

MAKING GLOBAL VALUE CHAINS WORK FOR DEVELOPMENT IN DIFFERENT COUNTRY CONTEXTS

IMPACTS, POLICY QUESTIONS, AND DIAGNOSTICS



WORLD BANK GROUP
Trade & Competitiveness

June 8, 2017

Outline

1. Can Countries Develop through GVC Participation?
2. Which Policy Options Do Countries Have?
3. Are there Patterns of Specialization, Upgrading, and Policy?
4. What about SMEs?

1. Can Countries Develop through GVC Participation?

A multipolar global economy:

TRIAD: CHINA, EUROPEAN UNION, & THE UNITED STATES

TRIAD'S GLOBAL SHARE



INDIA-CHINA EXPORTS RATIO



FDI DRIVEN

\$26 TRILLION
SALES OF FOREIGN-OWNED FIRMS



GVC PARTICIPATION IS HETEROGENEOUS

RESOURCE BASED

AFRICA, SOUTH ASIA, & MERCOSUR

SHIFTED TO MANUFACTURING

EAST ASIA, CENTRAL & EASTERN EUROPE, MEXICO, & TURKEY

TRADE COSTS ARE HETEROGENEOUS



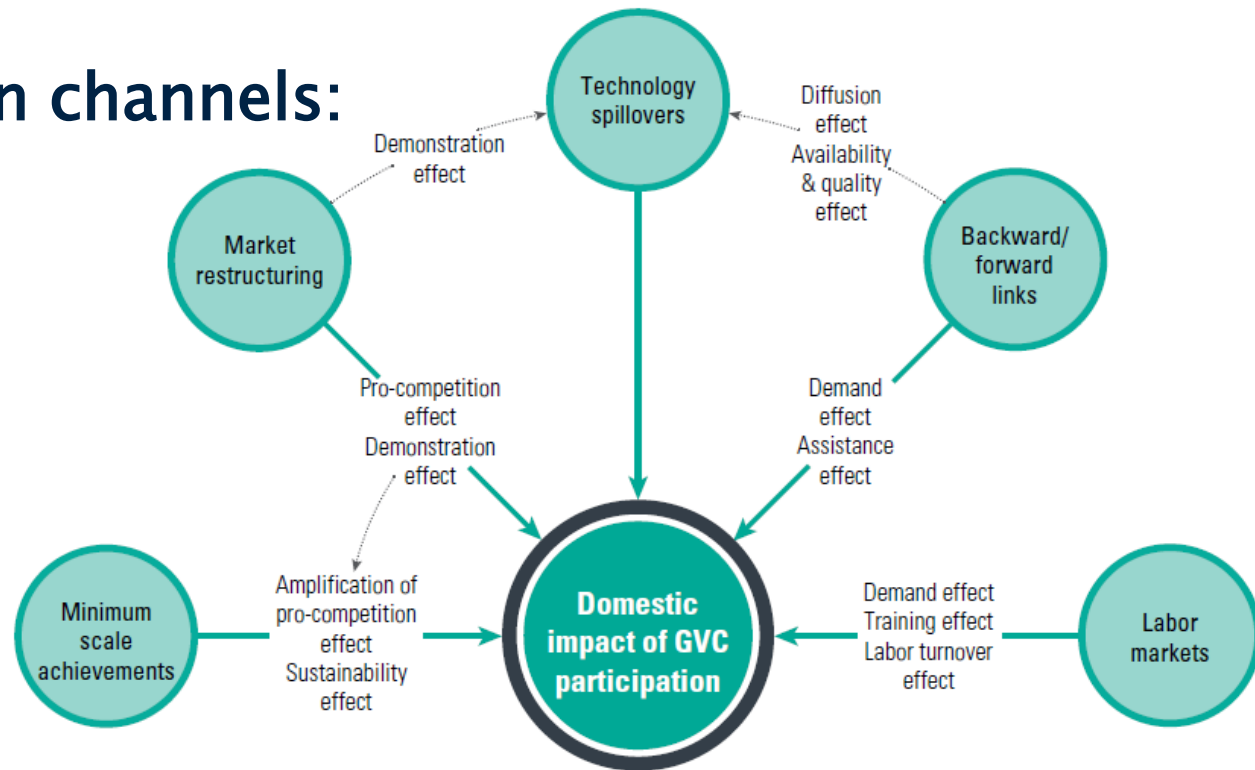
DESPITE BARRIERS TO TRADE HAVING **FALLEN** EVERYWHERE.



1. Can Countries Develop through GVC Participation?

Research by Kummritz, Taglioni, and Winkler (2017) finds positive value added gains from backward and forward GVC integration using a panel dataset covering 61 countries.

Transmission channels:



1. Can Countries Develop through GVC Participation?

- Traditional views neglect more nuanced interpretations that focus on promoting not only economic, but also social and environmental upgrading and inclusive growth.

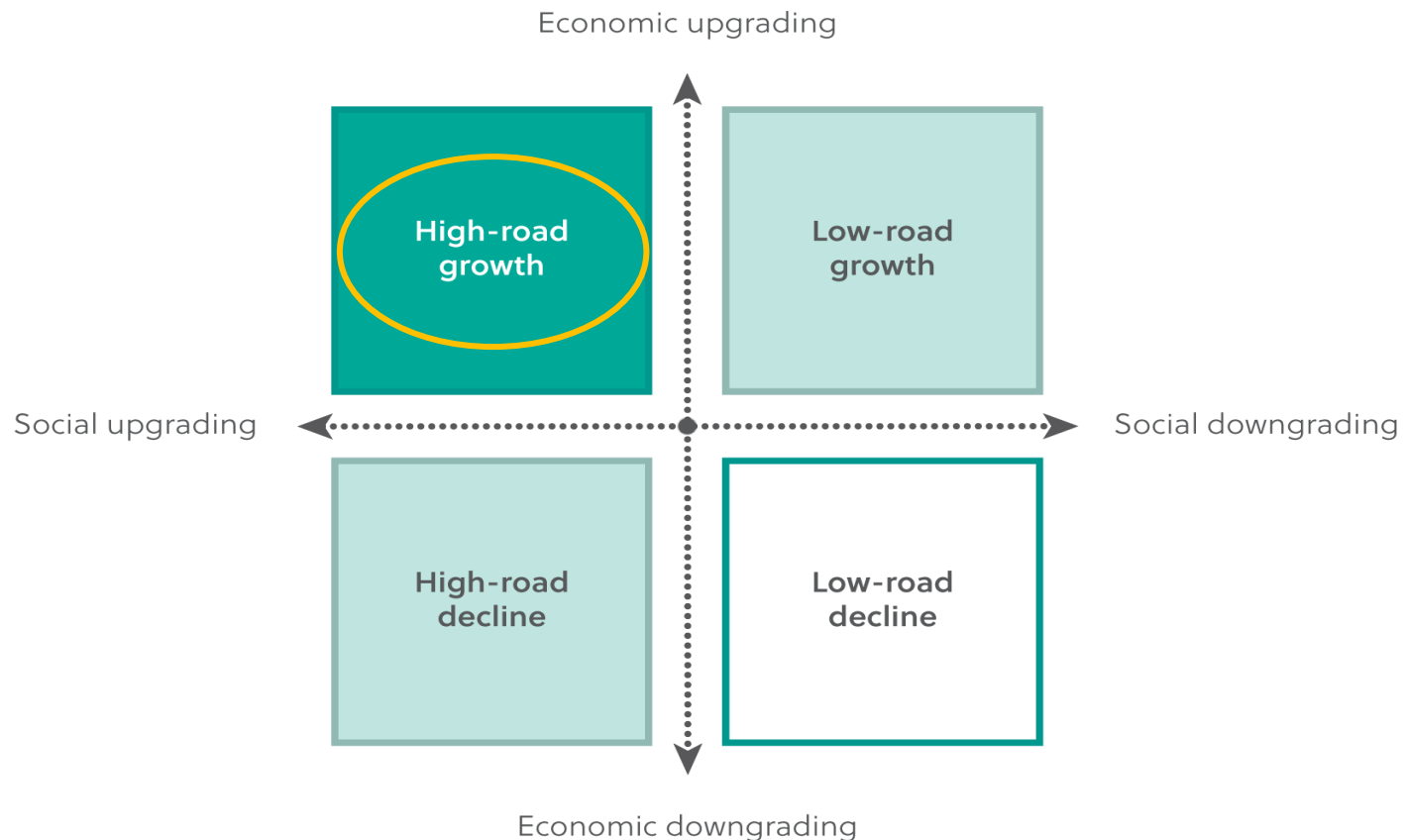
1. Can Countries Develop through GVC Participation?

The role of GVCs for social upgrading:

- Social upgrading refers to **measurable aspects of worker well-being** (employment, wages, and working conditions) and **enabling rights** (right to bargain, freedom of association, nondiscrimination, etc.).
- The adoption of higher labor and social standards in GVC firms results in **small-scale worker upgrading, labor-intensive upgrading, and higher-skill upgrading.**
- Social upgrading can also lead to more **social cohesion** via jobs and working conditions, education and skill building, and health insurance and pensions.
- Economic upgrading does **not automatically lead to social upgrading.**

1. Can Countries Develop through GVC Participation?

Promoting the high-road growth model of economic and social upgrading:



1. Can Countries Develop through GVC Participation?

- Lower labor standards are negatively correlated with the value added gains from GVC integration as a seller, pointing to a demand for “fair” products.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	DVA	DVA	DVA	DVA	DVA	DVA
Forward links						
DVAR	0.102* (0.0610)	0.252*** (0.0231)	0.232*** (0.0238)	0.156* (0.0824)	0.473*** (0.128)	0.208*** (0.0271)
FVADP	0.239*** (0.0261)	0.250*** (0.0234)	0.264*** (0.0275)	0.233*** (0.0259)	0.235*** (0.0298)	0.259*** (0.0247)
DVAR*Basic ILO conv.	0.0115* (0.0061)					
DVAR*Vulnerable Empl.		-0.0010* (0.0005)				
DVAR*Child labor			-0.0027** (0.0012)			
DVAR*Female workforce				0.0016 (0.0020)		
DVAR*Wage dispersion					-0.1200** (0.0554)	
DVAR*Minimum wage						3.2e-05 (2.8e-05)
Constant	4.899*** (0.180)	4.715*** (0.155)	5.071*** (0.212)	5.162*** (0.184)	4.886*** (0.222)	4.980*** (0.180)
Observations	7,045	6,580	5,149	7,164	2,997	5,502
R-squared	0.875	0.875	0.861	0.872	0.886	0.886

Source: Kummritz, Taglioni and Winkler (2017). Data: OECD ICIO database. *** p<0.01, ** p<0.05, * p<0.1.

