Functional specialization in FDI and value capture in GVCs: An empirical assessment of the Smile Curve hypothesis on a global scale

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Introduction

- "2nd unbundling" (Baldwin 2006; Baldwin & Lopez-Gongalez, 2015) and the rise of Global Value Chains (UNCTAD, 2011, 2013)
- Firms have been increasingly specialized in **specific value chain functions** (Feenstra, 1998; Sturgeon and Gereffi, 2009; Bernard, Smeets and Warzynski, 2017)
- Emergence of a **finer international division of labour** that occurs mainly at the level of individual production stages, also called "tasks" (Grossman and Rossi-Hansberg, 2008)
- This has been often assumed to reflect the **"Smile curve" hypothesis** (Shih, 1996; Mudambi, 2007, 2008; Baldwin, 2017)
- However, the smile curve is "based mostly on casual empiricism", making it a sort of "working assumption" in the literature (Baldwin and Evenett, 2015, p. 34)

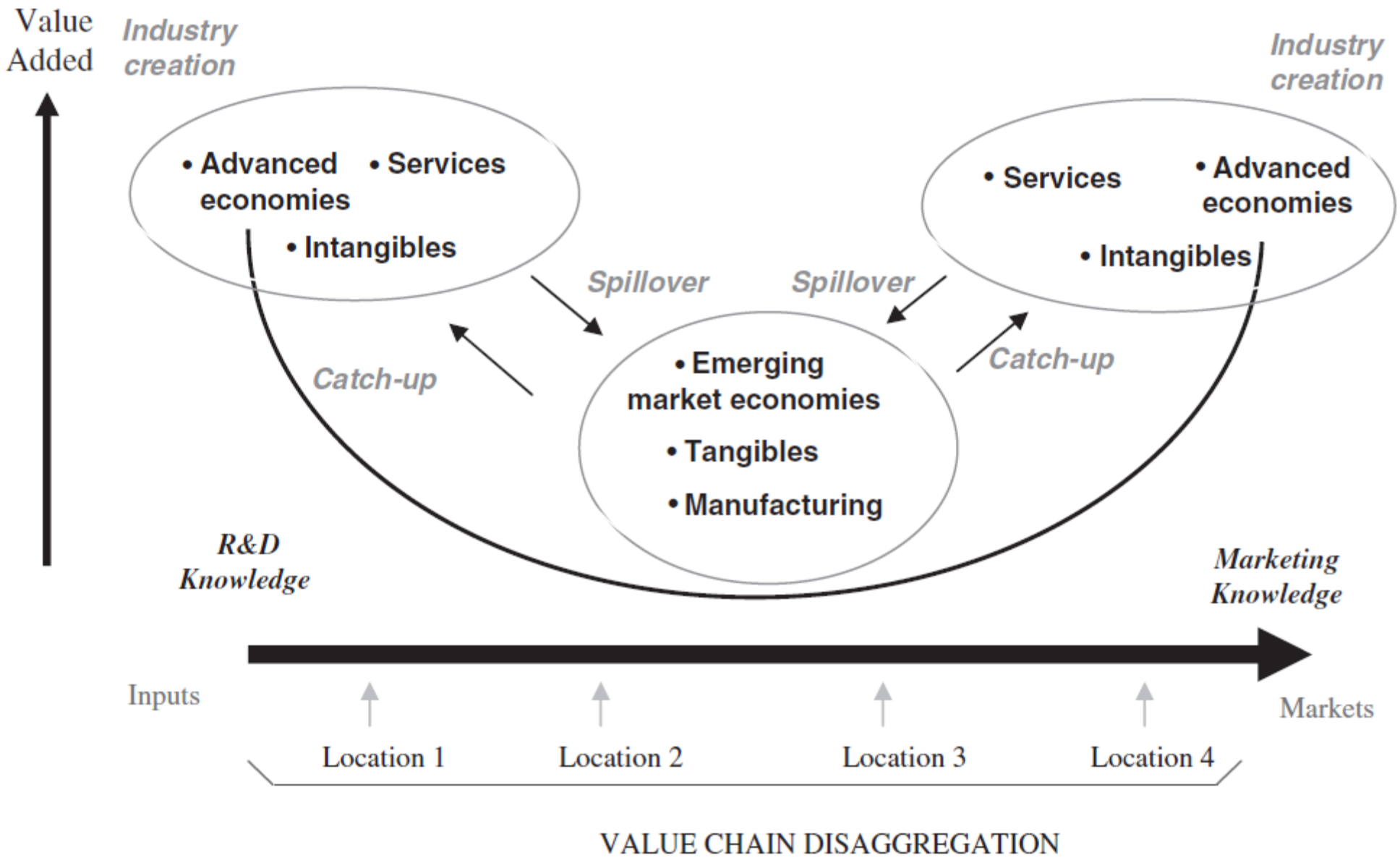


Figure 2. The smile—dynamic analysis.

Source: Mudambi (2008)

The Smile curve hypothesis: conceptual aspects

- The ‘smile curve’ was first proposed at the beginning of the Nineties by Stan Shih, the founder of the IT company Acer Inc. headquartered in Taiwan, and is built on his analysis of the personal computer industry (Shih, 1996; Shin et al., 2012)
- The smile curve hypothesis includes two major predictions concerning:
  1. the international division of labour
  2. the distribution of value along GVCs
- The uneven distribution of value (i.e., the steepness of the curve) is mostly determined by two drivers which insist respectively on the central part and on the higher ends of the curve:
  1. High and increasing global competition among actors performing fabrication activities (Baldwin and Evenett, 2015) – a modern version of the Prebisch-Singer hypothesis (Kaplinsky, 2000; Milberg and Winkler, 2013)
  2. Increasing role played by intangibles in GVCs and especially the strategic control that lead firms – largely based in high-income countries – maintain on functions at the higher ends of the value chain (Durand & Milberg 2020)

