Latin America's faltering manufacturing competitiveness: What role for intermediate services?

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Why has Latin America's market share in global manufacturing stagnated?

Latin America, ASEAN, China and India: Participation in world manufacturing exports, 1995-2011
(Percentage)

Why do manufacturing companies incorporate services?

- To cut costs and increase productivity
  - Logistics, management and engineering services save time and materials, improve coordination and help to absorb frontier technologies (Nordas, 2010)
- To focus on core functions
  - 3D-printing technologies could accelerate concentration on competencies (National Board of Trade, 2016)
- To differentiate products through bundling with services
  - Adapt to demand, internet of things provides customer services (Kelle, 2013)
- To facilitate entry and guarantee presence in foreign markets
  - Examples are distribution, interpretation, matchmaking, and monitoring services (Lodefalk , 2016)
- To optimize international production networks and value chains
  - Headquarters, data processing, R&D services (Swedish National Board of Trade, 2015)

"Cost Services" and "Value services" play a key role in different parts of the manufacturing value chain
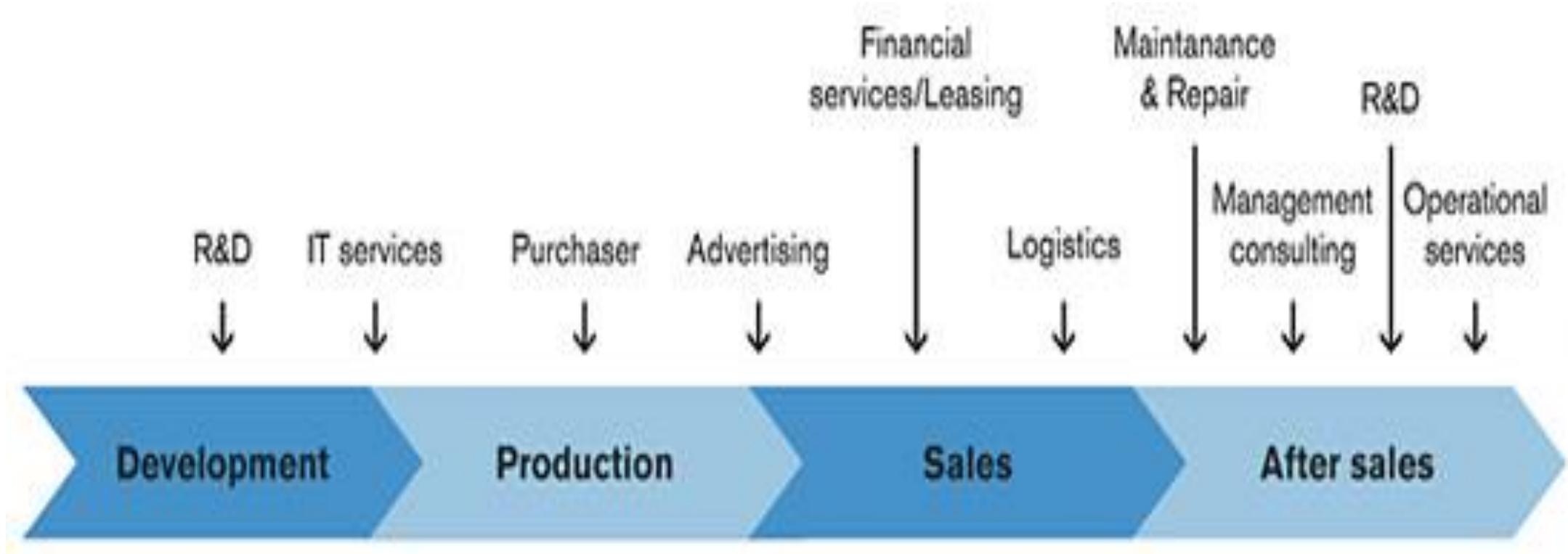
Evidence on the role of intermediate services for manufacturing performance

- Miroudot (2017): On basis of TIVA database, he concludes that:
  - Value added share of services in gross exports of manufacturing is above 30% in all industries in 2011
  - This share increased between 1995 and 2009, but decreased until 2011. However, foreign services value added share continued to rise

