THE STRUCTURE OF SUPPLY CHAINS AND THEIR IMPLICATIONS FOR EXPORT SUPPLY

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A. THEORY

1. Why is Export Supply Important?

Until the industrial revolution, growth rates in the global economy were low, and most economies functioned as relatively stable and locally-based systems. Advances in technology changed this age-old structure, promoting a transition from the domestic to the global. New communication technologies increased the extent of the market, allowing for changing patterns of exchange, access to new customers and improvements in the prices of output (an economy’s terms of trade), and access to new goods and services. “Loot” from overseas colonies provided the wherewithal to invest. And new production technologies provided the capacity to extend the division of labour and to improve productivity – in Adam Smith’s phrase, “the division of labour depends on the extent of the market”.

For all of these reasons (and indeed for others), modern economic orthodoxy gives increasing prominence to external trade. In some versions of this orthodoxy, the target is to reduce the historical bias given to inward-oriented and import-substituting activities. In other versions, the target is a set of incentives which are neutral between the external and internal markets. There is also a third version, a departure from the new orthodoxy which promotes exports as a source of learning and Verdoorn-type scale-induced productivity growth and which favours an incentive system biased towards exports.

The economic target has thus changed over the past three decades from the internal and regional, to the external and global market. Here, under pressure from the Washington Consensus, SSA has made great strides in changing its incentive structure. In general this has increasingly targeted a neutral trade regime, and in some cases (as in export processing zones) has promoted an export-biased trade system. The consequence, as is now well-known (AERC, 2006) is that the degree of export orientation in SSA has increased. Yet, at the same time the relative performance of SSA in global trade has worsened, with SSA’s share of global exports falling from six percent to two percent between 1980 and 2005.

The question is why have SSA economies performed relatively poorly in terms of global export performance despite these structural changes in the inward-outward incentive system,
2. Beyond the Border-Debate

A key, and dominant explanation for the lack of supply response in SSA in contemporary economic discourse is that market-failure is widespread. That is, changes in the incentive system – whether these be trade-neutral or export-biased - on their own do not seem to have delivered the goods. As we have seen, despite following the new orthodoxy, SSA’s trade growth and global trade shares remain low. Thus the debate has shifted to export-constraints – why are SSA producers not taking adequate advantage of this shift in incentives in favour of increased outward-orientation?

Three explanations have been offered in the most recent form of analytical and policy advice from economists and Washington Consensus institutions (see, most recently, the World Bank’s Silk Road, Broadman 2006). The first is the existence of beyond-the-border impediments to SSA’s export growth. This relates to unfavourable trade regimes in external partners – notably tariffs in general and tariff-escalation in particular, although in some cases there are also quantitative restrictions on some of SSA’s exports. However, it is increasingly recognised that this is not a satisfactory explanation of SSA’s poor export performance since although there remain important trade barriers in external markets, these have largely declined in significance. More recently, there has been increasing focus on behind-the-border impediments to exports, usually taken to mean poor and costly infrastructure and utilities, and “over-regulation” by governments which dampen supply-elasticities in the face of improving price incentives. Third, and most recently is a focus on between-the-border impediments to trade, focusing on trade intermediation and logistics between SSA and external markets (Broadman 2006).

This border focus – beyond, behind and between borders - raises important analytical and policy questions. But it is only a partial explanation and needs to be set in the context of a wider overview of growth-oriented policies. Here we can learn from an important contribution on a framework developed for for technology policy (Lall and Teubal, 1998).¹ This identifies three levels of policy, namely:

- “functional” policies targeting the macroeconomic environment and market efficiency; for example, policies designed to enhance competitive pressures (such as competitions policy), to alter trade biases (for example, lowering tariffs) and to provide a competitive and stable exchange rate.

- “horizontal” policies which target market-failures and cross sectors, such as generalised incentives to promote greater R&D and training and to improve infrastructure

- “selective” policies designed to promote dynamic capabilities, often in particular sectors region and firms.

¹ For an application of this framework to industrial policy in SSA, see Barnes, Kaplinsky and Morris, 2004
The “border-debate” relates to the first two of these policy agendas. The policy issues which they address focus on changes in the incentive system and the correction of market-failures generally through the price system. What they do not do is to address the development of dynamic capabilities in production. They fail to open what is widely referred to as the “black-box” of the firm and the innovation system as institutional systems (Rosenberg, 1994, Nelson and Winter, 1982). They thus do not allow us to understand why it is that despite more favourable incentives, firms do not respond as economists and policy makers expect. Consequently, they fail to address a series of very important policy levers which affect SSA’s capacity to export.

In order to understand these determinants of supply response we need to be informed by other disciplines – by business science, by sociology and by the politics of power in production. These meso- and micro-oriented approaches to dynamic capabilities provide important analytical and policy insights into why firms do not respond in “predictable ways” to market signals – for example, with regard to the determinants and direction of technical change, the adoption of World Class Manufacturing techniques and the roles played by industrial clusters.

In this paper we address one of these production-oriented approaches, that is, the recent advances in the global value chain literature. These address four issues of analytical and policy importance:

1. What is the process whereby SSA producers are incorporated in global value chains, and which market niches do they serve?

2. How do global value chains speak to the development of supply chain upgrading, including for SMEs?

3. What determines the distribution of rents when they participate in global value chains?

4. What role does value chain analysis play in policy design and delivery?

Before addressing the research and policy implications of these three issues, we need to define what we mean by Global Value Chains (GVCs), to categorise different types of GVCs, and to make a brief theoretical detour into the theory of rents.

### 3. What is a value chain?

The value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use. Considered in its general form, it takes the shape as described in Figure 1. As can be seen from this, production *per se* is only one of a number...
of value added *links*. Moreover, there are ranges of activities within each link of the chain.

Figure 1: Four links in a simple value chain

In the real world, of course, value chains are much more complex than this. For one thing, there tend to be many more links in the chain. Take, for example, the case of the furniture industry (Figure 2). This involves the provision of seed inputs, chemicals, equipment and water for the forestry sector. Cut logs pass to the sawmill sector which gets its primary inputs from the machinery sector. From there, sawn timber moves to the furniture manufacturers who, in turn, obtain inputs from the machinery, adhesives and paint industries and also draw on design and branding skills from the service sector. Depending on which market is served, the furniture then passes through various intermediary stages until it reaches the final customer, who after use, consigns the furniture for recycling.
Figure 2: The forestry, timber and furniture value chain

- Seeds
- Water
- Chemicals
- Design
- Machinery
- Forestry
- Sawmills
- Furniture manufacturers
- Buyers
- Domestic wholesale
- Foreign wholesale
- Domestic retail
- Foreign retail
- Consumers
- Recycling

Logistics, quality advice
Machinery
Paint, adhesives, upholstery etc
Extension services
In addition to the many links in a value chain, typically intermediary producers in a particular value chain may feed into a number of different value chains (Figure 3). In some cases, these alternative value chains may absorb only a small share of their output; in other cases, there may be an equal spread of customers. But the share of sales at a particular point in time may not capture the full story – the dynamics of a particular market or technology may mean that a relatively small (or large) customer/supplier may become a relatively large (small) customer/supplier in the future. Furthermore, the share of sales may obscure the crucial role that a particular supplier controlling a key core technology or input (which may be a relatively small part of its output) has on the rest of the value chain.