Notes: Robust standard errors in parentheses. FVAX and DVAR lagged. All level variables in natural logarithms.

1. Can Countries Develop through GVC Participation?

- A better social system (% of unemployed receiving regular unemployment benefits, and % share of workers contributing to a pension scheme) is positively correlated with economic upgrading through GVC integration as a seller.

VARIABLES	(1)	(2)	(3)	(4)
	DVA	DVA	DVA	DVA
Forward links				
DVAR	0.185***	0.186***	0.166***	0.236***
	(0.0246)	(0.0207)	(0.0262)	(0.0394)
FVADP	0.239***	0.223***	0.253***	0.240***
	(0.0264)	(0.0240)	(0.0233)	(0.0267)
DVAR*Technical ILO conv.	-0.0026			
	(0.0018)			
DVAR*Unempl. insurance		0.0012**		
		(0.0005)		
DVAR*Pension insurance			0.0008**	
			(0.0004)	
DVAR*Health expenditure				-0.0019
				(0.0031)
Constant	4.822***	4.990***	4.617***	5.012***
	(0.173)	(0.161)	(0.166)	(0.185)
Observations	7,045	6,926	6,700	6,925
R-squared	0.875	0.874	0.876	0.875

Source: Kummritz, Taglioni and Winkler (2017). Data: OECD ICIO database. *** p<0.01, ** p<0.05, * p<0.1.

Notes: Robust standard errors in parentheses. *FVAX* and *DVAR* lagged. All level variables in natural logarithms.

1. Can Countries Develop through GVC Participation?

GVCs and environmental upgrading:

- **Climate change creates new challenges for GVC participation**, as firms need to ensure the predictable, reliable, and time-sensitive delivery of goods in the long-term.
- As a result, the global trade landscape is trending toward **more climate-friendly international standards** and mandatory sustainability reporting regimes.
- Climate-smart policy prescriptions can **strengthen global competitiveness**, as the benefits of environmental regulation often vastly outweigh the costs.

1. Can Countries Develop through GVC Participation?

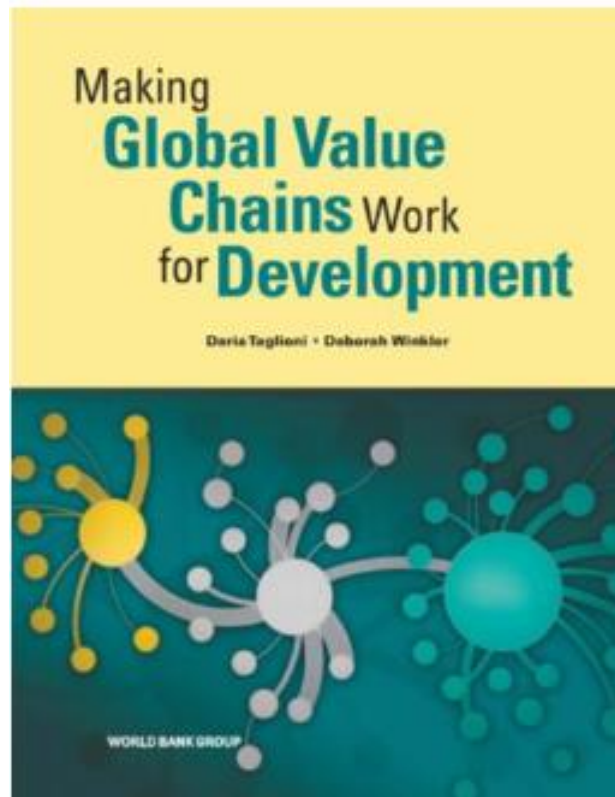
- Lower environmental standards (more air pollution and water usage) are negatively correlated with the value added gains from backward GVC integration

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	DVA	DVA	DVA	DVA	DVA	DVA
Backward links						
FVAX	0.0555***	0.118**	0.0678***	0.0638***	0.146***	0.0699***
	(0.0114)	(0.0504)	(0.0104)	(0.0124)	(0.0515)	(0.00985)
FVADP	0.258***	0.254***	0.254***	0.265***	0.252***	0.259***
	(0.0276)	(0.0269)	(0.0269)	(0.0237)	(0.0352)	(0.0275)
FVAX*Environm. ISOs	4.6e-05					
	(2.9e-05)					
FVAX*UNEP conventions		-0.0060				
		(0.0060)				
FVAX*Renewables			0.0005			
			(0.0017)			
FVAX*Pesticides				-0.0008		
				(0.0019)		
FVAX*Air pollution					-0.0055**	
					(0.0027)	
FVAX*Water use						-7.2e-05***
						(2.6e-05)
Constant	5.651***	5.937***	5.895***	5.875***	6.131***	5.870***
	(0.176)	(0.188)	(0.187)	(0.178)	(0.284)	(0.189)
Observations	7,037	7,156	7,156	6,461	3,356	7,037
R-squared	0.858	0.854	0.854	0.865	0.850	0.858

Source: Kummritz, Taglioni and Winkler (2017). Data: OECD ICIO database. *** p<0.01, ** p<0.05, * p<0.1.

Notes: Robust standard errors in parentheses. *FVAX* and *DVAR* lagged. All level variables in natural logarithms

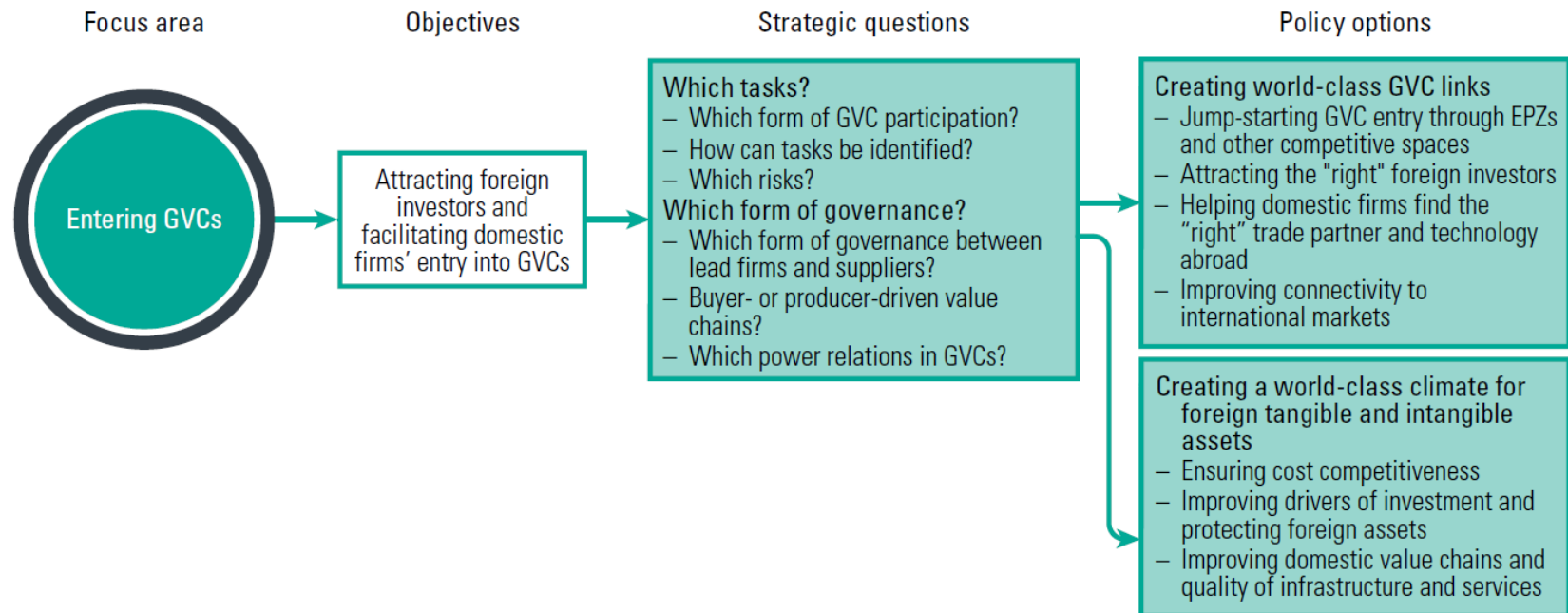
2. Which Policy Options Do Countries Have?



2. Which Policy Options Do Countries Have?

Entering GVCs:

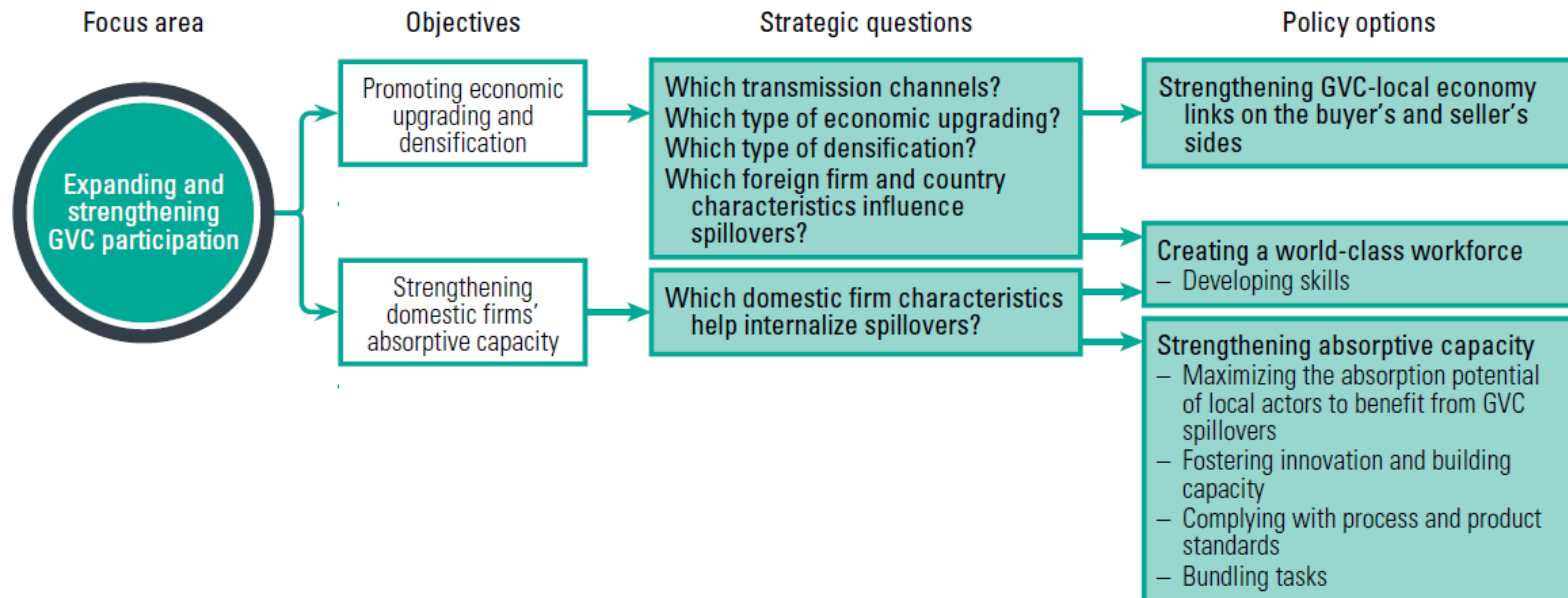
- Which policies help (i) create world-class GVC links and (ii) a world-class climate for foreign tangible and intangible assets?



