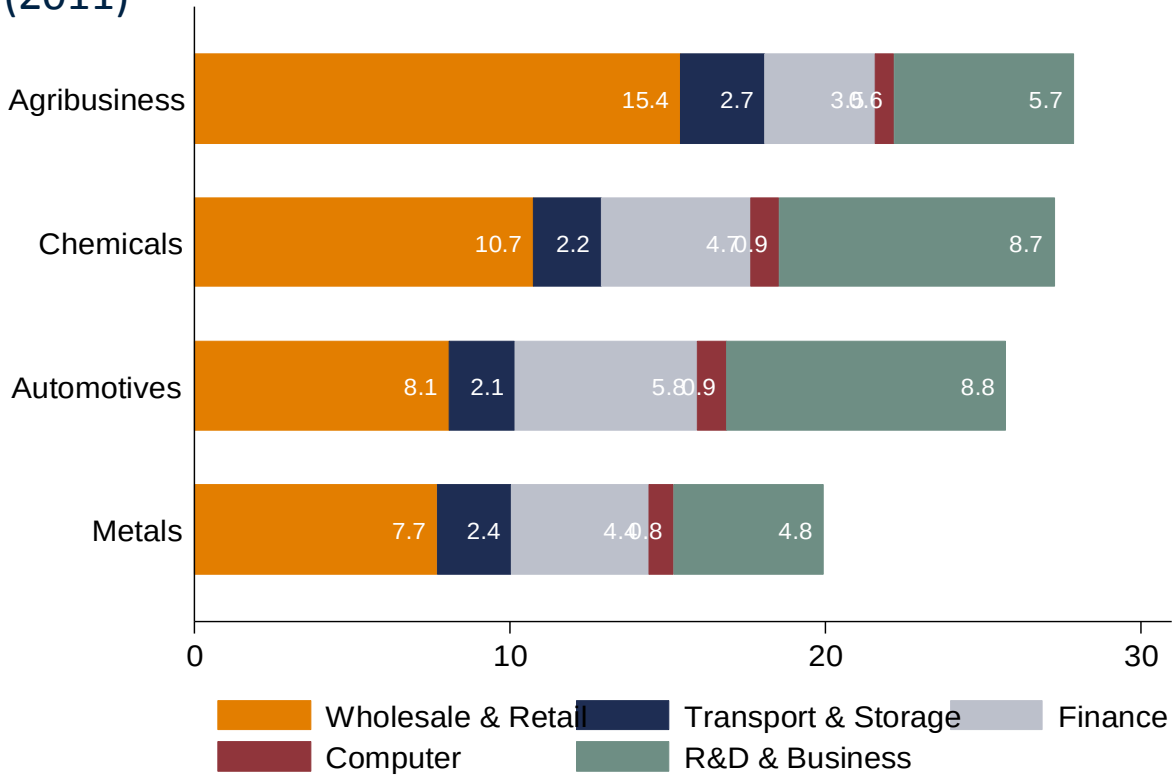
Gravity model of trade for final goods



Authors' calculations using data from UN Comtrade and Ruta, Rocha and Osnago (2016).
Note: Final goods include BEC 112, 122, 522, 6

MEANWHILE, SERVICES SECTORS HAVE BEEN IMPORTANT FOR GROWING THE INDIRECT VALUE ADDED IN GVC-ORIENTED EXPORTS

Services share of value added in manufacturing sectors gross exports (2011)



Source: Authors' calculations using OECD/WTO TiVA

A VARIETY OF POLICIES CAN HELP TO ENHANCE GVC INTEGRATION AND UPGRADING OF BRAZIL

- Infrastructure and connectivity
- Investment and trade policy
  - investment policy and promotion, including services sectors
  - business climate
  - Intuitional quality
- Financial and labor regulation
  - well-developed financial markets
  - lower unit labor costs, more flexible labor markets
- Standards
  - certification of product standards
  - labor standards

A FIRST STEP FOR BRAZIL TO BENEFIT MORE FROM GVC-PARTICIPATION?