Figure 3: One or many value chains?

4. Value chain governance?

So far, this discussion of value chains has described a series of input-output relationships. In this framework, “value chains” serve the purpose of being an heuristic accounting device of commodity flows. But in the mid-1990s a key analytical advance was made, recognising that these commodity chains were increasingly subject to “governance” (Gereffi, 1994; Gereffi, 2005). That is, that they were coordinated chains of production, subject to hierarchical forms of governance, and thus characterised by power asymmetries which determined the division of labour in the chain and influenced the distribution of rewards.

In order to understand the significance of governance, we need to briefly situate the pattern of emerging technological development during the decades of the 1970s and 1980s. By the early 1970s, post-war reconstruction in the industrially-advanced economies was nearly complete. Having their basic needs satisfied, consumers in these economies began to be much more
demanding of product variety, product innovation and quality (Piore and Sabel, 1984). Associated with this was the growth in concentration in the retail sectors of most high-income economies, placing concentrated power in the hands of a limited number of global buyers (Feenstra and Hamilton, 2005). At the same time, reducing barriers to global trade led to intensified global competition in production.

In response to these developments, the corporate sector became more and more specialised. Increasingly, firms were subject to intensifying competition and in order to enhance returns, began to jettison low-yielding non-specialised activities in which they lacked distinctive competences (Hamel and Prahalad, 1994). Production chains therefore became much more complex and indirect in nature. At the same time, as specialisms crossed national borders and as scale-economies became more important, these complex value chains became increasingly global in nature.

Hence, the major final sellers of commodities were confronted with a problem. On the one hand customers were becoming increasingly demanding of quality and variety and innovation; on the other hand, production systems were becoming increasingly diversified and geographically extended. How were these different forces to be reconciled? The answer was that production chains had to “governed”, to be coordinated in manners which allowed differentiated consumer needs to be met through complex and disarticulated production systems.

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We highlight three major related issues in this brief review of value chain governance – the distinction between buyer driven and producer driven chains; the different forms of governance which have emerged; and the role played by standards in chain governance. Each are key to understanding why SSA producers have responded relatively poorly to changes in the incentive system which favour enhanced exports.

4.1. Buyer- and producer-driven value chains
Building on this concept of governance, Gereffi has made the very useful distinction between two types of value chains (Box 1). The first describes those chains where the critical governing role is played by a buyer at the apex of the chain. Buyer-driven chains are characteristic of labour intensive sectors (and therefore highly relevant to developing countries in general, and SSA in particular) such as agricultural commodities, footwear, clothing, furniture and toys. These are chains where the final retailers or their first tier servants – the “category buyers” and global traders - are the lead parties. The second describes a world where key producers in the chain, generally commanding vital technologies and intensive R&D activities, play the role of coordinating the various links – producer-driven chains. Here producers take responsibility for assisting the efficiency of both their suppliers and their customers. Producer driven chains tend to be found in electronics, chemicals, autos and other complex and high technology sectors.
An important component of buyer-driven chains is what has come to be termed “triangular production networks” (Gereffi, 1999a). This describes a situation where the lead-buyers devolve the role of network coordination to sub-system managers. In clothing, for example, major global clothing chains will delegate the choice of suppliers and organisation of production to lead-suppliers, who typically will organise production in third countries. US retailers will engage Li & Fung, a Hong Kong based company, to organise the production of clothing in China, Bangladesh and elsewhere for the US market. Triangular production networks, often run by Taiwanese, Sri Lankan and Indian firms, are a major source of governance in SSA’s export-oriented clothing sector.

Box 1: Buyer and producer driven value chains

“Producer-driven commodity chains are those in which large, usually transnational, manufacturers play the central roles in coordinating production networks (including their backward and forward linkages). This is characteristic of capital- and technology-intensive industries such as automobiles, aircraft, computers, semiconductors, and heavy machinery.”

“Buyer-driven commodity chains refer to those industries in which large retailers, marketers, and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in the third world. This pattern of trade-led industrialization has become common in labor-intensive, consumer goods industries such as garments, footwear, toys, housewares, consumer electronics, and a variety of handicrafts. Production is generally carried out by tiered networks of third world contractors that make finished goods for foreign buyers. The specifications are supplied by the large retailers or marketers that order the goods.”

Source: Gereffi, 1999a
### Producer and buyer driven global value chains compared

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<tr>
<th></th>
<th>Producer-Driven</th>
<th>Buyer-Driven</th>
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<tbody>
<tr>
<td><strong>Drivers of GVCs</strong></td>
<td>Industrial Capital</td>
<td>Commercial Capital</td>
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<tr>
<td><strong>Lead Firm Core Competency</strong></td>
<td>Research &amp; Development; Manufacturing Production</td>
<td>Design; Marketing; Retail</td>
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<td><strong>Barriers to Entry</strong></td>
<td>Technological Sophistication</td>
<td>Cost, Meeting Product Specification</td>
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<td></td>
<td>Meeting Production Standards</td>
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<tr>
<td><strong>Economic Sectors</strong></td>
<td>Consumer Durables; Intermediate Goods</td>
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<td>Capital Goods</td>
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<tr>
<td><strong>Typical Industries</strong></td>
<td>Automobiles; Computers; Aircraft</td>
<td>Apparel; Footwear; Toys</td>
</tr>
<tr>
<td><strong>Ownership of Manufacturing Firms</strong></td>
<td>Transnational Firms</td>
<td>Local Firms, predominantly in developing countries</td>
</tr>
<tr>
<td><strong>Product Life-Cycle</strong></td>
<td>Long term</td>
<td>Short term</td>
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<tr>
<td><strong>Standards</strong></td>
<td>Manufacturing systems; operational</td>
<td>External standards – e.g. health,</td>
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<td></td>
<td>performance requirements</td>
<td>environmental, fair trade,</td>
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<td>organics etc</td>
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<tr>
<td><strong>Contractual Links</strong></td>
<td>Investment-based,</td>
<td>Trade-based</td>
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<td><strong>Predominant Network Structure</strong></td>
<td>Hierarchical production based, system based specifications</td>
<td>Hierarchical product based specifications</td>
</tr>
</tbody>
</table>

Source: Gereffi (1999b)

### 4.2. The major forms of chain governance

Neo-classical economic theory in its essential form does not recognise this challenge of chain governance. Its simple and basic architecture characterises a world of perfect competition in both seller- and buyer-markets. Atomised producers and buyers operate in anonymous markets where prices are characterised by spot prices. However, this crude picture of production and exchange was belied by the growth of vertically integrated and often transnational firms, which grew to significance from the last quarter of the nineteenth century (Chandler, 1977). The theory of transactions costs was developed to explain this phenomenon; that is, firms internalised activities for a combination of two reasons:

- The costs of communication with customers and suppliers were higher than the supervision costs of controlling intra-firm operations
- Assets required to produce inputs were very specific, so that the firm needed to protect itself from the dangers of opportunistic behaviour from its suppliers

When these two conditions applied, it paid the firm to take over — and own — the production of key inputs or to control the destination of key outputs. This much was recognised by transactions costs theory (Williamson, 1985). But what transactions costs theory did not absorb is that there was an increasingly attractive third option, between arms-length impersonal market relations and internalised (and increasingly foreign) direct investment. This enabled firms to meet the needs of discerning customers and to draw on the distinctive competences of specialised suppliers (and buyers) without incurring the coordination costs of direct ownership. The key was to develop long-term and
obligational high trust relationships with key suppliers (and customers) which protected the firm from opportunistic behaviour. Then, by adding to this structured programmes in which they worked with suppliers (and customers), the firm could ensure the systemic efficiency of the chain as a whole (competence trust).

