Clusters, Value Chains, Innovation and Learning (with evidence from Latin America)

Carlo PIETROBELLI
University of Rome III
(c.pietrobelli@uniroma3.it
www.pietrobelli.tk)
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How can SMEs be competitive in global markets?

A key capability is the capability to upgrade
The key policy issue is not *whether* to participate in global markets, ....

......*but how* to do so in a way which provides for sustainable growth

**Two main paths of insertion in the global economy**
(Kaplinsky & Readman, 2001)

- **The low road** is one of immiserizing growth, a trajectory in which producers face intense competition and are engaged in a "**race to the bottom**" (Kaplinsky et al.). Examples: if export prices fall faster than export volumes increase (i.e. wooden furniture exports to E.U.) or if increased exports can only be paid for by lower wages (i.e. Sinos Valley, Brazil).

- **The high road** is one of increasing and improving participation in the global economy, realising sustained income growth.
Research questions

1. Is SMEs’ upgrading facilitated by participating in clusters and by their degree of collective efficiency?

2. How does the interaction of clusters and global value chains impact on local upgrading strategies?

3. Do sectoral differences matter, and affect the role of clustering and value chains for enterprise upgrading?

4. What can be done to support SMEs’ upgrading in the global market? Policies
UPGRADING

Upgrading is a necessary condition for a “high road” path to competitiveness in the context of globalization

i.e. increase and improve participation to the international economy, and ensure a sustainable growth of per capita incomes

The present discussion of alternative “roads” to competitiveness refers to the macroeconomic implications of enterprise-level strategies

(see the debate on competitiveness and comparative advantage....)
UPGRADING
= innovation to increase value added

Different forms of upgrading:
- of processes
- of products
- functional
- intersectoral
INNOVATION is crucial for upgrading

innovation not defined as a breakthrough into a product or a process that is new to the world.

It is rather a story of marginal, evolutionary improvements of products and processes, that are new to the firm,

and that allow it to keep up with an international (moving) standard.
Different forms of UPGRADING in a VC

I

C

II

C’

B’

Upgrading into other Chain

Functional Upgrading

III

C”

B”

A A’ A”

B B’ B”

Product/Process Upgrading
Product upgrading:
Firms can upgrade by moving into more sophisticated product lines (which can be defined in terms of increased unit values).
Example: the apparel commodity chain in Asia upgrading from discount chains to department stores (Gereffi, 1999).

Process upgrading
Firms can upgrade processes – transforming inputs into outputs more efficiently by re-organising the production system or introducing superior technology (i.e. footwear producers in the Sinos Valley – Schmitz, 1999).
Functional upgrading:

Firms acquire new functions (or abandon existing function) so that they increase the overall skill content of their activities. They might complement production with design or marketing, or move out of low-value production activities. Example: Torreón’s blue jeans industry upgrading from *maquila* to “full-package” manufacturing (Bair & Gereffi, 2001).

Intersectoral upgrading:

Firms may apply the competence acquired in a particular function to move into a new sector. For example, in Taiwan competence in producing TVs is used to make monitors and thus move into the computer sector (Humphrey & Schmitz, 2002, Guerrieri & Pietrobelli, 2004).
How can SMEs face the challenge of upgrading?

Through (local) 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 export industries.

The **global value chain** literature takes a very different approach emphasising **cross-border linkages** between firms in global production and distribution systems.
A Cluster is a geographical agglomeration of specialised enterprises

Firms (SMEs) localized within clusters benefit from collective efficiency:

- Together, they generate external economies, that may affect (spillover) other firms (involuntary effects – passive – of participating in a cluster);

- They may carry out joint actions (conscious effects – active – of participating to a cluster);
In addition, some clusters may be also characterized by some of the following stylized facts:

- Strong and relatively homogeneous cultural and social background;
- Intensive backward and forward linkages;
- Public and private institutions supporting the cluster.
Firms located in clusters benefit from **collective efficiency** (Schmitz, 1995)

- Together they generate **external economies** which spill-over to other firms (incidental – *passive* – effect of clustering);

- They engage in **joint actions** (consciously pursued – *active* - effect of clustering).
External economies may arise from:

- The availability of a pool of specialized skills;
- Cheap and readily 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.
Joint actions (Nadvi, 1999):

- **Joint action within vertical linkages**: backward with suppliers and forward with traders and buyers;
- **Joint action within horizontal linkages between two or more local producers**: joint purchasing of inputs, selling under a collective label;
- **Joint action within horizontal multilateral linkages among a large number of local producers**: co-operation in trade associations, joint participation in trade fairs, collective provision of business development services.
Evidence from four industrial clusters reveals that **when** firms in clusters engage in joint actions they are often able to overcome crises.