2. Which Policy Options Do Countries Have?

Expanding and strengthening GVC participation:

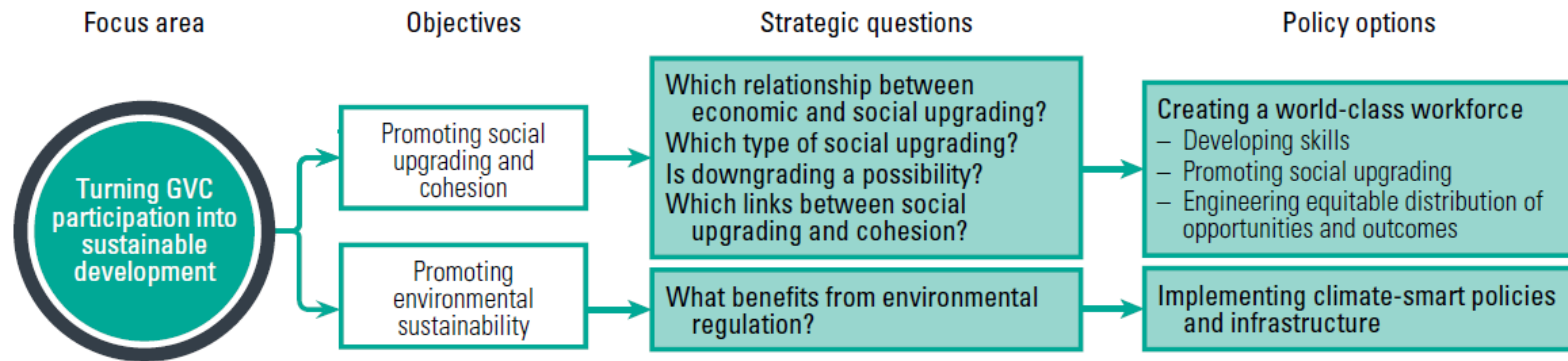
- Which policies help strengthen (i) existing GVC–local economy links and (ii) absorptive capacity of local actors?



2. Which Policy Options Do Countries Have?

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:

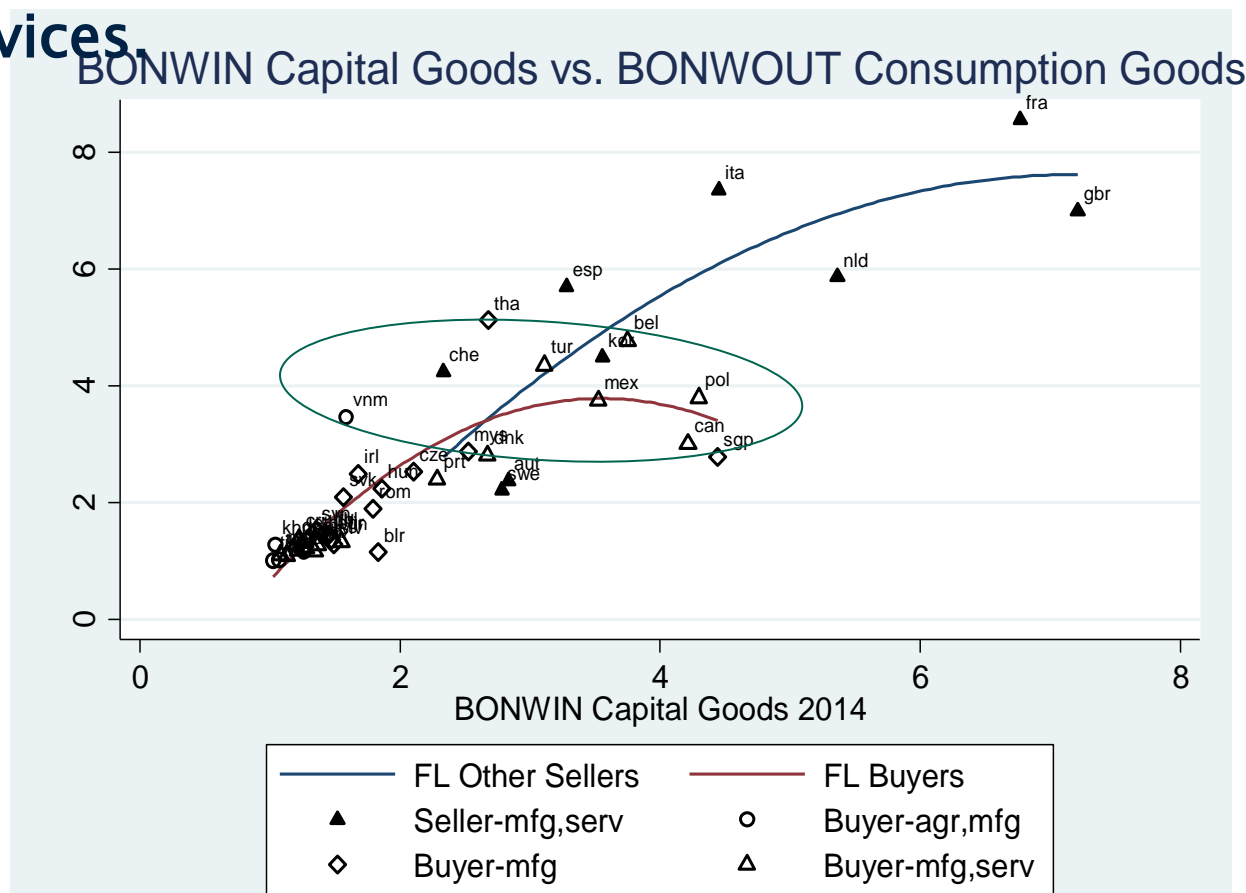
- 360-degree assessment of the competitiveness of a country and
- drilling down to specific sectors, GVCs, tasks, and activities

3. Are there Patterns of Specialization, Upgrading, and Policy?

- Work at WBG to create a **taxonomy of GVC participation** to:
 - identify “best practices” and upgrading trajectories
 - inform country and sector diagnostics
 - identify adequate policies for different country contexts.
- **Classification of 132 countries** based on:
 - measures of GVC participation as buyer and seller
 - upstreamness of imports and exports (distance to final demand)
 - value added shares (agriculture, commodities, manufacturing and services).
- **Four groups of GVC integration:**
 - **Agricultural sellers:** Agr, Agr–mfg
 - **Commodity sellers:** Comm, Comm–mfg, Comm–serv, Comm–mfg–serv
 - **Other sellers:** Mfg–serv, hubs (China, Germany, Japan, and United

3. Are there Patterns of Specialization, Upgrading, and Policy?

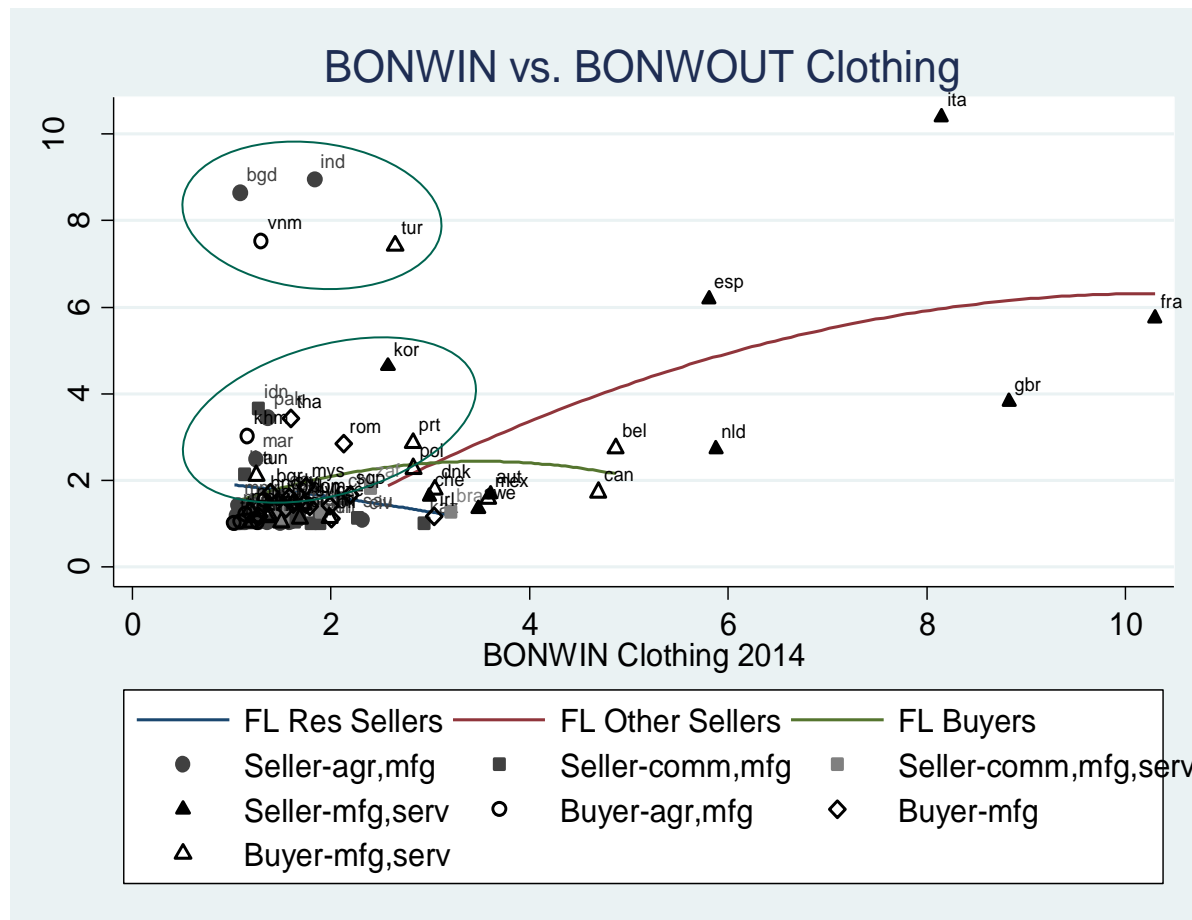
- **Specialization:** GVC participants import foreign technology that is used to produce and export goods, parts, components and services.