The importance of competence trust is highlighted by the contribution which suppliers make to final product sales in increasingly extended value chains. Figure 4, for example, shows for a group of contemporary South African firms the importance of suppliers in their cost basis. (This only covers costs and does not cover the strategic importance of suppliers in product quality, product innovation and timely delivery). For a significant number of firms, global competitiveness cannot be achieved by merely focusing on the firm’s internal operations; it requires root and branch improvements in the performance of its whole supply chain. But since each of its suppliers in turn depends on its own supply chain, this involves improvements in the many tiers of a firm’s supply chain.

Figure 4: Supplier contribution to costs in sample of South African industrial firms

![Graph showing supplier contribution to costs](source: Barloworld, 2006)

The category of value chain relationships in which suppliers and customers are linked to core firms by durable and high trust relations is referred to as relational value chains. These obligational relations were developed by Toyota from the late 1950s (Monden, 1983) and then extended to other Japanese manufacturing sectors, and subsequently to firms in other parts of the world (Womack and Jones, 1996), including to the developing world (Kaplinsky, 1994). In these relational chains, the lead firms provided support to suppliers over a long term in exchange for a commitment by suppliers to systematically cut costs (including by facilitating change in their own suppliers) and to pass the gains on to the lead firms. Where this resulted in single-sourcing or technology-based suppliers, it was also important that
suppliers abstained from opportunistic behaviour, so trust was key (Sako, 1992).

Supply chain management programmes were the intermediating “glue” which enabled this supply chain upgrading (Bessant, Kaplinsky and Lamming, 2003). The basic characteristics of supply chain management were as follows:

- Analyse the nature of the firm’s supply chain
- Identify key components (customers), and rationalise supply (sales) around them, reducing their number by focusing on trustworthy partners
- Set key performance standards for these suppliers/customers
- Monitor performance against these standards and inform suppliers and customers of their relative performance
- Where suppliers and customers fell short, to provide practical assistance to them, either directly, or through specialised service providers
- Ensure that core suppliers and customers worked with their own suppliers and customers in the same way and to the same standards.

In advanced form, lead firms also recognised that they could learn from their suppliers and customers, transforming supply chain management into supply chain management and learning.

In summary therefore, there are five key roles exercised by value chain governors. First, they determine who is to participate in the chain. Second, they determine the conditions – the standards – which chain participants have to meet if they are to maintain themselves in these chains (Section 4.3 below). Third, they define the roles played by different parties in the chain – who is allowed to fill what niches, and who is allowed to take responsibility for potentially rewarding “rent-rich” activities (see Section 5 below). And, fourth, they determine the particular niche which supply chain participants find themselves addressing. These may be speciality-niches (such as organic produce or designer clothes) where margins are high but volumes are low, or mass-market low-margin commodity items.

Finally, it is important to note that these key governance roles are not necessarily played by the same agents. Some roles relate to standard and protocol setting. Others refer to actual management of the chain, and hence, as in ‘triangular manufacturing’, the organising power is devolved to a third party. From the perspective of supplier country producers (and especially in SSA) therefore the critical strategic policy issue becomes firstly, gaining ‘market access’ (which is an organisational issue). Thereafter, it becomes an issue of maintaining ‘market place’ (which is a competitiveness issue
translating into being able to meet governance requirements and value chain standards).

4.3. Standards in Global Value Chains
The role of standards is obviously of key importance here, and for two reasons. First, process standards are important in honing process efficiency around three themes – quality, cost and delivery (QCD). For example, zero-defect policies improve product quality; just-in-time inventory management reduces working capital costs; on-time-delivery in small batches meets customer orders more effectively. In each case, suppliers (and customers) are given targets, not just for their static performance, but to promote continuous improvement in the future (Imai, 1987). But, secondly, and a phenomenon of increasing importance, product-markets in high-income economies have become much more discerning about standards. These may either be driven by ethical concerns, such as labour standards (and be influenced by civil society organisations) or by health and safety concerns (and hence be regulated by governments).

Hence we can distinguish between three major elements of standards:

- Process and product standards
- Drivers of standards – here the major actors are firms governing their supply chains, governments and increasingly also civil society NGOs.
- Codification of standards – legal or informal and firm-specific

Figure 5 summarises the drivers of the two most prevalent types of standards currently characterising most global value chains. These can be categorised into process and product standards. There are also an increasing number of organisational standards emerging in many chains which target systemic performance, such as Forest Stewardship Council (FSC) chain of custody standards in wood and furniture based chains. Three key and inter-related drivers dominate global standards, with associated sanctions to encourage performance. Firms demand performance of their suppliers (and customers), and use the threat of exclusion to discipline non-compliance. Government regulations play a key and mandatory role in regard to both process and product standards, and the civil society drivers of process and product standards use consumer pressure as their key lever over performance.
Figure 5. Drivers and sanctions of standards in global value chains

<table>
<thead>
<tr>
<th>Process</th>
<th>Product</th>
<th>Sanctions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firms ISO9000 and ISO14000</td>
<td>Parts per million defect rates</td>
<td>Inclusion/exclusion from chains</td>
</tr>
<tr>
<td>Governments HACCP, SPS</td>
<td>Lead content</td>
<td>Prosecution</td>
</tr>
<tr>
<td>Civil society/NGOs Fairtrade</td>
<td>Organic products</td>
<td>Boycott</td>
</tr>
</tbody>
</table>

ISO – International Standards Organisation
HCCP Hazard Analysis and Critical Control Point Procedures used in the food industry
SPS – Sanitary and Phyto-sanitary standards in food related sectors

4.4. The Dynamics of Value Chain Governance

Over the past three decades there have been important developments in both the relational links in global value chains and in the standards which govern supply chain performance (Figure 6). In the first phase, prior to the 1970s, exchange occurred either through the impersonal market or within the firm. Standards were largely irrelevant, particularly with regard to independent suppliers. Then, in Phase 2, from the early 1970s through to the early 1990s, new forms of obligation-based durable relationships were developed, buttressed with high-trust and long-term supply chain management programmes and the process standards which drove these programmes. However, since these supply chain programmes were costly, they were followed initially in the third phase by a distinction between equivalent and non-equivalent relations whereby the lead-firms were prepared to trust their core suppliers and customers to bring their distinctive competences to the chain. This allowed them to concentrate their supply chain upgrading activities on relatively low-skilled suppliers. However, this gave core suppliers (some of whom in the automotive industry came to be called “0.5” tier suppliers, somewhere between being equal partners and first-tier suppliers) significant power over chain governors. So in the most recent phase, lead firms have gone back to more market-based relations with key suppliers, based on industry standards (Sturgeon, 2004). This enables the lead firms to realise product and process standards and at the same time to introduce more competition into their supply and customer chains. The better their suppliers, and the better defined chain standards, the more the chain governors can abstain from costly supply chain upgrading programmes.

