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John Humphrey & Hubert Schmitz

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# How Does Insertion in Global Value Chains Affect Upgrading in Industrial Clusters?

JOHN HUMPHREY and HUBERT SCHMITZ

*Institute of Development Studies, University of Sussex, Brighton BN1 9RE, UK. Emails: j.humphrey@ids.ac.uk; h.schmitz@ids.ac.uk*

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HUMPHREY J. and SCHMITZ H. (2002) How does insertion in global value chains affect upgrading in industrial clusters?, *Reg. Studies* **36**, 1017–1027. What is the scope for local upgrading strategies where producers operate in global value chains? The literature on industrial clusters emphasizes the role of inter-firm co-operation and local institutions in enabling upgrading. The value chain literature focuses on the role of global buyers and chain governance in defining upgrading opportunities. This paper argues that clusters are inserted into global value chains in different ways, and that this has consequences for enabling or disabling local-level upgrading efforts. It pays particular attention to the position of developing country firms selling to large, global buyers.

Clusters    Value chains    Competitiveness    Upgrading    Developing countries

HUMPHREY J. et SCHMITZ H. (2002) Comment est-ce que l'insertion dans des chaînes de valeur mondiales influe sur la revalorisation des regroupements industriels?, *Reg. Studies* **36**, 1017–1027. Quelles sont les possibilités des stratégies locales de revalorisation là où les producteurs fonctionnent dans des chaînes de valeur mondiales? La documentation au sujet des regroupements industriels souligne le rôle de la coopération interentreprise et des institutions locales dans la revalorisation. La documentation relative aux chaînes de valeur porte sur le rôle des acheteurs mondiaux et la gestion de la chaîne dans la délimitation des possibilités de revalorisation. Cet article affirme que des regroupements s'insèrent dans des chaînes de valeur mondiales de façons différentes, d'où des conséquences qui favorisent ou défavorisent les efforts de revalorisation. On prête une attention particulière aux entreprises des pays en voie de développement qui vendent aux grands acheteurs mondiaux.

Regroupements    Chaînes de valeur    Compétitivité  
Revalorisation    Pays en voie de développement

HUMPHREY J. und SCHMITZ H. (2002) Wie wirken sich Einfügungen in globale Wertketten auf das Erreichen einer besseren Stellung in Industricklustern aus?, *Reg. Studies* **36**, 1017–1027. Wieviel Spielraum haben örtliche Verbesserungsstrategien, wo Hersteller in globale Wertketten eingespannt arbeiten? Die Literatur über Industrickluster betont die Bedeutung der Rolle einer Zusammenarbeit von Firmen und örtlichen Institutionen, die Verbesserungen ermöglicht. Bei der Definition von Gelegenheiten zur Verbesserung konzentriert die Wertkettenliteratur sich auf die Rolle globaler Käufer und der Kettenherrschaft. Dieser Aufsatz tritt dafür ein, daß Kluster auf verschiedene Weise in globale Wertketten eingefügt werden, und daß man sich infolgedessen auf Lokalebene im Stande oder außer Stande sieht, Verbesserungsanstrengungen zu machen. Besondere Aufmerksamkeit schenkt er der Lage der Firmen von Entwicklungsländern, die mit großen, globalen Käufern handeln.

Kluster    Wertketten    Wettbewerbsfähigkeit  
Verbesserung    Entwicklungsländer

## INTRODUCTION

Firms in developing countries, in common with firms everywhere, are under pressure to improve their performance and increase their competitiveness. New, low-cost producers are entering global markets, intensifying competition in markets for labour-intensive manufactures. How can firms in developing countries respond to this type of challenge while at the same time maintaining returns to both labour and capital from engaging in trade? The literature on competitiveness suggests that the most viable response is to

'upgrade' – to make better products, make them more efficiently, or move into more skilled activities (PORTER, 1990; KAPLINSKY, 2000).

Several schools of thought have emphasized the local determinants of competitiveness, including the 'new economic geography', business studies, regional science and innovation studies. Not only is some of this literature optimistic about the possibility of strengthening competitiveness through local or regional industrial policy (e.g. PYKE, 1992; COOKE and MORGAN, 1998), but it has also been argued that in a globalizing economy the only enduring basis for competitive

advantage will be localized and based on tacit knowledge: 'the formation of the world market . . . increases the importance of heterogeneous, localized capabilities for building firm-specific competences' (MASKELL and MALMBERG, 1999, p. 172). The analysis of industrial clusters in developing countries builds on these perspectives, focusing on the role of local linkages in generating competitive advantage in labour-intensive export industries such as footwear and garments.<sup>1</sup> However, these products are precisely the ones in which global buyers (whether agents, retailers or brand-name companies) have come to play an increasingly important role in the organization of global production and distribution systems. One of the main literatures which analyses these systems, global value chain research,<sup>2</sup> takes a very different approach to the question of upgrading, emphasizing cross-border linkages between firms in global production and distribution systems rather than local linkages (GEREFFI and KORZENIEWICZ, 1994; GEREFFI and KAPLINSKY, 2001).