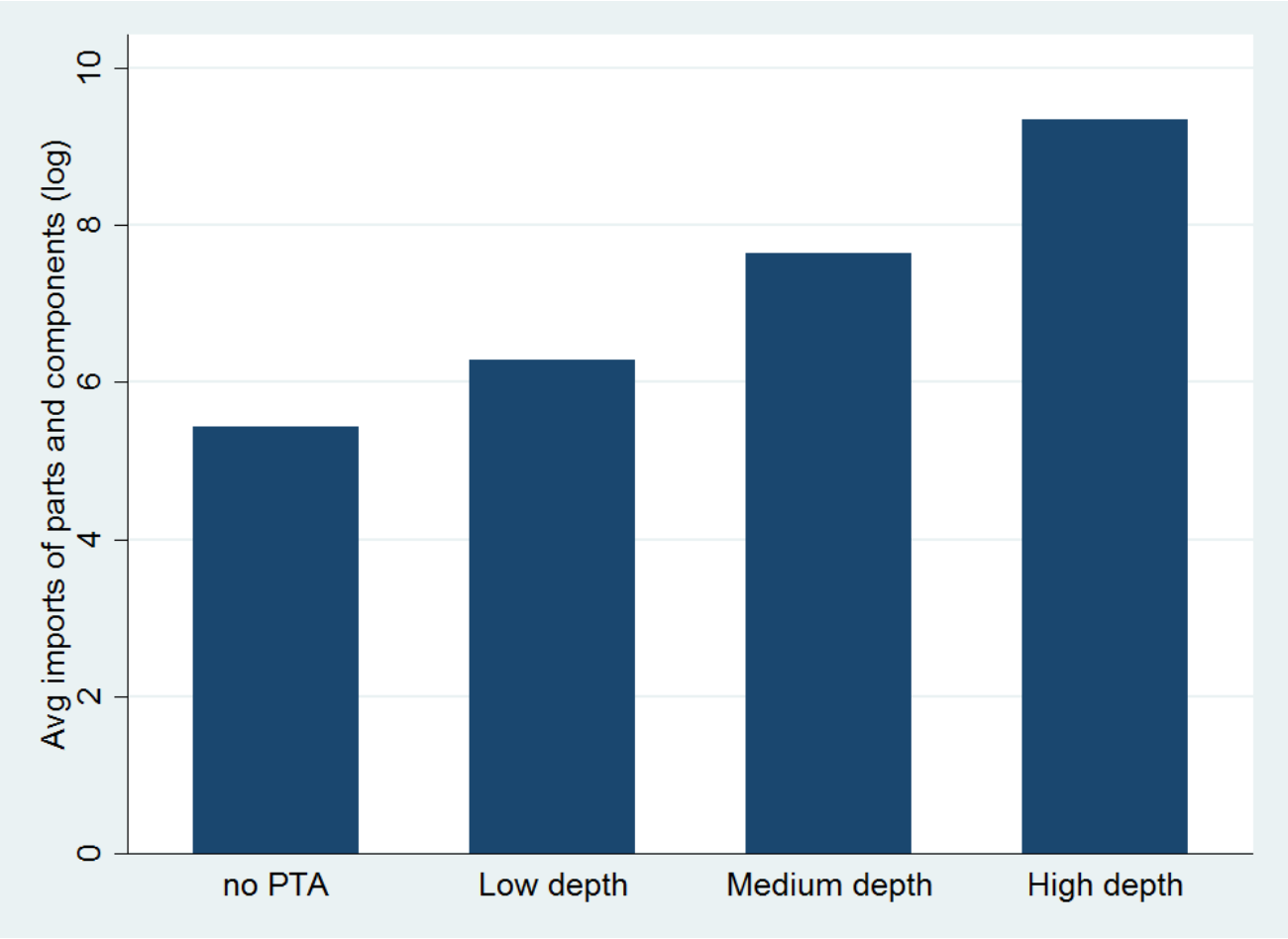
- Both the extensive and intensive margins of deep integration matter for Brazil integration agenda
    - Brazil should integrate with countries other than its natural partners
    - Brazil should aim at signing Agreements with a higher level of depth compared with Mercosur
        - New agreements should include provisions such as investment and competition policy that are demonstrated to be very important in terms of North-South integration

PROLIFERATION OF DEEP AGREEMENTS IS RELATED WITH THE EXPANSION OF GVCS

- An increase in trade flows involving the exchange of customized inputs, incomplete contracts and costs associated with the search for suitable foreign input suppliers creates new forms of cross-border policy effects (Antras and Staiger, 2012).

- National policies including disciplines such as competition policy, investment, infrastructure and institutions should be harmonized across countries in order for cross-border production to operate efficiently (Lawrence,1996).

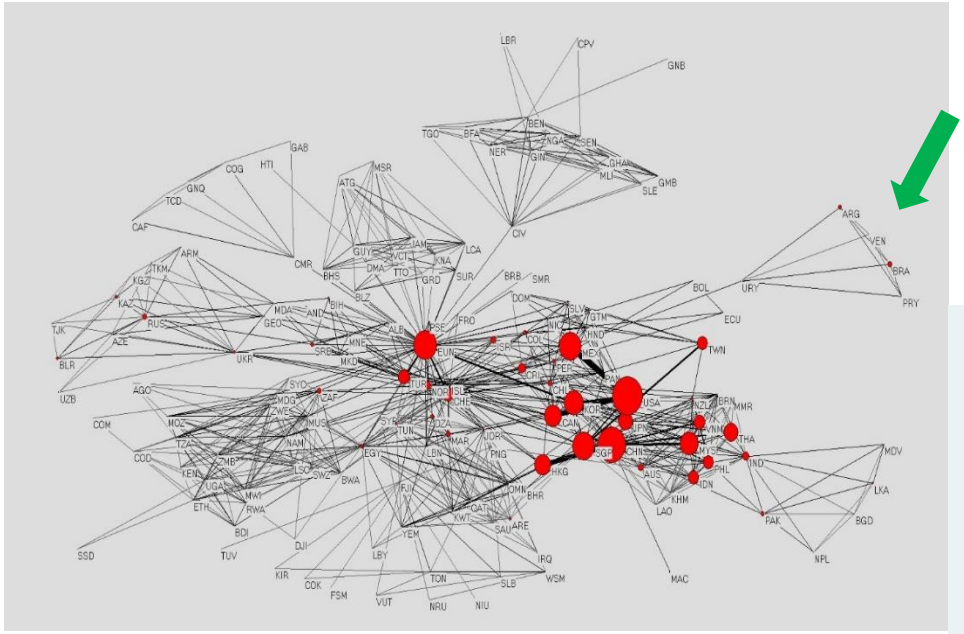
GVC-RELATED TRADE IS ON AVERAGE HIGHER FOR COUNTRY PAIRS THAT SIGNED DEEPER AGREEMENTS