The Smile curve hypothesis: empirical evidence

- **Case studies on the GVC of individual products**, e.g., Barbie doll (Tempest, 1996), Nokia N95 (Ali-Yrkkö et al., 2011), the iPod and notebook computers (Dedrick et al., 2010), the iPhone (Xing & Detert, 2010) and the iPad (Kraemer et al., 2011), Apple iPhone X, Xiaomi MIX 2 and OPPO R11s (Xing & Huang, 2021) + several other products (Ali-Yrkkö & Rouvinen, 2015; Kenney, 2012; Sturgeon et al., 2013; UNCTAD,2015)
- World Bank (2020, pp. 83-87) finds that **greater mark-ups seized by MNCs located in developed economies** are associated with *falling mark-ups of firms in developing countries* (Chinese companies are a notable exception)
- Chen (2018) finds that the **uneven distribution of intangibles assets** across countries explains a large share of *income differences across world economies*
- A number of studies use the **'upstreamness' measure of industries** provided by Fally (2011) and Antràs and Chor (2013) to test the smile curve hypothesis – but this kind of measure disregards the business activities undertaken for the realization of products and services (de Vries et al., 2021)
- Major advancement by Timmer, Miroudot and de Vries (2019): **Functional Specialization in Trade**
- Stollinger (2021) uses FDI data to compute the **specialization of industries across business activities** and investigate the relationship between this figure and the value added to gross output ratio, but the analysis is purely cross-sectional and does not account for any measure of GVC participation of industries

Our contribution

- Our empirical investigation adds to extant literature in three ways
  - First, we provide an empirical contribution to the literature on the **modern international division of labour** by computing the functional specialization of countries in terms of inward FDIs; we call this indicator '**functional specialization in FDI**'
  - Second, we provide evidence on the **evolution** of the FDI-based functional specialization patterns of macro-regions to assess whether the international division of labour has undergone major shifts **over time**
  - Third, we investigate the link between the **functional specialization in FDI** of the economies and their capability to **capturing value in GVCs**
- To the best of our knowledge, our study provides the first systematic test at the country level of the 'Smile curve' hypothesis on a global scale.

Measuring functional specialization in FDI

- We exploit **the fDi Markets database**, which shows the distinctive feature of reporting the main business activity – i.e., the value chain function like R&D, design and development, manufacturing, sales, marketing and support, etc. – each FDI project is aimed to perform.
  - fDi Markets is an online database provided by fDi Intelligence – a specialist division of Financial Times Ltd –, which collects detailed information on announced cross-border greenfield investments covering all sectors and countries worldwide from 2003 onwards. **We have access to data from 2003 and 2018**. During this period, fDi Markets includes an overall amount of 203,360 investment projects worldwide carried out by about 78,000 investing companies controlled by more than 57,000 parent companies.
- Our measure of functional specialization of the economies is found by computing the Balassa's (1965) index of revealed comparative advantage on the basis of inward FDI projects related to different value adding functions.
- We call this figure '**functional specialization in FDI**' (FS):

$$FS_i^a = \frac{\frac{FDI_i^a}{\sum_a FDI_i^a}}{\frac{\sum_i FDI_i^a}{\sum_i \sum_a FDI_i^a}}$$

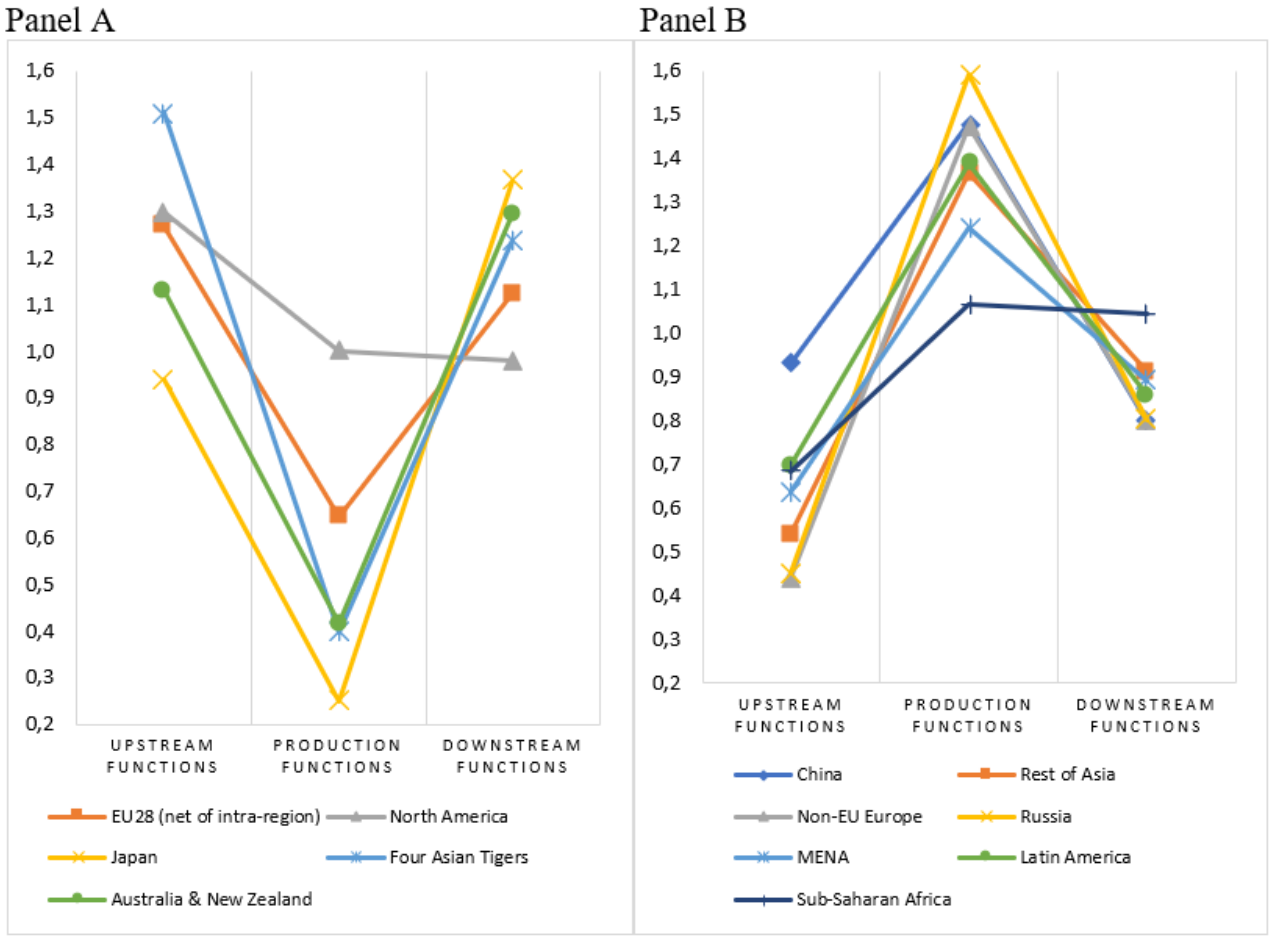
Empirical strategy: a two-step procedure