- Evangelista (2015): evidence for 5 countries (ESP, FRA, GER, ITA and UK) shows that:
  - The use of business services depends on the technological intensity of the manufacturing sector
  - Other business services are most used inputs in all countries and sectors (innovation and performance)
  - Econometric results confirm that business services contribute positively to export market shares; other services only improve export market share of high-tech industries, while ICT services contributes to EMS in all

- Nordås and Rouzet (2015): Services trade restrictions in:
  - Telecoms, maritime transport and insurance affect most trade in manufacturing products
  - Air transport affect exports in intermediate inputs and non-durable consumer goods
  - Surface transport affects motor vehicles and heavy industries, being mostly regional
  - All service sectors affect negatively imports of all manufacturing products industries

- ..

Evidence on the role of intermediate services for manufacturing performance

- Baldwin, Forslid and Ito (2015) for Asian manufacturing exports:
  - Higher services value added contents is concentrated in transport, distribution and "other services" (travel, h)
  - Increase in foreign services value added contents is driven by an increase in GVC participation, but not related to the domestic services value added
  - The more a country and industry is a supplier of third countries' exports, the more dependent it is on foreign services. Higher backward participation does not seem to increase the foreign value added share

- Nordas and Kim (2013):
  - Service performance (telecommunications density, interest spread between banks' deposit and lending rates, transport costs, time for exports and imports etc.) have differential effects for manufacturing performance depending on the income of the country and the technological character of the industry

- Francois and Woerz (2008): On the basis of GTAP data, they conclude that:
  - Manufacturing exports become increasingly business service intensive with a rising level of development.
  - Inward FDI and trade openness in the service sector benefits the export competitiveness of manufacturing sectors with stronger service linkages, and hurts those with weaker upstream linkages to services.
  - Service sector openness has boosted the competitiveness of more technology and skill intensive industries in the OECD, at the expense of sectors like textiles and clothing.

The data

- OECD's Trade in Value Added (TIVA) database provides data on:
  - 63 countries.
  - **13 service sectors**: Wholesale and retail trade; Hotels and restaurants; Transport and storage; Post and telecommunications; Finance and insurance; Real estate activities; Renting of machinery and equipment, Computer and related activities; Research and development, Other Business Activities; Public administration and defence; Education; Health and social work; Other community, social and personal services; Private households with employed persons.
  - 16 manufacturing sectors
  - Period 1995 to 2011
  - Individual observation are manufacturing geo-sectors, i.e. 13(sectors)*62(countries)*7(years)=6944 observations
- Other databases, mainly to calculate the control variables
  - World Bank: World Development indicators,
  - WB and OECD: Services trade restrictiveness and product market restriction indices
  - UNCTAD: FDI stocks
  - UNIDO: labour productivity and wages per employee

Latin America does <u>not</u> stand out in terms of a low share of incorporated services

Selected countries: Share of services in gross value of manufacturing exports, 1995 and 2011

