

Upgrading to Compete Global Value Chains, Clusters and SMEs in Latin America

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Does enterprise participation in global markets ensure sustainable growth?

- To participate in global markets in a sustainable way - **the “high road” to competitiveness** - small and medium-sized enterprises have **to upgrade**:
 - to make better products (**product upgrading**);
 - to make products more efficiently (**process upgrading**);
 - to move into more skilled activities (**functional upgrading**);
 - to move into new sectors (**intersectoral upgrading**).

Upgrading

- Upgrading is linked with innovation, which is not defined as a breakthrough into a product or a process that is *new to the world*. But it is rather **a story of marginal, evolutionary improvements** of products and processes, that are *new to the firm*;
- Upgrading is defined as *innovating to increase value added*.

How can SMEs face the challenge of upgrading?

Through industrial organization in the form of:

1. Clusters

2. Value Chains

- The analysis of **industrial clusters** is focused on the role of **local linkages** in generating competitive advantages in local industries.

- The **global value chain** literature emphasises **cross-border linkages** between firms in global production and distribution systems.

Clusters

- Sectoral and geographical concentration of SMEs;
- Firms located in clusters benefit from **collective efficiency** defined as the competitive advantage derived from:
 - **external economies** which spillover to other firms (incidental – *passive* – effect of clustering);
 - **joint actions** (consciously pursued – *active* - effect of clustering).