- **First step:** we assess whether the functional division of labour reflects the one envisioned by the smile curve hypothesis (*cross-sectional evidence* + *simple test using a Panel BE model*)
- Afterwards, we provide evidence on the evolution of functional specialization in FDI of world macro-areas **over time** (*descriptive evidence*)
- **Second step:** we investigate the link between the functional specialization of the economies and their capability to capturing value in GVCs (*Panel FE estimates*)

First step: cross-sectional evidence

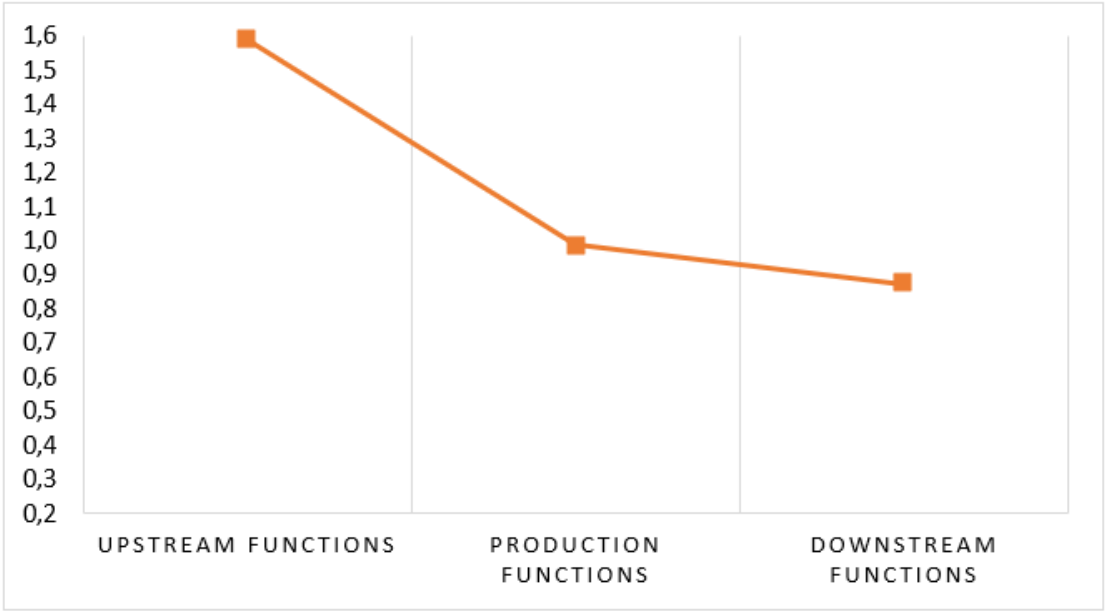
- We break down the world economy into thirteen macro-regions belonging to both advanced and non-advanced economic areas.
- We pool data on FDIs received by each macro-economic region over the whole period under investigation (i.e., 2003-2018) and compute their functional specialization in FDI.
- We classify value adding functions in the three canonical stages of the value chain, i.e., the *upstream*, *production* and *downstream* segment (Mudambi, 2008; Baldwin and Evenett, 2015) based on the classification of business functions provided by Sturgeon (2008) and adapted from Crescenzi, Pietrobelli and Rabellotti (2014)
- We compute the functional specialization in FDI of macro-regions across these three GVC stages

Figure 1. Functional specialization in FDI of advanced (Panel A) and non-advanced macro-regions (Panel B)



Source: authors' elaboration on data from fDi Markets.

Figure 2. Functional specialization in FDI of India



Source: authors' elaboration on data from fDi Markets.

A simple test

- The previous descriptive analysis, while suggestive, lends itself to two criticisms
- First, our aggregation of countries into macro-regions might be seen as too arbitrary
- Second, the functional specialization of macro-regions could be interpreted as a weighted average of the functional specializations of individual countries, thereby reducing the heterogeneity of the sample and hiding important differences that could exist between countries belonging to the same macro-region.
- Accordingly, we fully exploit the cross-sectional dimension of our dataset by also performing a **simple econometric test using data at country level**. By doing this, we avoid to group countries in world macro-regions

Table 1. The relationship between GDP per capita and specialization in FDI of countries across GVC stages

	(1) Upstream	(2) Production	(3) Downstream
GDP per capita	0.0145***	-0.0153***	0.00601***
	(0.00217)	(0.00240)	(0.00135)
Time FE	YES	YES	YES
Observations	1,950	1,950	1,950
R-squared	0.439	0.470	0.411
No. of countries	153	153	153

Source: authors' elaboration on data from fDi Markets and World Bank.