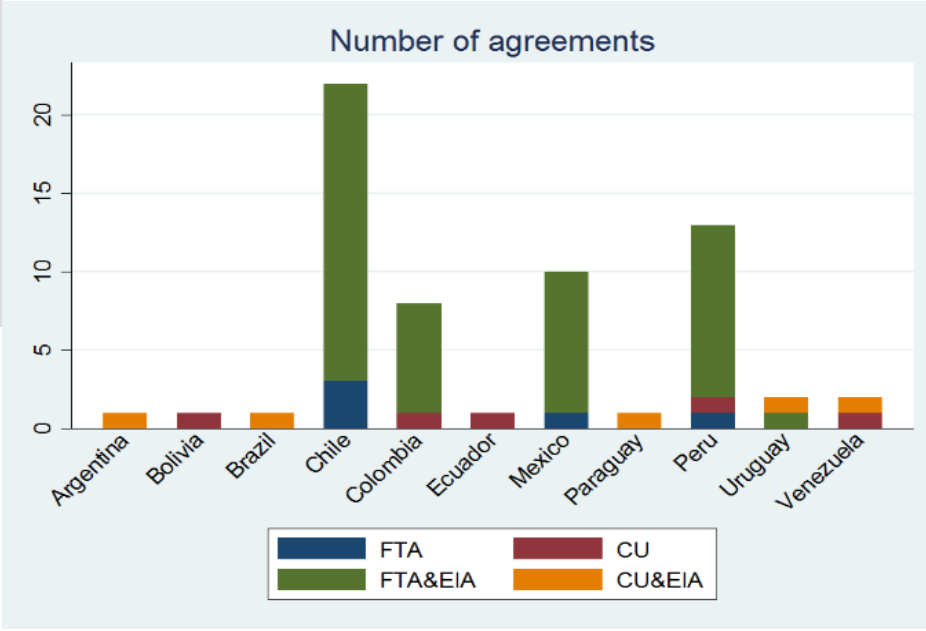


TRADE POLICY AIMING AT MAKING INTERNATIONAL PRODUCTION SMOOTH AND WITHOUT DISRUPTIONS IS VERY IMPORTANT

- Estimations using a gravity framework show that having **one extra provision** in an agreement is related with a **0.6 percent increase in GVC-related trade**.
- GVC-related trade between countries that signed the deepest agreement is **25 percent higher** than before signing the PTAs.
- Overall **depth matters less for North-North countries**, where trade is already liberalized and domestic institutions are robust.
- Behind the border provisions such as **competition policy and investment**, are key drivers of the relationship between depth and GVC-related trade, **particularly for North-South PTAs**.
- Deep agreements are also related to the way firms internationalize

WHY HASN'T BRAZIL BENEFITED FROM DEEP INTEGRATION? WHAT DOES IT NEED TO TAKE INTO ACCOUNT WHEN NEGOTIATING AGREEMENTS?



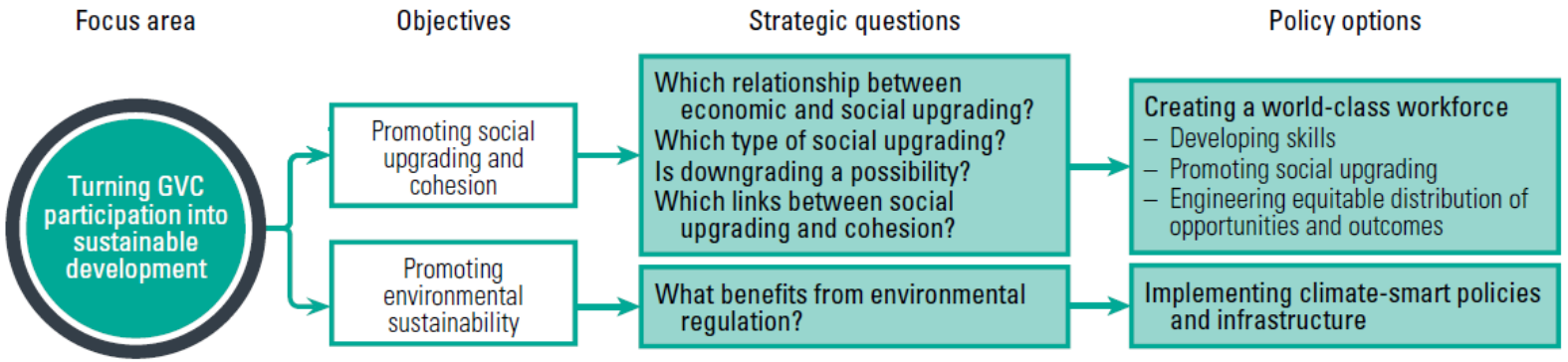


Mercosur has not had a significant impact on GVC-related trade between Brazil and the other country members.

STRATEGIC POLICY FRAMEWORK

Turning GVC participation into sustainable development:

- Which policies help create a world-class workforce?
- How can climate-smart policies be implemented?



Source: Taglioni and Winkler (2016, 198).

The integrated strategic framework for policy intervention requires:

- **360-degree assessment** of the competitiveness of a country **and**
- **drilling down** to specific sectors, GVCs, tasks, and activities.

A TALE FROM THE PHILIPPINES: DOWNGRADING IN GVCS AND OPPORTUNITIES FOR LEAPFROGGING

- The Philippines economy grew strongly in recent years

- Yet, global value chain (GVC) integration and product space evolution do not point to movements in the right direction. It was crowded out by regional competitors, confined to less sophisticated tasks and products, and as a result, it is now more exposed to global demand fluctuations.

- The Philippines:
  - Moved away from its traditional comparative advantage in sophisticated products
  - Increasingly specialized in intermediates, more remote from the final consumer.
  - Became more and more a “GVC taker” as opposed to a “GVC maker”
  - Did not penetrate new markets.
  - Limited diversification of the Philippine exports basket has taken place towards the periphery rather than the center of the product and service space, i.e. closer to the raw materials and less sophisticated products, that is equivalent to an economic downgrading as opposed to upgrading.

- That will make future upgrading and innovation at the center of the product and service space where higher value-added and fungible tasks are performed, even more difficult.