Source: World Bank (forthcoming). Data: BACI Gross Trade Data. Excludes hubs, agricultural and commodity sellers. BONWIN/BONWOUT=eigenvector centrality based on import/export data.

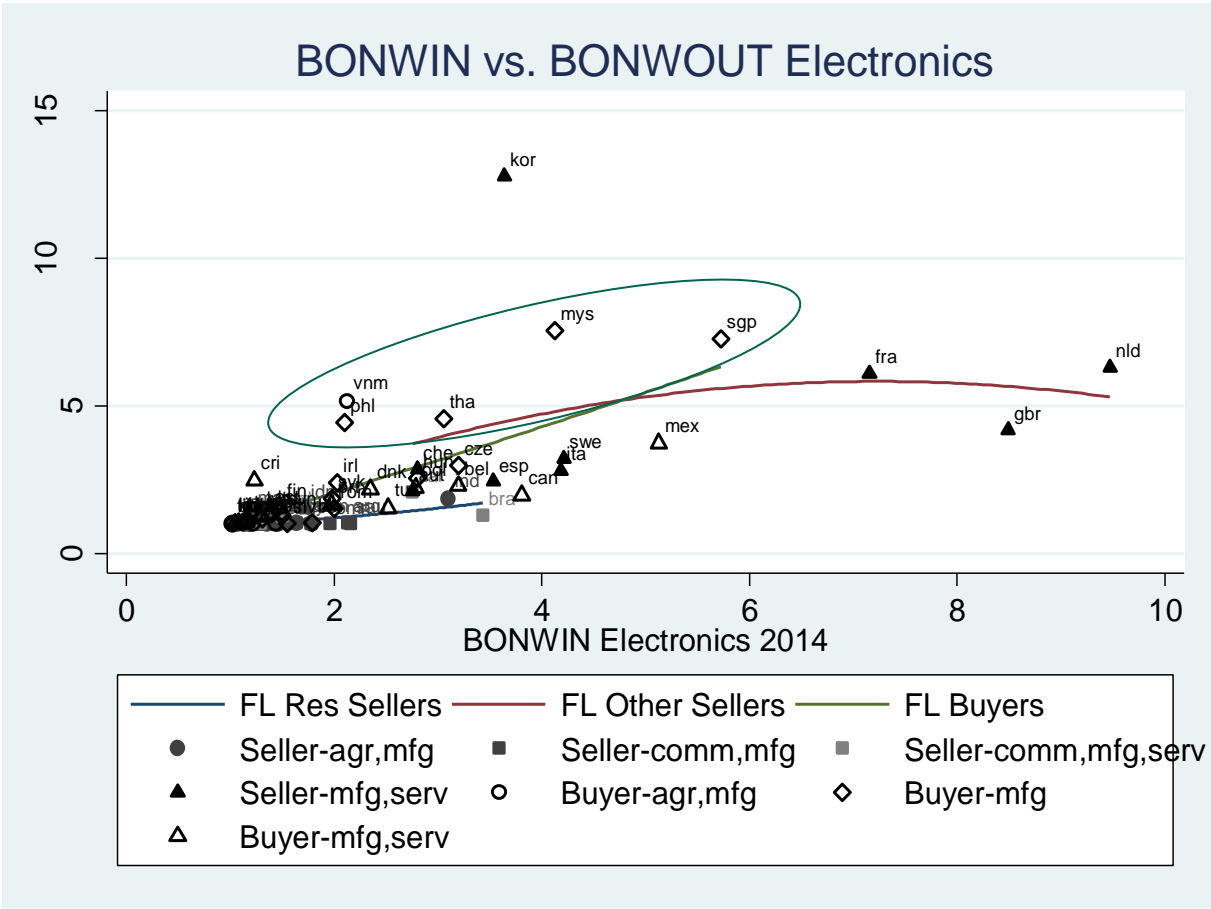
3. Are there Patterns of Specialization, Upgrading, and Policy?

- Specialization: Participants in the apparel GVC include buyers and sellers with different economic structures.



3. Are there Patterns of Specialization, Upgrading, and Policy?

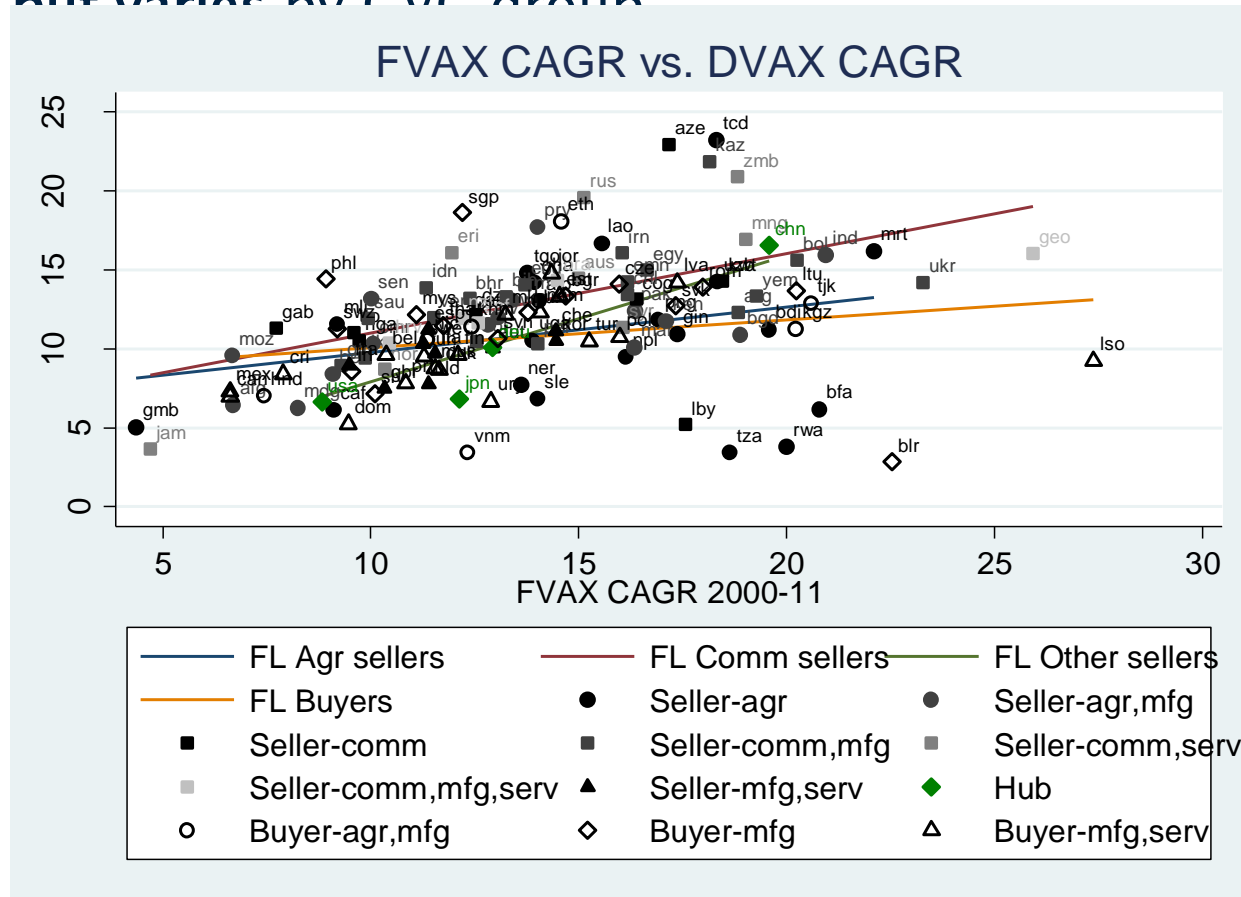
- Specialization: Participants in the electronics GVC are more homogeneous (mainly Asian manufacturing buyers).



Source: World Bank (forthcoming). Data: BACI Gross Trade Data. Excludes hubs. BONWIN/BONWOUT=eigenvector centrality based on import/export data. GVC classification based on

3. Are there Patterns of Specialization, Upgrading, and Policy?

- Economic upgrading: Stronger GVC integration as a buyer is positively correlated with growth of domestic value added in exports, but varies by GVC group



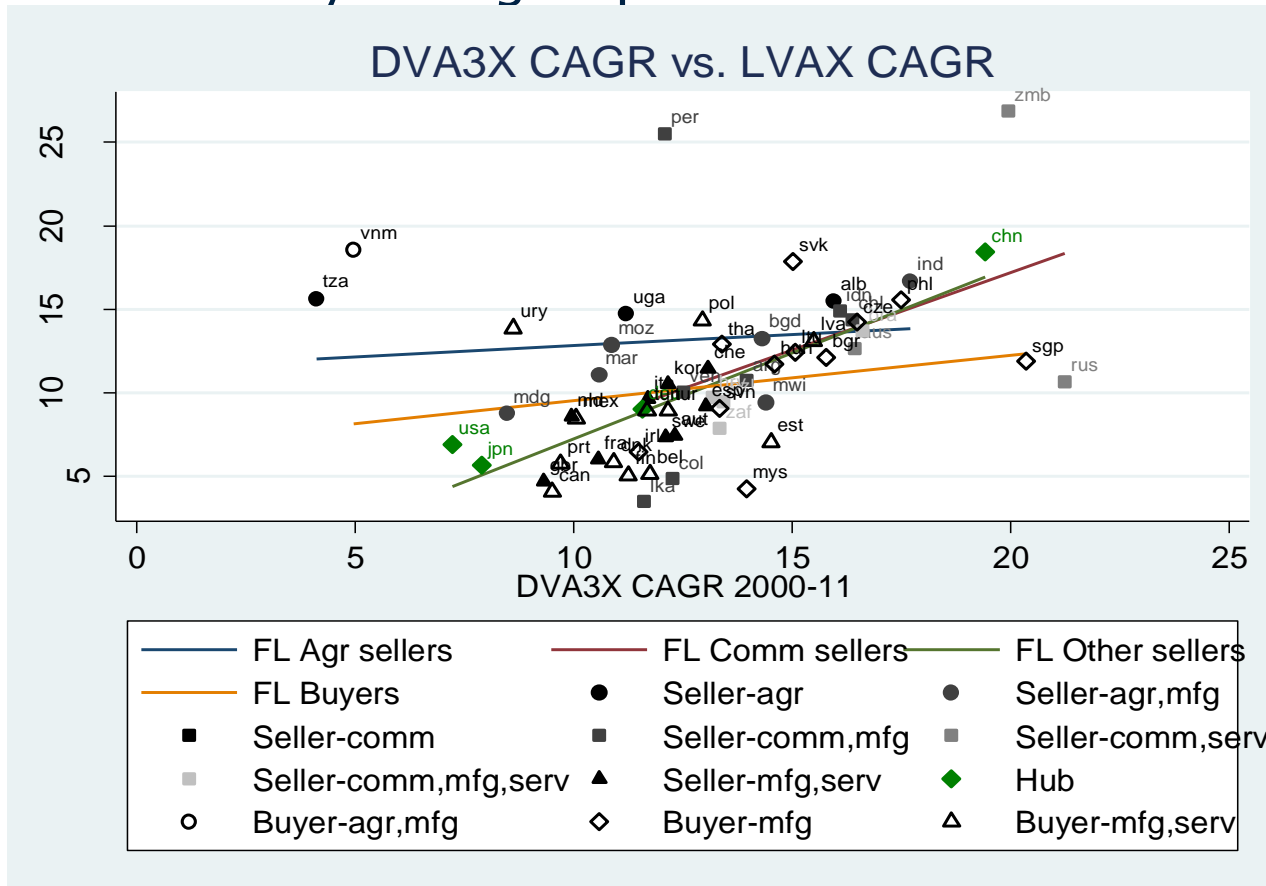
OLS regression results, growth of FVAX and DVAX, 2001-11, by GVC group