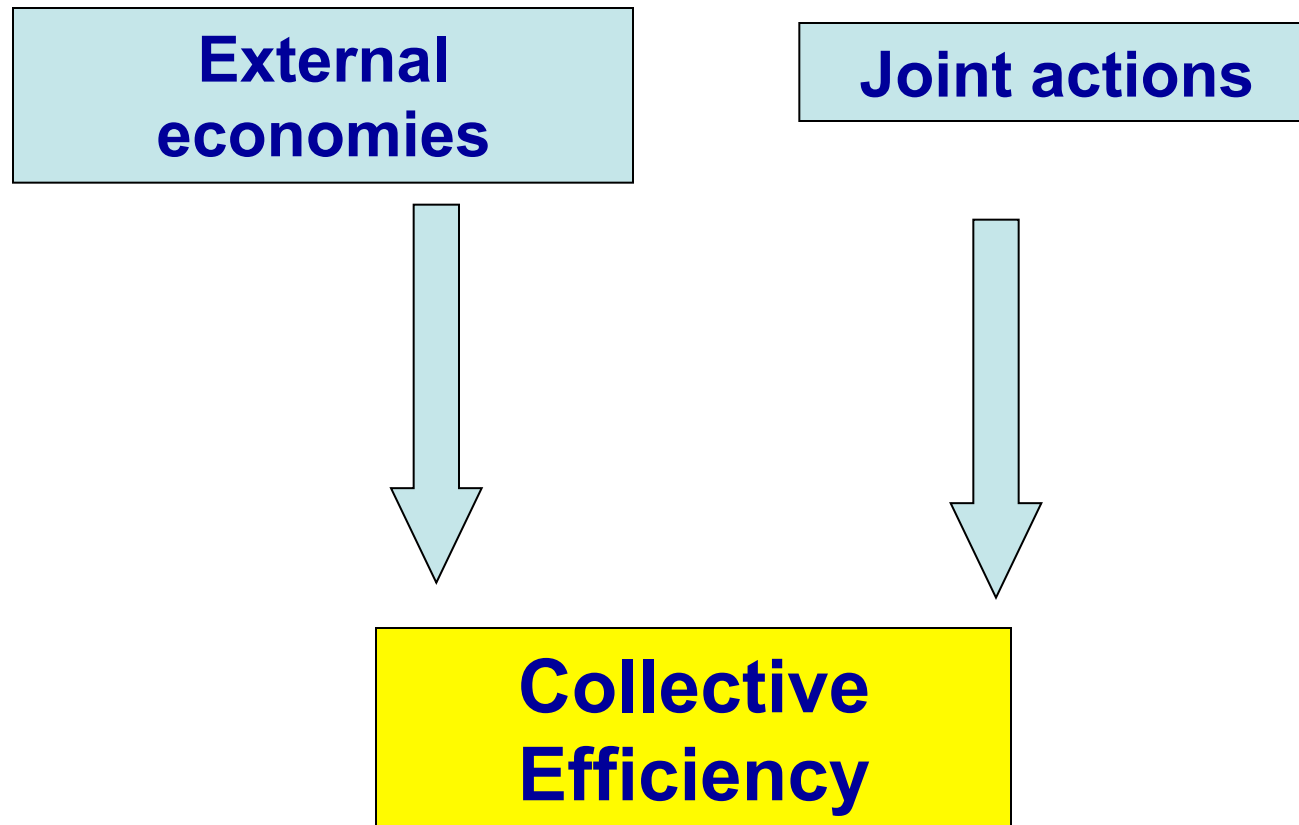
External economies

- The availability of a pool of specialized skills;
- Cheap and ready available supply of specialized inputs;
- Easy access to specialized trade and technical knowledge and rapid dissemination of information;
- Improved market access: the concentration attracts customers;
- Trust and social capital facilitate the relationships among local actors.

Joint actions

- **Joint projects** with suppliers, traders and buyers (vertical linkages) and with other local producers or through business associations (horizontal linkages):
 - Impact on specialization and complementarity among firms;
 - Shared solutions to common problems.

Collective efficiency



Concentración geográfica de numerosas **empresas** especializadas sectorialmente

Concentración geográfica de numerosas empresas e instituciones especializadas sectorialmente **que logran desarrollar acciones colectivas y proyectos asociativos orientados al desarrollo competitivo**

menos complejo

más complejo

Concentración geográfica de numerosas empresas e **instituciones** especializadas sectorialmente

Concentración geográfica de numerosas empresas e instituciones especializadas sectorialmente que logran desarrollar acciones colectivas y proyectos asociativos orientados al desarrollo competitivo **y que basan su visión estratégica en una integración profunda entre la dimensión económica y la dimensión social de la comunidad.**