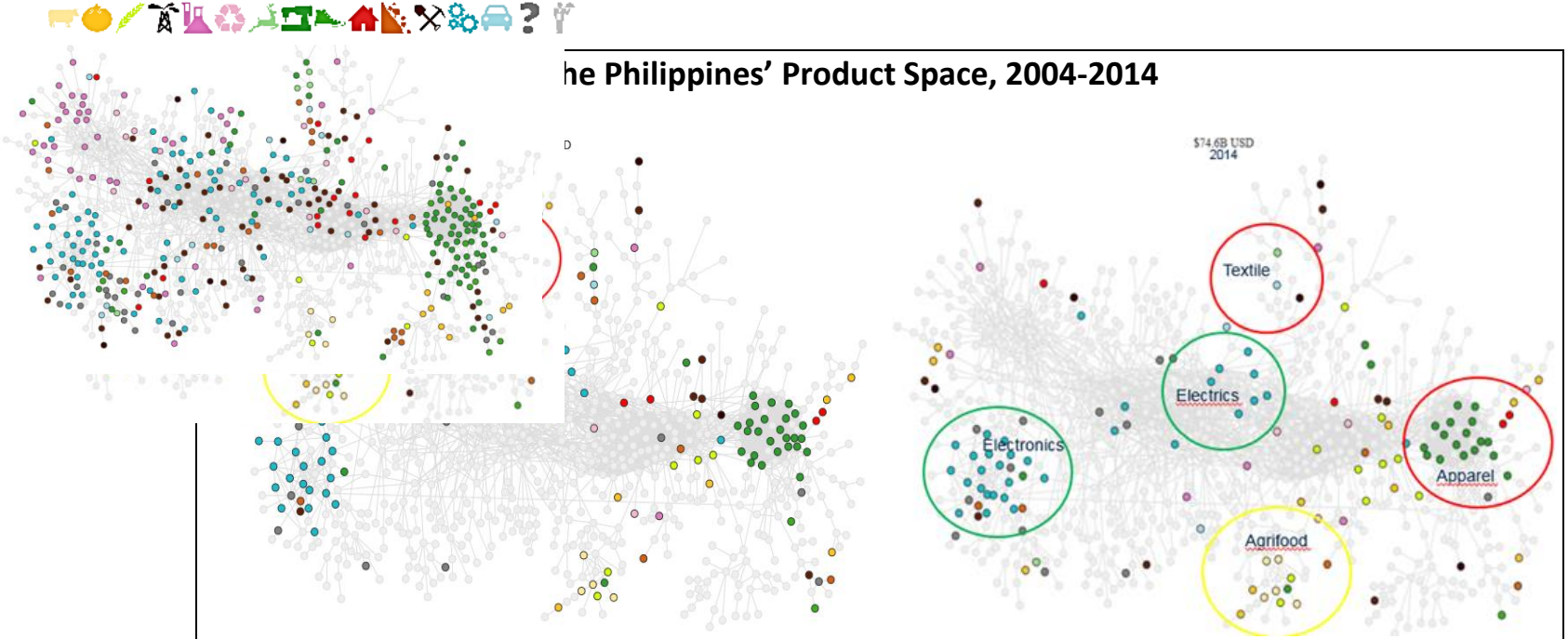
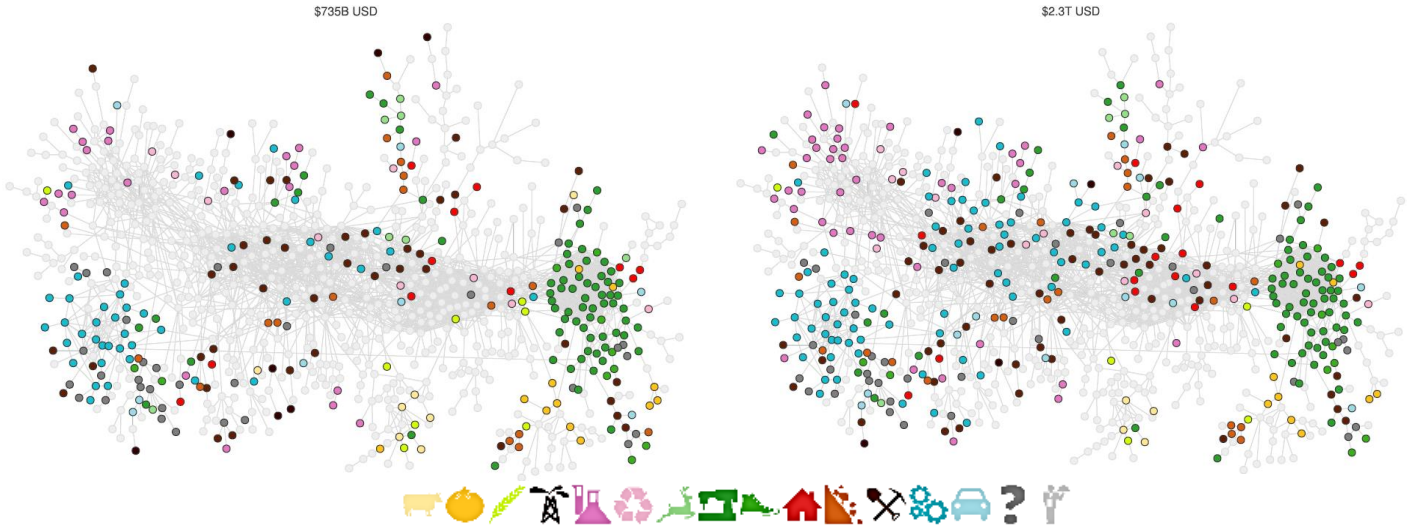


Figure 38. Evolution of China's Product Space, 2004-2014



Source: Atlas of Economic Complexity, Harvard University

USING SERVICES, SOPHISTICATED HUMAN CAPITAL AND SUSTAINABILITY TO LEAPFROG

- Nevertheless, the Philippines has solid fundamentals and the capacity to leapfrog into the 4th Industrial Revolution, including through servicification with its remarkable human assets…
  - Paradox: the Philippines is driven by services exports but poorly endowed with services that are necessary as inputs into other sectors' value chains, such as professional, ICT, and business services.