From the perspective of countries with a weak supply base, as in SSA, Phases 2 and 3 are most attractive to the upgrading of competences. In these phases, the core, lead-firms have a vested interest in upgrading supplier capabilities, and are interested in long-term relationships. They utilise extensive supply chain management programmes, either through their own efforts or by engaging specialised service providers. Phase 1 is not very attractive to these weak supply-base links in global value chains, since no lead party has an interest in the promotion of upgrading. But, similarly, Phase 4 is also problematic for them, since they find themselves having to compete
with what Sturgeon has called “turnkey” or “modular” suppliers, able to work to industry standards without costly assistance.

**Figure 6. The dynamics of Value Chain Governance**

<table>
<thead>
<tr>
<th>PHASE 1: Pre 1970s</th>
<th>Nature of chain links</th>
<th>Importance of standards</th>
<th>Emerging problems</th>
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</thead>
<tbody>
<tr>
<td>Arms-length</td>
<td>Market</td>
<td>No</td>
<td>Transactions costs, opportunistic behaviour</td>
</tr>
<tr>
<td>Internalised</td>
<td>FDI</td>
<td>Within firm</td>
<td>Coordination costs</td>
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<tr>
<th>PHASE 2: 1970s-early 1990s</th>
<th>Nature of chain links</th>
<th>Importance of standards</th>
<th>Emerging problems</th>
</tr>
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<tbody>
<tr>
<td>Arms-length</td>
<td>Market</td>
<td>No</td>
<td>Transactions costs, opportunistic behaviour</td>
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<tr>
<td>Obligational</td>
<td>Supply chain management</td>
<td>Process standards</td>
<td>Costs of support</td>
</tr>
<tr>
<td>Internalised</td>
<td>FDI</td>
<td>Within firm</td>
<td>Lack of distinctive competences</td>
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<tr>
<th>PHASE 3: Mid 1980s-late 1990s</th>
<th>Nature of chain links</th>
<th>Importance of standards</th>
<th>Emerging problems</th>
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<tbody>
<tr>
<td>Arms length</td>
<td>Market</td>
<td>No</td>
<td>Transactions costs, opportunistic behaviour</td>
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<tr>
<td>Obligational</td>
<td>Supply chain management</td>
<td>Process standards</td>
<td>Costs of support</td>
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<tr>
<td>Asymmetric Symmetric</td>
<td>Supply chain learning</td>
<td>Process and product standards</td>
<td>Costs of learning</td>
</tr>
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<td>Internalised</td>
<td>FDI</td>
<td>Within firm</td>
<td>Lack of distinctive competences</td>
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<tr>
<th>PHASE 4: Late 1990s to now</th>
<th>Nature of chain links</th>
<th>Importance of standards</th>
<th>Emerging problems</th>
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<tbody>
<tr>
<td>Arms length</td>
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<td>Asymmetric Symmetric</td>
<td>Supply chain learning</td>
<td></td>
<td>Costs of learning</td>
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<tr>
<td>Modular</td>
<td>Competitive, standards key</td>
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<tr>
<td>Internalised</td>
<td>FDI</td>
<td>Within firm</td>
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### 5. The generation and appropriation of rents

The power of governors in value chains is not only important because it promotes systemic efficiency and meets customer demands for products with particular characteristics (Section 4 above). It also has important distributional implications, determining the returns received by producers throughout the chain. In addition, power determines the development of *dynamic* capabilities (Teece, Pisano and Shuen, 1992) and the ability to shape market relations over the long term. The power of governors, thus, determines shares of both present and future income streams.

The analytical window into these issues is the theory of rent. Rent describes a situation where the parties who control a particular set of resources are able to gain from scarcity by insulating themselves from competition. This is achieved by taking advantage of, or by creating barriers to the entry of competitors. Thus, the primary returns in production and exchange accrue to those parties who are able to protect themselves from competition.
There are various forms of rent. One important category of rent arises from the ability to shape market relations, by building monopoly power and using anticompetitive practices such as predatory pricing or cartels to exclude competitors. (An example of this of relevance to SSA is the power which producers in the high income countries have to promote tariffs which unfairly discriminate against African exporters). A second important category of rent – addressed in this paper - is on what is called economic rent.

Schumpeter provided an analytical framework to show how scarcity can be constructed (Schumpeter, 1961). He distinguished the process of “invention” (having an original idea, a “new combination” in his words) from that of “innovation” (turning a new idea to commercial advantage). Entrepreneurship is defined in the act of innovation. If this innovation proves to be difficult to copy, then the entrepreneur earns a super-profit which exceeds not only the cost of the invention and the associated innovation, but the returns to economic activity in other activities which are less well protected from competition. Over time this innovation is copied (the act of “diffusion”) or superseded by a new, superior innovation. It is this “Schumpeterian motor”, the search for producer rents, which spurs the innovation process and subsequent diffusion and which drives forward economic growth. For Schumpeter, the entrepreneurial rents were almost always dynamic.

Figure 7 shows the process at work. In each industry the equilibrium is defined by the “average” rate of profit. Following the introduction of a “new combination”, the entrepreneur reaps an “entrepreneurial surplus” which provides for abnormal high incomes. Then as the new combination is copied and diffuses, the producer surplus is whittled away, and is transformed into a consumer surplus as prices fall and new and better quality products are made widely available. But all this does is to renew the search for “new combinations”, either by the same entrepreneur or another entrepreneur.

Figure 7: The generation and dissipation of entrepreneurial surplus
It is obvious from this that the link between innovation and income is to be found in barriers to entry which keep out competition. Given that a product is being produced which consumers want, the greater the barriers to entry, the more likely incomes will be high. So, the key questions for the producer are - how impervious are these barriers?; can the “new combination” be easily copied?; can it be circumvented, perhaps by using a similar process?; or, can it be superseded, by a new and even better combination? Thus it is that barriers to entry are a central component of the theory of rent, and similarly that the theory of rent provides the key to understanding the generation and sustainability of high incomes.

How does relate to export activity in SSA? The answer is that the attractiveness of export-oriented production depends on the relative rewards open to producers from producing for the domestic and external markets. The point is that in very many chains, SSA producers are confined to low-rent links and the returns to economic activity are low. The incentive to export is thus weak, as is the supply response.

Consider two sectors of significance to SSA producers. The first is the coffee sector, where the global barriers to entry to the production of basic varieties of robusta and arabica are very low. In these circumstances, not only have coffee producers experienced declining terms of trade, but an increasing share of total value chain returns have gone to the roasters and retailers in the high-income consuming countries who have been able to protect themselves from competition by product-related branding barriers to entry (Figure 8). Farmers only receive 10 percent of final product prices, and total returns in the producing countries are less than 40 percent of final product prices (Figure 9).2

Figure 8. Distribution of income: % share of final retail price.

![Figure 8. Distribution of income: % share of final retail price.](source: Fitter and Kaplinsky, 2001)

2 The “product” here is ground coffee on supermarket shelves. In the case of coffee sold via coffee houses, the proportion accruing to growers and coffee producing countries is much lower.
A second example is that of clothing exports. Here, since January 2005, SSA exporters have been subject to increasing competition from China as trade barriers to entry have been removed. As a consequence they have faced declining product prices and export revenues, as well as falling shares in the major US and EU importing markets (Table 1). SSA clothing producers lack the capabilities of Chinese producers, including the low cost and high quality capabilities in the textile and clothing components value chains. They thus face low and declining incomes which results in falling export revenues and hence a disincentive to expand manufactured exports.