**Correlation of co-operation and performance**

*(Knorringa, Nadvi, Rabellotti & Schmitz, 1999)*

<table>
<thead>
<tr>
<th>Co-operation</th>
<th>Mexico</th>
<th>Brazil</th>
<th>India</th>
<th>Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Horizontal bilateral</strong></td>
<td>Positive significant at 10%</td>
<td>Positive insignificant</td>
<td>Positive insignificant</td>
<td>-</td>
</tr>
<tr>
<td><strong>Horizontal multilateral</strong></td>
<td>Positive significant at 1%</td>
<td>Positive significant at 1%</td>
<td>Positive significant at 1%</td>
<td>Positive insignificant</td>
</tr>
<tr>
<td><strong>Vertical bilateral with suppliers</strong></td>
<td>Positive significant at 5%</td>
<td>Positive significant at 5%</td>
<td>Positive insignificant</td>
<td>Positive significant at 10%</td>
</tr>
<tr>
<td><strong>With sub-contractors</strong></td>
<td>Positive significant at 5%</td>
<td>Positive significant at 5%</td>
<td>Positive insignificant</td>
<td>Positive significant at 1%</td>
</tr>
</tbody>
</table>
Global Value Chains in developing countries

What is a Global Value Chain?

A simple idea:

- The design, production and marketing of products involves a chain of activities divided between different enterprises often located in different places.
- Rarely single companies do everything: turn raw materials into finished products and sell them.
- Production *per se* is only one of a number of value added links, related to design and product development, marketing, distribution, recycling, etc.
- This requires adequate government and coordination of all the links: adequate GOVERNANCE.
Design, production, marketing of a product, involve a chain of activities carried out by different enterprises, in different places. Each activity adds value.
In addition:

- Links are not only between enterprises, but also with non-market institutions (Universities, training centers,..),
- Links may be vertical and horizontal
- A crucial issue is WHO adds value WHERE along the chain
At any point in the chain, governance and coordination of the following is required:

- **What** is to be produced (design of products)
- **How** it is to be produced (definition of the production process: technology, quality standards)
- **How much** has to be produced.

...... _International standards_ - set and monitored by the leader or by international norms – acquire importance
How is Governance ensured along a Value Chain?

<table>
<thead>
<tr>
<th>Forms of coordination of economic activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Williamson</strong></td>
</tr>
<tr>
<td>Market</td>
</tr>
<tr>
<td>Network</td>
</tr>
<tr>
<td>Quasi-hierarchy</td>
</tr>
<tr>
<td>Vertical Integration (TNCs)</td>
</tr>
</tbody>
</table>
Governance may occur through:

1. **Market relations** (*Arm’s-length*)
2. **Network relations**, that is cooperation among firms with the same level of power;
3. **Quasi-hierarchy**, with relations among enterprises that are legally independent, but one is hierarchically subordinate to the other;
4. **Hierarchy**, when a firm is owned by another (external) firm.
Public/private/mixed, and local/global forms of governance

<table>
<thead>
<tr>
<th>Categories of Private/Public and Local/Global Governance</th>
<th>At LOCAL level</th>
<th>At GLOBAL level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private Governance</strong></td>
<td>Local business associations, hub-and-spoke clusters</td>
<td>Global Value Chains</td>
</tr>
<tr>
<td><strong>Public Governance</strong></td>
<td>Local/Regional Government agencies</td>
<td>WTO-rules National/supranational rules with global standing</td>
</tr>
<tr>
<td><strong>Public-Private Governance</strong></td>
<td>Local/Regional Policy Networks</td>
<td>International standards International NGO campaigns</td>
</tr>
</tbody>
</table>
A more complex VC (e.g. **Furniture**)

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A more complex VC (e.g. Furniture)

Clusters, Value Chains, Innovation and Learning

Carlo Pietrobelli
Academy Lisbon May 2005
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Categories of Global Value Chains

