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## **Global value chains in the least developed countries of the world: threats and opportunities for local producers**

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**Abstract:** Global value chains (GVCs) often represent one of the few options for local firms and suppliers in developing countries to get access to larger markets and to new technologies. While the potential benefits from GVCs for medium-income developing countries are well documented, the studies dealing with the impact of GVCs on low-income, poorer countries are scarce. To explore these issues, the paper uses primary and secondary empirical evidence and discusses how GVCs may affect upgrading, technological capabilities and competitiveness in the least developed countries (LDCs). This paper suggests that the opportunities exist, but are hardly utilised, and depend on a number of circumstances that may or may not occur. Public policies have an important role to play to improve the prospects of leveraging these opportunities and raising the probability of a positive effect on local firms. This paper focuses on the prospects of upgrading in natural resource-intensive LDCs from their participation in GVCs, and argues in favour of capacity building for policy formulation and implementation, strengthening the national standards infrastructure, defining the research priorities and disseminating research results to small- and medium-sized enterprises, and suggests that cluster-based development policies may offer better perspectives.

**Keywords:** GVCs; global value chains; governance; upgrading; LDCs; least developed countries; Latin America; SSA; Sub-Saharan Africa.

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## 1 Introduction

Global Value Chains (GVCs) are present in developing countries, because of changes in national and international regulatory frameworks and in technology and management practices. They often represent one of the few options for local firms and suppliers to get access to larger markets and to new technologies. Although the potential benefits from GVCs for medium-income developing and emerging economies are well documented, the studies dealing with the impacts of GVCs on low-income, poorer developing countries are scarce.

The relevant questions to be addressed in any study dealing with the impacts of GVCs on low-income countries are: First, why should GVCs spread to these countries and outsource part of their activities to their enterprises? What opportunities for upgrading would this offer to these countries' firms? Under what conditions could these opportunities be exploited? How do these opportunities differ from manufacturing to agriculture and to agro-food processing?

The paper uses primary and secondary empirical evidence to explore and discuss how GVCs may affect upgrading, Technological Capabilities (TCs) and competitiveness in the Least Developed Countries (LDCs). It concludes that the opportunities exist, but are hard to achieve, and depend on many circumstances. Public policies have a role to play in improving these prospects and raising the probability of a positive effect on local firms. More specifically, we will argue in favour of policies: to improve the capacity for policy formulation and implementation; to strengthen the national standards infrastructure; to guide the research priorities and disseminate research to Small- and Medium-Sized Enterprises (SMEs) in natural resource-intensive sectors, and in favour of cluster-based development policies and initiatives.

The paper is structured as follows. Section 2 discusses some recent transformations of GVCs, and Sections 3 sketches the main characteristics of these countries. In Section 4, we discuss how this matters for LDCs with a focus on natural resource-based activities and evidence on Latin America and Sub-Saharan Africa (SSA). Section 5 suggests that the benefits offered by foreign buyers are possible but often uncertain, and that there is an important role for policies, as explained in the final Section 6.

## 2 Upgrading and the recent transformations of global value chains

### 2.1 *Upgrading, technological capabilities and competitiveness*

'Upgrading' is buzzword that is used in policy-related discussions. The word, and its use, shows a clear and justified need to move beyond the pursuance of higher production efficiency. Business scholars use this word extensively (Porter, 1990). Economists are more reluctant and prefer to follow the principle of specialisation based on comparative advantage and thus focus their attention on production efficiency. The 'upgrading' concept was discussed at length in various papers (see, e.g. Guerrieri et al., 2003 and Chapter 1 in Pietrobelli and Rabellotti, 2007). Given the imperfections and possibilities to capture extra-normal rents in international markets, and also considering different learning opportunity dynamics and management requirements in different sectors, the upgrading approach is indeed appealing and relevant. This discussion may be usefully integrated with the TCs literature to explain enterprise learning and competitiveness in developing countries.<sup>1</sup>

Four types of upgrading have been singled out for enterprises within a value chain: *process and product upgrading, functional and inter-chain upgrading* (Humphrey and Schmitz, 2000). A vivid way to illustrate the concept of upgrading has led several authors to write that upgrading within a value chain implies ‘*going up the value ladder*’, moving away from those activities in which competition is of the ‘low road’ type (i.e. based on lower wages and generally production costs) and entry barriers are low. Although this description is eye-catching and offers clear expositional advantages, it is not entirely accurate. *GVCs are hardly as linear* as they are often assumed, and this alleged linearity risks to drive the attention away from all the detailed and equally important efforts to build and deepen TCs *at the same task* in the value chain.

Much of the literature appears to imply that ‘functional’ upgrading is ‘more optimal’ than other forms of upgrading. The paper argues that the main goal is not always ‘functional upgrading’ and moving into more advanced functions ‘along the value chain’, but also deepening the specific capabilities required to explore new opportunities offered ‘on the side’ of the same task in value chain where the firm is engaged. Moving from natural resources to their exploitation, manufacturing, packaging, distribution and branding is important and can be described as somehow ‘climbing the ladder’, but deepening capabilities to explore new original features and varieties ‘horizontally’ at each task of the value chain (such as from new flower varieties through biotechnological research to new packaging with original highly valued characteristics) is indeed also important and clearly requires creation and deepening of higher skills and more complex TCs.<sup>2</sup>

The idea that technological change is the result of purposeful, well-directed effort conducted inside the firm is often implicit and hardly clearly carried through in empirical analyses (Pietrobelli, 1997, p.4). The consensus reached in the literature that GVCs may offer remarkable opportunities for upgrading and for strengthening firm-level TCs<sup>3</sup> was shown to be the case for fairly more advanced ‘emerging’ economies (Schmitz, 2004; Gereffi, 2006; Pietrobelli and Rabellotti, 2007), but is still being debated for poorer countries. Section 3 sketches the main characteristics of these countries. Section 4 discusses some recent transformations of GVCs, and presents evidence on upgrading in GVCs and its limitations.

## 2.2 Recent transformations of global value chains

The value chain concept describes the full range of activities and tasks that are required to bring a product from its conception, through the different phases of production, to its end use and beyond.<sup>4</sup> All tasks contribute to creation of final value, but not all of them capture the same returns (i.e. ‘*premia*’). Thus, understanding the distribution of rents is important for understanding the opportunities for LDCs’ firms. It is also important to remark that *rents* often emerge in GVCs, whenever non-competitive structures emerge, or asymmetric information exists or the balance of power is unevenly distributed among actors.<sup>5</sup>

The GVC literature also stresses the role played by the *GVC leaders*, particularly the buyers, in transferring knowledge along the chains. For small firms in LDCs, participation in value chains is a means of getting information on the requirements of global markets and of gaining access to those markets. Although this information has high value for local SMEs, it is less clear what role the leaders of the GVCs play in fostering and supporting the SMEs’ upgrading process. Empirical evidence suggests that insertion in a quasi-hierarchical chain may offer favourable conditions for process and

product upgrading, but hinders functional upgrading (Humphrey and Schmitz, 2000; Giuliani et al., 2005; Pietrobelli and Rabellotti, 2007); relational networks offer ideal conditions for all forms of upgrading, but they are the least likely to occur among producers in developing countries.