■ 2011   ◆ 1995
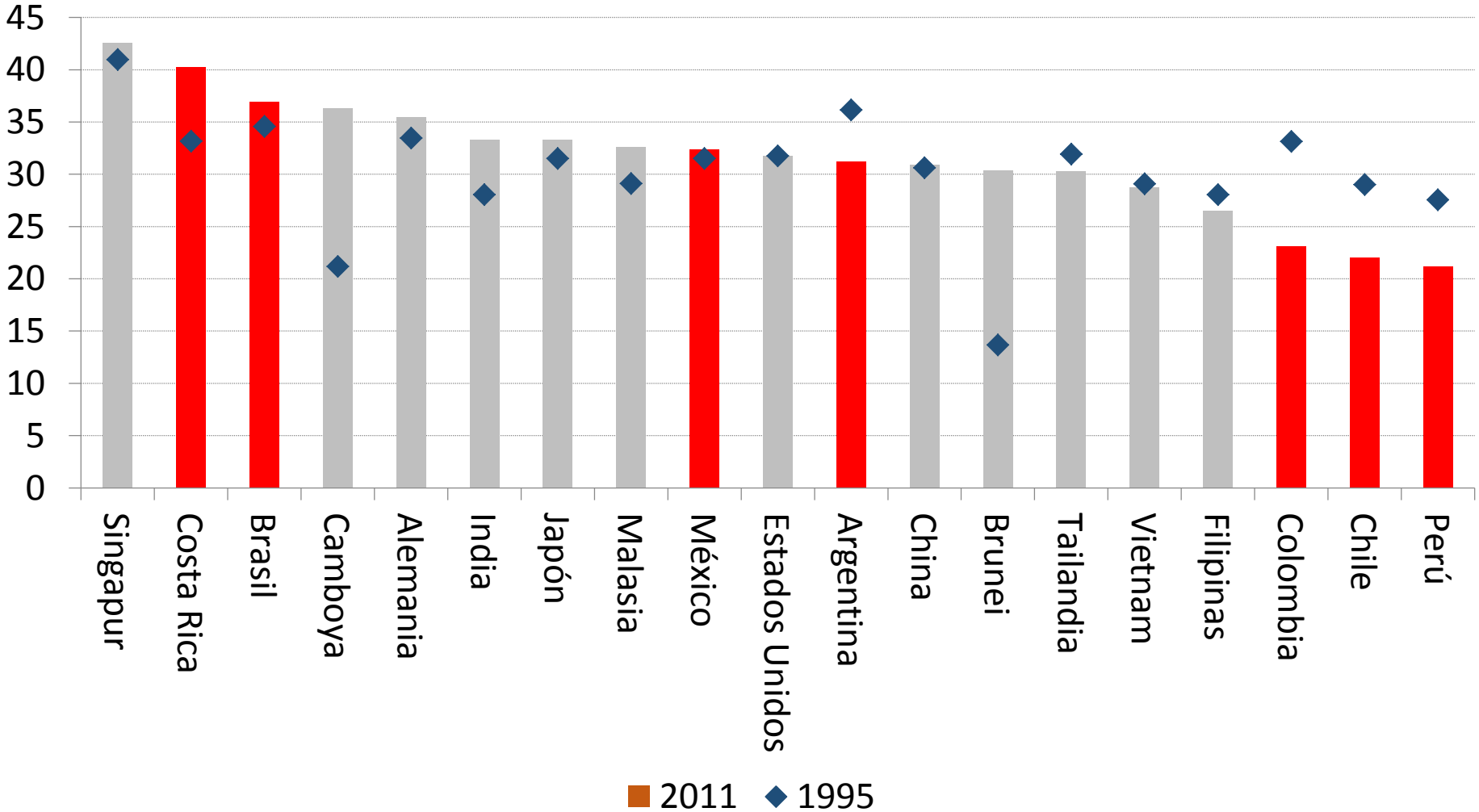
LA manufacturing exports are more intensive in domestic services and less in foreign services

Selected countries: Share of domestic and foreign in gross value of manufacturing exports, 1995 and 2011
(*Percentage*)

Domestic service value added

Foreign service value added

Brazil, Japón, Costa Rica, Estados Unidos, Argentina, Alemania, India, Singapur, Colombia, Filipinas, México, Peru, Chile, China, Brunei, Malasia, Tailandia, Vietnam, Camboya

Camboya, Singapur, Malasia, Tailandia, Vietnam, Brunei, China, México, Costa Rica, Alemania, India, Filipinas, Estados Unidos, Chile, Argentina, Japón, Colombia, Peru, Brazil