- …and through the introduction of Sustainable Special Economic Zones (SSEZs) or Eco²zones
  - This requires a shift in the trade and investment paradigm.
  - From the perspective of countries willing to attract FDI and actively participate in global production and trade (GVCs), it is about ending a race to the bottom for FDI attraction, becoming more selective, and rewarding investors with the largest development footprint.

Outline

1. What are Global Value Chains and why do they matter?
2. What changes for policy?
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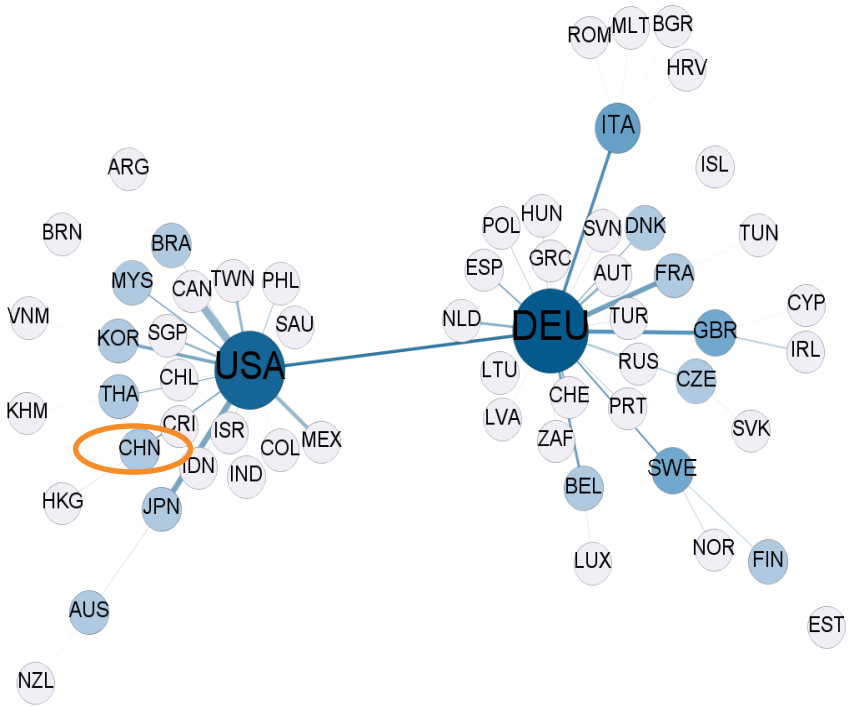
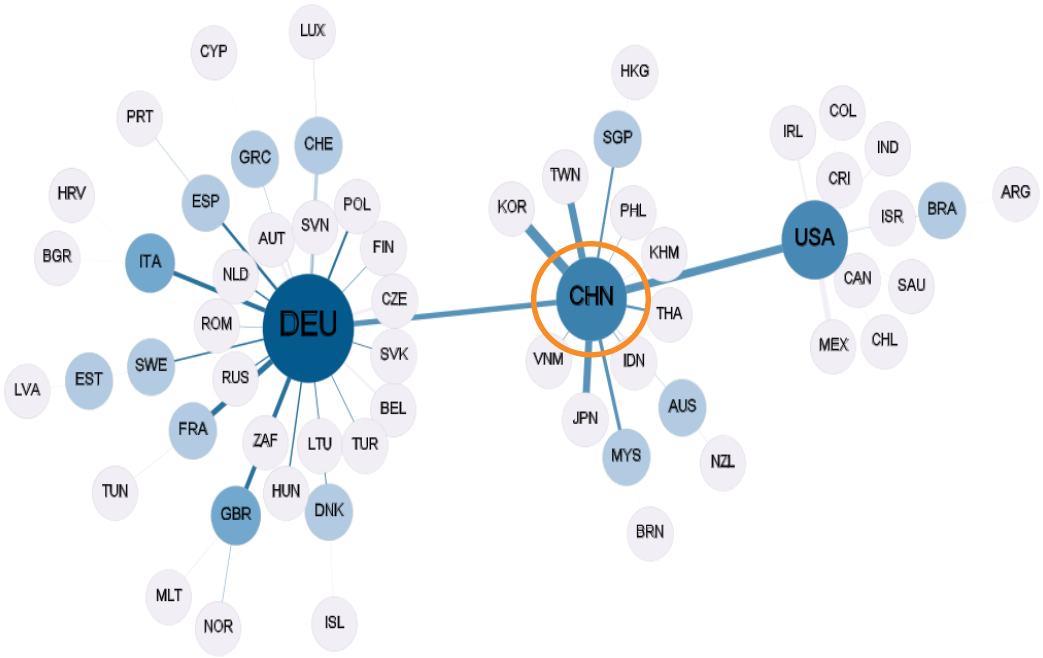
5. Conclusions