Among the emerging characteristics of GVCs, Gibbon and Ponte (2005, p.122) emphasise the uneven but significant rise in '*buyer drivenness*'. The rise of buyer-driven chains is underpinned by developments in the national and international regulatory frameworks, trade and import liberalisation, stringent food (and sanitary) safety regulation, the higher currency convertibility, transport market liberalisation and improvements and lower costs in international communications and transport.

The notion of '*driving*' a GVC was first conceptualised by Gereffi (1994), and today it is about the relations between lead firms and first-tier suppliers, and between first- and second-tier suppliers (Gibbon and Ponte, 2005), and about the control of the functions and tasks that first-tier suppliers should exert.

Another emerging characteristic of the supply chain is that buyers and retailers are increasingly important in product development, branding, supplier selection and distribution, and this is especially true for agricultural and fresh produce, but the key agents for knowledge transfer and organisation vary from chain to chain (Dolan and Humphrey, 2001; Dolan and Humphrey, 2001; Humphrey, 2005; Humphrey and Memedovic, 2006). The 'lead' firm may not be responsible for ensuring technical competence along the entire supply chain. Much of the work of value chain organisation and management is being outsourced to a first-tier of suppliers, and lead firms more and more push responsibility toward them. First-tier suppliers rely on a series of second- and third-tier suppliers. Firms from LDCs rarely qualify – have the capacity, skills and volumes – to become first-tier suppliers, and in the best case may become second- or third-tier suppliers. These difficult changes not only represent *opportunities* but may also *threaten exclusion* for those suppliers that are unable to respond to the challenge.

To this aim, some authors (Humphrey, 2005; Humphrey and Memedovic, 2006) suggest that in agricultural and agro-based activities there may be opportunities for: (1) higher processing, much of it close to growing sites.<sup>6</sup> Retailers are often willing to outsource value chain functions to suppliers, providing new opportunities along the chain; (2) increasing product differentiation and investing in innovation; (3) improved systems in supplying countries to respond to the demand for greater emphasis on freshness and agility in the logistics system; (4) emphasis on parts of the supply relationships such as reliable delivery, trust, flexibility in supply and ability to innovate that raises the switching costs for the buyers, and may raise the length of contractual relationships for sellers.

These transformations may indeed represent threats to producers from less-developed countries, as access to the fastest growing market segments depends on satisfying the demands of retailers, and competing with other suppliers. Large retailers become gatekeepers to markets, hindering and/or fostering access.

### 3 What do we mean by least developed countries?

The United Nations use a formal definition of LDCs and identify the countries needing most international support through a statistical procedure that is constantly revised and updated (Table 1). The discussion in this paper is not strictly limited to these countries, and presents examples and evidence from other fairly less developed countries, but still

bears in mind their special features when linking and interacting in value chains. The main economic features that are common to the LDCs may be summarised as follows:

- Lower GDP per capita (US\$349 in 2004) than developing countries (US\$1604), although their GDP per capita have been growing faster since 2000, in comparison to the eighties and the nineties.
- Smaller share of urban population, bad infrastructures and low-level of human capital rely mainly on agriculture relative to all developing countries (69% of population and 28% of GDP vs. 51% and 11%, respectively), and have a small manufacturing sector (11–12% of GDP).
- Their specialization in oil, agricultural and natural resource-based products and in simple manufacturing shows their structural conditions. But in some specific sectors they appear to be competitive. So, for example in the years 2002–2003, the exports of various types of garments (Standard International Trade Classification (SITC) 842–846) amounted to an impressive US\$7263.6 million, that is more than half the value of LDCs' oil exports, and 19.5% of all their total exports.

**Table 1** List of the least developed countries (LDCs) – UN definition (2006)

1	Afghanistan	26	Madagascar
2	Angola	27	Malawi
3	Bangladesh	28	Maldives
4	Benin	29	Mali
5	Bhutan	30	Mauritania
6	Burkina Faso	31	Mozambique
7	Burundi	32	Myanmar
8	Cambodia	33	Nepal
9	Cape Verde	34	Niger
10	Central African Rep.	35	Rwanda
11	Chad	36	Samoa
12	Comoros	37	S.Tomé & Príncipe
13	Congo, Dem. Rep.	38	Senegal
14	Djibouti	39	Sierra Leone
15	Equatorial Guinea	40	Solomon Islands
16	Eritrea	41	Somalia
17	Ethiopia	42	Sudan
18	Gambia, The	43	Tanzania
19	Guinea	44	Timor-Leste
20	Guinea-Bissau	45	Togo
21	Haiti	46	Uganda
22	Kiribati	47	Vanuatu
23	Lao PDR	48	Yemen, Rep.
24	Lesotho	49	Zambia
25	Liberia		

#### 4 How does this matter for least developed countries? Some selected evidence

Global value chains are indeed spreading to most developing countries, including the least developed ones. This opens the way to opportunities for upgrading that do not occur automatically, but need to be searched for and purposefully exploited. In this section, we explore this issue with selected empirical evidence.

According to recent empirical evidence, potential first-tier suppliers have been facing the hardest entry barrier increases. This is perhaps less worrying for LDCs as no firm from these countries act as a leader and few as first-tier (or often even second-tier) supplier.<sup>7</sup> Thus, to our present aims, we need to focus on the existing entry barriers, threats and opportunities for upgrading of second- and third-tier suppliers. Since the mid-1980s lead firms require more functional *capabilities* (i.e. many activities, and the related conditions and skills, that suppliers are required to carry out) from first-tier suppliers in all cases, and sometimes also from second- and third-tier suppliers. At the same time, lead firms also require higher *performance* levels from second-tier suppliers (i.e. complying with standards to carry out these activities).