How can these two literatures be reconciled? One emphasizes the importance of local linkages and the other global linkages. Clearly there is a need to bring these two perspectives together, particularly in the case of export-oriented clusters that are inserted into global value chains. This paper provides a means of doing this.

The question which drives this paper is how insertion into global value chains affects local upgrading strategies. In order to answer this question we distinguish between different types of upgrading and different types of chains. For the latter, we focus on the way the chain is coordinated. The paper suggests that there is a continuum from *arm's-length market relationships* through to *hierarchical governance* (vertical integration). In between, there are two particularly important types of coordination of global value chains: *networks* bringing together partners with complementary competences, and *quasi hierarchy* in which there is asymmetry of competence and power in favour of one party (frequently the global buyer). The paper pays particular attention to the quasi-hierarchical form of chain governance, explaining why it is common in sourcing from developing countries and how it affects the upgrading of local firms.

We came to this question through our research on clusters in developing countries where producers found themselves in asymmetrical relationships with their customers. These producers were facing powerful global buyers who had a major influence not just on sales but also on the type of upgrading strategies open to them. Since then, we found that this issue is not confined to developing country clusters. RABELLOTTI, 2001, finds a similar problem facing shoe producers in Italy.

Why is there a problem? Why is it important to ask how insertion into global value chains affects upgrading in the cluster? Both the cluster literature and the global value chain research emphasize that interaction

is central to upgrading, but one gives prime importance to the interaction with local firms and institutions and the other accords prime importance to the interaction with the global buyers. If this were just a matter of different emphases it would be easy to bring together the two approaches and simply regard them as complementary. However, the fusion is far from straightforward because the interaction with the global buyer tends to take place in the context of a very uneven relationship. This inequality transforms relationships and upgrading trajectories. As will be shown in the course of the paper, local producers working for global buyers enjoy considerable advantages in some types of upgrading but encounter barriers in other types. The paper also asks whether these barriers are permanent and discusses how they can be overcome.

This paper is divided into three further sections. The next section discusses the treatment of upgrading in the cluster and value chain literatures. The third section distinguishes between different forms of governance in global value chains and analyses why they arise. The fourth section considers how the different types of global value chains affect the upgrading in industrial clusters, paying particularly attention to how relationships and upgrading prospects change over time, and a final section concludes the paper.

## UPGRADING IN CLUSTERS AND VALUE CHAINS

With the deepening integration of developing countries into global markets, firms in these countries face increasing competitive pressure. For producers to maintain or increase incomes in the face of this pressure, they must either increase the skill content of their activities and/or move into market niches which have entry barriers and are therefore insulated to some extent from these pressures. We refer to such shifts in activities as upgrading.

Both the cluster and value chain approaches emphasize the importance of upgrading in order to face increasing competition in global markets. Similarly, both emphasize the role played by governance in upgrading, using the term governance to denote coordination of economic activities through non-market relationships. Governance is particularly important for the generation, transfer and diffusion of knowledge leading to innovation,<sup>3</sup> which enables firms to improve their performance. However, the two approaches see governance operating at quite distinct loci, with quite distinct implications for learning within clusters or chains and upgrading opportunities for firms in developing countries.

The differences are summarized in Table 1. The cluster literature emphasizes the importance of local-level governance and the role of incremental upgrading through interactions between firms and with local institutions. The resources for upgrading are seen

Table 1. Governance and upgrading: clusters vs. value chains

	Clusters	Value chains
Governance within the locality	Strong local governance characterized by close inter-firm cooperation and active private and public institutions	Not discussed; local inter-firm co-operation and government policy largely ignored
Relations with the external world	External relations not theorized, or assumed to be based on arm's length market transactions	Strong governance within the chain; international trade increasingly managed through inter-firm networks
Upgrading	Emphasis on incremental upgrading (learning by doing) and the spread of innovations through interactions within the cluster; for major upgrading initiatives, local innovation centres play an important role	Incremental upgrading made possible through learning by doing and the allocation of new tasks by the chain's lead firm; discontinuous upgrading made possible by 'organizational succession' allowing entry into more complex value chains
Key competitive challenge	Promoting collective efficiency through interactions within the cluster	Gaining access to chains and developing linkages with major customers

mainly to come from within the locality. Links with the wider world are frequently acknowledged, but they are weakly theorized. Overall, the external world is characterized as a market presenting competitive challenges that must be met through improved organization and effort within the cluster.