Depending on who exercises control over the chain even in the absence of ownership (Gereffi, 1999):

- BUYER-DRIVEN
- PRODUCER-DRIVEN
### Categories of Global Value Chains

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Producer-driven Chains</th>
<th>Buyer-driven Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Driver of GVC</strong></td>
<td>Industrial capital</td>
<td>Commercial capital</td>
</tr>
<tr>
<td><strong>Main governing actors</strong></td>
<td>Large, Trans-national manufacturers</td>
<td>Large retailers, marketers, branded manufacturers</td>
</tr>
<tr>
<td><strong>Core competencies</strong></td>
<td>R&amp;D, Production</td>
<td>Design, Marketing</td>
</tr>
<tr>
<td><strong>Sectors</strong></td>
<td>Consumer goods, Intermediate goods, Capital goods</td>
<td>Non-durable consumer goods</td>
</tr>
<tr>
<td><strong>Typical Industries</strong></td>
<td>Cars, Computers, Aircraft</td>
<td>Apparel, footwear, toys, agro-industry, consumer electronics</td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td>Transnational corporations</td>
<td>Local enterprises, especially in LDCs</td>
</tr>
<tr>
<td><strong>Main Network Links</strong></td>
<td>Investment-based</td>
<td>Trade-based</td>
</tr>
</tbody>
</table>

Source: adapted from Gereffi, 1999
UNIDO is also advocating this approach....

Linking local clusters to global value chains

- National boundary
- Local cluster
- Global customer
  - Large-scale, multi-outlet retailer
  - Buyer (including specialized buyers and transnational corps.)
  - Buyer and export agent
- Local customers
  - Small-scale manufacturer
- Large-scale or multi-plant manufacturer
- Small-scale manufacturer
- Small-scale retailer

Source: UNIDO WIDR 2002-03 www.unido.org

UNIDO is also advocating this approach....
Let us go back to the Research Questions

1. Is SMEs’ upgrading facilitated by participating in clusters and their degree of collective efficiency?

2. How does the interaction of clusters and global value chains impact on local upgrading strategies?

3. Do sectoral differences matter, and affect the role of clustering and value chains for enterprise upgrading?

4. What can be done to support SMEs’ upgrading in the global market? Policies
A snapshot of the theoretical hypotheses

- Local SMEs’ Upgrading
- Collective Efficiency
- Value Chain Governance
- Sectoral Innovation Patterns
With indicators and measures for each dimension (external economies - skills, productive specialisation, geographical agglomeration, ...-, Joint actions, relationships within the value chain, ... )
Methodology

- Analysis of 50 empirical cases of clusters in LA (11 original)

- Selection criteria:
  1. Agglomeration;
  2. Value Chains;
  3. Upgrading;
  4. Policy lessons;

- Analysis and measurement of:
  1. Collective Efficiency [0-3] (external economies + joint actions)
  2. Governance of the value chains [Market, network, quasi-hierarchy, hierarchy]
  3. Models of Upgrading: of products, processes, functional, intersectoral [0-3]
Understanding enterprise and cluster upgrading requires to consider also a sectoral dimension

- The learning – and upgrading - process differs depending on the characteristics of the industrial sector;
- We classify sectors into four large categories, depending on the way learning and upgrading occur, and on the related model of industrial organization.
- We present the results for the different sectors.
Table 1. Sectoral Groups: A Pavitt Taxonomy for Latin America

