Converging research streams on FDI localisation

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Castellani's research line

Exploring heterogeneity in location decisions

- Location decisions differ according to
  - Connectivity
  - Agglomeration economies
  - Their interdependencies

Castellani's research line

The impact of **connectivity** on location decisions differs according to**:**

- **International** vs **local** nature of connections
- **channels used to connect places** (transportation infrastructures, knowledge transmission channels, corporate links)
- **Business activities** (Value chains functions)

Agglomeration economies have a different impact on location decisions according to:

- **Internal** and **external** nature of agglomeration
- **Substitution effects** between internal and external agglomeration economies
- **How connected places are**: a strong connectivity may determine **temporary proximity effects** that moderate the benefit of agglomeration economies

Related research streams (1)

Gravity vs.connectivity

- Gravity like trade models emphasise the role of (geographic) **distance**
  - A source of transportation costs and uncertainty
  - A catch-all concept
- Extensions **from trade to FDI** and other crossborder activities
- Going **beyond geographic distance to** include **institutional factors**
- The impact of distance factors on location decisions **differs** according to
  - Material/immaterial nature of cross-border activities
  - Codified/tacit nature of knowledge being transfered across borders

Connectivity vs distance

- **Connectivity** has been conceptualised as a means **to overcome (geographic and institutional) distance**

- **Is it just a matter of using different words to express the same (or similar) concepts**?

Pros of focusing on connectivity rather than distance:

- **Expanding frontiers of interdisciplinary dialogue**
  - Distance has been used first in international trade and then contaminated international business literature
  - Connectivity is now used in IB, Regional studies, Ec geography and transportation economics
- **More direct policy implications**
  - From the identification of a problem (distance and related uncertainty, communication issues and transportation costs,) to the identification **of means to overcome a problem** (infrastructure, organisations, knowledge channels/languages)

Related research streams (2)

Multinational experience vs agglomeration economies

- **Transaction cost approach** to entry modes: **experience of foreign markets** → lower uncertainty → higher incentives to internalise transactions
- The **agglomeration story** is more complex but leads to similar outcomes
  - Co-location of production sites and R&D labs (or combinations)
  - Connectivity substitutes for agglomeration economies
  - Internal agglomeration may substitute external agglomeration as a driver of localisation

Multinational experience

However

- Co-location may also lead to **knowledge creation and spillover effects** which can be better accessed and/or exploited via interaction with external parties
- This opens up the possibility that MNEs' localisation strategies are driven by **both** internal agglomeration and external agglomeration processes; and by **both** agglomeration and connectivity

Related research streams (3)

Localisation choices vs. geography of functions

- The availability of data on FDIs detailed by business activities has given rise to expanding literature on the **geography of functions**
- Empirical research has devoted relatively **less attention to the subnational levels** revealing important gaps in
  - Our understranding of the position of regions in GVCs
  - The potential of value capture of local economies
- The literature on localisation patterns of MNEs across regions and cities has provided an important contribution in this direction.

Geography of functions

However there is still **limited evidence** on:

- How the geography of functions changes or persists **over time** across regions
- **The effects on host economies** of localisation strategies in different business activities
- Whether inward FDIs have contributed to the local upgrading and the **transition of regions towards higher value added activities**

Functional specialization in FDI

- We use the **fDi Markets database** reporting the **GVC function** – R&D; design and development; manufacturing; sales and marketing activity; etc. – each (greenfield) FDI is aimed to perform