The importance of *local* governance as a source of competitiveness has been particularly stressed in two lines of recent work: regional science (and in particular the industrial district literature); and innovation studies.<sup>4</sup> These two bodies of work both consider market dynamics insufficient to achieve competitiveness via the high road, i.e. through upgrading. In the industrial district literature, the experience of the 'Third Italy' and other European experiences gave rise (in the late 1980s/early 1990s) to a new model of local/regional industrial policy which: (1) emphasizes delegation of functions to a diverse range of governmental and non-governmental institutions; (2) operates through institutions close to the enterprise; (3) extends the concern with entrepreneurship from the private to the public sector; and (4) stresses self-help through business associations and producer consortia (BRUSCO, 1990). In other words, the proposition is that the development and rapid diffusion of knowledge within the cluster are not solely the result of incidental synergies, the 'industrial atmosphere', but are fostered by policy networks of public and private actors (SCOTT, 1996). This has led to a new emphasis on the region as a nexus of learning and innovation effects (for example, STORPER, 1995, and francophone writings on the *milieu innovateur*, e.g. MAILLAT, 1996).

The importance of local policy networks is also central to the work on local innovation systems. In the 1990s, the literature concerned with technological development moved from a focus on the individual firm and a strong distinction between innovation and diffusion towards a greater concern with learning-by-interaction (LUNDVALL, 1993), leading then to the studies of innovation systems, first at the national then increasingly at the regional and local level (e.g. FREEMAN, 1995; EDQUIST, 1997; BRACZYK *et al.*,

1998). While the cluster literature comes from a tradition (starting with Alfred Marshall) which emphasized the production system, the proximity of firms, and the incidental agglomeration economies, the work on local innovation systems was from the beginning more concerned with the knowledge system, the importance of knowledge enhancing organizations, and the benefits of consciously pursued complementarity. The most important thing to emphasize, however, is that both see local governance aimed at fostering upgrading and competitiveness as an essential complement to the incidental synergies arising from agglomeration.

This view of industrial district relationships as internally complex but externally simple goes back to Alfred Marshall:

In his original formulation of the industrial district, Marshall envisioned a region where the business structure is comprised of small, locally owned firms that make investment and production decisions locally. . . . Within the district, substantial trade is transacted between buyers and sellers, often entailing long-term contracts or commitments. Although Marshall did not explicitly say so, linkages and/or co-operation with firms outside the district is assumed to be minimal (MARKUSEN, 1996, pp. 297–99).

Contemporary studies recognize the importance of external relationships, especially where these clusters are export oriented, but the nature of the relationship is characterized explicitly or implicitly as arm's-length. In particular, the extensive literature on Italian industrial districts (see, for example, PYKE *et al.*, 1990; PYKE and SENGENBERGER, 1992; COSSENTINO *et al.*, 1996) tends to characterize these districts as containing the full range of activities required to produce finished products for the world market, or at the very least retaining core functions – if some production activities are shifted to lower-wage areas. At the same time, these districts are capable of innovation and also of acquiring and assimilating codified knowledge from sources outside the district as required (BRUSCO, 1996, p. 153). This capability may be evident at the firm level and in

local institutions, such as technology institutes. The upgrading efforts concentrate on improving products and processes and come from within the cluster itself.

Both the cluster and the local innovation system approaches have been used to analyse local industrial development in developing countries (SCHMITZ, 1995a; RABELLOTTI, 1997; NADVI, 1999; CASSIOLATO and LASTRES, 2000). Their application has been characterized by the concentration on the interaction between local firms and with local institutions. Upgrading is seen as being driven largely by firms and institutions within the cluster. In contrast, relationships with the external world are given much less attention.

The literature on global value chains takes a very different view of inter-firm linkages. It is also concerned with upgrading but the knowledge required for it flows through the chain. Particular attention has been given to the role of powerful lead firms that 'undertake the functional integration and coordination of internationally dispersed activities' (GEREFFI, 1999, p. 41) and to governance structures, defined by Gereffi as 'authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain' (GEREFFI, 1994, p. 97). We will argue below that by exercising this governance, global lead firms also play an important role in determining the upgrading opportunities of local producers. This produces an emphasis on relationships between suppliers and buyers within a chain irrespective of where they are located, and a corresponding de-emphasis on linkages within the locality.

Global value chain analysis emphasizes that local producers learn a great deal from global buyers about how to improve their production processes, attain consistent and high quality, and increase the speed of response. This upgrading effect is particularly significant for local producers new to the global market (KEESING and LALL, 1992; PIORE and RUIZ DURÁN, 1998; SCHMITZ and KNORRINGA, 2000). There is also scope for product upgrading. Gereffi attributes this to 'organizational succession', a process by which manufacturers start producing for buyers catering for the low end of the market and then move up to buyers targeting more sophisticated market segments: 'This succession of foreign buyers thus permitted manufacturers to upgrade their facilities as they met buyer demands for more sophisticated products' (GEREFFI, 1999, p. 53). It can also arise when the lead firms in the chain look to upgrade their final product offering. DOLAN and HUMPHREY, 2000, argue that in the fresh vegetables sector, supermarkets drive product upgrading by introducing more sophisticated processing and packaging, as well as entirely new product lines.