GVC group 2011	FVAX_CAGR
overall	0.238
agri seller	0.175
commodity seller	0.594
other seller	0.841
buyer	0.103

Source: Own calculations. Note: All regressions additionally control for GNI per capita (in natural logarithms) and GVC group. Group-specific coefficients are obtained adding interaction terms between the GVC variable and GVC group. Standard errors are robust to heteroscedasticity. Only results are shown for which the p-value of joint significance between GVC_c and $GVC_c * group_c$ lies within the 10% significance threshold.

3. Are there Patterns of Specialization, Upgrading, and Policy?

- **Social upgrading:** Stronger integration in GVCs as a seller is positively correlated with growth of labor value added in exports, but varies by GVC group.



OLS regression results, growth of DVA3X and LVAX, 2001–11, by GVC group

GVC group 2011	DVA3X_CAGR
overall	0.591
agri seller	0.272
commodity seller	0.886
other seller	0.753
buyer	0.548

Source: Own calculations. Note: All regressions additionally control for GNI per capita (in natural logarithms) and GVC group. Group-specific coefficients are obtained adding interaction terms between the GVC variable and GVC group. Standard errors are robust to heteroscedasticity. Only results are shown for which the p-value of joint significance between GVC_c and $GVC_c * group_c$ lies within the 10% significance threshold.

3. Are there Patterns of Specialization, Upgrading, and Policy?

- **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

Selected policy indicators, average by GVC type, 2011

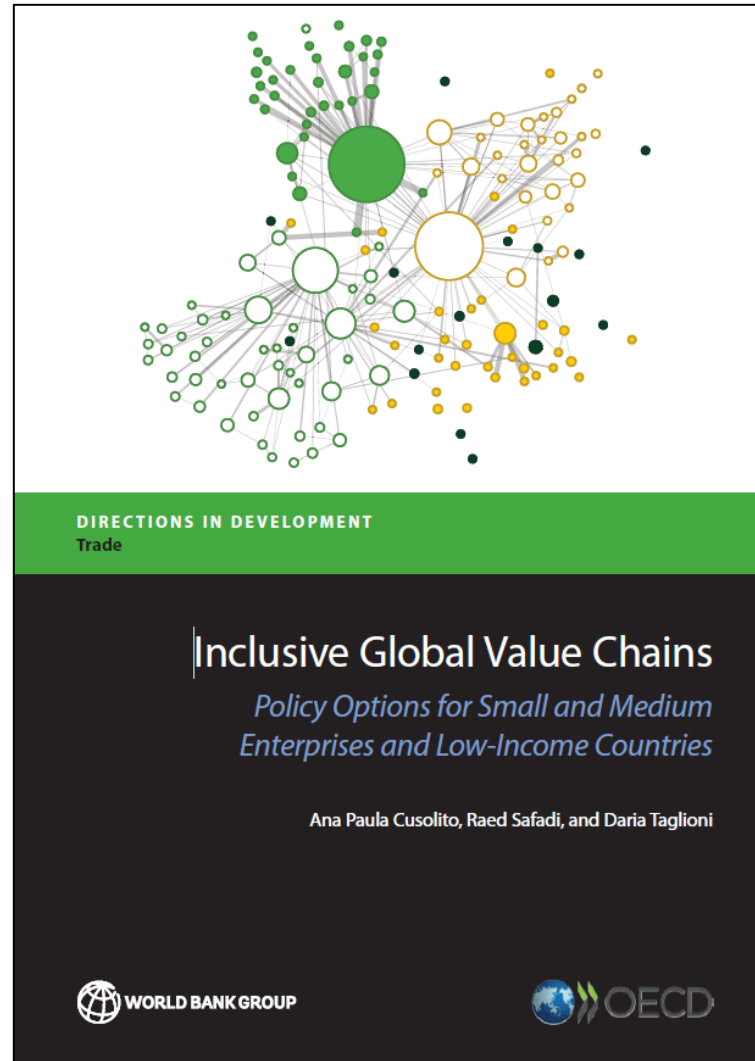
GVC type	FDI	LPI	Educ quality	Innovation
sellerAgr	4.05	2.37	3.15	2.77
sellerAgrMfg	3.00	2.54	3.40	2.92
sellerComm	5.61	2.56	3.55	3.01
sellerCommMfg	2.93	2.78	3.59	3.03
sellerCommMfgServ	3.63	3.14	3.91	3.42
sellerCommServ	4.53	2.71	3.99	3.43
sellerMfgServ	5.55	3.84	5.08	4.71
hub	1.97	3.85	4.77	5.09
buyerAgrMfg	4.97	2.52	3.17	2.77
buyerMfg	5.94*	3.20	4.40	3.52
buyerMfgServ	4.53	3.06	4.33	3.57

Source: World Bank (forthcoming). 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 of innovation environment, 1–7(best), between 2006–2011 from WEF.

3. Are there Patterns of Specialization, Upgrading, and Policy?

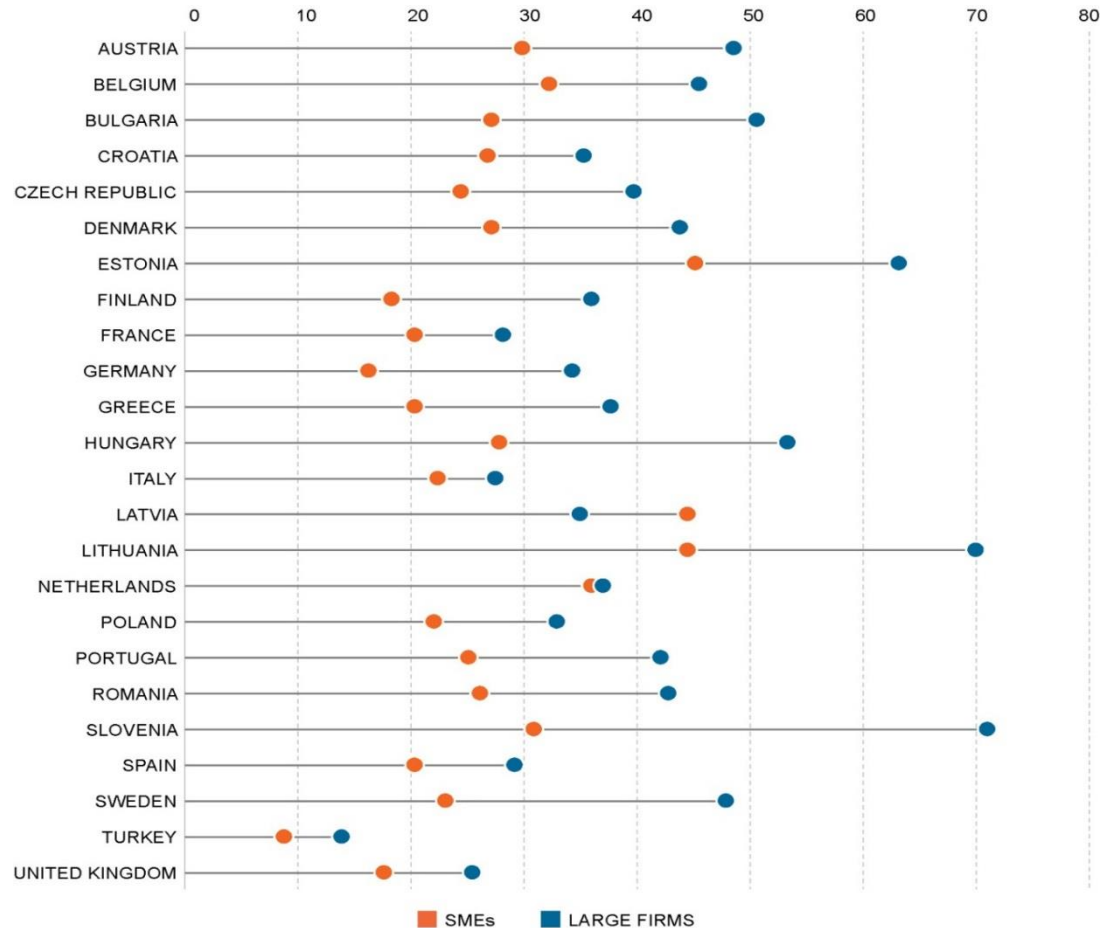
- “Typical” upgrading trajectories between 2000 and 2011:
 - Agricultural sellers with manufacturing activity became some type of manufacturing buyer.
 - Concentrated commodity sellers diversified into manufacturing.
 - More diversified commodity sellers became manufacturing buyers with a stronger services sector.
 - Manufacturing buyers diversified into services, but mainly remained buyers.
- **Shifting to commodities (downgrading?):**
 - Some Sub-Saharan African agricultural sellers downgraded to become concentrated agricultural sellers.
 - Many agricultural sellers shifted towards commodities.
- **How to become a manufacturing seller?**
 - None of the manufacturing buyers with a strong services sector became a manufacturing seller.
 - What are the reasons (middle-income trap, country size, innovative capacity, etc.)?