Table 1: SSA and Chinese export performance following quota removal (2004 versus 2005)

<table>
<thead>
<tr>
<th></th>
<th>Change in SSA export value (%)</th>
<th>Change in China exports in equivalent product groups (%)</th>
<th>Fall in unit prices of Chinese exports to US (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGOA</td>
<td>-17</td>
<td>58</td>
<td>-45.9</td>
</tr>
<tr>
<td>Lesotho</td>
<td>-17</td>
<td>112</td>
<td>-46.2</td>
</tr>
<tr>
<td>Madagascar</td>
<td>-14</td>
<td>76</td>
<td>-44.0</td>
</tr>
<tr>
<td>S. Africa</td>
<td>-45</td>
<td>65</td>
<td>-33.0</td>
</tr>
<tr>
<td>Swaziland</td>
<td>-10</td>
<td>91</td>
<td>-51.9</td>
</tr>
<tr>
<td>Kenya</td>
<td>-3</td>
<td>77</td>
<td>-44.8</td>
</tr>
</tbody>
</table>

Source: Kaplinsky, McCormick and Morris, 2005.

Although the rents arising in coffee bean production and clothing assembly have been reduced due to intense and growing global competition, the same is not true for other links in these chains where barriers to entry are higher.
Branded coffee roasters and the supermarkets which sell this coffee continue to sustain high incomes in the major consuming countries where entry barriers are higher. Similarly, margins and the incomes which they support in the branding, advertising, marketing and retailing of clothes have also been high in the north (unlike the incomes of workers in this sector who have suffered from intense global competition). The key to analysing distributional outcomes in these two chains – and in all chains – arises from the analysis of rents and entry barriers.

6. Building dynamic capabilities: Value chain upgrading

Except in cases of natural or policy-induced monopolies, the ability which producers have to generate and appropriate rents arises from their capacity to upgrade their production capabilities. Typically, the literature on upgrading focuses attention to the firm-level. The generation and appropriation of rents is characterised as arising from the development of distinctive core competences (Hamel and Prahalad, 1994) and firm-level dynamic capabilities (Teece, Pisano and Shuen, 1992). What the value chain framework does is to widen this canvas to focus not just on the firm, but on its value chain linkages, its ability to change positions within the chain and even on its ability to move into new chains.

Essentially four paths of upgrading can be distinguished. These are:

- **Process upgrading:** increasing the efficiency of internal processes such that these are significantly better than those of rivals, both within individual links in the chain (for example, lower inventories), and between the links in the chain (for example, more frequent, smaller and on-time deliveries)

- **Product upgrading:** introducing new products or improving old products faster than rivals. This involves changing new product development processes both within individual links in the value chain and in the relationship between different chain links

- **Functional upgrading:** increasing value added by changing the mix of activities conducted within the firm (for example, taking responsibility for, or outsourcing accounting, logistics and quality functions) or moving the locus of activities to different links in the value chain (for example from manufacturing to design).

- **Chain upgrading:** moving to a new value chain (for example, Taiwanese firms moved from the manufacture of transistor radios to calculators, to TVs, to computer monitors, to laptops and now to WAP phones)

Figure 10 shows the different types of practices which can be engaged in to achieve these various dimensions of upgrading as well as the performance outcomes which results. For example, improving process efficiency might involve enhanced logistical procedures within the firm and/or increased R&D
as well as closer collaboration in logistics and product development in the relations between firms in the value chain. The outcome would be lower costs and faster time-to-market. Similarly, functional upgrading might involve either a change in the mix of activities conducted within a particular firm (for example, taking responsibility for purchasing which was formerly done by a buyer) or moving from production to design. The outcome would be the ability of the firm to enhance its profitability by being less subject to competition.

Figure 10: Practice and Performance in the upgrading challenge

<table>
<thead>
<tr>
<th>Type of upgrading</th>
<th>Practices</th>
<th>Performances</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improving process efficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within the chain link</td>
<td>R&amp;D; changes in logistics and quality practices; introducing new machinery</td>
<td>Lower costs; enhanced quality and delivery performance; shorter time-to-market; improved profitability; enhanced patenting activity</td>
</tr>
<tr>
<td>Between chain links</td>
<td>R&amp;D; supply chain management procedures; e-business capabilities; facilitating supply chain learning</td>
<td>Lower final product costs; enhanced final product quality and shorter time-to-market; improved profitability throughout value chain; enhanced patenting activity</td>
</tr>
<tr>
<td><strong>Introducing new products or improving existing products</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within the chain link</td>
<td>Expansion of design and marketing departments; establishment or strengthening of new product development cross functional teams; Cooperating with suppliers and customers in new product development – concurrent engineering</td>
<td>Percentage of sales coming from new products (e.g. products introduced in past year, past 2 and past 3 years) Percentage of sales coming from branded goods Number of copyrighted brands Increase in relative unit product prices without sacrificing market share</td>
</tr>
<tr>
<td>Between chain links</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Functional upgrading</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within the chain link</td>
<td>New higher value added chain-specific functions absorbed from other links in the chain and/or low value added activities outsourced</td>
<td>Division of labour in the chain – who does what Key functions undertaken in individual links in the chain</td>
</tr>
<tr>
<td>Between chain links</td>
<td>Moving into new links in the chain and/or vacating existing links</td>
<td>Higher profitability; increase in skill and salary profile</td>
</tr>
<tr>
<td><strong>Moving to a new value chain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vacating production in a chain and moving to a new chain; adding activities in a new value chain</td>
<td>Higher profitability; proportion of sales coming from new and different product areas</td>
</tr>
</tbody>
</table>
Why is this value chain perspective on upgrading important? To understand this requires going back to the discussion of rent in Section 5 above. Figure 11 shows a common phenomenon occurring in the contemporary global economy. It is based on the simple value chain shown in Figure 1 above, and reflects a world in which, in general, the barriers to entry in manufacturing are declining. As a result, profits in the physical transformation stage of the value chain tend to fall, whereas those in the knowledge-intensive services such as design, marketing and technically specialised services are growing. Hence, the pursuit for rents and sustainable incomes is strategically informed by positioning within the value chain – both in relation to what activities are performed within each link in the chain, and with regard to the choice of link in which to operate. In the extreme case when barriers to entry are eroded in all links and all activities within links, the best option may be to vacate the chain altogether.

Figure 11. Value chain upgrading by industry leaders: A strategic perspective

![Value chain diagram](image)

**B. RESEARCH IMPLICATIONS**

Section A considered SSA’s relatively poor supply response to changes in the incentive system which have been introduced to promote exports. It argued that it is necessary to move beyond the remit of much of contemporary economic theory which focuses on changes in the incentive system designed to encourage more effective behind- and between-the-border responses to improvements in beyond-the-border market opportunities. It requires a focus on the firm and the value chain as institutions which have their own

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3 For an elaboration of this discussion of methods, see Kaplinsky and Morris, 2001.
trajectories, are path dependent and are trying to build dynamic capabilities in the context of intense global competition.