The chain perspective also emphasizes a further category of upgrading: functional upgrading. Value chain analysis is concerned with production distribution systems that are geographically dispersed. This means that firms and localities may specialize in a

narrow range of functions. In particular, clusters in developing countries may be specialized in production activities, playing little role in product design, marketing or branding. Therefore, the process of acquiring new functions which generate higher incomes (and, conversely, ceasing to perform low-income activities) is potentially a critical part of an upgrading strategy.

Gereffi concludes from his research on the garment chain that producers gaining access to the chain have good prospects for upgrading within production and subsequently into design, marketing and branding as a consequence of a combination of 'learning by exporting' and 'organizational succession'. One clear example of upgrading among developing country producers is the case of East Asian garment producers. According to GEREFFI, 1999, p. 47, they moved from: (1) assembly of imported inputs; to (2) increased local production and sourcing; to (3) the design of products sold under the brands of other firms; and finally to (4) the sale of own branded merchandise in internal and external markets.

Other researchers are less optimistic. Martin Bell of the Science Policy Research Unit (SPRU), University of Sussex, has referred to the Gereffi scenario as the 'benign escalator' (personal communication). While the progression from (1) to (2) is not controversial, moving to stages (3) and (4) cannot be taken for granted. Research on the footwear chain suggests that in some chains global buyers discourage, if not obstruct, design, marketing and branding by local producers (SCHMITZ and KNORRINGA, 2000). Local producers face obstacles because such upgrading encroaches on their buyers' core competence. In other words, power relations may inhibit upgrading and limit knowledge flows within the chain.

While the conclusions of these studies differ, they have a common emphasis on the external powers that influence upgrading in the cluster. A key proposition of this paper is that this influence varies with the way the chain is organized and with the type of upgrading considered. The discussion so far has referred to the following three types:

- *process upgrading*: transforming inputs into outputs more efficiently by reorganizing the production system or introducing superior technology
- *product upgrading*: moving into more sophisticated product lines (which can be defined in terms of increased unit values)
- *functional upgrading*: acquiring new functions (or abandoning existing functions) to increase the overall skill content of activities.

A fourth type is *inter-sectoral upgrading*: firms of clusters move into new productive activities. For example, knowledge acquired in producing televisions might be used to make monitors and other computer equipment. Such horizontal moves into new sectors seem to have

been central to Taiwan's ability to gain a foothold in skill-intensive sectors.

Distinguishing between these types of upgrading is the first step. The second step is to analyse more carefully the nature of value chain governance. The next section explains why value chains are characterized by different types of inter-firm linkages and why value chains in which there is an explicit coordination of the activities of independent firms are common in the global economy.

### VALUE CHAIN GOVERNANCE

Global value chain analysis is concerned with how global production and distribution systems are organized. These involve recurrent transactions between various firms. How such transactions might be organized has been addressed by transaction costs economics (see, for example, WILLIAMSON, 1975, 1979). In situations characterized by uncertainty, bounded rationality (information may not be available, or only acquired at a certain cost) and differences of interest between economic agents, coordination arrangements have to be created which minimize total production and transaction costs. The key questions for coordination are:

- what is to be produced: this involves the design of products, both in broad conception and detailed specifications
- how it is to be produced: this involves the definition of production processes, which can include elements such as the technology to be used, quality systems, labour standards and environmental standards
- physical product flow: how much is to be produced, when, and how the flow of product along the chain is to be handled.

The transaction costs literature identifies market and hierarchy as two common coordination arrangements. Markets are particularly effective for standard products. Coordination requirements between different points in the chain are low, valuation of the product and monitoring of supplier performance is relatively easy, and economies of scale are likely to be significant. Buyer and supplier maintain arm's length market relations. This implies that the product is: (1) standard, or can be customized easily; or (2) is made from drawings provided by the buyer (in effect, purchasing the producer's standard production skills). This further implies that the buyer's requirements could be met by a range of firms. If particular process capabilities or procedures are required, they are met through the application of non-transaction specific standards, frequently verified by independent certification.

As products become more customized to the needs of particular buyers, or when it becomes difficult to monitor the performance of the supplier or to value the product being supplied, transaction costs increase. Costs increase as buyer and seller need to interact more

closely over the coordination of what is to be produced, how and when. This increases both the complexity of valuation and the level of uncertainty about the future. This, in turn, further increases negotiation costs and the costs of introducing adequate safeguards, such as monitoring the performance of the other party and specifying commitments comprehensively and explicitly. Furthermore, making products customized to the buyer's needs (which may be concerned with product design, process, or delivery schedules) increases the likelihood of specific assets being used for the transaction.<sup>5</sup> This then makes the owner of these assets vulnerable to opportunistic behaviour by the other party. Therefore, customized and complex exchanges involve increased transaction costs. At the same time, potential economies of scale fall because the product is no longer standard. Therefore, coordinating the activity within the boundaries of the firm (hierarchy, or vertical integration) becomes more cost-effective.