4. What about SMEs?



4. Large Firms drive exports and are more export oriented, worldwide

Export intensities: export to turnover ratios in 2012, %



4. Why worry about SMEs then?

SMEs still matter for export performance.

Direct vs. indirect contribution: MEX: 7% vs. 70%; DEU: 16% vs. 61%; USA: 15% vs 58%

The typical US MNE buys more than USD 3 billion in inputs from more than 6000 US SMEs – almost 25% of total purchases (Slaughter, 2013)

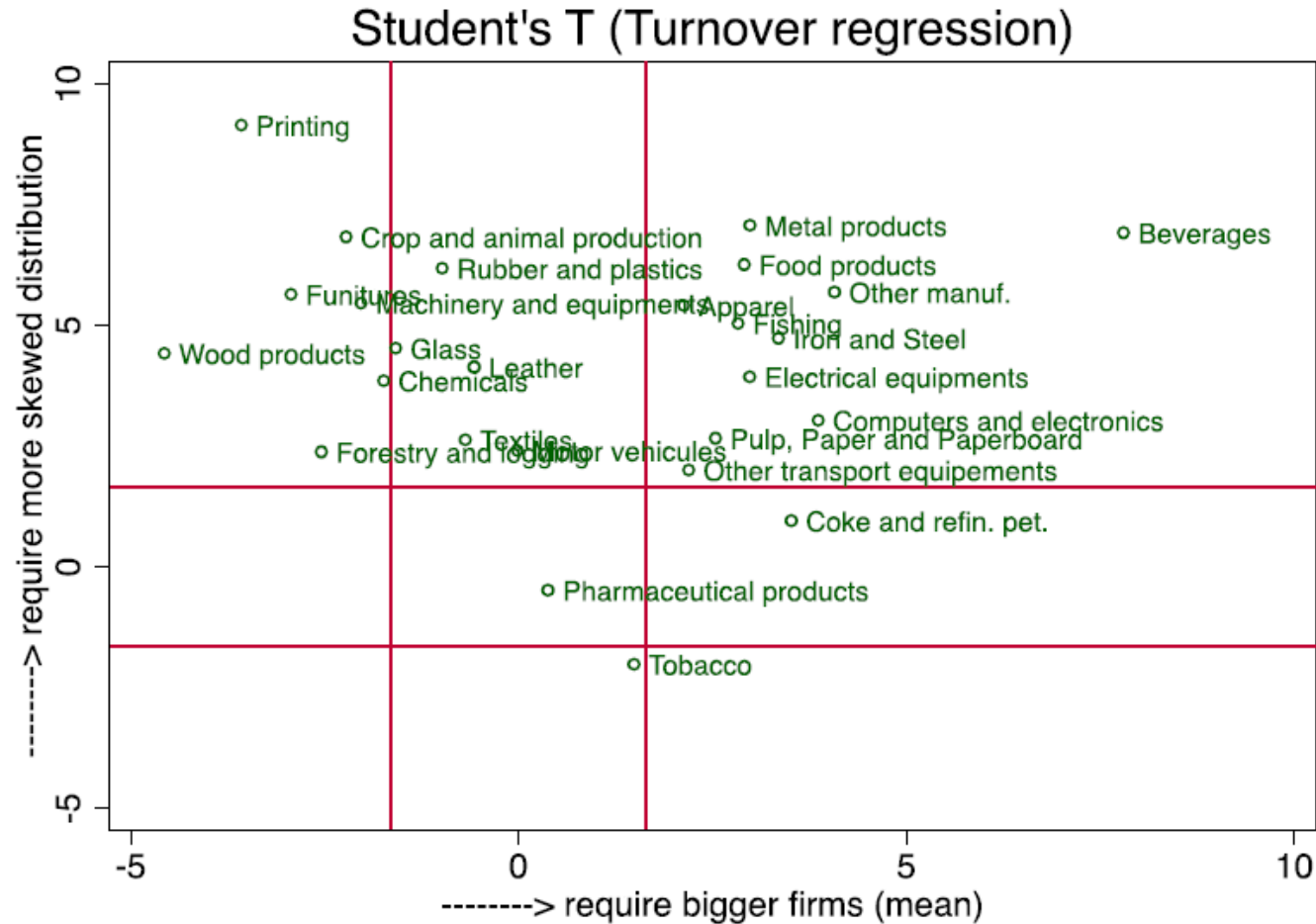
SMEs matter for non-agri employment (Ayyagari, Demirguc-Kunt, and Maksimovic 2011)

SMEs have a higher innovation potential in high-skill intensive, innovative industries (Acs and Audretsh, 1987, 1988)

And they are also more agile than large firms in inter-sectorial upgrading

Start-ups (which tend to be SMEs) are found to maintain large firms under competitive pressure and may contribute substantially also to employees' training in innovative sectors.

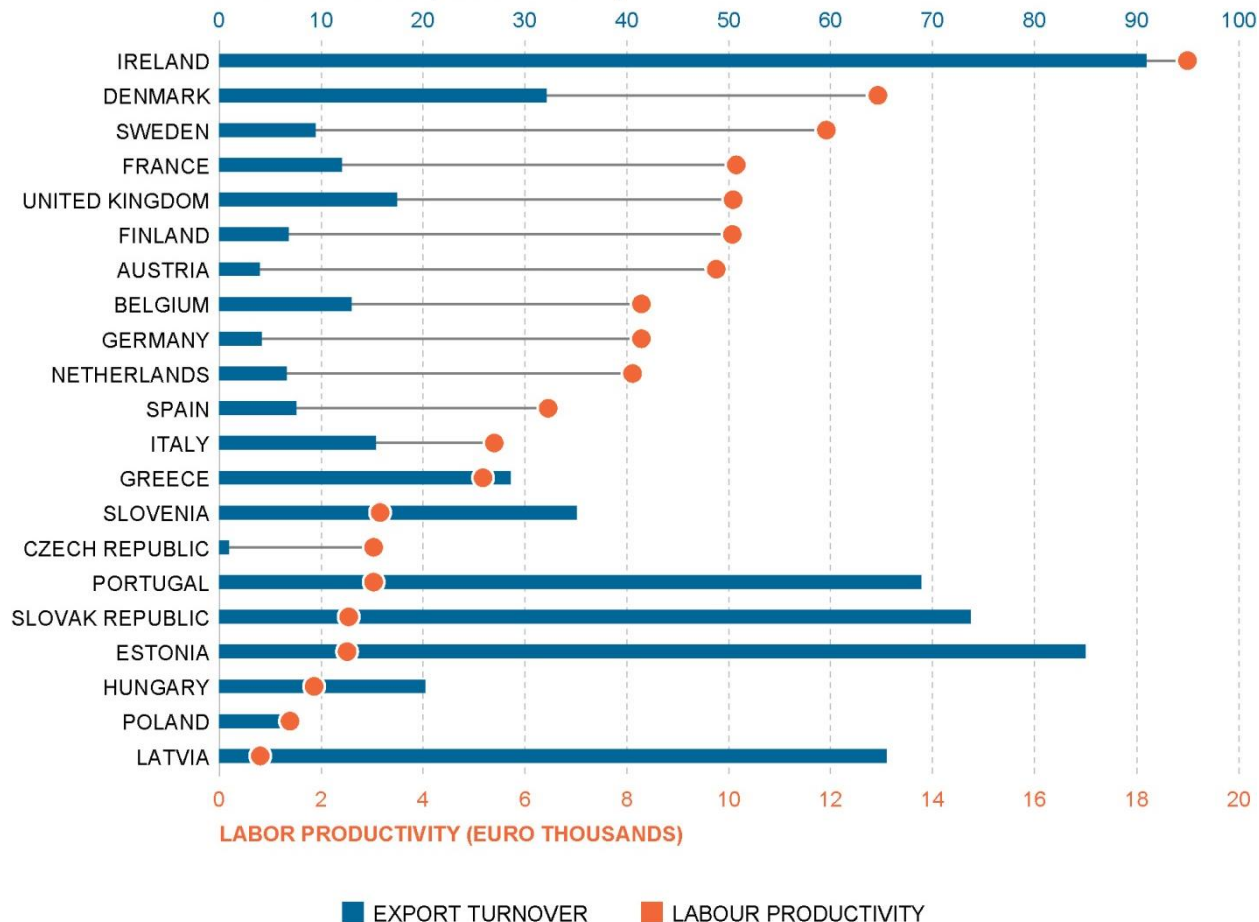
4. The importance of a complete firm ecosystem



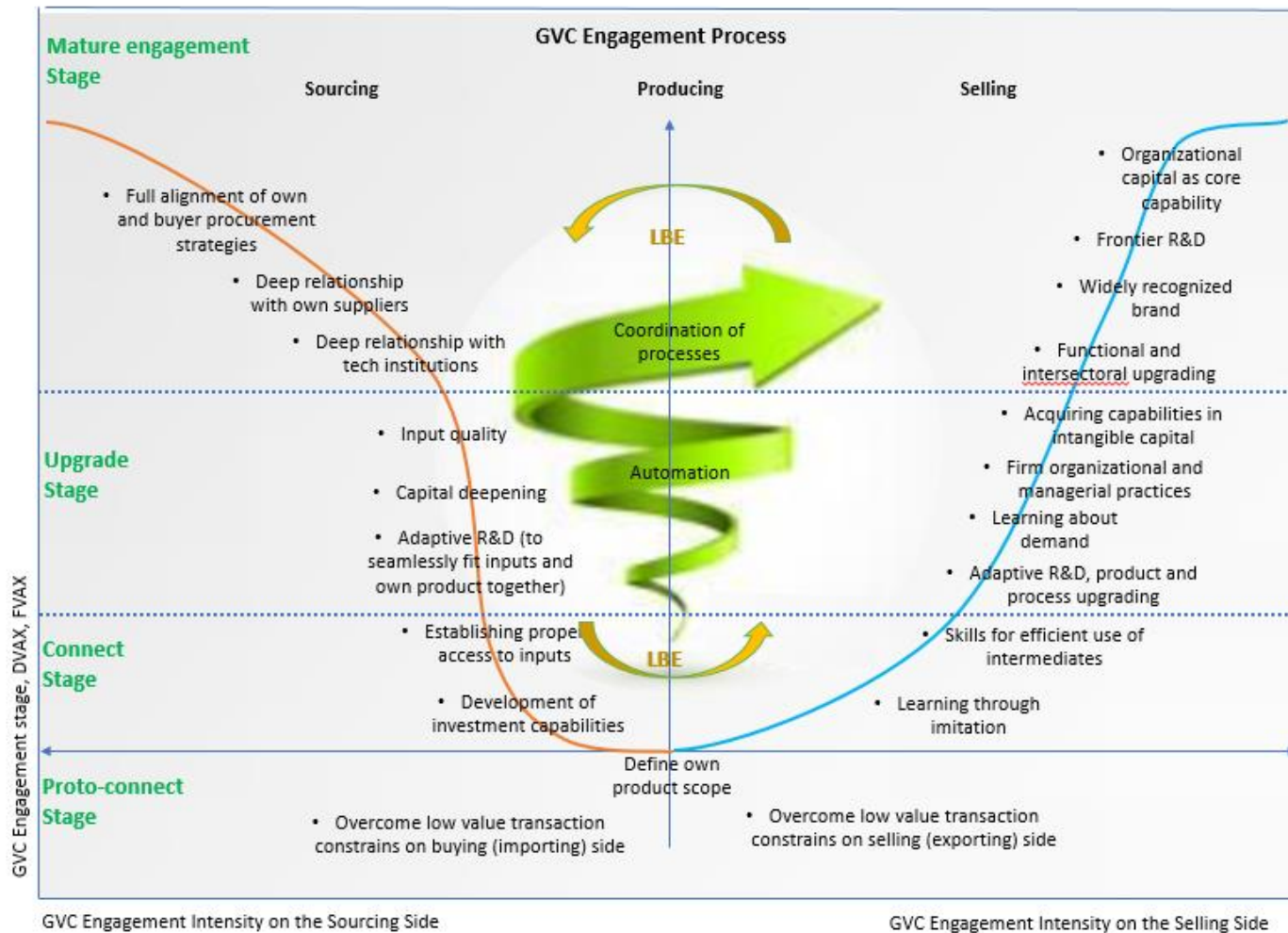
Source: Crozet, Milet, Taglioni (in progress)