The key “unit” in global exports is the governed global value chain rather than production internalised in FDI or exports via arms-length impersonal markets. This applies across a range of sectors, including manufactures, agricultural and “hard” commodities, and services. The governed value chains determine who is allowed to participate in serving what market niches, what the parties in the value chain are allowed to do, and the extent to which they are allowed to upgrade and generate and appropriate economic rents. These rents provide the source of high incomes, and hence the incentives to export; they also determine the capacities which individual countries and firms possess to meet the demands of contemporary global markets. The problem with received economic theory is that by focusing merely on the incentive system, it treats the production unit as a “black box”, and therefore fails to explain poor supply responses.

In Section B we move to a more practical level and identify eight key research questions which need to be addressed in understanding the basis of export supply responses to changing economic incentives. In each case we lay out the bare bones of a research agenda. These are not elaborated in this paper partly because of space-limitations, and partly because the research agenda in each case will be temporally and spatially contextual. There is no formulaic and standard approach to the analysis of particular chains in particular context at a particular period of time. These research questions are not sequential and the entry-points into the research terrain can be varied. Finally, although we have discussed the Research Implications as a separate issue, in reality many of these research questions are integrally related to the policy process. Indeed they are the first steps in any policy initiatives focussed on value chains and export strategies.

In all cases, depending on the nature and objective of enquiry, it is likely that time-series data will need to be collected. Equally important, albeit more demanding, is a sense of SSA’s comparative position with respect to other global competitive suppliers in the value chains in which they are already operating, or seeking to penetrate. This latter element of enquiry, and an understanding of the evolving global organisation of particular chains will almost certainly require collaboration with researchers elsewhere, and access to literature on global market and technological trends.

1. Map the chain

Mapping the chain is an important, and possibly first step, in the research agenda. This requires an understanding of the productive process, and an identification of all of the major links in the chain, distinguishing which are located domestically and externally. The details which are fleshed-out subsequently then depend on the nature of the research enquiry, but these may include:

- Charting the flow of physical commodities through the chain
• Charting the flow of knowledge through the chain
• Charting the flow of value-added through the chain
• Charting the extent to which the chain draws on inputs from other sectors, including business services
• Charting the different channels which the chain serves in final markets
• Charting the nature of the firms and other organisations participating in the chain, for example their size and ownership

An example of a mapping process for an African agricultural commodity export is provided in Figure 12. This maps the processes and actors in the chain – interestingly, by working backwards from the final buyer rather than forward from the producer – and provides data on value accretion through the chain. It complements this chain mapping with a mapping both of the business service providers and what are considered to be the main determining factors in the external policy environment.

Figure 12: Mapping the Kenyan Aloe Export Value Chain

2. Analysis of chain niches

Final markets are becoming increasingly differentiated. Different sets of consumers require different product attributes and this has important
implications for the incomes which are supported, the standards which are required and the long-term viability of individual chains. Consequently, value chain analysis will be informed by an analysis of the “critical success factors” or “unique selling points” prevailing in each of the key market segments. Typically, the following attributes are important, but others may be relevant in particular markets:

- Price
- Quality
- Variety
- Deliveries – reliability, frequency and order-size
- Capacity to innovate

But these attributes are of varying importance and they involve trade-offs. Therefore it is important that a relative ordering of importance is estimated, as in the following radar-chart used to illustrate the varied needs of different global buyers of wooden furniture in markets in which SSA exporters operate. (The higher the score, the greater the importance to the buyer)

Figure 13: Critical success factors of different buyers
(1 = not important; 7 = very important)

As we can see from Figure 13, the existence of different market niches is almost always reflected in the nature of chain buyers. Here the key distinctions of relevance include:

- Final retailers, distinguishing between large retail chains, medium-sized chains and small “momma and poppa” shops.
• “Category buyers” and wholesalers in final markets

• Local buyers, either operating at the national level or at the farm- and plant level

3. Who are the chain governors?

Who are the key drivers of the chain? Gereffi suggests that a key distinction arises between chains where the key lead-firms are either core technology holders (for example, firms with deep mining expertise) or major players at the buyer-end of the chain. Figure 14 illustrates the pattern of primary governance in the cocoa value chain in most producing countries after the undermining of local marketing board governance by the Structural Adjustment Programmes of the 1990s (excluding Ghana which did not succumb to the pressure to eradicate the Cocoa Marketing Board). It can be seen from this that the dominant governors are the TNC grinders in the north; the chain could be characterised thus as predominantly a producer-driven chain. However, in recent years, final chocolate manufacturers are playing an increasingly important role in the chain, with the balance of power possibly beginning to shift to a more buyer-driven chain.

Figure 14. Governance in the cocoa production chain, after Structural Adjustment Programmes (>2000)

In some sectors, the effective chain governors from the view of SSA producers will be intermediary firms, either first-tier suppliers to the major chain governors or (as in the clothing sectors) non-producing triangular chain coordinators working to the lead provided by the dominant chain governors.

4. Mobile and immobile investment

There are three dominant reasons why SSA producers may be incorporated in global value chains. First, they may source from SSA for reasons of cost or quality. Historically, for example, SSA tea and coffee were the lowest-cost sources of global supply, although this competitive position has been eroded in recent years. Second, they may source from SSA for reasons of market-access. AGOA access into the US market, for example, been the reason why triangular-governed clothing value chains have led to a substantial rise in SSA’s clothing exports. And, third, SSA may be a source for global markets due to the uniqueness of its resources. The hard “point” commodities which are physically determined and where global supplies are constrained are major examples, and areas in which SSA has a comparative advantage as a global supplier.

The value chain analysis needs to determine which of these, or which combination of these, factors explains the nature and extent to which SSA producers are incorporated in global value chains.

5. The rules for participating in the chain

As we saw in Section A above, standards have become an increasingly important component in contemporary global value chains. Unless producers are able to meet these standards they may either be excluded from the chain, or relegated to minor and unprofitable segments in the chain. Hence an understanding of existing and emerging standards is critical, and raises the following issues:

- Who are the key drivers of chain standards
- What are the process, product and organisational characteristics of these standards
- What are the costs of acquiring these standards, and of certification if this is required, and what entry barriers do these pose for different types of producers
- Who assists producers to meet these standards

6. Supply chain management

There are a variety of reasons why lead buyers and producers may introduce supply chain management and supply chain upgrading programmes. As standards have become important, so in some sectors it has become
necessary for local suppliers to meet the exacting needs of final consumers. There may also be political pressures to include local suppliers, or pressures on the environmental performance of major TNCs such as with regard to Shell’s operations in Nigeria. In addition, importing inputs which are then incorporated in intermediates and final products destined for external markets may often be costly and unreliable.

All of this makes demands of the research process to determine whether:

- Lead firms engage in supply chain programmes
- What is the nature of these programmes
- Who provides the assistance to producers within these programmes
- What is the outcome of these supply chain programmes.

7. (Dynamic) rents and barriers to entry

A particularly important component of the research agenda – and probably the most difficult – is an assessment of the pockets of rent which exist and which are emerging in the chain. These rents are critical because they not only explain patterns of income distribution, but provide important insights into the sustainability of SSA producers in global value chains in the future. A crucial component of these rents are barrier which are constructed to prevent the entry of competitors.