Transaction costs theory has been used to explain decisions to make in-house or to outsource. In the international context, it can be used to account for decisions about arm's-length purchasing from overseas companies as opposed to foreign direct investment. However, value chain studies have highlighted the role of global buyers in creating global production and marketing networks. In extreme cases, large retailers or brand-name companies organize production systems that integrate producers in various countries but without themselves owning any manufacturing facilities. These systems have network characteristics: they are persistent, structured patterns of exchange between formally independent companies.

An explanation of why such network relationships arise has to account for the fact that greater coordination is required than can be provided by arm's-length market relationships, while the option of hierarchy is eschewed. The work of POWELL, 1990, provides a basis for such an explanation, and network theory has been combined with transaction costs theory to provide a theory of network governance by JONES *et al.*, 1997. They argue that frequent, complex and customized exchanges, time pressure and asset specificity make markets inefficient. At the same time, in situations of demand uncertainty, maintaining independent suppliers provides flexibility and avoids obsolescence, as long as competent suppliers can be found. Furthermore, independent suppliers may provide access to specialized assets and complementary competences which buyers may find difficult to develop or manage cost-effectively (*ibid.*, pp. 916–20).<sup>6</sup> In these circumstances, outsourcing is the preferred option even though coordination costs may be high. A variety of means may be used to reduce the costs of coordination and the threat of opportunism. These include creating mutual dependence, benefits from repeat transactions and risk-sharing.

Research on global value chains indicates that these networks can take two distinct forms. In some cases,

network relationships are characterized by low transactional dependence and co-specialized assets. In the electronics industry, for example, STURGEON and LEE, 2001, have argued that contract manufacturers work for various global brand-name companies and have developed capabilities in process technology, component purchasing and minor product design adaptations. In contrast, Schmitz's analysis of footwear manufacturers in Brazil (SCHMITZ, 1999) shows how the producers were dependent on one or a few large customers for the bulk of their sales and also dependent on these customers for the designs of the shoes they produced. In the former case, the switching costs for the suppliers were low, while in the latter case they were very high. This latter case, which shows asymmetry in power between buyers and suppliers, we term 'quasi-hierarchy'; it is to be distinguished from the former case, which we continue to call network. We will argue in the following section that upgrading prospects are very different in the two cases.

Global value chain analysis has identified a number of reasons why chains involving developing country producers are frequently characterized by network or quasi-hierarchical relationships:

- In labour-intensive sectors such as garments, global buyers are frequently looking for new sources of supply as a means of reducing costs. This is clearly evidenced by BAIR and GEREFFI's, 1998, analysis of the shift in origin of US garment imports from higher to low-income countries in the 1980s and 1990s. KEESING and LALL, 1992, argued that such new suppliers are expected to meet requirements that frequently do not (yet) apply to their domestic markets. This creates a gap between the capabilities required for the domestic market and those required for the export market. Therefore, specification and enforcement of parameters relating to product design and production processes may be required to ensure that products and processes meet the required standards. If the gap has to be closed quickly, buyers will need to invest in a few selected suppliers and help them to upgrade. Hobday's description of the late-comer firm in the global economy as 'behind technologically ... and dislocated from the mainstream international markets it wishes to supply' (HOBDAY, 1995, p. 34) indicates why such firms may need active management from their buyers. The supplier's limited knowledge of market demands may arise particularly in fast-moving markets characterized by innovation and product differentiation. These factors favour quasi-hierarchical relationships because of the supplier's limited competence and dependence on the buyer.
- A second important driver for the trend to network or quasi-hierarchical forms of governance is increasing concentration in the retail sector. Large retailing firms – whether sourcing directly or through inter-

mediaries – have become powerful global buyers. Frequently, these buyers focus on retailing but play an important role in product development and branding, as shown for the US and UK garment retailers by GEREFFI, 1994, and GIBBON, 2001, respectively. For retailers such as supermarkets, producing the 10,000 or 20,000 products stocked was never an option. However, the rise in own-label products and the critical importance of items such as fresh produce and meat for attracting customers has meant that they have taken an active role in product innovation and supply chain management, focusing on product differentiation and product quality (DOEL, 1996). Competition on the basis of product differentiation and innovation leads to customized, complex exchanges between buyers and suppliers. Their considerable size, and the increasing number of suppliers for labour-intensive products tends to create power asymmetries and quasi-hierarchical relationships.<sup>7</sup> DOLAN and HUMPHREY, 2000, associate the development of quasi-hierarchical governance in the imported fresh vegetable value chain in the UK with the increasing concentration of food retailing. Similarly, SCHMITZ and KNORRINGA, 2000, have highlighted the role of large, global buyers in the footwear sector. However, situations where suppliers acquire competences and diversify their customer base do occur.