■ 2011 ◆ 1995
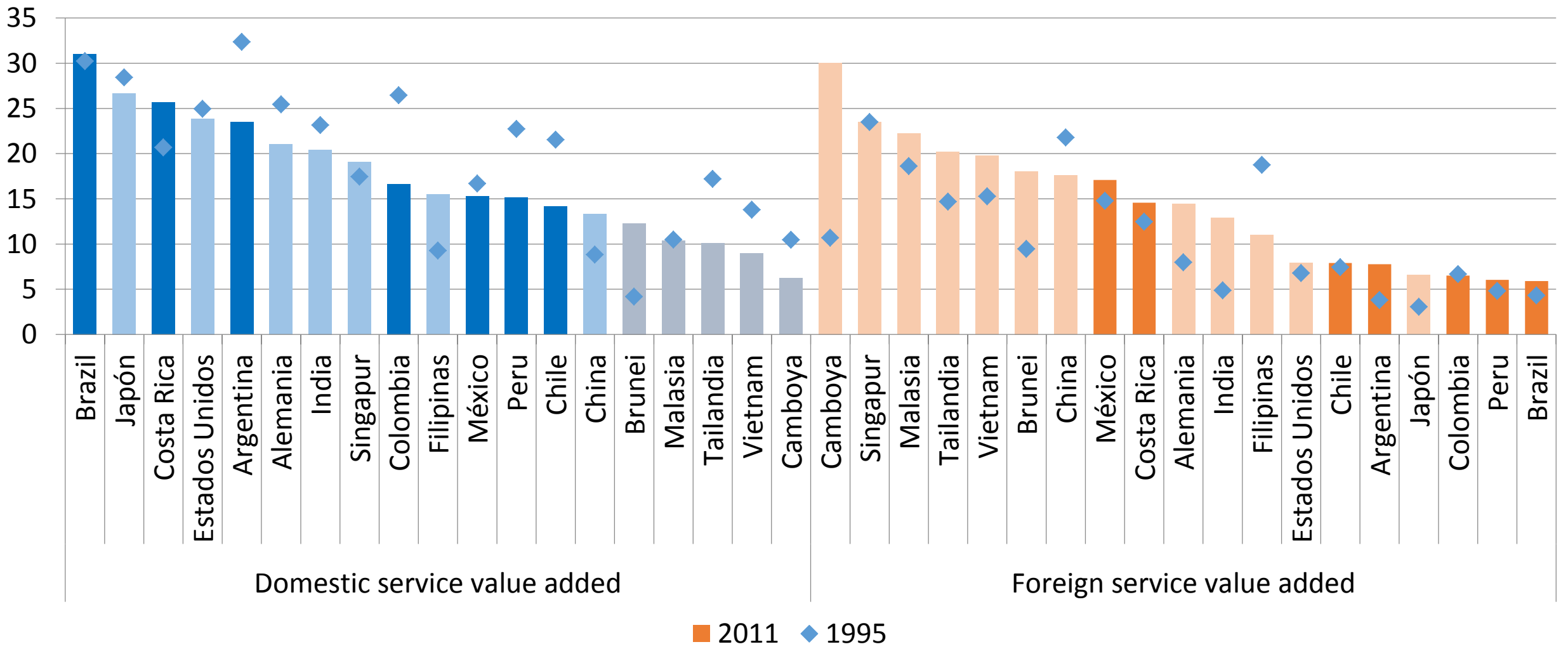
Domestic business services more important and imported ones less than in ASEAN

ASEAN and Latin America: Types of incorporated services in manufacturing exports, 1995 and 2011
(*Percentage*)

1995	2011	1995	2011	1995	2011	1995	2011
Latin America		ASEAN		Latin America		ASEAN	
Domestic value added				Foreign value added			