These rising demands from buyers differ by sector and by specific value chain, and the opportunities for upgrading also differ accordingly. Examples from the clothing chain include larger minimum capacity, fabric sourcing, client-dedicated merchandising, own labs for chemical tests, design services and product development capacity – with performance indicators on these capacities, such as meeting price points, lead times, various forms of quality control systems, codes of conduct and the like. In agriculture and agro-processing, demands are often about the sanitary standards required, and the ensuing certificates. In the specific case of coffee, the major buyer-driven shift has occurred from sale on description to sale against approved samples (Ponte, 2002). This partly shows the consequences of deregulation (Ponte, 2002a), and partly those of higher product differentiation and raised demand for specialty coffees in final markets. For second-tier suppliers, this often implies the ability to produce coffee that matches some social/environmental criteria (e.g. fair trade, organic, shade-grown, ‘sustainable’ coffee).

What are the consequences of these rising demands from buyers for second-tier suppliers in LDCs? A common feature is that all economic activities are characterised by *higher risks* that local suppliers need to bear. The risks involved were described as the risks of *marginalisation* and *exclusion* (Gibbon and Ponte, 2005, p.138). With risks, also *opportunities* emerge, that require new skills and capabilities, and generate tough competition and selection among local suppliers. The risk of marginalisation refers to the possibility of downgrading in the same GVC and being relegated to less-remunerative and more vulnerable tasks in the value chain. The risk of exclusion refers to the eventual inability to enter and being utterly excluded from GVC. However, these risks do not always imply marginalisation and exclusion: the evidence shows that it is not easy to escape from marginalisation, but it is indeed possible to purposively build TCs and exploit new opportunities (see the examples of upgrading below, such as those in Gomes, 2007; Artola and Parrilli, 2007).

It is needed to remark that all local firms face higher risks, also the most successful ones. For example, in the clothing value chain originating in Mauritius, local industry responded to the new quality demands, but this move by some has excluded several others. The need to meet consistently higher quality requirements has implied integration into larger plants: an average 15% of enterprises closed down during 1992–1995 every

year. The larger firms delocalised to Madagascar (50,000 new jobs were created there during 1996–2001), and often replaced local manpower with foreign cheaper workers (Gibbon, 2004). Smaller enterprises were excluded in the clothing value chains.

This same case study shows how detailed empirical analyses on a chain-by-chain basis are needed to identify the consequences of these rising demands from buyers for LDCs enterprises. The study identified two strategies followed by Mauritian-owned firms to remain competitive despite rising local labour costs and falling margins. The first strategy was essentially a story of functional upgrading into own-design and in some case own-brand manufacturing (similar to Gereffi's account of Hong Kong producers). The second strategy was characterised by a clear focus and specialisation in manufacturing of more basic products in high volumes by opening satellite plants in near and cheaper Madagascar. The capacity for shorter lead time and higher-value work was retained in Mauritius. The first strategy proved unsuccessful because of distance from main end markets and narrow managerial skills, while the second one was more successful although, in the GVC vocabulary, it represented a case of 'downgrading' the product range and the production process (Gibbon, 2004). Yet, this process enabled the enterprises to offer a broader mix of products with a wider range of prices and lead times to a wider range of customers – in some cases at better contractual conditions.<sup>8</sup>

In some cases, clever strategic alliances with the lead firms may help: in specific circumstances the private sector has direct business motives for investing resources in transferring knowledge and upgrading suppliers. These alliances tend to be temporary and are usually directed toward strengthening the capability of suppliers to meet the requirements of the buyers. Moreover, in some instances public policies directed to favour SMEs' inclusion may help (Gomes, 2007).

In the next section, we present some selected evidence from Latin America and SSA. The cases reviewed focus on the sectors of most frequent specialisation in LDCs – notably agriculture and natural resource-based sectors – and present primary sources of empirical evidence collected by the author and his associates, and secondary sources.

#### *4.1 Selected evidence on GVCs in natural resource-based sectors in Latin America*

The claim that governance of value chains affects the upgrading prospects of local firms in different sector to a different extent and fashion is based on the consideration that productive sectors differ in terms of technological complexity and in the modes and sources of innovation and upgrading.<sup>9</sup> As innovation studies have shown, in some sectors vertical relations with suppliers of inputs may be important sources of product and process upgrading, as for textiles and most traditional manufacturing. But in other sectors, stimuli for technical change come from technology users, universities or by the firms as, for example, with software or agro-industrial products (Pavitt, 1984).<sup>10</sup>

In traditional manufacturing sectors, technology has important tacit (Polanyi, 1967) and idiosyncratic parts, and therefore we expect upgrading to depend on the intensity of technological externalities and cooperation among local actors (say, firms, research centres, technology and quality diffusion centres). Hence, if the technology required is mainly tacit and requires intense interaction, we can expect that global buyers are more interested and involved in their providers' upgrading. Moreover, in those traditional manufacturing industries with lower technological complexity, tight supervision and

direct support to suppliers becomes needed for global buyers who face high 'switching costs' and want to cut the risk of suppliers' non-compliance with established standards (Humphrey and Schmitz, 2002).

To address sectors' specificity and the role of GVCs for upgrading and competitiveness, the focus here is on those sectors that are most common in LDCs, namely those based on natural resources,<sup>11</sup> essentially agro-food (e.g. fruit, sugar, wine, salmon and milk) and mining. We focus here on the former, as mining has some peculiar characteristics (Villaschi and Sabadini, 2000; Torres-Zorrilla, 2000; Torres-Zorrilla, 2001). Although these industries have some characteristics of the 'supplier-dominated' sectors (Pavitt, 1984), they also share some features of the 'science-based' industries, as they develop and innovate based on scientific discoveries and their subsequent technological upgrading. The research is mainly carried out by universities and research labs of biotech, chemical and food firms (e.g. Tobacco Transnational Corporations (TNCs). Local farmers, breeders and producers often contribute with incremental improvements in the production process and in product differentiation. Instead, in mining and other extracting industries (e.g. marble and copper), innovation is carried out mainly by machinery and material inputs suppliers. The evidence below is based on original case studies (Table 2).

**Table 2** Case studies of natural resource-based clusters and value chains in Latin America

<i>Case study</i>	<i>Country</i>	<i>Source</i>
Tobacco, Rio Pardo	Brazil	Vargas (2001)
Wine, Colchagua	Chile	Giuliani (2007) and Giuliani and Bell (2005)
Wine, Serra Gaucha	Brazil	Vargas (2001a)
Sugar, Valle del Cauca	Colombia	Millan (2002)

Note: In bold new original case-studies (Pietrobelli and Rabellotti, 2007).

#### 4.2 On value chains organisation and governance

A great variety of value chain organisational forms and governance prevail in the cases studied (Pietrobelli and Rabellotti, 2007).