Note: Between effects model with time fixed effects on a sample of 153 world economies over the period 2003-2018. Dependent variables are the functional specialization in FDI of countries in the upstream (column 1), production (column 2) and downstream GVC stage (column 3). GDP per capita is expressed in constant 2011 thousand PPP$. A constant is included but not reported. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2. The relationship between GDP per capita and specialization in FDI of countries across selected functions

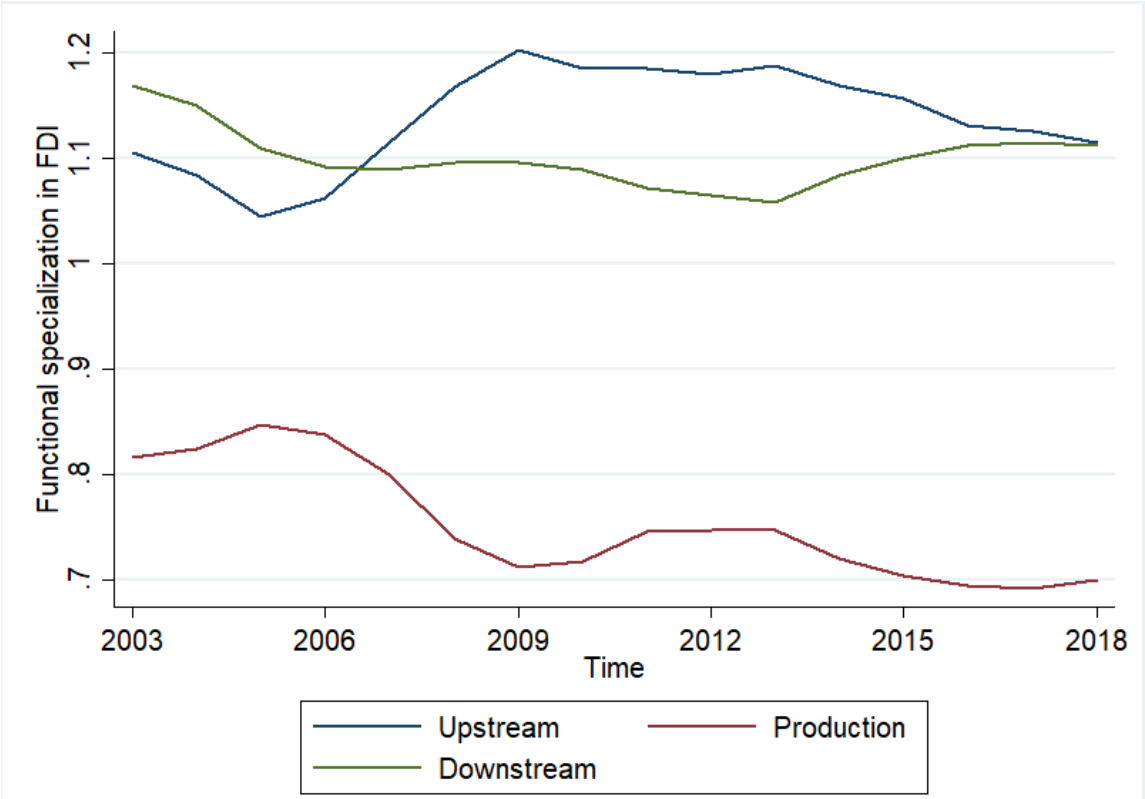
	(1) HQ	(2) R&D	(3) DDT	(4) MAN	(5) LDT	(6) SMS
GDP per capita	0.0284***	0.0222***	0.0148***	-0.0103***	0.00895***	0.00978***
	(0.00255)	(0.00385)	(0.00304)	(0.00288)	(0.00317)	(0.00169)
Time FE	YES	YES	YES	YES	YES	YES
Observations	1,950	1,950	1,950	1,950	1,950	1,950
R-squared	0.541	0.260	0.242	0.320	0.274	0.435
No. of countries	153	153	153	153	153	153

Source: authors' elaboration on data from fDi Markets and World Bank.

Note: Between effects model with time fixed effects on a sample of 153 world economies over the period 2003-2018. Dependent variables are the functional specialization in FDI of countries in headquarter (column 1), R&D (column 2), design, development and testing (column 3), manufacturing (column 4), logistics, distribution and transportation (column 6) and sales, marketing and support function (column 7). GDP per capita is expressed in constant 2011 thousand PPP$. A constant is included but not reported. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Evidence on the functional specialization in FDI over time