4. SMEs opportunities: at the low and at the high value added end of GVCs

Export intensity (% of turnover) and labor productivity (Euro, '000 per head)



4. How can SMEs increase the value added of their production?



4. How can SMEs increase the value added of their production?

Managerial and workforce skills

Innovation

Technology adoption and investment in knowledge based capital (KBC)

4. Managerial and workforce skills

Managerial quality differs across countries with important implications for productivity



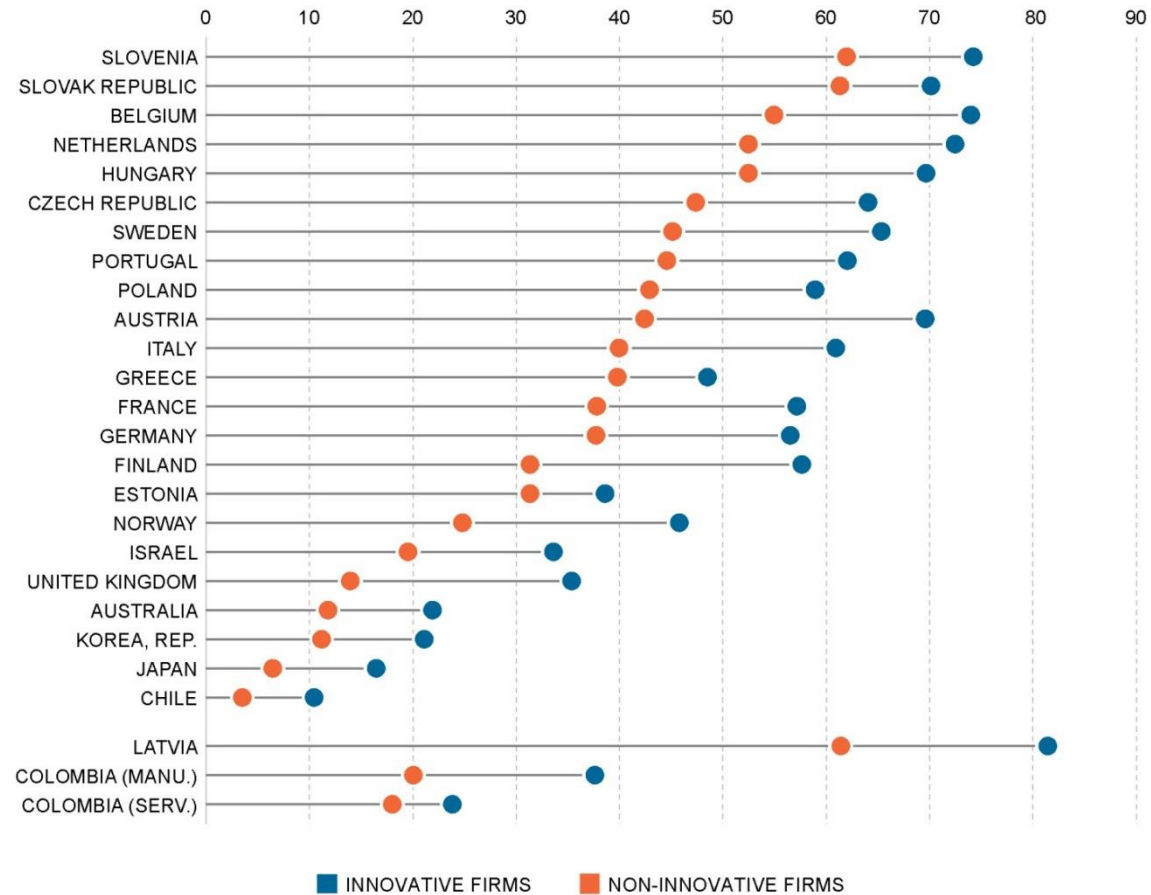
Source: Andrews and Criscuolo 2013, based on the management scores and estimated coefficients in Bloom et al. 2012.

4. The Importance of HRM policies and On-The-Job Training

- **HRM matters greatly:** (Bloom and Van Reenen, 2011)
- **MNEs bring their HRM practices to destination countries**, but local institutions (trust) determine the degree of autonomy of affiliate vs. parent (Bloom, Sadun, Van Reenen, 2012)
- **Training matters:** a 1% increase in training is associated with 0.6% increase in value added per hour and 0.3% increase in hourly wage (Dearden, Reed, and Van Reenen, 2006)
- **Employer sponsored training is the most important source of further education in OECD countries** (Hansson, 2009)
 - It increases employability and internal promotion prospects
 - It is more effective than government financed active labor programs, and more effective than self-financed training
 - But low-skilled gain the least and females appear to be rationed in their training

4. Innovation

SMEs participating in international markets by innovation status, 2010–12, % of firms in relevant group



4. Technology Adoption and Investment in KBC

Different types of KBC play a role in GVCs

computerized information (software and databases)

innovative property (R&D and non-R&D innovative expenditures, including copyrights, designs, and trademarks); and

economic competencies (brand equity, firm-specific technological and managerial skills, networks, and organizational structures)

A recent survey of Japanese firms emphasizes the importance, for those firms most engaged in GVCs, of:

Manufacturing skills

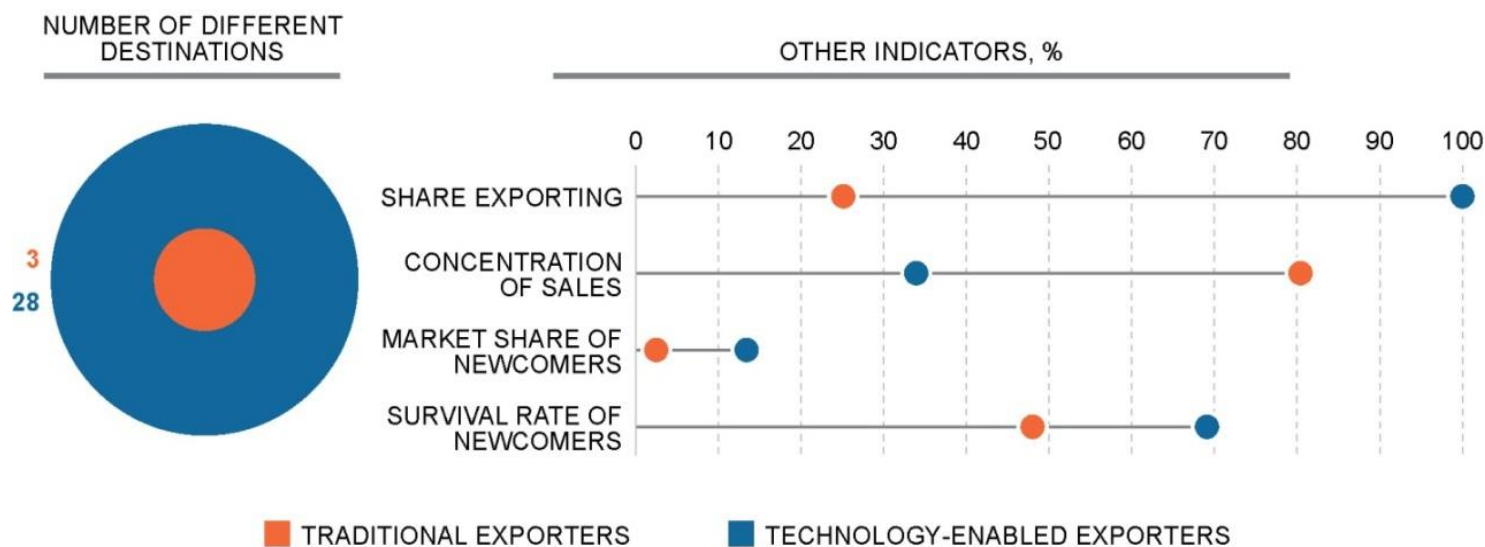
Brand and customer recognition

Agile and flexible organization

Greater emphasis by firms engaged in GVCs than by firms oriented toward the domestic market also on:

cutting-edge technology

4. Performance of Technology enabled exporters in Jordan



Similar results hold for Chile, India, Indonesia, Peru, South Africa, Thailand

4. The Critical Role of ICT

SMEs engagement in GVCs remains difficult

- **But some SMEs manage to internationalize thanks to better access to ICT**
- **SMEs and new firms more likely to populate technologically enabled exports than traditional ones**

Internet dramatically reduces the cost of finding buyers, both globally and domestically

ICT tools, cloud computing, and open source services for productivity, file sharing and e-platform collaborations, finding talent, transaction, sales, “neutralize” geography and dramatically reduce costs for cross-border transactions, and participation in global markets for smaller and new entrants.

Thank you!