■ Business services ■ Distribution ■ Finance ■ Other services
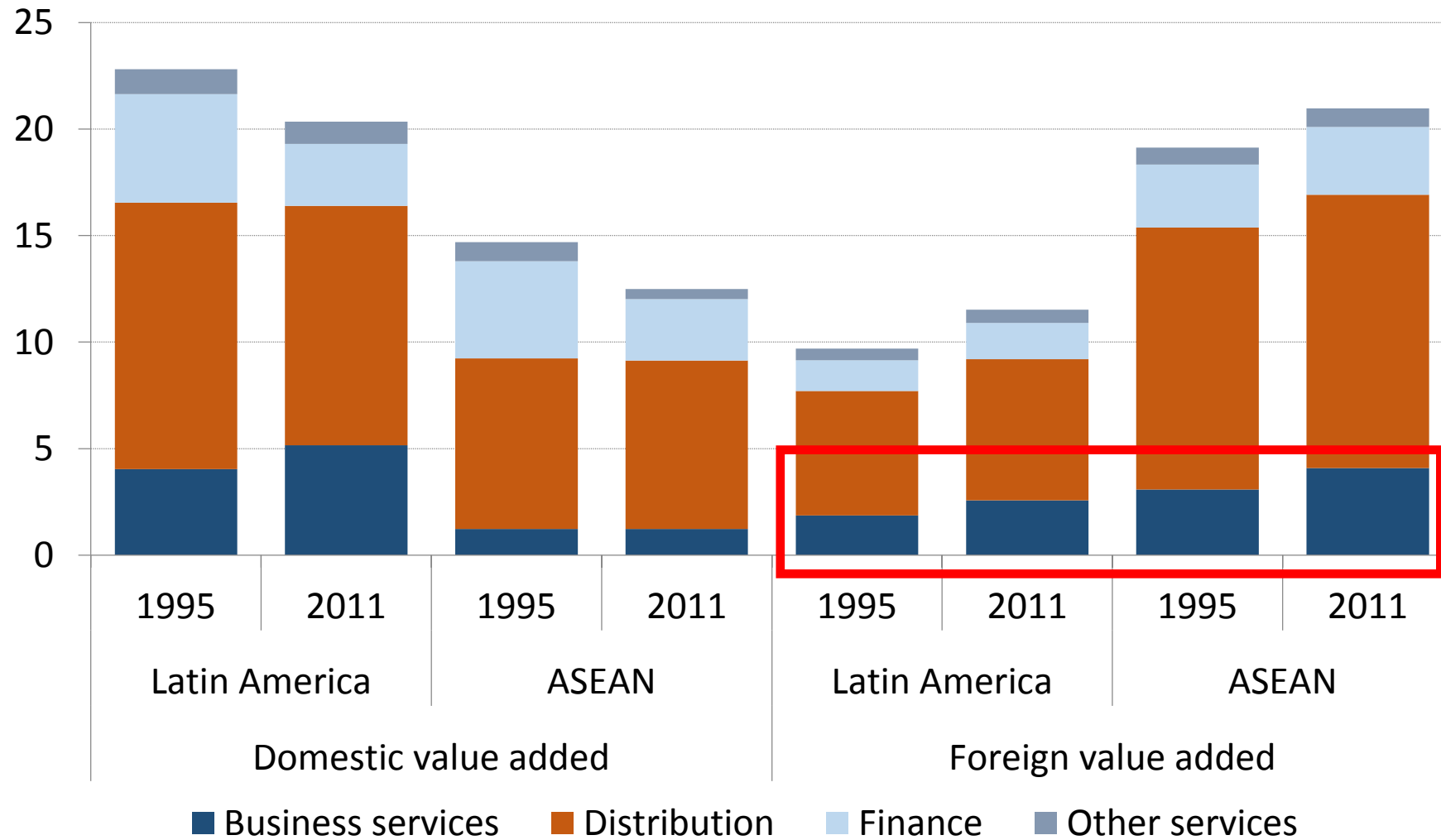
Two key questions to be answered by econometrics:

- Do intermediate (business) services affect the countries' manufacturing export performance?

- Do domestic and imported intermediate services differ in their contribution to manufacturing export performance?

Manufacturing export performance variables

- Changes in share in global manufacturing exports (Qexp)

Control variables

- Global market share in previous period
- Size of manufacturing sector
- Product market regulation (PMR)
- FDI stock as share of GDP
- Real effective exchange rate
- Logistics performance and costs to exports
- Unit labor costs

Model

- GMM with fixed country and industry dummies

Regression results for 61 countries, 1995 to 2011

Dependent variable: % in global exports	Regr 1	Regr 2	Regr 3
Control variables			
Lag market share	+++	+++	+++
Product Market Regulation	--	--	--
Cost to Exports	---	---	---
Unit labor cost	+++	+++	+++
FDI stock % of GDP	--	--	--
Exchange rate (REER)	---	---	---
Manufacturing size	n.s.	n.s.	n.s.
Other variables			
Domestic services contents		---	
Foreign services contents		+++	
Domestic business services content:			
- Rental of machinery & equipment			+++
- Computer services			n.s.
- R&D and business services			++
Imported business services content:			
- Rental of machinery & equipment			++
- Computer services			---
- R&D and business services			++

Most control variables are significant (ΔQexp)