CHINA HAS MOVED AT THE CORE OF GLOBAL GVCS

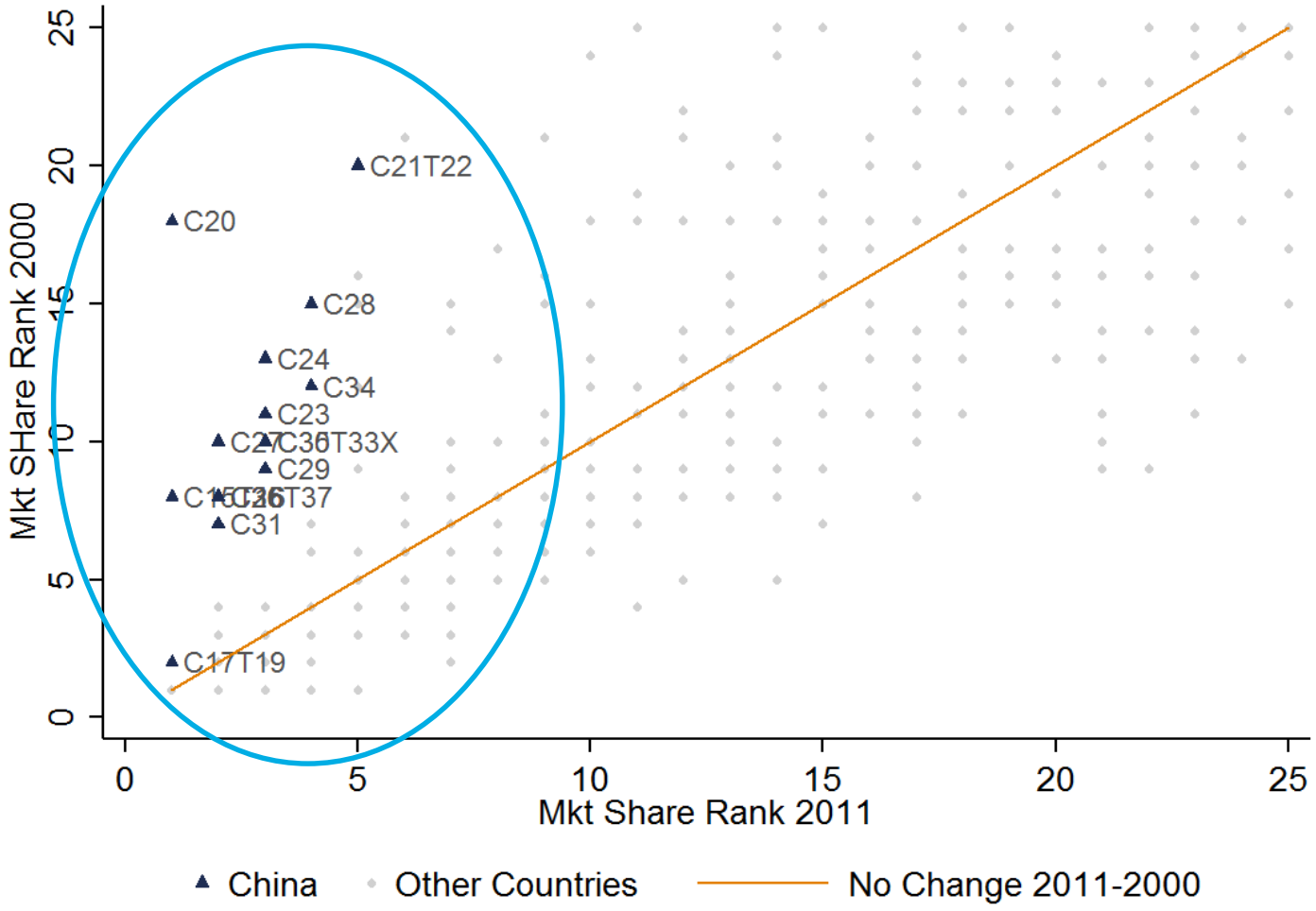




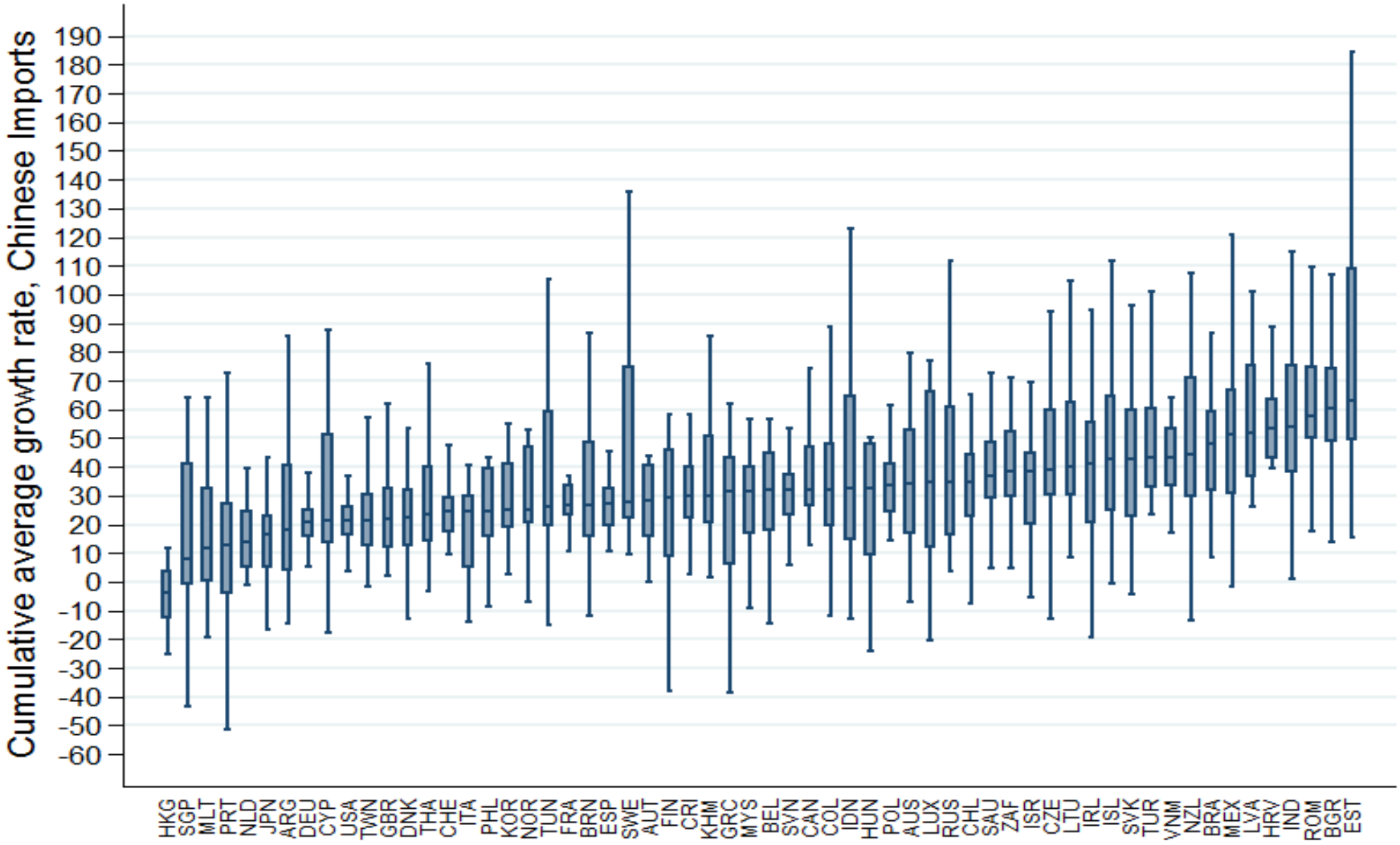
1995

2013

CHINA HAS GAINED MARKET SHARES IN EVERY AND EACH MANUFACTURING SECTOR SINCE 2000

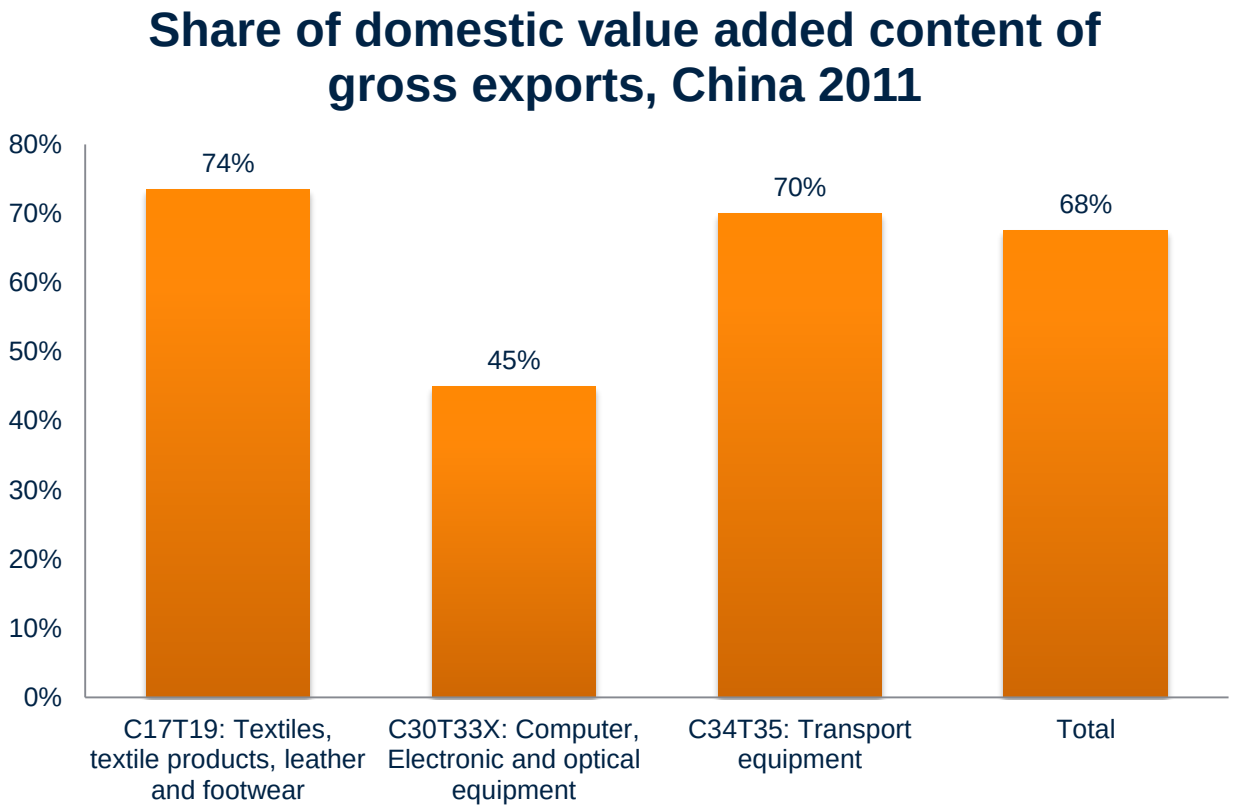


WITH GROWING MEDIAN IMPORT PENETRATION EVERYWHERE, EXCEPT HONG KONG



BUT CHINA'S DOMINANCE OF EXPORTS NOT AS BIG AS IT SEEMS

China's gross exports contain sizeable value added produced in third countries, particularly in Computers, Electronics, and Optical Equipment



Source: OECD-WTO TiVA Database

AND IMPACT ON TRADE PARTNERS HETEROGENOUS

- Import penetration matters, but effects are heterogeneous.
- Trade partners “adjust” to China, specializing in niches where the latter does not go.
- Yet, overall upper-middle income countries, appear to benefit from deepening trade integration with China.
  - China requires inputs for its own production and it stimulates foreign supply because of interregional linkages.
- Maybe a call for new trade policies beyond globalization “fatigue”?