Developed countries



Low- and middle-income countries

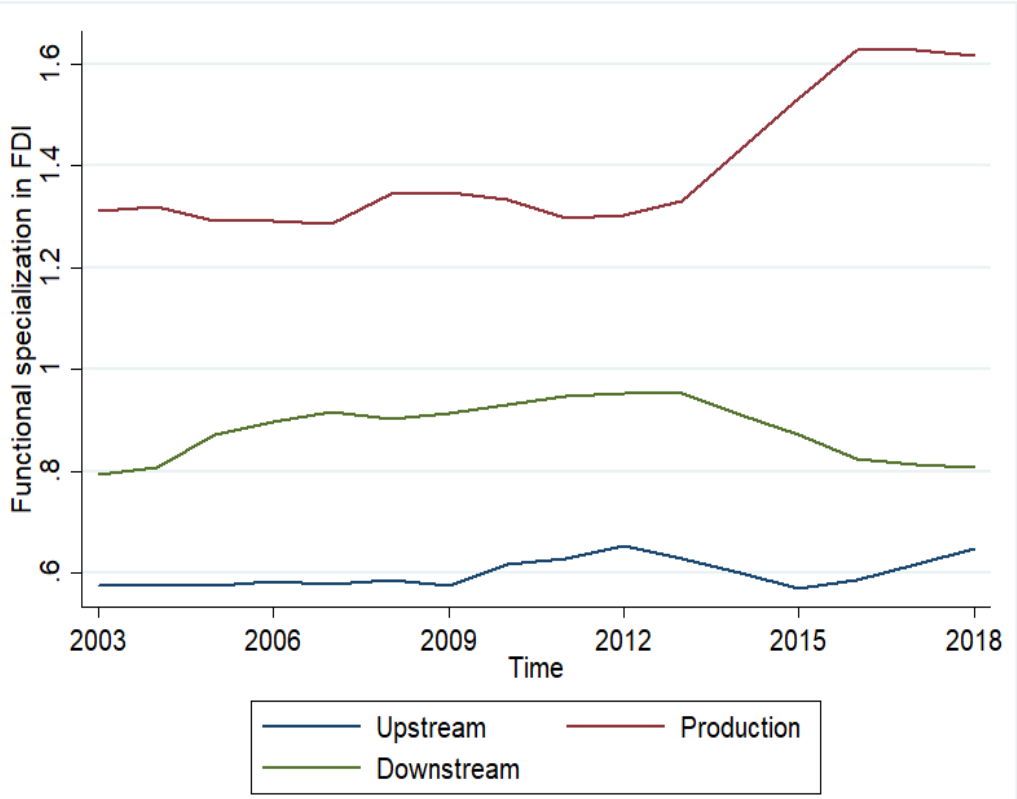
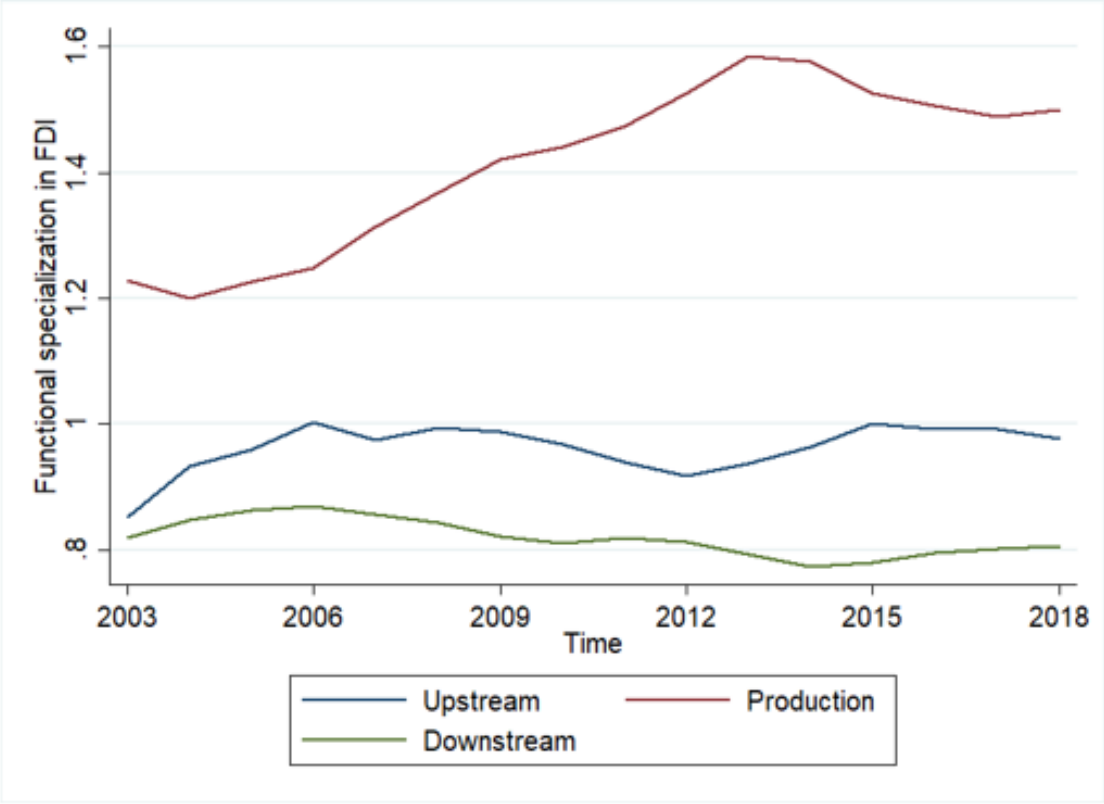
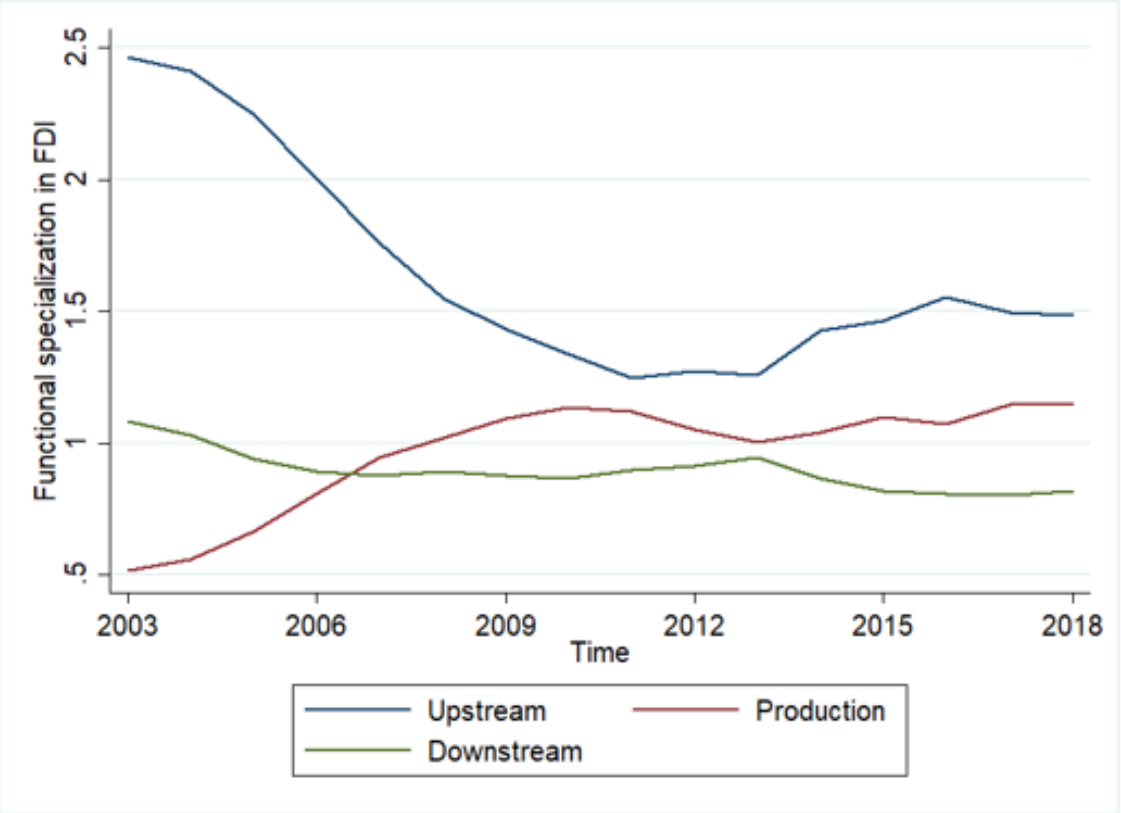


Figure 4. Specialization in FDI across GVC stages of China (Panel A) and India (Panel B), 2003-2018 (3-year moving average)

Panel A. China



Panel B. India



Source: authors' elaboration on data from fDi Markets.