		Global market share change (ΔQijt)					
Previous period market share	Q_{ijt-1}	0.118***	0.119***	0.111***	0.118***	0.112***	0.105***
		(0.0175)	(0.0186)	(0.0156)	(0.0186)	(0.0186)	(0.0187)
Product market regulation	PMR		-0.0730		-0.0977	-0.0873	-0.130**
			(0.0634)		(0.0636)	(0.0633)	(0.00630)
Cost to export	Cost				-0.422***	-0.421***	-0.308***
					(0.102)	(0.101)	(0.115)
Unit labor cost	ULC			0.0432*		0.0571*	0.0806***
				(0.0255)		(0.0310)	(0.0309)
FDI stock as share of GDP	FDI						-0.0984**
							(0.0429)
Real effective exchange rate	REER						-0.413***
							(0.0750)
Manufacturing size	Manuf						-0.000163
							(0.0342)
Constant		0.0411***	0.00571***	0.0352***	0.0623***	0.0607***	0.118***
		(0.0162)	(0.0228)	(0.0127)	(0.0228)	(0.0227)	(0.0237)
Observations		2,352	2,064	3,040	2,064	2,064	2,016
Number of geosectors		640	560	816	560	560	560

Exploring the role of domestic and imported business services

	Global market share change (ΔQ_{ijt})	
Previous period market share	0.0982***	0.115***
	(0.0186)	(0.0196)
Total domestic services contents	-0.355**	
	(0.162)	
Total imported services contents	0.600***	
	(0.192)	
Domestic contents of renting of machinery and equipment		0.488***
		(0.121)
Domestic contents of computing and related activities		-0.0901
		(0.154)
Domestic contents of R&D and other business services		0.613***
		(0.242)
Imported contents of renting of machinery and equipment		0.152***
		(0.0776)
Imported contents of computing and related activities		-1.020
		(0.290)
Imported contents of R&D and other business services		0.0550
		(0.268)
Constant	0.214***	0.0934***
	(0.0359)	(0.0334)
Observations	2,016	2,016
Number of geosectors	560	560

Looking at the change in Export market share

|	Global market share change (ΔQijt)											
Hotels & restaurants	-0.137*											
	(0.0746)											
Transport & storage		0.0664										
		(0.0801)										
Post & telecom			0.0808									
			(0.0867)									
Finance				-0.292***								
				(0.0593)								
Real estate					-0.228***							
					(0.0672)							
Renting machinery-eq						0.410***						
						(0.0742)						
Computer-related ac							0.0852					
							(0.0878)					
R&D -other business								0.298***				
								(0.0958)				
Government									-0.875			
									(0.0660)			
Education										0.400***		
										(0.0954)		
Health & social work											-0.26***	
											(0.0498)	
Other services												0.0437
												(0.0846)
Constant	0.142***	0.101***	0.100***	0.174***	0.161***	0.0428***	0.0946***	0.0536*	0.134***	0.0421	0.164***	0.108***
	(0.0270)	(0.0308)	(0.0297)	(0.0258)	(0.0266)	(0.0269)	(0.0328)	(0.0310)	(0.0268)	(0.0297)	(0.0249)	(0.0313)
Observations	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016
Number of geosectors	560	560	560	560	560	560	560	560	560	560	560	560

Poor performance of infrastructure services and access to loans in relation to Asia

Selected Latin American countries, ASEAN and China: Selected services performance indicators, 2016