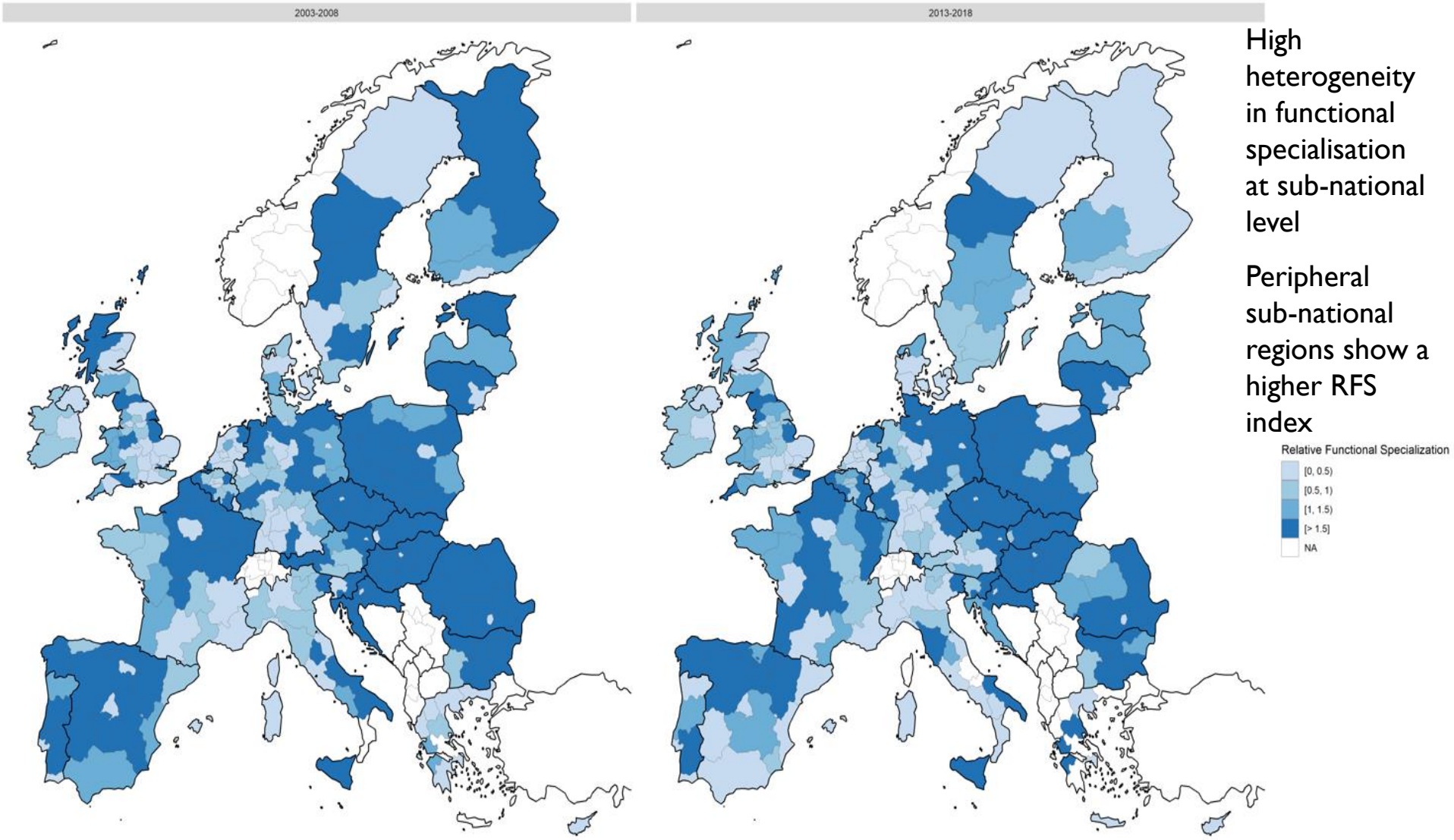
- We follow Timmer et al. (2019), Stollinger (2021) and Coveri & Zanfei (2022) and compute a Revealed Comparative Advantage (RCA) index of

Functional Specialization in FDI: $$FS_i^a = \frac{\frac{FDI_i^a}{\sum_a FDI_i^a}}{\frac{\sum_i FDI_i^a}{\sum_i \sum_a FDI_i^a}}$$

- and a composite indicator of **Relative Functional Specialization in FDI**:

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

Relative Functional Specialization of European regions before and after the crisis



High heterogeneity in functional specialisation at sub-national level

Peripheral sub-national regions show a higher RFS index

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The functional evolution of the EU27 and UK regions over time

- Transition matrices based on the functional specialization in FDI of NUTS-2 regions before and after the crisis
- A strong spatial inertia emerges, especially for regions specialized in production functions
- Functional "downgrading" appears more frequent than functional upgrading trajectories

		2013-2018			
		Upstream	*Production*	*Downstream*	*Tot.*
2003-2008	*Upstream*	73%	13%	14%	100%
	Production	7%	88%	5%	100%
	Downstream	16%	14%	70%	100%

		2013-2018		
		Upstream & Downstream	*Production*	*Tot.*
2003-2008	*Upstream & Downstream*	84%	16%	100%
	Production	9%	91%	100%

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Patterns of functional specialisation and industrial change