3. Patterns of Specialization, Upgrading, and Policy

GVC integration as buyer and seller, averages across GVC types, 2011

GVC type	GVC integration as buyer and seller			
	BONWIN	BONWOUT	FVA_EX	DVA3_EX
seller_agr			16.4	33.8
seller_agr_mfg			12.1	32.4
seller_comm			7.5	47.1
seller_comm_mfg	1.9	2.0	14.8	32.6
seller_comm_mfg_serv	1.9	2.0	19.9	30.1
seller_comm_serv	2.0	2.1	15.1	39.8
seller_mfg_serv	2.0	2.1	36.2	30.5
hub	2.4	2.7	21.1	30.5
buyer_agr_mfg	2.0	1.8	30.2	17.5
buyer_mfg	1.9	1.9	44.9	24.2
buyer_mfg_serv	2.0	1.9	36.2	23.8

Source: World Bank (forthcoming). Data: OECD-WTO TiVA (BONWIN and BONWOUT) and EORA (FVA_EX and DVA3_EX). Note: Green refers to high values, red to low values.

3. Patterns of Specialization, Upgrading, and Policy

Upstreamness and gap, averages across GVC types, 2011

GVC type	<i>Upstreamness</i>		Gap
	UPS_M	UPS_X	
sellerAgr	2.15	2.59	negative
sellerAgrMfg	2.30	2.38	negative
sellerComm	2.10	3.25	negative
sellerCommMfg	2.29	2.87	negative
sellerCommMfgServ	2.20	2.44	negative
sellerCommServ	2.13	2.99	negative
sellerMfgServ	2.27	2.13	positive
hub	2.44	2.07	positive
buyerAgrMfg	2.20	2.05	positive
buyerMfg	2.39	2.21	positive
buyerMfgServ	2.28	2.20	positive

Source: World Bank (forthcoming). Data: Chor (2014) and UN Comtrade. Note: Green refers to high values, red to low values.

3. Patterns of Specialization, Upgrading, and Policy

Value added shares, averages across GVC types, 2011

GVC type	<i>Value added shares</i>			
	Agr	Comm	Mfg	Serv
seller_agr	32.8	17.9	6.8	42.7
seller_agr_mfg	24.2	10.4	14.6	50.7
seller_comm	5.1	59.9	5.3	31.1
seller_comm_mfg	7.6	27.5	14.5	50.2
seller_comm_mfg_serv	5.6	12.9	13.3	68.2
seller_comm_serv	7.3	22.5	7.0	63.2
seller_mfg_serv	1.7	9.2	16.8	72.3
hub	3.2	9.5	21.4	65.9
buyer_agr_mfg	26.1	10.6	14.1	47.5
buyer_mfg	6.3	9.6	24.4	60.0
buyer_mfg_serv	5.5	12.6	15.6	66.4

Source: World Bank (forthcoming). Data: WDI. Note: Green refers to high values, red to low values.

3. Patterns of Specialization, Upgrading, and Policy

- Economic performance: Varying economic performances across the 11 GVC types.

GVC type 2011	GAP 2011	LP_CAGR	DVAX_CAGR
seller_agr	-0.44	2.7	10.8
seller_agr_mfg	-0.08	2.4	11.1
seller_comm	-1.15	5.0	12.5
seller_comm_mfg	-0.58	4.2	13.3
seller_comm_mfg_serv	-0.24	2.8	12.8
seller_comm_serv	-0.86	2.1	14.0
seller_mfg_serv	0.15	0.9	9.7
hub	0.37	1.0	10.0
buyer_agr_mfg	0.15	4.9	10.7
buyer_mfg	0.18	3.0	11.8
buyer_mfg_serv	0.08	2.0	9.8

Source: World Bank (forthcoming). Data: Chor (2014) and UN Comtrade Data (GAP), WDI (value added in 2010 factor prices), World Penn Tables (employees), and EORA (DVAX). Note: Green refers to high values, red to low values. CAGR refers to period 2000–11.

3. Patterns of Specialization, Upgrading, and Policy

- **Social performance: Varying social performances across the 11 GVC types.**

GVC type 2011	LVAX_EMP 2011	LVAX_CAGR	EMP_CAGR
seller_agr	247	15.3	2.7
seller_agr_mfg	366	12.0	2.4
seller_comm	1,732		4.5
seller_comm_mfg	1,541	12.0	3.0
seller_comm_mfg_serv	3,709	10.2	0.8
seller_comm_serv	5,144	16.7	1.6
seller_mfg_serv	13,431	8.3	0.9
hub	7,874	10.0	0.3
buyer_agr_mfg	345	18.6	2.5
buyer_mfg	7,003	11.7	1.0
buyer_mfg_serv	5,477	8.4	1.2

Source: World Bank (forthcoming). Data: World Bank LACEX Database (LVAX) and World Penn Tables (employees). Note: Green refers to high values, red to low values. LVAX_EMP 2011 measured in US\$. CAGR refers to period 2001–11 for LVAX_CAGR and to 2000–11 for EMP_CAGR.

3. Patterns of Specialization, Upgrading, and Policy

Indicators of GVC integration, economic and social upgrading, CAGR 2000 vs. 2011, by GVC trajectory

Trajectory 2000 vs. 2011	BONWIN	BONWOUT	FVAX	DVA3X	DVAX	LVAX
upgrade	22.9	24.5	15.6	11.4	10.0	10.8
downgrade	-8.9*	23.6*	17.7	12.8	11.7	12.4
move	6.0	17.5	15.2	15.7	14.1	12.2
remain	-3.0	-9.8	13.1	12.6	11.2	10.6

Source: World Bank (forthcoming). Data: OECD-WTO TiVA, EORA, World Bank LACEX Database (LVAX). Note: Green refers to high values, red to low values. CAGR refers to period 2000-11. *Lithuania is the only TiVA country that downgraded.

3. Patterns of Specialization, Upgrading, and Policy

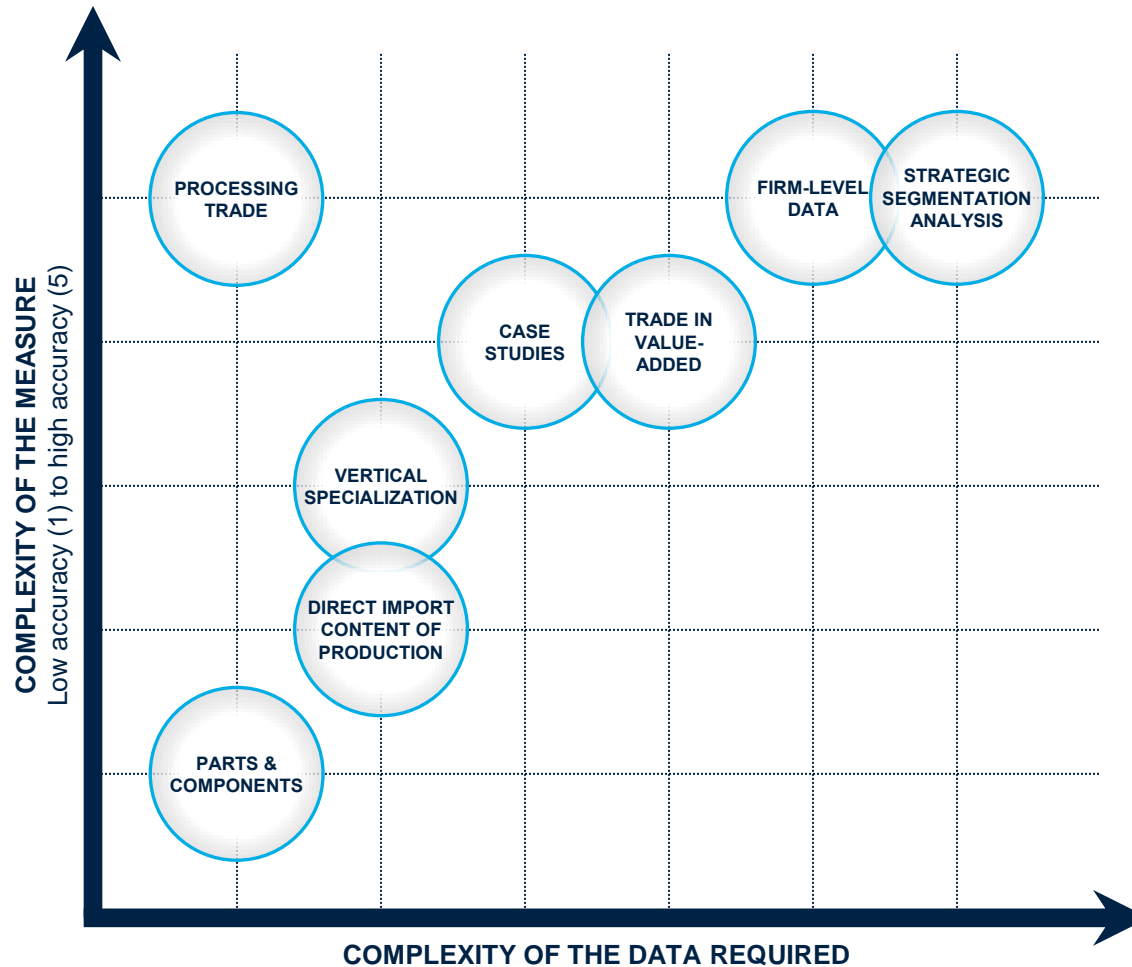
Policy indicators, average by GVC trajectory

Trajectory 2000 vs. 2011	FDI	LPI	Educ quality	Innovation
upgrade	3.4	2.9	3.8	3.2
downgrade	3.6	2.5	3.2	2.9
move	4.2	2.8	3.8	3.2
remain	4.5	2.9	4.0	3.4

Source: World Bank (forthcoming). Note: Green refers to high values, red to low values. FDI = Avg. FDI inflows (% of GDP) over 2000–11 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), over 2006–11 from WEF. Innovation =Avg. index on innovation environment, 1–7 (best), over 2006–11 from WEF.

GVC Participation Assessment

Different methodologies and data to capture GVC integration:



Source: Modified from Amador and Cabral (2014).

GVC Participation Assessment

- Policy advice supporting GVC-based growth models requires **sound analytics and data**, and a **wide range of indicators and concepts**.
- **Key features** related to GVC measurement:
 - Differentiating between **buyer- and seller-related perspectives**
 - Complementing the **gross trade** with the **trade in value added perspective**
 - Complementing the **macro (sectoral)** with the **micro (firm) perspective**
- **Data and measurement gaps**:
 - Mapping GVCs across a **wide range of industries**
 - **Firm-level information** on purchases and sales **by country-sector pair**
 - GVC measures for **low-income countries** and at the **sub-national level**
 - **Labor, social, and environmental impacts** of GVC integration