<table>
<thead>
<tr>
<th>Groups / Industries</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Traditional Manufacturing</td>
<td></td>
</tr>
<tr>
<td>Textile and garments, Footwear, Furniture, Tile</td>
<td>Mainly Supplier dominated</td>
</tr>
<tr>
<td></td>
<td>• Most new techniques originate from machinery and chemical industries</td>
</tr>
<tr>
<td></td>
<td>• Opportunity for technological accumulation are focused on improvements and modifications in production methods and associated inputs, and on product design.</td>
</tr>
<tr>
<td></td>
<td>• Most of technology is transferred internationally, embodied in capital goods.</td>
</tr>
<tr>
<td></td>
<td>• Low appropriability, low barriers to entry</td>
</tr>
<tr>
<td>2. Resource-based industries</td>
<td></td>
</tr>
<tr>
<td>Sugar, Tobacco, Wine, Fruit, Milk</td>
<td>Supplier dominated (Science-based)</td>
</tr>
<tr>
<td>Extraction industries</td>
<td>• Importance of basic and applied research led by public research institutes due to low appropriability of resources</td>
</tr>
<tr>
<td></td>
<td>• Most of Innovation is generated by suppliers (machinery, seeds, chemicals etc.). Increasing importance of international sanitary and quality standards, and of patents</td>
</tr>
<tr>
<td>3. Complex Product Systems industries</td>
<td></td>
</tr>
<tr>
<td>Automobile and autoparts, Aircraft, Consumer electronics</td>
<td>Scale intensive firms</td>
</tr>
<tr>
<td></td>
<td>• Technological accumulation is generated by the design, building and operation of complex production systems or products. Radical innovation is risky.</td>
</tr>
<tr>
<td></td>
<td>• Process and Product technologies develop incrementally. For consumer electronics, technological accumulation emerges mainly from corporate R&amp;D labs and university skills.</td>
</tr>
<tr>
<td></td>
<td>• Appropriability is medium, barriers to entry high</td>
</tr>
<tr>
<td>4. Specialised Suppliers</td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td>Specialized suppliers</td>
</tr>
<tr>
<td></td>
<td>• Often-small firms. Important user-producer interactions. Learning from advanced users.</td>
</tr>
<tr>
<td></td>
<td>• Low barriers to entry and low appropriability</td>
</tr>
<tr>
<td></td>
<td>• High in-house R&amp;D for development of edge technologies</td>
</tr>
</tbody>
</table>

The case studies

1. **Resource-based industries**
   - Agro-industry: melon in Rio Grande do Norte, mangos in Petrolina and apples in Santa Catarina, BRAZIL (R. Gomes, MIT, Boston)
   - Salmon cluster in Southern CHILE (C. Maggi, Fondo de Innovación Tecnológica, Bío Bío)
   - Milk and dairy cluster in Boaco and Chontales, NICARAGUA (N. Artola, Nitlapán, Universidad Centroamericana, Managua, and D. Parrilli, Università di Ferrara)

2. **Complex Product Systems’ industries**
   - Metalworking sector, State of Espirito Santo, BRAZIL (J. Cassiolato, Universidade Federal de Rio de Janeiro and A. Villaschi, Universidade Federal do Espírito Santo)

3. **Traditional Manufacturing Industries**
   - Traditional furniture in Chipilo, Puebla, MEXICO (E. Zepeda, UAM, Mexico);
   - Manufacturing Clusters in Mezzogiorno, ITALY (G. Viesti, Università di Bari and D. Cersosimo, Università della Calabria)

4. **High Tech industries**
   - Software clusters in Guadalajara, Monterrey, D.F., Aguascalientes, MEXICO (C. Ruiz Duran, UNAM)

5. **An extensive survey on the existing literature**
   - 50 cases of clusters and value chains in Latin America (E. Giuliani, Università di Pisa)
RESULTS
of the Field Studies
Collective Efficiency, Global Buyers and Upgrading across sectoral groups

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

- Process and product upgrading are frequent;
- 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;
- In contrast, functional upgrading can more easily take place in market-based value chains.
Upgrading in NR-based industries

- Process and product upgrading are strongly tied to the advancement of S&T in related 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 SMEs’ upgrading processes.
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 try 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 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.
Table 4: Patterns of Learning and Upgrading Across Sectoral Groups

<table>
<thead>
<tr>
<th>Pattern of learning according to Pavitt taxonomy</th>
<th>Traditional manufacturing</th>
<th>Natural-Resource based</th>
<th>COPS</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier-driven</td>
<td>Supplier-driven, science based</td>
<td>Scale-intensive-Specialised suppliers</td>
<td>Specialised-suppliers</td>
<td></td>
</tr>
<tr>
<td>Impact of collective efficiency on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product upgrading</td>
<td>Positive</td>
<td>Positive</td>
<td>Neutral 2</td>
<td>Positive</td>
</tr>
<tr>
<td>Process upgrading</td>
<td>Neutral 1</td>
<td>Positive</td>
<td>Neutral 2</td>
<td>Positive</td>
</tr>
<tr>
<td>Functional upgrading</td>
<td>Neutral</td>
<td>Positive</td>
<td>Neutral 2</td>
<td>Positive</td>
</tr>
<tr>
<td>Impact of global buyers-leaders on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product upgrading</td>
<td>Positive</td>
<td>Positive 4 (but passive)</td>
<td>Neutral 5</td>
<td>None 3</td>
</tr>
<tr>
<td>Process upgrading</td>
<td>Positive</td>
<td>Positive 4 (but passive)</td>
<td>Indirectly Positive</td>
<td>None 3</td>
</tr>
<tr>
<td>Functional upgrading</td>
<td>Often negative</td>
<td>Neutral / negative</td>
<td>Neutral / positive</td>
<td>None 3</td>
</tr>
<tr>
<td>Other critical sources of knowledge</td>
<td>Suppliers, local institutions, National buyers alternative to the global leaders</td>
<td>Suppliers, university and research labs, technology extension services, producers’ associations and cooperatives</td>
<td>Consultants, local agencies (network-brokers)</td>
<td>Users, Universities and higher education institutions</td>
</tr>
</tbody>
</table>