Upgrading	2003-2008	2013-2018	Avg.
Science-Based	0,94	**1,42**	1,18
Supplier Dominated	**1,28**	1,29	**1,28**
Scale and Information Intensive	1,08	0,72	0,90
Specialised Supplier	0,67	0,64	0,66

Persistently production	2003-2008	2013-2018	Avg.
Science-Based	0,90	0,86	0,88
Supplier Dominated	**1,16**	**1,28**	**1,22**
Scale and Information Intensive	1,15	1,05	1,10
Specialised Supplier	0,73	0,80	0,76

Downgrading	2003-2008	2013-2018	Avg.
Science-Based	0,87	0,75	0,81
Supplier Dominated	**1,28**	**1,49**	**1,39**
Scale and Information Intensive	1,13	0,96	1,04
Specialised Supplier	0,67	0,85	0,76

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Table 2. Economic and technological characteristics of regions by RFS index value ranges

	No. of regions		Average GVA p.c.		Avg. growth rate (%) of GVA p.c.		Average no. of patents	
	2003-2008	*2013-2018*	*2003-2008*	*2013-2018*	*2003-2008*	*2013-2018*	*2003-2008*	*2013-2018*
RFS index								
0 - 0.5	94	70	41,10	47,18	2.21	1.53	0.255	0.335
0.5 - 1.0	35	58	32,34	35,62	1.91	1.28	0.095	0.109
1.0 - 1.5	34	33	28,37	31,02	2.52	1.40	0.053	0.086
>1.5	103	105	23,54	27,47	3.31	2.13	0.022	0.039

Source: authors' elaboration based on fDi Markets, OECD and Eurostat data.

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Table A.1 Cross-sectional correlation between Functional specialization in FDI and the economic and technological development of regions

	Upstream FS	*Production FS*	*Downstream FS*	*RFS index*
GVA p.c. (log)	0.2865**	-1.7853***	0.5978***	-1.3533***
	(0.1174)	(0.2457)	(0.0756)	(0.2217)
Patents (log)	1.3921***	-1.9425***	0.8309***	-1.9228***
	(0.5107)	(0.5433)	(0.1703)	(0.5983)
N. obs.	4256	4256	4256	4256
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Std. errors	by NUTS 2	by NUTS 2	by NUTS 2	by NUTS 2

Note: Pooled OLS with country and time fixed effects. Robust standards errors clustered by NUTS-2 region in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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Conclusion

- FDI based studies on **location choices** at the **functional** and **subnational/city levels** shed light on how MNEs orchestrate GVCs and distribute their activities across borders
- They **complement works on distance factors and on multinational experience**
- They pave the way to a **more comprehensive understanding of the geography of functions**

References

• Coveri, A., & Zanfei, A. 2022. Who wins the race for knowledge-based competitiveness? Comparing European and North American FDI patterns. *The Journal of Technology Transfer*. [open access]

• Paglialunga, E., Coveri, A., & Zanfei, A. 2022. Climate change and within-country inequality: new evidence from a global perspective. *World Development*, Vol. 159, 106030.

• Coveri, A., & Zanfei, A. 2022. Functional division of labour and value capture in global value chains: A new empirical assessment based on FDI data. *Review of International Political Economy*.

• Coveri, A., & Zanfei, A. 2023. The virtues and limits of specialization in global value chains: Analysis and policy implications. *Journal of Industrial and Business Economics*. [open access].

• Anzolin, G., Andreoni, A., & Zanfei, A. 2022. What is driving robotisation in the automotive value chain? Empirical evidence on the role of FDIs and domestic capabilities in technology adoption. *Technovation*, Vol. 115, 102476.

• Castellani, D., Marin, G., Montresor, S., & Zanfei, A. 2022. Greenfield foreign direct investments and regional environmental technologies. *Research Policy*, Vol. 51, Issue 1, 104405.

• Castellani, D., Perri, A., Scalera, V. G., & Zanfei, A. (eds) 2022. *Cross-Border Innovation in a Changing World*. Oxford University Press.

• Castellani, D., Jimenez A., Zanfei, A. 2013. How remote are R&D labs? Distance factors and international innovative activities, *Journal of international Business Studies,* **44**, 649–675

• Castellani, D., Zanfei, A. 2004. Choosing international linkage strategies in the electronics industry: the role of multinational experience, *Journal of Economic Behaviour and Organisation*, **53**, 447-475