- An increasing emphasis on safety, labour and environmental standards leads to the emergence of 'credence goods' (REARDON *et al.*, 2001), whose characteristics cannot easily be verified at the point of purchase. Credence goods require greater monitoring and supervision of production processes to ensure that the claimed characteristics are present and to convince consumers that they are present. Credence goods are particularly prevalent in parts of the food industry, but pressure on retailers more generally to meet labour and environmental standards has been increasing. This pressure has come not only from consumer groups and non-governmental organizations (NGOs), but also from governments. These pressures are particularly likely to produce the close monitoring and supervision of supplier production and management processes typical of quasi-hierarchy (DOLAN and HUMPHREY, 2001), and above all when there is some doubt about the ability of the supplier to meet these requirements.
- Task complexity increases as products become more customized and cannot be obtained readily from intermediaries or alternative suppliers. Furthermore, the development of low inventory supply systems and the trend to reduce 'time to market' intensifies increased time pressure and intensifies coordination requirements. Where the risk of supplier failure to cope with this complexity and time pressure is perceived to be low, the coordination of the chain is likely to take the network form; where the risk is

thought to be high, it is more likely that the chain is coordinated through quasi-hierarchy.

If developing country producers often find themselves in quasi-hierarchical value chains controlled by global buyers, how does this influence their upgrading prospects? The next section analyses this question.

### VALUE CHAIN RELATIONSHIPS AND UPGRADING IN CLUSTERS

The analysis presented above suggests that four types of relationships can be distinguished in value chains:

1. *Arm's length market relations*: buyer and supplier do not develop close relationships. This implies that the supplier has the capacity to produce the product the buyer wants, and also that the buyer's requirements (including quality, reliability, etc.) could be met by a range of firms. The product should be standard or easily customized and any process requirements can be met by non-transaction specific standards of the sort verified by independent certification.
2. *Networks*: firms co-operate in a more information-intensive relationship, frequently dividing essential value chain competences between them. The relationship is characterized by reciprocal dependence.<sup>8</sup> In this case, the buyer may specify certain product performance standards or process standards to be attained, but should be confident that the supplier can meet them.
3. *Quasi hierarchy*: one firm exercises a high degree of control over other firms in the chain, frequently specifying the characteristics of the product to be produced, and sometimes specifying the processes to be followed and the control mechanisms to be enforced. This level of control can arise not only from the lead firm's role in defining the product, but also from the buyer's perceived risk of losses from the suppliers' performance failures. In other words, there are some doubts about the competence of the supply chain. The lead firm in the chain may exercise control not only over its direct suppliers but also further along the chain.<sup>9</sup>
4. *Hierarchy*: the lead firm takes direct ownership of some operations in the chain.

A key proposition of this paper is that the upgrading prospects of clusters differ according to the type of value chain they feed into. Different forms of chain governance have different upgrading implications. Elsewhere (HUMPHREY and SCHMITZ, 2000) we have set these out in a systematic and comparative way, focusing in particular on the implications for developing country producers. The main conclusions were:

- insertion in a quasi-hierarchical chain offers very favourable conditions for fast process and product upgrading but hinders functional upgrading

- in chains characterized by market-based relationships, process and product upgrading tend to be slower (not fostered by global buyers), but the road to functional upgrading is more open
- chains characterized by even networks offer ideal upgrading conditions but are the least likely for developing country producers because of the high level of (complementary) competences required.

These conclusions arose from a comparative but largely static framework of analysis.<sup>10</sup> In this paper we adopt a more dynamic approach and concentrate on the implications of operating in a quasi-hierarchical chain. As set out above, this type of chain is particularly relevant for export oriented developing country producers.

Concentrating on quasi-hierarchical chains means dealing with power and unequal relationships. The upgrading implications are illustrated in the following subsection on the Brazilian shoe industry: it shows how global buyers both contributed to process and product upgrading of local producers and also placed limits on functional upgrading and market diversification. This is followed by an analysis of how these limits can be overcome.

#### *Upgrading in the Sinos Valley footwear cluster*

The way upgrading possibilities in clusters are influenced by their insertion in quasi-hierarchical value chains is illustrated by the case of the Sinos Valley shoe cluster in the South of Brazil.<sup>11</sup> In the late 1960s, this cluster was composed predominantly of small firms producing for the domestic market. With the arrival of buyers from the US, the characteristics of the cluster began to change. The external buyers looked for much larger volumes of standardized products, which led to the growth of large producers. By the late 1980s, a significant number of firms were large by shoe industry standards, employing more than 500 people. There also continued to be many smaller firms but the composition of the cluster and the relationships between firms were transformed.

At one level, this integration into the US footwear value chain facilitated upgrading. Process standards rose as did product quality. The buyers studied the market, developed models and product specifications, helped producers in the choice of technology and organization of production, inspected quality on site, and organized transport and payment. Firms in the Sinos Valley concentrated on the production process and the organization of their own local supply chains, while the buyers (traders or retailers' agents) were responsible for product design and logistics. Local firms benefited from this. They gained access to the US market and grew very rapidly.

The danger of this situation became evident when Chinese producers undercut Brazilian products in the

US market in the early 1990s, and Brazilian producers were faced with sharply declining prices for their products. The upgrading imperative was clear, but the upgrading strategies of the largest local firms favoured the sphere of production and neglected the areas of design and marketing. Although the local business associations developed a collective strategy of raising Brazil's image in the world footwear markets and of strengthening design capabilities, these proposals were not put into practice. The largest export manufacturers did not support them because they feared that advancing into design and marketing would encroach on the core competence of the cluster's main buyer, which accounted for over 80% of their output and close to 40% of the total cluster exports.