For example, in the *Nicaraguan dairy cluster* several value chains have emerged, each offering varying scope for local firms upgrading. It is worth stressing how upgrading inevitably required an active and purposeful attitude of local suppliers. Artola and Parrilli (2007) single out the following main value chains:

- *Semi-urban cattle breeders* essentially producing raw unprocessed milk and selling it to small retail shops and craft food producers near the urban areas in the regions of Boaco and Juigalpa, Chontales.
- *National 'manteros'* who buy milk from the least accessible places, process it in a craft (not industrialized) fashion to produce several dairy goods (i.e. cheese, *cuajada*, cream, butter) to supply the main popular, low-income markets in the country.
- *Small investors from El Salvador* that in the 1990s invested in production plants in the main milk-producing areas of the country and produce *morolique* cheese to export to El Salvador and hard cheese to the ethnic markets in the US. They buy milk from the producers, and cheese from other plants. Their main competitive asset is the knowledge of the export market, its requirements and the retail networks in it.

- *Semi-industrial cooperatives of small- and medium-sized milk producers* that have grouped to share facilities (i.e. milk-collecting stations, processing plants, commercial outlets) and other services (credit, technical assistance, machinery). Twelve of them group over 2000 small breeders. They sell refrigerated milk to processing plants and cheese to traders from El Salvador. They are also approaching the USA export market with growing success, getting involved in more complex tasks (i.e. functionally upgrading).
- *The large TNC, Parmalat*, that entered the national market in 1999, mainly targeting the national and the Central US markets. Parmalat buys milk from a variety of sources: its own milk-collecting stations in Boaco and Chontales, and, for the largest part, other milk-collecting stations (mainly owned by the cooperatives defined above). Its main market is higher-income shops and supermarkets in Managua and in the main urban centres.

The analysis shows that *upgrading is occurring in different value chains*, i.e. under the quasi-hierarchy of the GVC led by leading TNC, foreign buyers and foreign investors in local networks of cooperative producers. Since its entry in the market (1999), for instance, Parmalat urged local producers to improve higher milk quality standards, and helped to develop a new ‘culture’ of milk consumption in Nicaragua. Local cooperatives were also pushed to upgrade to improve the quality of the milk they sell to Parmalat, and indirectly, to search for alternative buyers for their products as Parmalat was accused for overexploiting local producers irrespective of their needs. Despite the financial crisis that distressed Parmalat soon after the case study was carried out, the industrial competence in this sector sparked by this Italian TNC still had a remarkable impact. Some cooperatives were trying to venture into the US ethnic market. Artola and Parrilli (2007) also showed that *the different value chains interact*, providing mutual incentives, and sometimes support for upgrading.

In sum, upgrading is possible in different value chains, but *upgrading tends to be confined to products and processes in quasi-hierarchical governance systems* such as the one led by Parmalat. In contrast, *functional upgrading is easier in value chains with a network-based governance*, as in the value chains led by the local semi-industrial cooperatives.

In *fresh-fruit value chains*, there appears to emerge a clear tendency toward the dominance of quasi-hierarchy forms of governance associated with the restructuring of food retails, where retailers are shifting toward more direct forms of procurement. In Brazil, consolidation in food retail was especially rapid since the surge in investments by multinational supermarket chains such as Carrefour, Ahold and Wal-Mart (Farina, 2002). Retailers are not usually concerned with backward or forward integration, and prefer to reallocate the risks with other actors in the chain: they relay market information to their suppliers, but seldom engage in their upgrading (Humphrey and Schmitz, 2000).

The *tobacco cluster of Rio Pardo Valley in Brazil* is another example of hierarchically governed value chains that offered local suppliers negligible opportunities for upgrading. Three large conglomerates (British American Tobacco, Philip Morris and Dimon) buy tobacco leaves from local SMEs and essentially convey to them demands for standards and specifications that the international market requires, without providing business and technical support. The governance of these relationships is hierarchical: large TNCs set the requirements and signal the standards demanded by the market but retain the key capabilities in basic research and marketing. These are especially

remarkable in biotechnology R&D for new hybrid or genetically modified varieties of tobacco, and to ensure a rigid control of the tobacco leaf production system. Local agents provide a negligible contribution to technological innovation in the cluster, and the potential for local firms' upgrading and development of TCs appears small (Vargas, 2001).

#### 4.3 *On the relationships between upgrading in GVCs and collective efficiency of clusters of local suppliers*

Although value chains and clusters were traditionally analysed separately, extensive research has shown that they are inter-related phenomena, with several conceptual and factual parts in common. Research has also shown that upgrading processes of local firms in GVCs are often enhanced by the collective efficiency of local clusters (Pietrobelli and Rabellotti, 2007).

The major source of external economies in clusters is often a pool of specialised skills that benefit workers and firms. Perhaps in some fairly more backward areas labour skills are not advanced but tend to match well fairly backward technologies, like in the dairy cluster in Nicaragua (Artola and Parrilli, 2007). In dynamic clusters, the skilled labour endowments tend to rise over time, because of individual firms' or collective investments (public or private or a combination of the two) in training, as was the case of the Chilean salmon cluster (Maggi, 2007). The *Chilean wine cluster* in Colchagua also benefits from local knowledge and human capital that complements foreign knowledge and skills, 'flying' and working in different clusters (Giuliani, 2007).

The evidence on three clusters of *fresh fruit production studied in Brazil* is especially instructive for the role that collective actions may play (Gomes, 2007). All three clusters enjoy access to qualified labour pool, and to information on markets and technology, but they differ in the degree of collective actions by growers and the public sector to support the upgrading process.

At one extreme is *mango and grape production in Petrolina Juazeiro (PJ)*, which is the result of concerted planning by a federal parastatal, while at the other is melon production in *Mossoró, Rio Grande do Norte (RN)*, mostly the result of private entrepreneurship and only small public support. Somewhere in between is apple production in Santa Catarina (SC, Brazil), where the public sector was involved in supporting research and extension, but did *not* have a broad range of interventions, like in PJ, where the Federal government created the San Francisco River Valley Development Agency (CODEVASF) in 1948, a parastatal that targeted navigation, irrigation, agricultural and industrial development in the San Francisco River Valley. These interventions continued in the 1960s and 1970s, and included support to creating a growers' association (VALEXPORT), which was key to creating export channels. Interestingly, CODEVASF provided many different sizes, thereby establishing a structure of production consisting of large and small growers. It provided hundreds of small growers with irrigation-ready lots (with on-farm pumps, canals and drainage system installed and ready for use), guidance on what to produce, technical help, and made easier access to credit and buyers.<sup>12</sup> In this, mangoes and grapes cluster in PJ value chains are at work in a promising way. So the exporting firms visited suppliers weekly, provided technical help, did soil analysis for fertilizer schedule, suggested the harvest calendar, harvested and transported mangoes to the pack house and advanced credit to purchase inputs.