BASELINE RESULTS: 2SLS, VALUE ADDED

	(1) Value Added	(2) Value Added	(3) Value Added	(4) Value Added	(5) Value Added
IPW	-0.115 **				
	(0.054)				
IPW * H Income		-0.160 *	-0.152 *	-0.081	-0.111 **
		(0.086)	(0.077)	(0.064)	(0.043)
IPW * UM Income		0.346	0.889	0.152	0.585 ***
		(0.339)	(0.558)	(0.332)	(0.216)
IPW * LM Income		1.291 ***	0.998 ***	0.155	0.378
		(0.183)	(0.250)	(0.398)	(0.485)
Capital per worker			0.527 ***	0.149	0.080
			(0.171)	(0.185)	(0.153)
TFP-growth			0.776 **	0.323	0.487 **
			(0.292)	(0.230)	(0.210)
Imports, RoW				0.551 ***	0.480 ***
				(0.107)	(0.089)
Upstreamness					-0.498
					(0.936)
Production Stages					-2.052 **
					(0.789)
Constant	6.542 ***	6.160 ***	4.304 ***	1.517 **	2.943 ***
	(0.337)	(0.376)	(0.578)	(0.596)	(0.567)
Number of observations	60.000	60.000	57.000	57.000	57.000
Adj. R-Squared	0.024	0.183	0.386	0.576	0.700

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AUTOMATION, RESHORING AND RISING COMPLEXITY IN MANUFACTURING ARE LIKELY TO FURTHER COMPLICATE ENTRY AND MOVING UP IN GVCS

- Worries about “premature deindustrialization” (Rodrik 2015) may be reinforced.
- Firms and governments in many developing economies are only recently coming to terms with the implications of the “GVC revolution.” Ongoing disruptive technological changes will again require new policies and strategies to adapt.
- Higher levels of education and ‘cross-domain’ skills for using new equipment, thinking computationally and analytically, and high levels of technical and engineering knowledge likely to be required.
  - For many countries this will require a fundamental upgrading of education systems, research institutions and innovation system
- Incentives to ‘re-shore’ production to developed economies due to workforce skills and – more importantly – the ability to automate many tasks, is likely to become even greater in coming years
  - In China and India, the jobs of 77% and 69% of workers are at risk due to automation (World Bank 2016).

EFFECTIVE POLICIES FOR GVC ENGAGEMENT IN THE 21ST CENTURY DIGITAL ERA

Focus on the key feature of the 21st century economy: the interplay between technological (digital) innovation and globalization (increased connectivity and GVCs).

Policy makers will have to consider:

1. ***Investing in digital technologies GVCs and the enabling institutional environment***– to be competitive in the new ICT dominated environment, countries and companies will still need to be part of global production and knowledge networks, upgrade infrastructure and connectivity systems and ensure regulatory certainty.
2. ***Human Capital*** – countries will need to develop the needed talent through technical skills acquisition, and crucially, also soft skills (managerial skills, strong foreign-language skills, etc.)
3. ***Reduce barriers*** - They will also need to reduce barriers to foreign skilled personnel and individual services as well as remove all un-necessary barriers to data flows
4. ***Focus on workers, besides firms*** - Ensure that the link between productivity and distribution, and between economic and social impacts works; ensure social cohesion with policies for retraining, educating, supporting mobility and income, maybe associated to well-targeted and non-distortive vertical interventions)
5. ***Package policies for openness with social, governance, and infrastructural support at the regional level***

ZOOMING INTO SOME MORE SPECIFIC POLICIES

Mutual Recognition Arrangements for professional services will help facilitate the movement of global talent into the home country.

Deep integration agreements with knowledge clusters will allow faster access to innovation.

- New technologies, new process, and new product areas require a fair amount of de-codification and codification (of new processes).
- As such they tend to arise from existing knowledge clusters where the pool of skills and support functions is at the same time deep and broad.
- The activity of de-codification and codification of new processes also implies that such clusters are also natural standard-setting bodies. Hence the role of knowledge clusters can be self-reinforcing.

Contract enforcement and governance are also important. Cutting edge digitally powered goods and services are likely to be outsourced based on sophisticated contractual arrangements. This means that areas such as contract enforcement and the rule of law are again important foundational areas.

Infrastructure building, meanwhile, may help prevent that the digital revolution creates a wedge between the networked (countries, individuals, firms) and the non-networked.

- Without infrastructure building, the matching of technologies, services and talents at the global level unleashed by the interplay between digital innovation and globalization would lead to a distributional effects:
    - World income shifts towards the networked (countries, individuals, firms)
    - Remuneration of tasks likely to tilt away from production functions to services, innovation and core R&D functions
- Infrastructure (physical, digital, and institutional) building connecting global hubs with peripheral countries, the global cities with both smaller centers and rural areas allows to reach a large fraction of the world population.

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A CONCLUDING NOTE

- Understanding the geography of international production becomes necessary to the assessment of many other areas of a country's economy
  - Which countries' value added is used as an input in my exports?
  - Which countries final demand is sourced by value added embodied in my exports?
  - Is my involvement in GVCs leading to economic growth? What are the distributional impacts?

- Challenge: international trade flow data is recorded on a gross output (sales) basis

- Recent approach: Construction of trade in value added datasets
  - It combines various countries Input-Output Tables + International Trade Statistics + Assumptions
  - Essentially the approach amounts to a formalized and scaled up version of the IPAD example
- Most countries still do not have satisfactory value added data, hence their ability to design policies for GVCs are impaired

Thank you!


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Market Share Decomposition Patterns
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