Infrastructure quality
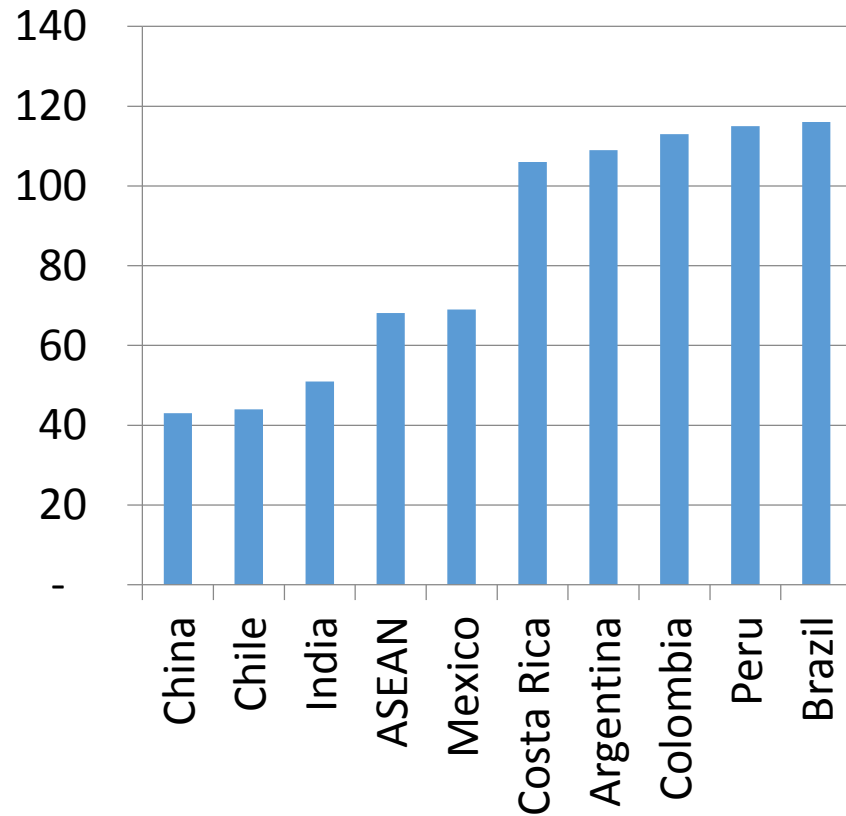
Ease of access to loans
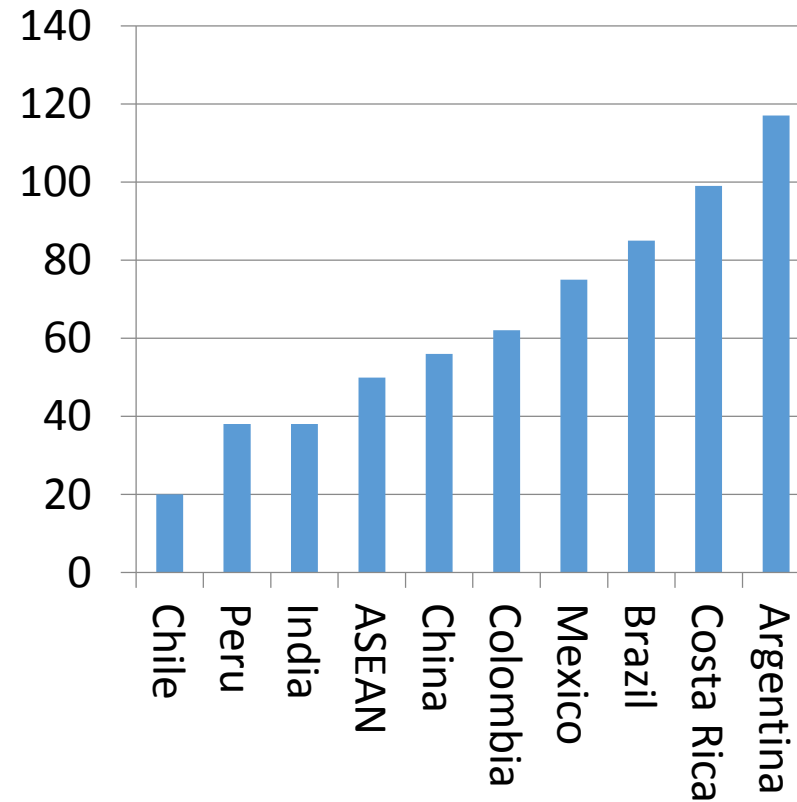
Main conclusions

- Successful manufacturing exporters incorporate crucial intermediate services …

- … some of which reduce costs while others add value

- Domestic and imported services are associated differently with export performance

- Stagnating performance of the region is not due to lack of services incorporation …

- … but to high share of domestic services that increase cost instead of adding value

- Econometric regressions suggest several domestic services contribute negatively …

- …and be expanded to look into cauality between different types of domestic vs.

Imported services within different contexts of developed and emerging markets

Thanks! Gracias! Bedankt!

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