In contrast with PJ, *melon production in RN* did not start because of public sector support, but because two innovative and risk-prone entrepreneurs foresaw a window of opportunity (Gomes, 2004).<sup>13</sup> They proved that RN had a favourable environment for melon production, identified suitable varieties, established domestic and export marketing channels and trained hundreds of field workers and agronomists that then spread their know-how. A cluster of local producers, engaged in national and foreign-led value chains, emerged as a result. Over time, the participation in production by SMEs rose from 9 to 27% over the period from 1990 to 1997, and it was likely to be as high as 30–40% today. The two lead firms never managed to collaborate in anything beyond the few activities of the melon growers association, PROFRUTAS, which was created only in response to demands from the US Food and Drug Administration, but remained a weak and disarticulated association, with small reach and voice. So, the RN cluster stands out for its low level of joint actions, but the example set by the two large farms started a remarkable process of emulation.

This is in stark contrast with the *salmon cluster in Southern Chile*, where policy requirements have changed and evolved with the development of the local system (Maggi, 2007). Public policies, together with private initiatives generated several remarkable outcomes. This cluster dynamic is interesting, because it started as an agglomeration of small producers, and developed into a cluster of larger actors, often organised in value chains, with substantial relationships with local suppliers of intermediate goods and services. Three different phases may be singled out.

In a *First phase of initial learning (1978–1985)*, the central challenge was to learn to produce a new good in the new conditions, and this required many pre-competitive investments in R&D, pioneer risky initiatives, with private and public entities investing in the new venture. The potential of Chile's Southern region (X Region) for fish farming, unknown in this part of the world by then, had been explored since the 1960s, but without pursuing systematic activities and did not lead to major success. In 1981, *Fundación Chile* founded *Salmones Antártica* that turned out to be the first firm to produce more than 1000 tons in 1988. This would later induce a demonstration effect to convince new investors to engage in the business. In this phase, policies show such conditions, and chiefly consist of the actions of public actors such as *Fundación Chile* (Box 1 below) and IFOP (*Instituto de Fomento Pesquero*), and international development cooperation agencies, directed to creating essential public goods like basic physical and research infrastructure and knowledge and technology to breed salmon in these conditions and hence success models to imitate.

In the *second phase (1986–1995, maturing)*, the imperative to gain competitiveness was to standardise production quality and raise production size. This needed better infrastructure, better local providers of cages, nets, food, with the local agglomeration of providers of such goods and services gaining importance. Moreover, actions to upgrade functionally emerged, by promoting and marketing Chilean salmon abroad. Policies differ in this phase from the previous one: subsidies are offered by public agencies such as CORFO and ProChile to create technical capacities. For example, INTESAL (*Instituto Tecnológico del Salmon*), was created as a public/private (70/30) initiative to strengthen local technical skills and improve technology transfer; SalmoFood, a public/private (20/80) venture involving 13 local salmon producers was founded to enter the strategic segment of food production, until then dominated by foreign producers; Salmocorp brought together 13 national producers – 30% of total production – to sell abroad, and ProChile promoted Chilean salmon in the US to develop new markets in collaboration with Canadian producers.

In a *Third phase (globalization, since 1996)*, the aim was to raise productivity through technology transfer (foreign missions) and biotechnology (genetic improvements and remedies to fish sicknesses). Moreover, several initiatives were made to improve the regulatory aspects of the sector. So, for example, public policies introduced environmental controls, and a collective agreement on clean production was reached among the cluster firms, the Salmon producers' Association and the state regulatory (Conama) and support (Corfo) agencies. A new environmental Regulation (RAMA) was also introduced. Interestingly, the technical mechanism to allocate resources shifted from that of direct subsidies, used in the early stages of the cluster, toward public funding assigned through competitive tenders. This was only possible with the evolution and maturity of the cluster.

So the *collective efficiency of the cluster* enabled local actors to undertake cooperative actions and policy interventions that in turn *helped local firms to operate in value chains and upgrade* in several ways. The opportunities for upgrading were exploited, thanks to the existence of the cluster and to the mix of policies systematically carried out.

Useful lessons may also be drawn from *failures in carrying out joint actions*. So, for example, the *RN melon cluster* experienced a puzzling *disconnect between growers and public sector research*. But, this caused less damages than could have done because the market for melons and of its production cycle makes upgrading with melons much 'easier', and the traditional dominance of two large growers in RN, that promoted upgrading never felt the need to pressure the government for public support for the entire cluster. The two public sector institutions, ESAM (a local Federal agricultural school) and the EMBRAPA centre, in the neighbouring state of Ceará were distant from producers since the start of the cluster, and had small research capabilities on melons. Moreover, the two larger growers had no interest in disseminating technologies to facilitate the entrance of other growers into the market. The value chains remained highly hierarchical with little upgrading opportunities for smaller farmers.

In the *dairy cluster of Nicaragua*, the collective actions have improved in the late 1990s, with the creation of several cheese-processing cooperatives, like the Chamber *CANISLAC*, active in lobbying and service provision.<sup>14</sup> Another interesting example of joint horizontal multilateral action was the *Alianza Amerrisque*, involving nine milk producers' cooperatives in Chontales, that with the *Unión Nacional de Agricultores y Ganadores* (UNAG) was seeking financing to build its own milk-processing plant. In all these examples, opportunities for local producers' upgrading were enhanced by the joint actions carried out in the clusters.

#### 4.4 *In sum on natural resource-based GVCs in Latin America*

In sum, process and product upgrading are needed for Natural Resources (NR)-based sectors, and they are notably related to scientific improvements and their diffusion. Constant innovation is the key to remain competitive in this sector, but often has the characteristics of public goods. All this calls for two possible avenues for local suppliers' upgrading: first one is collective actions through institutional network of business associations, service, training and research centres and Universities, oriented to technology development and diffusion; the other is linking up with large global chain leaders, having the financial strength and resources to support such investments in innovation, and engage in cooperative (less hierarchical) relationships whenever possible.

The two avenues mutually interact and potentially reinforce each other: leveraging linkages with GVC for local suppliers' upgrading becomes more effective when promoted through local agents' collective actions.

In principle, foreign buyers provide the linkages with the international market by signalling what are the markets' needs and hence the modes of the needed upgrading. Buyers become a major conduit for producers to understand the needs of their final customer (Kaplinsky, 2005, p.91). Even so, given that the requirements of the international markets are often codified by standards (for instance HACCP), imposing them on to producers bears little transactions costs: buyers relay information on the standards that need to be met, but do not normally support the SMEs' upgrading process, and simply select SMEs complying with these standards. However, the collective efficiency of an enterprise cluster may help upgrading processes in GVCs, and the selected evidence shows that joint actions carried out in local clusters may help local firms' upgrading in value chains.