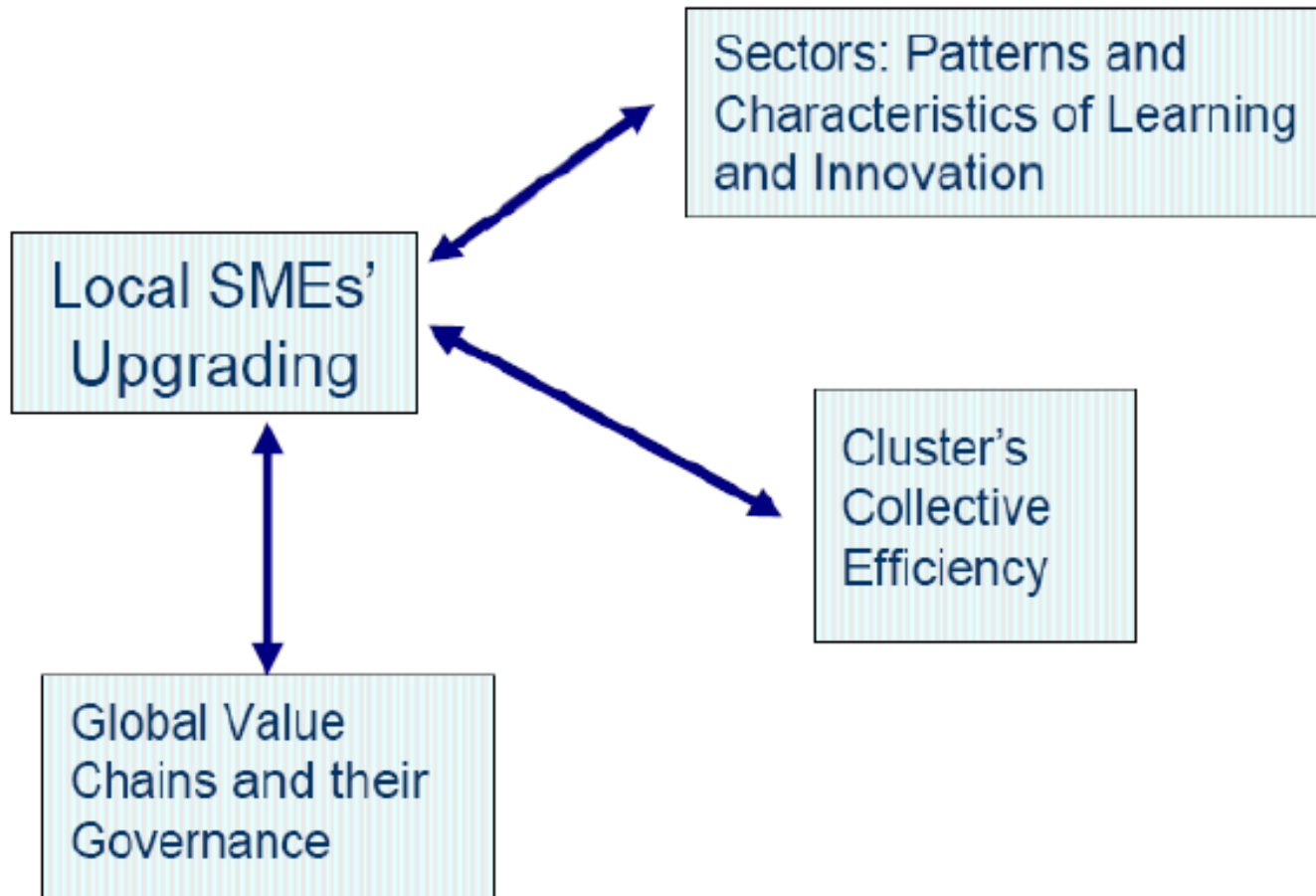
en Resumen

- La mayoría identifican **tres condiciones necesarias** para un cluster:
 - Masa crítica de empresas;
 - Su concentración espacial;
 - Su especialización productiva
- No hay acuerdo sobre **como deban medirse** estas variables, (p.ej. en la dimensión geográfica localidades pequeñas o espacios supranacionales?).
- Algunos autores agregan **otras características** tales como: la intensidad de las relaciones entre las firmas localizadas en el cluster, la existencia de instituciones de apoyo, un clima cultural y valores compartidos.
- Con estas características adicionales, el concepto de cluster tiende a traslaparse con el de distrito industrial à la Marshall.

Research questions

1. Is SMEs' upgrading facilitated by the degree of collective efficiency of clusters?
2. How does the insertion of clusters into global value chains impact on local upgrading strategies?
3. Do sectoral differences affect the roles of clustering and value chains for enterprise upgrading?
4. What can be done to support SMEs' upgrading in the global market?

Diagram 1.1.
The Causal Logic of the Book



Global Value Chains

- The *global value chain (GVC) approach* helps to take into account activities taking place outside the cluster, and in particular to understand the strategic role of the relationships with key external actors;
- Focus on the nature of the relationships among the various actors within the chain;
- The concept of 'governance' (i.e. co-ordination) is central to study these relationships;
- Governance may occur through:
 - Arm's-length market relations;
 - Network: co-operation, firms with +/- equal power;
 - Quasi-hierarchy: involving subordination to the chains' leaders;
 - Hierarchy: when a firm is owned by an external firm;
- Impact on local upgrading depends on the governance pattern.

Sectoral Learning Patterns

- Upgrading (via learning and innovation) depends on technological regimes and specificity of sectoral groups;
- *Pavitt taxonomy* revisited

Table 1. Sectoral Groups: A Pavitt Taxonomy for Latin America

Groups	Industries	Learning Patterns	Description
1. Traditional Manufacturing	Textile and garments, Footwear, Furniture, Tile	Mainly Supplier dominated	<ul style="list-style-type: none"> • Most new techniques originate from machinery and chemical industries • Opportunity for technological accumulation are focused on improvements and modifications in production methods and associated inputs, and on product design. • Most of technology is transferred internationally, embodied in capital goods. • Low appropriability, low barriers to entry
2. Resource-based industries	Sugar, Tobacco, Wine, Fruit, Milk Extraction industries	Supplier dominated (Science-based)	<ul style="list-style-type: none"> • Importance of basic and applied research led by public research institutes due to low appropriability of resources • Most of Innovation is generated by suppliers (machinery, seeds, chemicals etc.). Increasing importance of international sanitary and quality standards, and of patents
3. Complex Product Systems industries	Automobile and autoparts, Aircraft, Consumer electronics	Scale intensive firms	<ul style="list-style-type: none"> • Technological accumulation is generated by the design, building and operation of complex production systems or products. Radical innovation is risky. • Process and Product technologies develop incrementally. For consumer electronics, technological accumulation emerges mainly from corporate R&D labs and university skills. • Appropriability is medium, barriers to entry high
4. Specialised Suppliers	Software	Specialized suppliers	<ul style="list-style-type: none"> • Often-small firms. Important user-producer interactions. Learning from advanced users. • Low barriers to entry and low appropriability • High in-house R&D for development of edge technologies

Methodology

- Analysis of 50 Empirical Case Studies of clusters in Latin America (11 original field-studies);
- Analysis and measurement of:
 - Collective Efficiency [Likert scale: from *absent* (0) to *high* (3)] (external economies + joint actions);
 - Governance of the Value Chain [Market, Network, Quasi-hierarchy, Hierarchy];
 - Forms of Upgrading: Product, Process, Functional Intersectoral Upgrading [0-3 Likert scale].