We can distinguish here between two sets of rents. The first are those which are constructed by chain participants themselves, such as innovations in process, or branding over product. We term these endogenous rents. The second are those which are set by parties external to the chain, such as governments, the efficiency of complementary sectors or the availability of natural monopolies (for example with regard to point commodity deposits). These are termed exogenous rents. Figure 15 distinguishes the key categories of rent which are currently important, as well as some of the barriers to entry which protect them.
Figure 15: The key categories of rent and barriers to entry

<table>
<thead>
<tr>
<th>Nature of rent</th>
<th>Examples of rents</th>
<th>Barriers to entry</th>
</tr>
</thead>
</table>
| **Endogenous rents** | • Process technologies  
• Product technologies  
• Organisational technologies  
• Skills  
• Marketing expertise and branding | • Knowhow  
• Patents  
• Copyrights  
• Procedures |

Endogenous rents are generated within individual firms – new technologies (processes and products), specific and productive skills, new forms of organisation, and design and marketing. Each of these rents may be protected by unwritten process knowhow, or by formal entry-barriers such as trademarks, copyrights and patents.

Some endogenous rents are best created in concert with other firms. An ability to foster and operate networks to facilitate logistics, quality, design and marketing may provide individual firms, or groups of firms, with significant competitive advantage.

<table>
<thead>
<tr>
<th>Nature of rent</th>
<th>Examples of rents</th>
<th>Barriers to entry</th>
</tr>
</thead>
</table>
| **Exogenous rents** | • Scarce natural resources  
• Effective policy and government  
• Infrastructure  
• Financial intermediation  
• Effective property laws  
• Law and order  
• Property rights | • Scarcity  
• Scale  
• Knowhow  
• Procedures  
• Legislation  
• Legal enforcement procedures |

Exogenous rents are constructed outside of the corporate sector. They are generally reflected in legal frameworks and are largely outside of the influence of chain participants.

Source: Adapted from Kaplinsky (2005).

The identification of rents extracted and value added at each stage of the chain is a necessary and important part of the value chain mapping process described above. Value Chain mapping sets out the potential areas where policy initiatives are most required and likely to be most effective. In Figure 16 below, we provide an example of such a research and policy initiative which was undertaken in conjunction with the constituent links in the East African Fish (Nile perch) export value chain.
8. Efficiency an upgrading

Whatever the reason for SSA producers being incorporated in global value chains, the challenge which they need to wrestle with is their comparative competitive performance. Moreover, since the global economy is an intensity competitive environment, it is not just static performance which is challenged, but dynamic performance.

From the research perspective this poses two sets of research agendas. The first is to assess performance and here the value chain framework is important since it identifies not only process and product capabilities, but also functional positioning in the chain. Figure 10 above describes the key elements of each of these efficiency criteria. This is largely a numerical undertaking, and is best undertaken by reference to comparative performance with global competitors. However, in the absence of data on global competitors, outcomes can be benchmarked in relation to changes over time.

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**Figure 16: Mapping the East African Fish Export Value Chain**

<table>
<thead>
<tr>
<th>VALUE CHAIN LINKS</th>
<th>Approximate Onward Selling Price $US/kg fillet</th>
<th>Approximate Cost $US/kg fillet</th>
<th>Value Retained</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUPERMARKET</strong></td>
<td>$23.00 / kg fillet</td>
<td>$15.00</td>
<td>$8</td>
<td>Highest value addition</td>
</tr>
<tr>
<td><strong>IMPORTER</strong> of which Handling and repackaging Exporter</td>
<td>$15.00 / kg fillet</td>
<td>$10.00 = $0.50 + $5.50</td>
<td>$6</td>
<td>High value addition</td>
</tr>
<tr>
<td><strong>TRANSPORTER</strong></td>
<td></td>
<td>$1.50</td>
<td>$1.50</td>
<td>Leakage (non-national carrier)</td>
</tr>
<tr>
<td>Freight forwarder</td>
<td>$0.50</td>
<td>$0.50</td>
<td>$0.50</td>
<td>Value addition</td>
</tr>
<tr>
<td><strong>EXPORTER</strong>, of which <strong>Cost of fillet</strong></td>
<td>$9.50 / kg fillet</td>
<td>$7.50 = $5.50 + $2.00</td>
<td>$2.00</td>
<td>Significant value addition</td>
</tr>
<tr>
<td><strong>Freight forwarding</strong> Transport (cold chain)</td>
<td>$5.50 / kg fillet</td>
<td>$4.55 / kg fillet = $4.25 for whole fish (2.25 kg of whole fish at $1.70 / kg required to produce 1 kg of fillet i.e. 60% wastage)</td>
<td>$0.55</td>
<td>Value addition Opportunity for value creation from wastage</td>
</tr>
<tr>
<td><strong>PROCESSOR</strong> (filleting, chilling and bulk packing)</td>
<td>$0.10 / kg fillet</td>
<td>Leakage</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUYING AGENT</strong></td>
<td>$1.70 / kg whole fish chilled</td>
<td>$1.40 / kg whole fish = $1.30 / kg whole fish $0.10 ice / kg whole fish</td>
<td>$0.30</td>
<td>Value addition</td>
</tr>
<tr>
<td><strong>Ice supplier</strong></td>
<td>$0.10 / kg whole fish</td>
<td></td>
<td>$0.10</td>
<td>Value addition</td>
</tr>
<tr>
<td><strong>ARTISANAL FISHERMAN</strong></td>
<td>$1.30 / kg whole fish landed</td>
<td>$1.10 / kg whole fish landed = boat and tackle amortization</td>
<td>$2.20</td>
<td>Value addition</td>
</tr>
<tr>
<td><strong>Boat supplier (local)</strong></td>
<td><strong>Tackle supplier (imported)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

within an individual firm, and comparisons within individual firm and across national firms.

The second research agenda raised by this focus on upgrading are the determinants of competitive performance. This from of analysis is largely qualitative in nature, although there are key measured performance outcomes which need to be measured. Some of these determinants reflect internal processes and procedures, such as training, firm-level organisation and investments in embodied technologies. Another set of change determinants are those arising from the national system of innovation – local business service providers, government extension services, assistance provided by research and technology organisations and intra-chain supply chain management programmes.

A further issue which is increasingly worthy of attention is the constraints to upgrading which arise from positioning in global value chains. The balance of evidence is that, particularly in buyer-led value chains where chain-rents arise from command over product brandnames and copyright, firms who participate in these governed chains are confined to process-upgrading. Command over product innovation and the capacity to change function in the chain tend to be controlled by the chain governors. For this reason, it is argued that the firms who develop the capacity for product and functional upgrading in value chains are only able to achieve this objective by first developing their capabilities in the local market (Navas-Aleman, 2006). But this is a researchable hypothesis which needs investigation.

C. POLICY IMPLICATIONS

Our policy starting point is in line with current ‘best practice’ as articulated by Rodrik (2004). It is a point of departure which differentiates Rodrik’s position on industrial policy from the conventional dichotomous debate around industrial policy. On the one hand, those who subscribe to the Washington consensus and are sceptical of the role of industrial policy. On the other hand, those like Chang who see the process of generating industrial policy as being the specific role of the state and involving industrially specific and targeted interventions. Instead Rodrik stresses the importance of seeing industrial policy as a strategic process of collaboration, based on an interaction between government and firms, involving mutual learning, and experimentation.