Second step: assessing link between functional specialization in FDI and value capture in GVCs

- Several different measures have been employed to measure value capture in GVCs, e.g., total value added (Kummritz, 2016; Kummritz et al., 2017), value added to gross output ratio at both firm (Rungi an&d Del Prete, 2018) and industry level (Stöllinger, 2021), labour productivity in exports (Pahl and Timmer, 2020), forward to backward linkages ratio (Jona-Lasinio et al., 2019).
- We follow Kowalski et al. (2015) and measure value capture in GVCs by using **the domestic value added embodied in exports (DVA) per capita**.
- The reasons which led us to employ this indicator are the following:
  - First, differently from total VA, DVA focuses on the amount of value added that is retained by domestic actors involved in export chains;
  - Second, DVA includes both capital and labour income, i.e., gross profits and employees' compensations;
  - Third, DVA per capita measures the average income accruing to domestic population from exporting;
  - Fourth, data on DVA are available for a wide range of developed as well as developing countries.

The empirical model

Formally, we estimate the following regression equation:

$$DVA\ per\ capita_{i,t} = \beta_0 + \beta_1 RFS_{i,t} + \beta_2 X_{i,t} + \beta_3 GVC_{i,t} + \beta_4 Institutions_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t}$$

Our key regressor is what we call the Relative Functional Specialization (RFS) index of the economies, , namely a composite indicator which jointly accounts for the level of functional specialization of the economies in both upstream, production and downstream stages of the value chain

The *RFS index* is computed as follows:

$$RFS_{i,t} = \frac{FS_{i,t}^{production}}{FS_{i,t}^{upstream} + FS_{i,t}^{downstream}}$$

We estimate our empirical model in log terms to mitigate heteroskedasticity and increase the efficiency of the fixed effects estimator. We hence take the natural logarithm of the *RFS index*.

Table 3. Share of FDIs across GVC stages and value capture in GVCs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base level	*Share of FDIs in production functions*						
Share of FDIs in upstream funct.	0.0985**	0.0876*	0.0862*	0.0875*	0.0825*	0.0839*	0.0806*
	(0.0496)	(0.0503)	(0.0488)	(0.0467)	(0.0455)	(0.0451)	(0.0440)
Share of FDIs in downstream funct.	0.0512	0.0677**	0.0733**	0.0618*	0.0613**	0.0620**	0.0626**
	(0.0352)	(0.0337)	(0.0314)	(0.0315)	(0.0298)	(0.0304)	(0.0286)
Total inward FDIs (log)	-0.0413***	-0.0417***	-0.0452***	-0.0327***	-0.0346***	-0.0368***	-0.0386***
	(0.0138)	(0.00971)	(0.00963)	(0.00959)	(0.00856)	(0.00921)	(0.00848)
GDP per capita (log)	0.826***	0.792***	0.707***	0.730***	0.711***	0.638***	0.622***
	(0.0792)	(0.0857)	(0.0944)	(0.0906)	(0.0940)	(0.0946)	(0.0959)
Industry share (% of GDP)		0.00781***	0.00848***	0.00811***	0.00765***	0.00878***	0.00830***
		(0.00282)	(0.00271)	(0.00279)	(0.00253)	(0.00263)	(0.00242)
Fixed broadband subs. (%)		0.00533***	0.00478**	0.00619***	0.00617***	0.00561***	0.00554***
		(0.00197)	(0.00188)	(0.00202)	(0.00200)	(0.00191)	(0.00186)
GVC position index (lagged)				1.103*		1.153*	
				(0.613)		(0.588)	
GVC ratio (lagged)					0.207*		0.212**
					(0.111)		(0.105)
Constant	-3.494***	-3.368***	-2.614***	-2.722***	-2.537***	-1.901**	-1.750**
	(0.734)	(0.778)	(0.856)	(0.831)	(0.850)	(0.860)	(0.864)
Quality of institutions vars.	NO	NO	YES	NO	NO	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES
Observations	1,625	1,529	1,529	1,450	1,450	1,450	1,450
R-squared	0.892	0.896	0.899	0.880	0.880	0.884	0.884
Number of countries	102	102	102	102	102	102	102

Source: authors' elaboration.

Note: Fixed effects model for a sample of 102 world economies over the period 2003-2018. The dependent variable is the log of per capita DVA in exports. The sample includes countries which received at least one FDI per year. Robust standard errors clustered at country level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 4. *RFS* index and value capture in GVCs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RFS index	-0.00944	-0.0107*	-0.0107**	-0.0154***	-0.0152***	-0.0149***	-0.0148***
	(0.00658)	(0.00606)	(0.00518)	(0.00515)	(0.00493)	(0.00458)	(0.00441)
Total inward FDIs (log)	-0.0512***	-0.0446***	-0.0487***	-0.0373***	-0.0373***	-0.0419***	-0.0417***
	(0.0141)	(0.0107)	(0.0101)	(0.0107)	(0.0101)	(0.0101)	(0.00978)
GDP per capita (log)	0.800***	0.788***	0.696***	0.712***	0.705***	0.626***	0.623***
	(0.0817)	(0.0886)	(0.0950)	(0.0937)	(0.0962)	(0.0967)	(0.0968)
Industry share (% of GDP)		0.00645**	0.00702***	0.00732***	0.00733***	0.00800***	0.00796***
		(0.00267)	(0.00251)	(0.00267)	(0.00258)	(0.00250)	(0.00244)
Fixed broadband subs. (%)		0.00571***	0.00498***	0.00645***	0.00641***	0.00570***	0.00565***
		(0.00198)	(0.00188)	(0.00211)	(0.00209)	(0.00196)	(0.00192)
GVC position index (lagged)				1.131*		1.197**	
				(0.585)		(0.564)	
GVC ratio (lagged)					0.206*		0.214**
					(0.111)		(0.106)
Constant	-3.139***	-3.200***	-2.383***	-2.446***	-2.401***	-1.686*	-1.676*
	(0.754)	(0.803)	(0.861)	(0.857)	(0.869)	(0.880)	(0.874)
Quality of institutions vars.	NO	NO	YES	NO	NO	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES
Observations	1,495	1,412	1,412	1,340	1,340	1,340	1,340
R-squared	0.894	0.899	0.902	0.884	0.883	0.888	0.887
Number of countries	102	102	102	102	102	102	102