#### 4.5 Examples of upgrading in GVCs in Sub-Saharan Africa

Few studies explore the GVC impacts on local producers in SSA. Notable exceptions are the analyses by Gibbon and Ponte (2005) of GVCs in SSA in the cotton, clothing, citrus, coffee, cocoa and fresh vegetables sectors, where they conclude that there were fairly few examples of clearly successful upgrading. Acquiring *larger volumes* and reaching economies of scale appear central in most cases, sometimes suggesting an interesting scope for regionalisation (large regionally integrated markets), and for SMEs growing to a medium-sized status. Let us briefly see some of these examples (Gibbon and Ponte, 2005).

In the *clothing sector in Mauritius*, many producers followed process and product upgrading (diversification) by raising their operational scale through investments in Madagascar (see above). In South Africa, the only notable upgrading experience was recorded in Chinese-owned companies (backward integrating with textiles).

In *fresh vegetables*, several Kenyan exporters consolidated their supply to UK supermarkets in the late 1990s by expanding their scale (with investments in Tanzania), improving quality assurance and diversifying into snow/snap peas and cut flowers. The only remarkable example of upgrading to become a first-tier was that of Kenya's largest fresh vegetable and cut flower producer and exporter, Homegrown (Gibbon and Ponte, 2005, p.156).

In the *citrus sector*, several large growers from *South Africa* upgraded to become secure second-tier suppliers. Upgrading was visible in better product quality (such as grapefruit exports to Japan), better social practices and reputation. This has produced longer-term contractual relations and, in rare instances, price premia for some becoming exporters.

In the *cocoa* value chains, the only opportunity to upgrade was to acquire first-tier status by engaging in grinding. Parastatals and public/private joint ventures in Ghana and Côte d'Ivoire established grinding operation in 1985–1995,<sup>15</sup> but by 2003 all these ventures were in foreign hands. Although these firms upgraded in some sense, the countries clearly have not.

In *cotton*, the experiences from Tanzania and Zimbabwe were opposite. In Tanzania, firms experienced downgrading in the 1990s. In contrast, the Zimbabwean company

Cottco consolidated its small first-tier supplier status by vertically integrating with spinning of cotton-knitting yarn, got a cotton concession in Mozambique and gained economies of scale in the regional market.

In the *coffee* value chains, the general trend was one of the downgrading of local export companies, now working for foreign-owned exporters. But, the few examples of upgrading among second- and third-tier suppliers regard the following specific instances: (1) participation by mainly private and foreign-owned estates in specialty coffee sales; (2) small-holder cooperatives selling new quality content through fair trade and organic channels; (3) in Tanzania, small-holder farm groups selling directly at the auction and (4) few local traders setting up wet-processing plants, and improving their coffee's quality profile.

In some instances; however, foreign buyers have offered interesting potential for upgrading through product differentiation (Lewin et al., 2004; Linton, 2005)<sup>16</sup>, and some lessons may be drawn:

- finding the right buyer can be an important part of promoting agricultural exports, because of the marketing outlet and support that buyers may provide farmers with
- value can be added to products in a variety of ways (such as for coffee through organic production, environmental sustainability, produce's origin and characteristics)
- the buyer may often provide technical help (directly, or through third parties) to ensure that the quality and consistency of the coffee meet the premium market targeted
- the link to a specific buyer remained important to reach certification (say organic and bird-friendly) and identify the product as a premium product.

## 5 Threats or opportunities from GVCs? The possible but uncertain benefits offered by foreign buyers

How do we summarize so much and diverse evidence? Although the opportunities to benefit from GVCs exist also for firms in LDCs, they may often turn into threats of exclusions and marginalisation. It is clear that the benefits to producers of a relationship with the buyer are not granted, and depend on a host of conditions. Clearly, one of the major risks is indeed suppliers' dependence on one buyer, which often ends up raising their fragility and vulnerability to the second's decision – IFAD (2003) discusses many examples in this sense.

But although *the lead firm* may be the driver for change, it is *not always the agent that puts into effect change or provides support* to deal with change. It may set the target and the roles of the game to win an order (say by setting a standard or a performance that needs to be reached) and, so far as the cost of switching to source from another supplier (i.e. switching cost) is not excessive, it may well source elsewhere. This depends on several factors, including the extent to which information and knowledge required to carry out transactions and production may be 'codified' and transferred, the capabilities of local suppliers, the extent and effectiveness of local clusters' collective efficiency and cooperative actions and the complexity of transactions.<sup>17</sup>

The uncertain support provided by global buyers, and their variable engagement with local suppliers leads some authors to argue that firms based in LDCs should aim at

'trading down', that is consolidate their suppliers' role by focusing on economies of scale, high specialisation and simple and labour-intensive technologies, and aim at mass markets through large-scale retailers. Specific practical policies should support these processes.<sup>18</sup> But, writing of 'trading down' does not always entail that this is the only strategy open to suppliers from the less-developed countries. This may well be one option, and a rational one, but *other alternatives may open up*, depending on the specific circumstances and on the policy framework. The evidence presented for Latin America and Africa suggest that avenues for upgrading in GVCs exist and need to be pursued on a case-by-case basis.

Indeed, no clear-cut recipe is available for all circumstances. *Upgrading strategies always need to be tailor-made and context-specific*. Other routes different from trading down may prove successful, essentially leveraging upgrading through GVCs. If trading down implies detour from developing, strengthening and deepening TCs, it cannot represent an alternative route for suppliers in LDCs. The search for specific market niches to exploit advanced capabilities always offers potential benefits. In this paper several examples were presented to illustrate this point, stressing the role of firm-level efforts to build and strengthen TCs, and of cluster level and local policy initiatives. In this discussion, policies have a role, and they are briefly considered in the next final section.

## 6 The role of policies

Public policies may play a central role to improve the prospects of LDCs' firms upgrading in GVCs. It was remarked that buyers and chain leaders are becoming more demanding, but they do not always provide support or transfer knowledge and capabilities. The transmission of technology and knowledge, and its effectiveness to improve competitiveness, is not only determined by the leader strategy (i.e. GVC governance), or the strength of local firms. Indeed, local firms need to invest in learning and building TCs to innovate and upgrade. Sometimes, the role played by these investments tends to be overshadowed. Indeed, the real pace and direction of learning and upgrading in GVCs remains affected by the TC-building strategies of individual firms (Morrison et al., 2008). This does not amount to saying that we underplay 'conflicts', power asymmetries and GVC governance in knowledge transfers. On the contrary, they are essential for explaining upgrading and competitiveness. But, the firm (farm) level of upgrading remains crucial, and policies should show this focus.