Source: Authors’ own database.

NOTES:
1. Process innovations in this sector are usually driven by technology suppliers, and in none of the sample clusters there is local production of technology.
2. Often little collective efficiency (CE) is detected.
3. None refers to the case in which the global buyer is not present.
4. Global leaders set the target and provide market outlets, but do not normally engage in supporting initiatives.
5. Neutral, only indirect impact through the incentive (spur) to enter global value chains and fulfill the standards required. Not attained through the direct support of buyers.
Conclusions

• **Upgrading** is a relevant concept that differs by groups of sectors;

• The degree of cumulativeness of knowledge, the degree of appropriability and complexity of the knowledge base all influence the capacity of firms to upgrade;

• The **opportunities for upgrading** offered by clustering and participation in value chains are different depending on the specific features of each sector;

• Given the remarkable sectoral differences the **policy priorities** are different in several respects for the different groups of sectors.
**Efforts to quantify (examples)**

Collective efficiency varies across sectoral groups

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**Table 1: Collective Efficiency across sectoral groups**

<table>
<thead>
<tr>
<th></th>
<th>EE</th>
<th>JA</th>
<th>CE Index*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional Manufacturing</strong></td>
<td>7.6</td>
<td>5.23</td>
<td>6.31</td>
</tr>
<tr>
<td><strong>NR-based</strong></td>
<td>8.91</td>
<td>7.36</td>
<td>8.2</td>
</tr>
<tr>
<td><strong>COPS</strong></td>
<td>7.61</td>
<td>4.8</td>
<td>6.19</td>
</tr>
<tr>
<td><strong>Specialised Suppliers</strong></td>
<td>9.1</td>
<td>7.8</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Source: Author’s database.  
* EE = external economies (average number and grade), JA = Joint actions (average number and grade), Collective Efficiency Index = 0.5*EE + 0.5*JA
## Table 2. Correlation Between Collective Efficiency and Upgrading*

<table>
<thead>
<tr>
<th></th>
<th>Collective Efficiency</th>
<th>Product Upgrading</th>
<th>Process Upgrading</th>
<th>Functional Upgrading</th>
<th>Intersectoral Upgrading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>HIGH</td>
<td>2.5</td>
<td>2.5</td>
<td>1.25</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>MEDIUM</td>
<td>2</td>
<td>2.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>1.5</td>
<td>2.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>NR-based</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIGH</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>MEDIUM</td>
<td>2.5</td>
<td>2.33</td>
<td>0.33</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>COPs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIGH</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>MEDIUM</td>
<td>2.33</td>
<td>2.66</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>2.66</td>
<td>2.66</td>
<td>0.83</td>
<td>-</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Spec.Suppl.s)</td>
<td>HIGH</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>MEDIUM</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Authors’ database. *The table presents the average level of each form of upgrading for each group of cluster classified on the basis of the degree of collective efficiency.
What Policy Implications?