Source: authors' elaboration.

Note: Fixed effects model for a sample of 102 world economies over the period 2003-2018. The dependent variable is the log of per capita DVA in exports. The sample includes countries which received at least one FDI per year. Robust standard errors clustered at country level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Relative functional specialization (*RFS*) index and value capture in GVCs including two-year lagged GVC variables

	(1)	(2)	(3)	(4)	(5)	(6)
RFS index (log)	-0.0125***	-0.0148***	-0.0151***	-0.0120***	-0.0142***	-0.0148***
	(0.00368)	(0.00523)	(0.00518)	(0.00362)	(0.00452)	(0.00459)
Total inward FDIs (log)	-0.00715	-0.0133	-0.0303***	-0.0112	-0.0200*	-0.0359***
	(0.00709)	(0.0105)	(0.0106)	(0.00724)	(0.0102)	(0.00984)
GDP per capita (log)	0.324***	0.550***	0.668***	0.285***	0.474***	0.585***
	(0.0702)	(0.0769)	(0.0905)	(0.0736)	(0.0810)	(0.0920)
Industry share (% of GDP)	0.00740***	0.00384*	0.00664***	0.00743***	0.00414**	0.00691***
	(0.00156)	(0.00204)	(0.00240)	(0.00157)	(0.00196)	(0.00230)
Fixed broadband subs. (%)	0.00416***	0.00689***	0.00818***	0.00385***	0.00640***	0.00726***
	(0.00129)	(0.00246)	(0.00222)	(0.00127)	(0.00234)	(0.00202)
DVX per capita (log) ψ	0.512***			0.501***		
	(0.0632)			(0.0631)		
FVA per capita (log) ψ		0.279***			0.274***	
		(0.0574)			(0.0594)	
GVC ratio ψ			0.165			0.170
			(0.111)			(0.107)
Constant	-0.371	-1.607**	-1.975**	0.0185	-0.881	-1.218
	(0.550)	(0.635)	(0.819)	(0.573)	(0.706)	(0.828)
Quality of institutions vars.	NO	NO	NO	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES
Observations	1,262	1,262	1,262	1,262	1,262	1,262
R-squared	0.899	0.861	0.853	0.901	0.865	0.858
Number of countries	102	102	102	102	102	102

Note: The dependent variable is the log of DVA per capita. ψ These variables are two-year lagged. Robust standard errors clustered at country level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Conclusions

- The ‘smile curve’ first proposed by Shih (1996) emerged as a sort of stylized fact which however has not been properly assessed by extant empirical literature on GVCs
- We computed a measure of functional specialization in FDI to provide a country-level empirical assessment of the smile curve hypothesis at a global scale
- Three main findings emerge from our investigation:
  1. the modern international division of labour sees advanced economies being mostly specialized in attracting FDIs related to functions at the higher ends of the value chain, while developing countries are largely specialized in drawing FDIs in production activities (with China and India being major outliers)
  2. the observed specialization patterns largely consolidated over the period under investigation
  3. the functional specialization in FDI is a relevant predictor of the amount of value added that countries can capture from trade in GVCs, i.e., a higher FDI-based specialization in production operations compared to the most upstream and downstream stages of GVCs is negatively related with the amount of value added that economies are able to seize domestically.

Thank you
for your attention

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Appendix

Table A.1 Classification of value chain functions in GVC stages, and total number of inward FDIs and share (%) by function and GVC stage over the period 2003-2018

Value chain function (fDi Markets' business activity)	Number of FDIs	Percentage share (%)	GVC stage	Number of FDIs	Percentage share (%)
Headquarters	**8.933**	**4,9**			
Research & Development	**3.139**	**1,7**			
Design, Development & Testing	**10.258**	**5,6**	*Upstream*	28.170	15,5
ICT & Internet Infrastructure	3.815	2,1			
Education & Training	2.025	1,1			
Extraction	2.462	1,4			
Manufacturing	**48.236**	**26,5**	*Production*	51.346	28,2
Recycling	648	0,4			
Business Services	33.167	18,2			
Logistics, Distribution & Transportation	**11.672**	**6,4**			
Sales, Marketing & Support	**50.762**	**27,9**			
Customer Contact Centre	2.408	1,3	*Downstream*	102.297	56,3
Maintenance & Servicing	2.084	1,1			
Shared Services Centre	1.147	0,6			
Technical Support Centre	1.057	0,6			

Source: authors' elaboration based on data from fDi Markets. Classification inspired by Sturgeon (2008) and adapted from Crescenzi, Pietrobelli and Rabellotti (2014).

Data sample for the cross-sectional evidence

Some countries were excluded from the computation, being classified as tax havens, or resulting extreme outliers in terms of GDP per capita compared to the average value reported by the macro-region they belong to (largely because they are "Oil & Gas" producers). The list of excluded countries is the following:

- Aruba, Bahamas, Bahrain, Bermuda, Brunei, Cayman Islands, Equatorial Guinea, Iceland, Ireland, Kuwait, Macau, Norway, Oman, Puerto Rico, Qatar, Saudi Arabia, Seychelles, Trinidad & Tobago, United Arab Emirates

As a further refinement, we did not consider country-year observations for which the specialization indices are computed over a total number of inward FDIs lower than three (this threshold is equal to the total number of inward FDIs for the 25th percentile of the distribution of total inward FDIs received by emerging economies, a large share of which draws very few FDIs per year).