As Rodrik says, ‘industrial policy is .. a discovery process .. where firms and .. government learn about underlying costs and opportunities and engage in strategic coordination. … the task of industrial policy is as much about eliciting information from the private sector on significant externalities and their remedies as it is about implementing appropriate policies.’ He goes on to stress that the ‘the right model ….is … strategic collaboration between .. private sector and .. government [to] uncover .. where the most significant obstacles to restructuring lie and what type of interventions are most likely to remove them.’ Hence ‘industrial policy needs to focus not on the policy
outcomes—which are inherently unknowable ex ante—but on **getting the policy process right.** ... how we design a setting in which private and public actors come together to solve problems in the productive sphere, each side learning about the opportunities and constraints faced by the other.’ (Rodrik 2004: 3)

The value chain approach has a clear strategic advantage for those using it (policy makers, strategy implementers) or those integrally involved in a chain (enterprises). It forces them to view all the linkages, the location of nodes of power (governance) which can facilitate or block systemic competitiveness, parameter requirements, material flows, logistical arrangements, information flows, knowledge activities, coordination activities, access opportunities, controlling parameters, and marketing possibilities comprising the chain at one go. In so doing it allows for both a discrete focus on each element and linkage as well as a holistic picture. This is essential for policy making as well as implementation. For this requires context, an understanding of the broad picture, and also critically, pointers as to where to aim specific targeted and directed implementation measures. The underlying policy premise is that how strategy is developed and implemented is as important as the strategy itself.

In this framework the key strategic aim of policy directed work is to achieve value chain alignment in order to ensure systemic competitiveness, firm upgrading, and market access. In so doing, it attempts to direct the power located in value chain governance for the benefit of developing country producers rather than lead firms located in the industrialised countries. On this basis we derive six key strategic policy directives:

1. **Involving a broad spectrum of actors from as many parts as possible of a specific value chain in participating in the mapping process.** The act of involving enterprises in the process of mapping the value chains they are involved in (setting out the linkages and unravelling the strengths, weaknesses, governing parameters, distribution of rents, and incomes etc) has a huge policy impact of its own. That is why perhaps the greatest policy implication of a value chain approach is the rich returns it yields to participants—enterprises, government, supporting institutions, consultancies, policy think-tanks, and researchers. A mapping exercise necessarily requires involving an appropriate selection of participants from the value chain in the process. Compared to other approaches it yields very rapid policy results, with the additional benefit that they are self generated and "owned" by the business communities that derived them. The information generated to understand the linkages in a particular chain comes directly from these participants reflecting on their real life activities and experiences. The very activity is a knowledge generating process and can be used to produce policy-relevant work in conjunction with the various participants.

2. Furthermore it necessarily forces the participants to work and dialogue together on real issues, to take account of the role of **drivers/customers** as well as parameters governing the chain and to critically determine if their performance matches the requirements. Enterprises tend to have an
insular view of the world, but tend not to look inside their own black box and analyse their weaknesses. They live in their own operational universe and tend to blame large and uninfluenceable external forces (such as government) for their competitiveness shortcomings. A value chain approach confronts them with the interlinkages and mutual dependencies that comprise a chain and forces them to abandon the easily adopted attitude of, ‘it’s not my problem after it leaves my place’. Enterprises are often surprised when they see the totality of the value chain they are involved in. Even when they are aware of the linkage most adjacent to them they lack the methodological tools to follow through the influencing forces from one end to the other. That is why mapping the value chain is an enormously valuable strategic tool in itself.

3. Identifying, in conjunction with chain participants, the destination market dynamics and the specific critical success factors (CSFs) – e.g. quality, conformance to standards, on time delivery, packaging, lead times etc - that product and service suppliers in the chain have to meet. Using a gap analysis identified above in Section B (Figure 13), the various links in the value chain can identify the necessary information on what are the most important CSFs in the chain. Thus they learn to match their own performance against these requirements, and formulate appropriate strategies to close these gaps in order to meet the CSF requirements driving the chain. Once these are clear to the producer firms down the chain, then different agencies or consultants can be brought in to assist enterprises to raise their performance levels to meet the required governance parameters and certification requirements.

4. Focussing on market access. Most global trading relationships are not random, spot-market transactions but based on longer standing organisational relationships, embodying different degrees of trust, and involving a significant amount of management and co-ordination. Hence market access becomes the key determining element in establishing entry into export trade. Once these co-ordinating agents, access points, bases for gaining access, and the requirements for continuing relationships within the chain have been identified, and determined, then it is possible for actors and agencies assisting developing country producers to develop concrete strategic advice on gaining market access to, as well as maintaining presence within, the specific value chain.

5. The importance of information flows and learning in achieving systemic efficiency along the entire chain. Allied closely to this is the importance of innovation and upgrading – product, process and functional. The market access/upgrading research tool facilitates enterprises along the value chain (and those policy makers assisting them) to identify what future growth trajectory they are likely to be located on. The strategy premise of value chain analysis is that the ability to marshal, apply and deploy knowledge has come to play a critical role in ensuring ever more competitive and innovative operations at both the enterprise and supply chain levels. These diverse flows of information (concerning customer requirements, process operations, workplace organisation, complex
logistical arrangements, product technologies, research and development etc.) within and between enterprises, play a crucial role in oiling the relations between the various links and thereby achieving systemic efficiency of the value chain as a whole. Derived from this are a variety of strategy tools such as ‘learning by visiting’, ‘supply chain learning’, ‘clustering and sharing of ideas’. All depend on the trust along the value chain. The strategic logic of value chain analysis is that enterprises forming the links in a chain based on mutual dependency know each others' operations more closely, and are able to contribute more constructively towards restructuring, than those who randomly come together in business conference environments, or unfocussed networking events. The strategy tools that flow from this are all based on various forms of network participation of the actors comprising the value chain to identify strengths and weaknesses, unpack problems, experiment with solutions, provide training etc.

6. *Enhancing knowledge intensive functions and activities impacts on the rents that accrue to developing country producers.* In all product groups the importance of intangible, knowledge intensive, activities and elements in value chains are increasing and creates its own specific barriers to entry. Control over such knowledge intensive intangible activities has therefore become a major source of appropriating rent. The strategic implication is that mapping a specific value chain should provide the tools to locate the distribution of rents between links, identify rent rich areas, pinpoint real chain weaknesses, and where the best point of action lies.

In conclusion, the mapping of the East African fish export value chain (Figure 16 above) illustrates the policy points very clearly. Developing the fish processing plants was a major industrial advance for export participation in the fish value chain. The weaknesses identified by participants focused on quality deterioration arising from small scale traditional fishing boats, transport to the processing plants many kilometres away, bad roads etc. However as soon as the mapping exercise factored in the distribution of rents to the various functions and activities, the real weakness and points of action for upgrading purposes became apparent. The factory processing plants were clearly one of the weakest links. With a 40% yield (and 60% wastage) the average return per kilo of fish was actually only 95 cents (notwithstanding the apparent much higher price received), without factoring in running and capital costs etc. The mapping exercises immediately yielded a number of upgrading policy issues to address in this value chain: for example, chain upgrading through changing the mix of production activities to direct the 60% wastage from cleaning and filleting the fish into another value chain (e.g. fertilizer, chicken feed etc); product upgrading through differentiating the product (e.g. smoked fish, marinated, etc); process upgrading through dragging the pre-supermarket packaging processes away from the European importing agents; functional upgrading through branding these pre-packaged products (e.g. certifying it as Lake Victoria Perch).
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