One of the major and innovative aspects of the value chain approach is that it combines a systemic perspective with an emphasis on governance structures (Humphrey, 2005). This implies that any policy implication should at least acknowledge that:

- 1 *key stakeholders*, even if found far away from the production systems being targeted for support *need to be involved in the policy support*. The points of leverage that can be targeted by government and donor interventions need to be identified, together with the powerful interests in the value chains that may contrast the pursuance of development objectives
- 2 markets (and market segments in it) are differentiated according to the *differing requirements of different types of buyers*
- 3 *knowledge flows in value chains play a central role* and they are the object of a severe competition where power is often vigorously exercised

Policies may encompass several areas of intervention, but the analysis in this paper suggests that the highest priorities should be in the following dimensions:

- 1 there is ground for *improving capabilities for policy formulation and implementation*, as policies need to be context-specific
- 2 *the whole national Standards infrastructure needs to be strengthened* to help attract GVCs and usefully interact with them
- 3 in natural-resource intensive activities, where science and technology play a central role, *policy programs should help guide the research priorities in directions that are useful to SMEs and disseminate research to SMEs*
- 4 *horizontal cooperation*. Policy and programs conceptualization and delivery may be carried out at the local (cluster) level through cooperative initiatives, because of the economies of scale that exist in service delivery and in local systems to address standards.

Let us discuss these dimensions in some details.

- 1 In this paper, it is argued that policies need to be specific to countries, sectors and to the local context. From this, it follows that general universal recipes cannot exist and that policies need to be continuously redesigned and reinvented. So, a clear policy priority is to *improve capabilities for strategic policy design, formulation, and implementation in LDCs* – and to *explore and develop avenues for private-public collaboration*. Public-private dialogue and collaboration is a necessary requisite for policies to be effective, particularly those that cannot be defined ex-ante, and need to be defined as an ongoing process through continuous and pragmatic assessments and experiments (Pietrobelli, 2007a). *Fundación Chile* is an especially insightful example of private-public collaboration in innovation policies (Box 1).

**BOX 1** Public-Private Collaboration in Innovation: *Fundación Chile*

*Fundación Chile* is the largest private non-profit organisation fostering innovation in Chile. It was created in 1976 as the result of a joint venture between the Chilean government and the US ITT, each contributing with US\$25 million to the inherited endowment. Its institutional mandate is to transfer state-of-the-art technology, management techniques and human skills to natural resource-intensive sectors. To reach its goals, *Fundación Chile* creates new companies and joint ventures, carries out R&D, adapts foreign technology for product and process innovation for client companies in the public and private sectors and fosters the creation of technological consortia and the diffusion of technology to SMEs, often following a value chain approach. It often played a ‘catalytic’ role, pointing out to new areas to the market and cutting firms’ transaction costs in acquiring technology and setting up new businesses. In recent years, *Fundación Chile* has focused on biotechnology (forestry genetics and DNA vaccines for aquaculture), financial engineering and information (venture capital) and on management. It has also supported cluster development in sectors in which Chile is believed to have comparative advantage focusing on skill upgrading, on life-long learning, on long-distance education and on the Information and Communication Technology use in education and management. It was successful with starting new ventures. By 1999, it had set up 36 ventures, of which 17 had been sold. The six leading companies earned revenues surpassing the total cost of the *Fundación Chile* during its entire existence.

Sources: Benavente et al. (2005), Pietrobelli (1998), [www.fundacionchile.cl](http://www.fundacionchile.cl)

2 *Technical assistance may do a lot to improve the quality, sanitary and environmental standards and industrial standards*, which are playing a growing role in international trade and inter-firm operations in GVCs.<sup>19</sup> They may be administered through collective institutions financed by collective actions, involving small growers and producers, buyers and chain leaders. Policy support actions may include:

- awareness-raising campaigns on the relevance of environmental and hygienic standards, especially directed to small producers
- technical assistance to help local SMEs fulfil international standards requirements
- technical assistance to strengthen local regulatory institutions, and institutions setting environmental and sanitary standards for local producers<sup>20</sup>
- conditioning of the access to loans and grants on the effective implementation and maintenance of quality and sanitary standards.

Sometimes, it is *the whole national standards infrastructures*, especially for certification and testing, that *needs to be strengthened* (if not created) to help local suppliers' integration into GVCs (World Bank, 2002; World Bank, 2003; Lall and Pietrobelli, 2002).<sup>21</sup>

3 In NR-based sectors, an essential field of intervention is the *improvement of the access to the scientific knowledge*, often a needed condition for participating in GVCs (Pietrobelli and Rabellotti, 2007b). If research is concentrated in the leader of the chain, small enterprises and farms do not easily get access to these findings, and the role played by local public research institutions aimed at carrying out research, disseminating findings, and helping SMEs to adapt and internalize the research advancements in their production process becomes therefore important.

However, the development of efficient and effective local public research institutions is often difficult because there is no collaboration between local institutions and large enterprises, which also carry out substantial research, control the connections with the market from which the stimulus to innovate usually derives and often also extend their power of control on local institutions, participating in defining their research strategy (for instance the RN melon cluster described by Gomes, 2007).

Thus, *policy programs should help disseminate research to SMEs*, and Brazil offers useful experiences in this regard (Gomes, 2004). Initiatives to engage SMEs in collaborations with research institutions should be pursued to help *guide the research priorities in directions that are useful to SMEs* and (and not only to) large firms and traders. In these sectors, SMEs often face higher entry costs in several productive activities and in value chains. Their entry into such businesses should be eased through actions such as:

- allocation of lots in public projects for SMEs and larger growers
- higher availability of working and investment capital by development banks
- improved access to proper storage facilities at ports
- support to participate in national and international fairs
- support to strengthen skills and abilities in the backward production stages along the chain and foster local suppliers' capabilities to interact with global buyers.

- 4 The pressures caused by buyer-drivenness and the compelling demands on local suppliers all point to the need to grow in size and capabilities. To remedy the often inadequate size of many local suppliers, *horizontal cooperation* should be supported at different stages of the value chain to benefit from the economies of scale that exist in the service delivery and in local system development to address standards. In this sense, the *cluster-level* is often the proper one *to design and put in effect policies*. This is supported also by cluster case-studies in SSA (Oyelaran-Oyeyinka and McCormick, 2007). These policies may include, for example, promoting cooperatives to enable coordination and pooling of production, efficient delivery of technical assistance and the support of out-grower schemes linking small farmers and large buyers that may offer technical assistance and take on some of the tasks crucial for compliance with standards, such as pesticide spraying in export horticulture (Humphrey, 2005, p.33).