This outcome is reflected in the performance profile of the Sinos Valley in the late 1990s. Global buyers in the US and Europe rated the cluster's production abilities (product quality, speed of response, punctuality, flexibility) as matching the best of the world (i.e. Italy), but on innovative design it lagged far behind the Italians (SCHMITZ and KNORRINGA, 2000). Clearly, the quasi-hierarchical governance of the footwear export chain had upgraded production capabilities but had blocked the development of design capabilities. However, such design capabilities were developed by firms producing for the domestic market and for the export market in Latin America (BAZAN and NAVAS-ALEMAN, 2001), a point explored further in the next section.

#### *Overcoming limits to upgrading*

The Sinos Valley case raises important questions about governance and upgrading. It suggests that integration into global quasi-hierarchical chains is a two-edged sword. On the one hand, it facilitates inclusion and rapid enhancement of product and process capabilities. Developing country firms are able to export into markets which would otherwise be difficult for them to penetrate. On the other hand, they become tied into relationships that prevent functional upgrading and leave them dependent on a small number of powerful customers. In some cases, exclusive relationships with large buyers prevent them from diversifying their customer base. This further raises the cost of the 'exit option', tying them to their key buyer.

However, it is important to recognize that chain governance is a dynamic process. A dynamic perspective helps to recognize why – in quasi-hierarchical chains – the limits to functional upgrading might be temporary. First, power is relational: the exercise of power by one party depends on the powerlessness of other parties in the chain. Existing producers, or their spin offs, may acquire new capabilities and explore new markets, and this changes power relationships. Second, establishing and maintaining quasi-hierarchical governance is costly for the lead firm and leads to inflexibility

because of transaction specific investments (and penalties if the exit option is exercised).

This leads to a more optimistic view of the upgrading options of local producers. However, a basic requirement for upgrading is the strategic intent of the firms involved. Without intra-firm investment in equipment, organizational arrangements and people, no substantial upgrading of any kind is possible. BELL, 1984, emphasized this a long time ago. One of the main lessons from the recent East Asian experience is that a significant number of firms, including small and medium sized enterprises, made these investments and showed strategic intent (HOBDDAY, 1995; KISHIMOTO, 2002). A consequence of the emphasis on inter-firm relationships in the cluster debate is that it crowds out the concern with what goes on inside the firm.

Where this strategic intent exists, various ways of breaking out of quasi-hierarchy can be envisaged.<sup>12</sup> The first, and perhaps most important one, is to use the knowledge acquired in working for their main global buyer for supplying other (probably smaller) markets in which relationships with the customers are more uneven. This is not easy. For example, BAZAN and NAVAS-ALEMAN, 2001, found that some Brazilian firms which were world class suppliers of very big US buyers found it difficult to succeed in the national or Latin American market. Manufacturing to tight specifications for the main customer requires an internal organization geared to this purpose and builds up capabilities which are highly developed but narrow (limited to the sphere of production). Entering new markets requires additional – or other combinations – of capabilities. The importance of such learning is emphasized in LEE and CHEN's, 2000, analysis of contract manufacturers in the electronics industry in Taiwan. They argue that firms were able to acquire new capabilities by applying lessons from one part of their production to another. They could, for example, take a design supplied by one customer and then make adaptations and use the modified design to supply other customers in other markets. The emphasis on 'other markets' is critical. Where producers sell to powerful customers, they cannot compete directly with them and must find other markets when diversifying and upgrading.

Another strategy is to move into functions which the lead firms governing the chain are willing to relinquish. Recall that lead firms establish quasi-hierarchical relationships because of the risk of supplier failure. As capabilities in the supplying cluster increase, local firms may find that the lead firms vacate certain spaces. For example, in the first two decades of the Sinos Valley's export growth, logistics from the factory gate to the warehouses in the US or Europe were controlled by the buyers. This function then began to be carried out by independent firms (most of them local) who competed fiercely for customers in this logistics market. A more significant example of

functional upgrading by producers is given by GEREFFI, 1999. US garment buyers were willing to relinquish the organization of the East Asian supply chain to Taiwanese manufacturers. LEE and CHEN, 2000, and KISHIMOTO, 2002, in their work on the electronics industry, suggest that some Taiwanese computer manufacturers began to take over functions such as the development of new processes and design adaptations. This upgrading led to changes in chain governance, evolving from quasi-hierarchy to either network or market-based relationships.

Which form the new relationship takes and how far this process of functional upgrading can go depends on: (1) the type of buyer; and (2) the ability of the producers to make (individually or collectively) the required investment. Buyers who consider sourcing as their core competence are unlikely to leave the management of the supply chain to their producers. In contrast, buyers who see their core competence in marketing and branding are less likely to retain this function. Thus the likelihood of conflict will depend on the type of buyer.