The case studies

In NR-based industries:

- Three agro-industry clusters: melon in Rio Grande do Norte, mangos in Petrolina and apples in Santa Catarina, BRAZIL (Gomes, 2003)
- A salmon cluster in Southern CHILE (Maggi, 2003);
- A milk and dairy cluster in Boaco and Chontales, NICARAGUA (Artola and Parrilli, 2003);

In the Complex Product Systems' industries:

- A metalworking cluster, in the State of Espirito Santo, BRAZIL (Cassiolato, Villaschi, Lastres, 2003);

In the Traditional Manufacturing Industries:

- A furniture cluster in Chipilo, Puebla, MEXICO (Zepeda, 2003);
- A review of manufacturing clusters in Mezzogiorno, Italy (Cersosimo and Viesti, 2003);

In the Specialised suppliers:

- Four Software clusters in Guadalajara, Monterrey, D.F., Aguascalientes, MEXICO (Ruiz Duran, 2003).

Collective Efficiency, Global Value Chains and Upgrading across sectoral groups

- Different sectoral groups tend to show different degrees of CE and governance settings;
- Focus on whether it is possible to associate the level of CE and the particular form of chain governance with different forms of upgrading across sectoral groups.

Patterns of Learning and Upgrading Across Sectoral Groups

	Traditional manufacturing	Natural-Resource based	COPs	Software
Pattern of learning according to Pavitt taxonomy	Supplier-driven	Supplier-driven, science based	Scale-intensive-Specialized suppliers	Specialized-suppliers
Relation between collective efficiency and:				
Product upgrading	Positive	Positive	Neutral	Positive
Process upgrading	Positive	Positive	Neutral	Positive
Functional upgrading	Neutral	Positive	Neutral	Positive
The impact of global buyers/leaders operations on:				
Product upgrading	Positive	Positive (but passive)	Neutral Indirectly Positive	None
Process upgrading	Positive	Positive (but passive)	Neutral Indirectly Positive	None
Functional upgrading	Often negative	Neutral / negative	Neutral / negative	None

Upgrading in Traditional Manufacturing

- Process and product upgrading are widely diffused;
- Process and product upgrading are often facilitated by international large buyers:
 - information on products and processes cannot be easily codified in technical norms;
 - relying on the competencies of their local suppliers, global buyers are obliged to assist them in improving products and processes;
- Positive relationship between **product upgrading and the degree of collective efficiency** (circulation of knowledge and information, role of vertical and multilateral joint action);
- **Functional upgrading** is prevented by buyers' power in quasi-hierarchical chains;
- Nevertheless, functional upgrading can more easily take place in market-based value chains.

Upgrading in NR-based industries

- In *NR-based clusters*, process and product upgrading are strongly tied to the advancement of science and technology in connected industries;
- **Public-private horizontal joint action** is positively related with product and process upgrading (local institutional network, public support to local joint actions, research centres, universities, international co-operation);
- **Foreign buyers** facilitate the link with the international market by signalling the need and the modes of the necessary upgrading;
- Nevertheless, given that the requirements of the international market are often **codified by standards** they do not normally support the SMEs' upgrading process.

Upgrading in COPs

- Process and (to a lower extent) product upgrading are remarkable, but functional upgrading was only achieved in few cases;
- **Upgrading is left to the market**, that is to the private individual initiatives of small firms;
- It is the interest to operate as suppliers that induces firms to keep up with technological advancements;
- Collective efficiency does not appear to be related to upgrading in any way in most of these clusters:
 - the hierarchical structure of the chain appear to establish strong relationships between the firms involved, leading them to show less of a propensity to participate in other forums aimed at raising competitiveness;
- Upgrading can be facilitated by local institutions and network-brokers negotiating with chain leaders.

