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When GVC, Innovation Systems and Clusters (finally) meet

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GVCs offer opportunities that need to be exploited

- External sources of knowledge are crucial in the upgrading process in less developed countries (LDCs);
- GVC offer great opportunities for accessing external knowledge but these opportunities need to be exploited;
- Which role well functioning innovation systems and clusters could play in supporting the upgrading of local firms involved in GVC?

The GVC framework

- Focus on the role played by the lead firms coordinating the GVC in fostering and supporting the upgrading process of the suppliers involved;
- This depends on the **governance patterns and on the power relationships** characterizing the GVC;
- General expectation that the **lead firms produce a positive impact on suppliers** by transferring them valuable knowledge to compete in global end-markets.

What is missing?

- The GVC approach tends to overlook the wide **heterogeneity existing at the local level**, as local suppliers in developing countries are very different in terms of their capacity to absorb, master, and change knowledge and capabilities that the lead firms in GVCs can potentially transfer to them;
- To understand **whether and how firms, involved in GVCs, upgrade**, the focus should be **not only** on the role played by the lead firms;
- But **also** on the building up of domestic technological capabilities at the level of:
 - **firms** (Morrison, Pietrobelli & Rabellotti, 2008);
 - **innovation systems** (Pietrobelli & Rabellotti, 2011);
 - **clusters** (Pietrobelli & Rabellotti, 2007).

Table IV.9. Learning mechanisms within GVCs

Governance type	Technology/knowledge-related determinants of governance types			Predominant learning mechanisms
	Complexity of transactions	Codification of transactions	Competence of suppliers	
FDI (ownership hierarchy)	High	Low	Low	<ul style="list-style-type: none"> • Imitation • Turnover of skilled managers and workers • Training by foreign leader/owner • Knowledge spillovers
NEMs:				
- Modular	High	High	High	<ul style="list-style-type: none"> • Learning through pressure to accomplish international standards • Transfer of knowledge embodied in standards, codes, technical definitions
- Relational	High	Low	High	<ul style="list-style-type: none"> • Mutual learning from face-to-face interactions
- Captive	High	High	Low	<ul style="list-style-type: none"> • Learning through deliberate knowledge transfer from lead firms; confined to a narrow range of tasks – e.g. simple assembly
Trade (market)	Low	High	High	<ul style="list-style-type: none"> • Learning from exporting or importing • Imitation

Source: Adapted from Pietrobelli, C. and R. Rabellotti (2016) "Global Value Chains Meet Innovation Systems: Are There Learning Opportunities for Developing Countries?", *World Development*, 39:1261-9.

Which role innovation systems and clusters can play in supporting the learning process of firms involved in different types of value chains?

Complexity of transactions, IS & clusters

- In well functioning IS and clusters the costs of transactions are low and the relational forms of governance are more likely ;
- **Active business associations** where the chain leaders and their local partners can meet, ease the exchange of knowledge and reduce the complexity of transactions. **This is common in clusters;**
- **Sinos Valley (Brazil):** the business association has played a key role in supporting the **local development of design capabilities** (functional upgrading), which was hampered by the US buyers, leading the chain. Moreover, the business association has promoted the **identification of new alternative GVCs** in which functional upgrading could be possible.

Codification of transaction, IS & clusters

- Well functioning standards and metrology organizations facilitate the handling of complex transactions and modular chains are more likely to prevail;
- **Salmon (Chile)**: a meso-level institution, the Association of Salmon Industries, has played a crucial role in supporting local firms learning efforts to comply with standards, facilitating their involvement both as value chain leaders and qualified suppliers in foreign-led chains;
- **Petrolina-Jazueiro (Brazil)**: a cluster cooperative of mango producers has played a key role in spreading the production techniques needed for satisfying international certifications, offering to its members training courses and on field technical assistance

Suppliers' competence, IS and clusters

- Increasing capabilities in the supply-base help to push the GVC away from captive networks towards more relational and modular chains;
- **Wine clusters in Chile and South Africa** (Giuliani, Morrison and Rabbellotti, 2011):
 - **Public-private partnership** in research consortia involving companies, business associations and universities have facilitated the upgrade of the local wine producers;
 - **Intermediary organizations** have facilitated the diffusion of research findings;
 - In SA, WINETECH has implemented a **participatory mechanism** involving wine companies and researchers to set up the research agenda.

Which are the main learning mechanisms in GVCs?

- In a recent literature survey (De Marchi, Giuliani & Rabelotti, 2015) we have selected 50 GVCs cases and search for empirical evidence about the *learning mechanisms* adopted in the upgrading process, considering the extent to which local firms use:
 - *GVC learning sources* (direct and indirect knowledge transfer from lead firms);
 - *Collective learning at the cluster level* (e.g. business associations);
 - *Learning sources internal to the firms* (e.g. R&D; labour training);
 - *Other external learning sources from non-GVC actors* (e.g. universities, local suppliers).

3 types of GVCs

- ① *GVC-led Upgrading (9)*: intensive use of knowledge sources from within the GVC (e.g. *Coffee GVC in Brazil lead by Illycaffè*);
- ② *Independent Upgrading (14)*: main learning sources are from outside the GVC (e.g. *Chinese wind GVC*);
- ③ *Weak Upgrading (27)*: drawing on some of the knowledge sources available within the GVC but poorly using other forms of learning (e.g. *Kenyan clothing GVC selling to the US market*).

Upgrading in GVC: a virtuous *liaison*? not always...

- In most of the observed cases, **GVC-related knowledge is exploited as complementary source to other channels of knowledge** (e.g. firm level efforts, collective learning at cluster and IS level);
- About half of our empirical observations are GVCs where **upgrading is hardly taking place**, a condition that coexists with local firms' relative closure to both GVC-related and other kinds of knowledge sources, as well as with poor local skills;
- Therefore, **GVCs are only an opportunity, insufficient per se, that needs to be exploited**;
- Chain leaders make knowledge available, but local firms need **to build their own capabilities**;
- **Innovation systems and clusters** can play a key role in supporting the building up of domestic technological capabilities.

Thank you

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Global Economic Review, 44, 4: 452-469

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