Conflict or not, the ability to invest in the acquisition of new competencies is critical. This is clear from the innovation literature, especially BELL, 1984. This literature tends to emphasize the investment requirements in the sphere of production, especially technical change. Often these requirements are indeed formidable. However, in the labour intensive products typically exported by developing countries, the biggest entry barriers are in the sphere of marketing and branding, as is recognized by LALL, 1991, and HOB-DAY, 1995. Only large developing country firms can make the investment required, and it is highly risky. In some cases, the way forward is a collective investment. For example, the Brazilian shoe and component producers are trying to establish a collective brand (BAZAN and NAVAS-ALEMAN, 2001) and South African wood and furniture firms have (with external facilitation) joined forces to overcome obstacles up and downstream (MORRIS, 2001).

It seems reasonable to assume that the greater the leap in upgrading, the less likely it is that knowledge acquired in existing linkages suffices. Firms will have to rely to a greater extent on local and national sources of innovation. In particular, inter-sectoral upgrading (using a specific capability acquired in one sector to enter another sector), which is one of the characteristics of Taiwanese industrialization, would seem to depend heavily on local and national systems of innovation. The fact that such upgrading is commonly seen in East Asia but relatively rare in other parts of the world is almost certainly related to the characteristics of industry policy and innovation systems in these countries.

## CONCLUSION

The recognition of the importance of clustering has put economic geography back at the centre of the

economic development debate in both developed and less developed countries. However, the preoccupation with the quality of local linkages has led to a neglect of the global linkages. The global value chain approach emphasizes that, in many cases, the clustering producers do not sell into open markets and that the chains connecting the local producers with the distant retailers are subject to governance by powerful lead firms. The purpose of this paper was to set out the implications of this global chain governance for local upgrading.

The paper proposes that local upgrading opportunities vary with the way chains are governed. Distinguishing between different forms of upgrading and different forms of chain coordination is central to this analysis. Equally important, one needs to understand why certain firms seek to govern the chain, given that effective governance requires substantial investment. The paper explains these reasons and the upgrading implications, focusing on the case of developing country producers and the relationship they typically find themselves in when exporting to developed-country markets. Such chains are often characterized by what we call quasi-hierarchy: the global buyers set product parameters in order to determine product design, and process parameters to reduce the risks associated with non-compliance with standards. Quasi-hierarchical governance promotes fast upgrading for local producers in the sphere of production, but these firms find it difficult to move into higher value activities. This paper shows how local producers can break out of the 'lock-in' which results from working for a small number of global buyers. It recognizes the fragility of global chain governance and the opening up of new opportunities for local producers. Taking advantage of these opportunities, however, does require strategic intent and substantial investment by local firms. The greater the leap required the more important is an effective local innovation system, which includes collective private initiatives and supportive public organizations.

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## NOTES

1. A number of contributions to the literature on clusters of firms in developing countries can be found in NADVI and SCHMITZ, 1999.
2. Gereffi and others (GEREFFI and KORZENIEWICZ,

- 1994) used the term 'global commodity chains' to refer to these linkages. At a workshop in Bellagio in September 2000, Gereffi and other researchers working in this area agreed to use the term 'global value chains'.
3. Innovation here is used in the broad sense of firms acquiring capabilities which are new to them, even if they have existed elsewhere previously.
  4. The question of locality is also emphasized in the 'new economic geography' of Krugman and others (KRUGMAN, 1995) and in the work of Michael Porter (PORTER, 1998), but both play down public governance issues, seeing local competitive advantage arise from market dynamics and inter-firm networks.
  5. A transaction-specific asset is one which is required for a particular transaction or customer and cannot be used for other transactions without loss.
  6. For a discussion of the role of complementary competencies in the formation of inter-firm networks, see RICHARDSON, 1972.
  7. See GIBBON, 2001, and GEREFFI, 1999, for a discussion of the impact of retail concentration on chain governance in the garment industry.
  8. For a discussion of the role of complementary competences in the creation of network relationships between firms, see RICHARDSON, 1972, and PALPACUER, 2000.
  9. This type of control is usually exercised by buyers over suppliers. However, there are cases where control moves in the other direction, as with franchising operations or car dealerships.
  10. These conclusions have been subjected to empirical investigation in a number of developing country and developed country clusters; for details see the papers on local and global governance available at [www.ids.ac.uk/ids/global/vw.html](http://www.ids.ac.uk/ids/global/vw.html).
  11. The account which follows is based on SCHMITZ, 1995b, 1999. This discussion focuses on shoe producers. For a discussion of upgrading in the footwear components sector in the Sinos Valley, see BAZAN and NAVAS-ALEMAN, 2001.
  12. A dynamic approach would in particular look to the role of a new generation of managers in existing enterprises and, especially relevant in clusters, to the spin-offs. Often they feel less constrained by the bonds with existing powerful customers and more able to take new initiatives.

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