- This is a necessary adjustment in order to improve the reliability of the sample as it allows to avoid biases in the computation of the specialization indices; conversely, the latter risk to be driven by a very small number of total inward FDIs for a series of country-year observations, with the result that specialization indices in a given function for some countries in specific years result very large while being zero for all remaining years.

The descriptive statistics are therefore based on a sample including about 150 countries.

World regions

- We break down inward FDI data into thirteen destination areas belonging to both advanced and emerging regions
- **Advanced economies** include: EU28+ (EU28+Norway+Switzerland for geographical proximity and similar GDP per capita), North America, Japan, the Four Asian Tigers, and Australia & New Zealand
- **Emerging economies** include: Non-EU Europe (excluding Norway and Switzerland), Russia, China, India, the Rest of Asia, the Middle East & North Africa (MENA), Sub-Saharan Africa and Latin America.

The *RFSc index*

We also compute a second version of the RFS index by introducing a correction which consists in adding a constant equal to one to both the numerator and denominator.

This correction, that can be found quite usually in the literature – e.g., Koopman, Wang and Wei (2010) – is aimed to allow the calculation of the RFS index also for those observations reporting zeroes at the denominator.

This corrected version of the RFS index, that we label RFSc, is computed as follows:

$$RFSc_{i,t} = \frac{1 + FS_{i,t}^{production}}{1 + FS_{i,t}^{upstream} + FS_{i,t}^{downstream}}$$

Table A.6 Relative functional specialization (corrected; *RFSc*) index and value capture in GVCs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RFSc index (log)	-0.0189	-0.0195*	-0.0206*	-0.0186*	-0.0178*	-0.0180*	-0.0177*
	(0.0117)	(0.0113)	(0.0105)	(0.0104)	(0.00990)	(0.00999)	(0.00947)
Total inward FDIs (log)	-0.0410***	-0.0415***	-0.0450***	-0.0324***	-0.0343***	-0.0364***	-0.0382***
	(0.0138)	(0.00962)	(0.00955)	(0.00951)	(0.00848)	(0.00913)	(0.00841)
GDP per capita (log)	0.828***	0.796***	0.712***	0.734***	0.715***	0.642***	0.626***
	(0.0791)	(0.0853)	(0.0945)	(0.0904)	(0.0938)	(0.0948)	(0.0961)
Industry share (% of GDP)		0.00784***	0.00851***	0.00812***	0.00767***	0.00880***	0.00832***
		(0.00283)	(0.00272)	(0.00280)	(0.00255)	(0.00264)	(0.00243)
Fixed broadband subscriptions (%)		0.00519**	0.00463**	0.00609***	0.00606***	0.00551***	0.00543***
		(0.00198)	(0.00190)	(0.00205)	(0.00202)	(0.00194)	(0.00188)
GVC position index (lagged)				1.107*		1.156*	
				(0.614)		(0.589)	
GVC ratio (lagged)					0.208*		0.213**
					(0.111)		(0.105)
Constant	-3.488***	-3.379***	-2.634***	-2.725***	-2.543***	-1.907**	-1.757**
	(0.734)	(0.777)	(0.859)	(0.831)	(0.850)	(0.864)	(0.867)
Quality of institutions vars.	NO	NO	YES	NO	NO	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES
Observations	1,625	1,529	1,529	1,450	1,450	1,450	1,450
R-squared	0.892	0.896	0.899	0.880	0.880	0.884	0.884
Number of countries	102	102	102	102	102	102	102

Note: The dependent variable is the log of DVA per capita. Robust standard errors clustered at country level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A.7 Relative functional specialization (corrected; *RFSc*) index and value capture in GVCs including two-year lagged GVC variables

	(1)	(2)	(3)	(4)	(5)	(6)
RFSc index (log)	-0.0117	-0.0159*	-0.0165*	-0.0119*	-0.0158*	-0.0170*
	(0.00715)	(0.00951)	(0.00986)	(0.00719)	(0.00869)	(0.00941)
Total inward FDIs (log)	-0.00566	-0.0117	-0.0297***	-0.00929	-0.0169*	-0.0342***
	(0.00596)	(0.0101)	(0.00898)	(0.00601)	(0.01000)	(0.00869)
GDP per capita (log)	0.330***	0.601***	0.686***	0.287***	0.523***	0.598***
	(0.0711)	(0.0860)	(0.0887)	(0.0755)	(0.0892)	(0.0918)
Industry share (% of GDP)	0.00769***	0.00526**	0.00687***	0.00771***	0.00559**	0.00721***
	(0.00162)	(0.00242)	(0.00233)	(0.00161)	(0.00226)	(0.00224)
Fixed broadband subs. (%)	0.00360***	0.00638***	0.00759***	0.00339***	0.00609***	0.00688***
	(0.00125)	(0.00240)	(0.00215)	(0.00124)	(0.00232)	(0.00199)
DVX per capita (log) Ψ	0.519***			0.509***		
	(0.0666)			(0.0652)		
FVA per capita (log) Ψ		0.245***			0.237***	
		(0.0696)			(0.0728)	
GVC ratio (log) Ψ			0.166			0.170
			(0.110)			(0.105)
Constant	-0.474	-2.059***	-2.188***	-0.0458	-1.325*	-1.385*
	(0.541)	(0.711)	(0.807)	(0.572)	(0.776)	(0.830)
Quality of institutions vars.	NO	NO	NO	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES
Observations	1,367	1,367	1,367	1,367	1,367	1,367
R-squared	0.895	0.853	0.848	0.897	0.857	0.853
Number of countries	102	102	102	102	102	102

Note: The dependent variable is the log of DVA per capita. Ψ These variables are two-year lagged. Robust standard errors clustered at country level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.