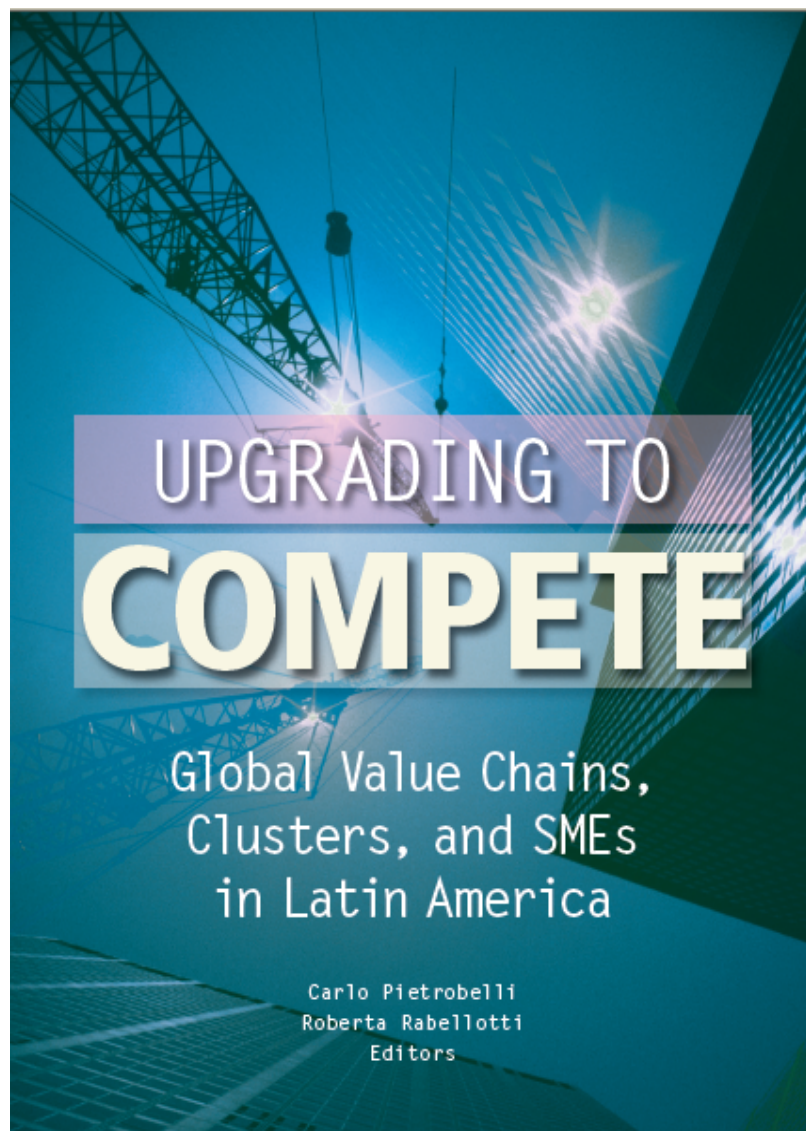
Upgrading in Software Clusters

- Product and process upgrading is generally high;
- The degree of collective efficiency is positively related with product upgrading:
 - exchange of information and the circulation of skilled people inside the clusters;
 - various collective initiatives;
- Functional upgrading is probably more common in this sector than in others.

Policy Implications

Some examples of sectoral policies to sustain SMEs upgrading

- **Traditional Manufacturing industries:**
 - Promote linkages between firms;
 - Promote access to new additional value chains;
- **NR based industries:**
 - Promote public-private collaboration in research and disseminate research to SMEs;
 - Promote the adoption of quality and sanitary standards, environmental regulations, and enforce quality inspections and controls;
- **COPs:**
 - Promote/support “network brokers” (*‘articulators’*);
 - Set up an incentive framework aimed at inducing large firms to source locally and to support their suppliers’ upgrading strategies;
- **Specialised suppliers:**
 - Invest in Highly Skilled Professional.



- Giuliani E., Pietrobelli C., Rabellotti R., 2005, “Upgrading in global value chains: lessons from Latin America clusters”, *World Development*, 33, 4: 549-73.
- Pietrobelli C., Rabellotti R., 2007, (eds.), *Upgrading to Compete: SMEs, Clusters and Value Chains in Latin America*, Cambridge Mass.: Harvard University Press.
- Rabellotti R., 2008, “Italian SMEs and Industrial Districts on the move: where are they going?”, forthcoming in *European and Planning Studies* (con Anna Carabelli, Giovanna Hirsch).