How to promote competitiveness and upgrading in SMEs’ localised in clusters and that participate in global value chains?
Policy Approach prevailing in Latin America in the 1980s and 1990s

An effective model to design business support policies had to be based on the principles of:

1. **Neutrality** (ex-ante definition of universal rules, separation of support institutions from lobbies)

2. **Horizontality**: rules apply to all, independent on size, location, sector;

3. **Demand orientation**: all support initiatives must respond to an explicit demand from the enterprise sector – often required to co-finance them-

⇒ It was often lacking **an integrated and consistent vision** of local SMEs competitiveness and upgrading
<table>
<thead>
<tr>
<th>Action Menu to promote clusters’ competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Promote the development of External Economies</td>
</tr>
<tr>
<td>☑ Promote and improve inter-firm relationships</td>
</tr>
<tr>
<td>☑ Strengthen local position within global value chains</td>
</tr>
</tbody>
</table>

Source: based on authors’ field studies
2. Promote and Improve Inter-firm Relationships

- Create and improve *trust* among enterprises
- Promote joint projects
- Create and strengthen Industrialists’ Business Associations
- Improve and strengthen **local** supply of real and financial services;
- Improve **external** linkages of the cluster

Source: based on authors’ field studies
### 3. Strengthen local standing within global value chains

- **Attract chain leaders into the cluster**
- **Promote upgrading of local intermediate input providers;**
- **Help interactions within the value chains (‘articuladores’)**
- **Foster access to new markets and alternative value chains**
- **Support SMEs in their efforts to achieve international standards (quality, sanitary…)**

Source: based on authors’ field studies
Policy Implications

Policies need to differ for different sectors
NR-based clusters

- Facilitate the entry of SMEs
  - Promote/support programs and projects that explicitly benefit production by SMEs alongside larger growers;
  - Possible Actions: allocation of lots in public projects for SMEs and larger growers, availability of working and investment capital by development banks, access to appropriate storage facilities at ports, support in trade fairs;

- Promote public-private collaboration in research and in particular SMEs involvement;

- Disseminate research to SMEs;

- Promote the adoption of quality standards and enforce quality inspection and control:
  - Loans conditioned on implementation + maintenance of quality standards;

- Support the improvement of the regulatory framework (environmental controls, health standards, etc.).
COPs

- Promote/support active and dynamic role of **network-brokers (articuladores)** of the cluster (“anchor” firms and small suppliers);
- Financial support for initiatives to **build up firms’ awareness** of the utility of inter-firm cooperation (joint training programs, joint purchases, ...);
- Set up an incentive framework aimed at **inducing large firms to source locally** their intermediate inputs and services and to support their suppliers’ upgrading strategies;
- Assist second and third-tier suppliers to accumulate expertise needed to internationalize when they have the opportunity to follow sourcing.
Traditional Manufacturing clusters

- Maintain macro conditions under control;
- Sustain collective efficiency in the cluster (vertical and horizontal joint actions, firms’ awareness of cooperation):
  - Strengthen local institutional network (BDS Centers, Associations, Institutes...);
  - Participatory processes of enhancement of the local context involving coalitions of local public and private actors (e.g. “Patti Territoriali”);
  - Financial means for implementation of collective entrepreneurial and infrastructural projects, identified through participatory ways;
- Build specialized workforce. For example:
  - Qualify people for employment and establish cluster skill centers;
  - Form partnerships between educational institutions and clusters;
- Help clusters find alternative markets to main value chain:
  - Support marketing and branding of the cluster (e.g. “Made in Brazil” in Sinos Valley);
  - Form export networks and consortia;
  - Sustain collective participation in international trade fairs.
Specialized suppliers clusters

• Invest in R&D relevant for the cluster;
• Develop advanced technical education;
• Provide infrastructural support to start-ups;
• Give incentives or set aside funds for multi-firm projects;
• Promote institutional networks involving private actors, Universities, local governments.
In general ....

- Cluster policies are NOT the panacea of industrial development;

- **Selectivity:**
  - Selection of clusters;
  - Actions directed to few essential priorities;
  - Need to develop and use good diagnostics tools to detect and analyze clusters;

- Policies need to evolve over time;
On Evolution of Policies: the Chilean Salmon Cluster

⇒ From 0 to 25% of world salmon farming

Policies have evolved over time

⇒ 1978-85 “Initial learning”: regulation, technology transfer, investment in pre-competitive research
⇒ 1986-95 “Maturing”: physical infrastructure, export promotion and marketing, innovation and development of suppliers (cages, nets, food)
⇒ 1996-today: “Globalization”: productivity increase and technology transfer, environmental management, biotechnology (diseases and genetic handling)
To sum up policies always need to be:

- Location-(context) specific
- Specific for each group of sectors
- Intensive in coordination
- Intensive in human capital
- Dynamic