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## Notes

- 1 For an introduction to this approach, see Bell and Pavitt (1995), Figueiredo (2001), Figueiredo (2006), Lall (1992), Lall (2001) and Pietrobelli (1997).
- 2 This view is consistent and provides a microeconomic ground for the newly-emerging approach that describes economic development as a process of 'self-discovery' (Hausmann and Rodrik, 2003), where the diversification of the productive structure through a process of discovery, often supported by new forms of industrial policy, plays a central role.
- 3 Morrison et al. (2008) thoroughly discuss the relationship between TCs development and GVCs.
- 4 [www.globalvaluechains.org](http://www.globalvaluechains.org) presents a synthetic and clear presentation of these concepts (Kaplinsky, 2000; Wood, 2001).

- 5 Several authors focus their interpretation of GVCs and their implications for developing countries' firms on the concept of *governance* (e.g. Humphrey and Schmitz, 2000; Humphrey and Schmitz, 2002; Pietrobelli and Rabellotti, 2004; Pietrobelli and Rabellotti, 2007; Pietrobelli and Rabellotti, 2007a). More specifically, Gereffi et al. (2005) identify five GVC governance patterns: (1) Markets, (2) Modular and (3) Relational – with mutual dependence regulated through reputation, social and spatial proximity, family and ethnic ties – ; (4) Captive, when small suppliers tend to be dependent on larger, dominant buyers and (5) Hierarchy (vertical integration). They develop a theory of what makes GVCs different, and identify three important variables: the complexity and the codifiability of transactions, and the competence of suppliers.
- 6 For example, transfer of post-harvest processing of fresh vegetables to producer countries has been observed in Kenya, where a substantial number of new jobs have been created as a result (Humphrey et al., 2004).
- 7 In the six GVCs discussed by Gibbon and Ponte, as one of the few sources of literature of GVCs in Africa and in less-developed countries, there are *no* African lead firms and only a *handful* of first-tier suppliers. Even worse, only in the case of the clothing chain from Mauritius, and perhaps the cotton chain, is there very few African-owned second-tier suppliers (Gibbon and Ponte, 2005, pp.159). See also Palpacuer et al. (2005).
- 8 An interesting case of functional downgrading has been detected by Roberta Rabellotti in the Brenta shoe district in Northern Italy) (Rabellotti, 2004). She reports that during the second half of the 1990s many shoe firms in Brenta became subcontractors of high-fashion companies and abandoned their design and marketing capabilities to focus on production. Nonetheless, these firms were performing better than the rest of the district's enterprises because profits in the luxury fashion industry were very high. The issue is made more complex as the internal dynamism of the cluster was at least twofold, with some of the firms in the cluster upgrading, whilst most others downgrading.
- 9 This claim has been extensively studied and supported in several papers on Latin America. See, Pietrobelli and Rabellotti (2004), Pietrobelli and Rabellotti (2005), Pietrobelli and Rabellotti (2007) and Giuliani et al. (2005). See also Humphrey and Schmitz (2000), Gibbon (2004) and Altenburg (2006).
- 10 In order to observe the variety of innovative processes across sectors, Nelson and Winter (1982) introduced the crucial concept of '*technological regime*', which they broadly define as a technological condition that defines the boundaries and the direction of the innovative and problem-solving activities of technicians. See, also, Malerba and Orsenigo (1993).
- 11 In related papers, we developed and used a sectoral classification that retains the key notions of Pavitt's seminal work (Pavitt, 1984), and adapts existing taxonomies to Latin America (Giuliani et al., 2005; Pietrobelli and Rabellotti, 2007).
- 12 Such strategy has also had a noteworthy technological dimension, as CODEVASF promoted a sequence of crops that facilitated the learning process of small growers, most of whom had never previously worked with irrigated agriculture. Thus, growers first produced a combination of annual crops, including beans, corns and melons, followed by widespread adoption of industrial tomato, and subsequently higher-value fruit crops, including mangoes and grapes (Gomes, 2007).
- 13 In the late 1980s, a large commercial firm ventured into the production of melons in Mossoró, sensing a potential for this crop in a region that used to produce cotton, corn and beans. This firm hired a grower experienced with melon production in Sao Paulo. By the mid-1990s, this firm was the single largest melon grower in Brazil. Its success inspired another entrepreneur from Sao Paulo to establish what turned out to be the second largest firm in the sector. Together, they accounted for about 70% of the melons produced in the region in this period.
- 14 This trend was favoured by the international cooperation, like for the successful example of *Cantores*, with 37 cheese manufacturers in Boaco, which was planning to set up its own pasteurizing plant with UNIDO and CIDA advice (Artola and Parrilli, 2007).

- 15 The Ivorian company SIFCA even built a new plant in France to produce customized products for the European chocolate industry, and took over another plant in Spain.
- 16 Evidence reported by Humphrey (2005), on The Food Brands Group in the UK, that markets a variety of coffees under the 'Percol' brand name ([www.percol.co.uk](http://www.percol.co.uk)), and claims it to be a 'Bird friendly, single estate, organic Arabica coffee' grown in the Altamaya region in the northern Peruvian highland.
- 17 See the discussions in Gereffi et al. (2005), Pietrobelli and Rabellotti (2007) and [www.globalvaluechains.org](http://www.globalvaluechains.org)
- 18 Their use of the metaphor of 'trading down' lead Gibbon and Ponte (2005, pp.201–203) to suggest very meagre perspectives for local suppliers in less-developed countries, describing the experience of exclusion and marginalisation as a result of the failure of the African farms and firms to meet new expectations concerning quality, lead times, volumes and prices.
- 19 It has been estimated that Argentina loses on average up to US\$ 1 billion every year due to sanitary problems that force exporters to accept lower prices for their products. This handicap could be overcome by investing US\$ 10–25 million a year over 5 years into building the necessary state-of-the-art capabilities in its food safety agency to respond to the emerging sanitary and phytosanitary requirements (UNIDO, 2005).
- 20 A relevant example comes from a program sponsored by the Swedish International Development Agency and the Norwegian Development Cooperation Agency (NORAD) targeting the sanitary and phytosanitary requirements for prawn exports from Mozambique ([www.norad.no](http://www.norad.no) quoted in Pietrobelli, 2007a).
- 21 See, for example, the GTZ program for AfriCert to support the promotion of local certification capability in Kenya. The Nairobi-based AfriCert – the first certification company in Eastern Africa – confers a seal of approval to confirm that producers subscribe to good agricultural practices, namely resource conservation, safe use of pesticides, good post-harvest protection, hygiene and occupational health and safety. This is consistent with the EurepGAP certificate, required to export agricultural goods to European supermarkets (<http://www.gtz.de/en/> quoted by Humphrey and Memedovic, 2006).