

**International Supply Chains, Trade in Value-Added and Development:  
A Small Economy’s Perspective**

Conference paper (draft for discussion),  
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*Trade in tasks, or its dual counterpart of trade in intermediate goods, offer new options to developing countries, especially smaller ones. What economists like Grossman and Rossi-Hansberg (2006) and Baldwin (2006), among others tell us is that globalisation today differs from the old approach in that the opportunities for jobs and value creation it is occurring at a much finer level of disaggregation. The presentation will portray how the trade in value-added concept changed the way we understand not only trade, but also the trade and development relationship and the way it changes development policies. We will show that the concept is particularly important for smaller developing countries that cannot count on the size of their domestic market to develop fully fledged industries and diversify their exports outside traditional activities. The presentation shows that global value chains and trade in value-added do offer a new opportunity for those small developing countries, opportunities that did not exist previously. Similarly, the opportunities call for a different way of understanding trade and development policies, calling for a combination of horizontal trade and investment facilitation policies and a more granular approach of the public-private partnership.*

**A. INTRODUCTION**

It is traditional to represent trade as a network interconnecting countries. In the trade world web before International Supply Chains, countries used to export the goods they could produce. They were usually of two kinds: primary goods (natural resources based) and final goods (for consumption and investment). The type of goods produced for international trade was determined by comparative advantages and the relative abundance of production factors (land and natural resources, labour, capital and technology). As was pointed out by many development economists, the patterns of specialization that emerged from these comparative advantages was that developed countries specialized in the production and exports of complex industrial goods while developing countries were confined to the role of providers of natural resources (agriculture, fuels and minerals).

The risk, according to this school of development economists (such as the structuralism school, represented by Prebisch and Singer), was to see developing countries trapped into regressive patterns of specialization. In order to prevent this from happening, the structuralists recommended to adopt import substitution industrial policies (ISI), based on high tariff on final goods and low ones on basic and intermediate inputs, and state intervention (subsidies) in order to promote the rise of domestic firms able to compete on the domestic market against imported industrial goods. This type of policies was prevalent in the 1950-1970s; average

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tariffs in developing economies were high and steeply escalating in order to provide a high rate of effective protection to the national infant industries.

Smaller developing countries were practically prevented from implementing ISI due to the small size of their internal market. In an industrial world such as the 1960s or 1970s, industrialization meant heavy industries and large investments, which in turn called for large domestic markets in order to reach a sufficient production scale and recoup the investment costs. While large developing countries could guarantee such markets for their national industries and attract multi-national enterprises (MNE) eager to benefit from the protectionist rent, this was not possible for small economies. And ISI policies could not be tuned to compensate the small size of the domestic market by targeting export opportunities: by twisting the relative prices through tariffs, the mechanism of effective protection creates an incentive only for sales in the domestic market and creates an anti-export bias. Therefore, smaller developing countries were marginalised in the international trade network, exporting the few natural resources they could competitively produce (for example, coffee, sugar and spices). Even when the ISI policies showed their limits in the early 1980s and tended to be substituted by export-led industrialization policies (the basis of the so-called Asian miracle), small size remained an issue for developing fully fledged industries. Indeed, the new trade theory that became fashionable after the 1980s highlighted the benefit of economies of scale and the merit of large agglomeration of industrial activities.

The emergence of Global Production Networks changed the situation. Because production became modular (Baldwin's unbundling) and tasks were outsourced (Grossman and Rossi-Hansberg, 2006), it became possible to create industries focusing on a single segment of the whole industrial process, reaching international standards and cost competitiveness without having to develop fully fledged industries. The small developing country A was therefore able to integrate the international trade network by executing some of the tasks that were before performed in country C.

Perhaps the most illustrative example is that of the island of Samoa, a Least-developed Country according to UN classification, which was able to develop an automotive industry despite its tiny size. In this island of about 200,000 people, Yazaki Samoa, a Japanese-owned company, produces automotive components for export to Australia. This plant employs more than 2,000 workers and makes up over 20% of the Island's manufacturing sector's total output. In Central America, Costa Rica was able to develop IT and medical equipment industries, despite the small size of its domestic market.

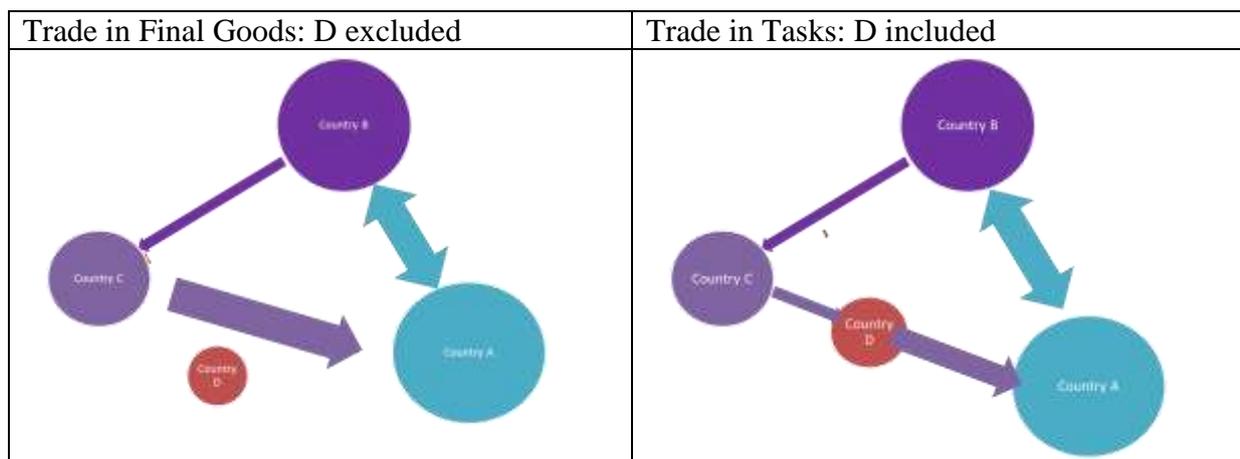
Actually, most of the East Asian miracle can be attributed to trade in tasks, and even China's rapid march towards industrialization relied on global supply chains (WTO and IDE-JETRO, 2011; Escaith and Inomata, 2013). For poorer developing countries, especially in Asia, insertion in low-technology textile and clothing value chain remains the most common point of entry in this line of business.

## **B. FROM TRADE IN GOODS TO TRADE IN TASKS**

### **a. A simple 'trade in task' network**

Figure 1 presents a very simple example of trade between four countries, first when trade is confined to basic commodities and final goods, then when global value chains promote trade in tasks, through the exchange of intermediate goods and services that are progressively elaborated before reaching their final destination.

**Figure 1 Simple Trade Network**



In our small example, country A, a developed country where the goods are consumed and the lead firms are located, will perform the tasks that are closer to final demand (also called downstream activities): marketing, distribution and after-sale services. It will import from D, the small developing economy, the manufacture and logistic services (light manufacture, assembly, transportation of final good) and import from emerging country C the most upstream complex industrial tasks: research and development, manufacturing of high-technology components. Country B, a natural-resources rich developing country, provides the basic products (minerals, fuels) required by C for the production of these components.

**Figure 2 Supply Chain and Tasks**



The production and trade system can be expressed in a tabular format as a matrix, the diagonal (*italics*) showing the tasks performed in each country and the non-diagonal elements showing the tasks (imbedded in goods and services) exchanged in the international market. In columns appear the inputs required for producing the output (either a good or a service), lines show the use of output (diagonal elements indicate domestic use, extra-diagonal show international trade). This matrix representation is what is used in practice when measuring trade in value-added, differentiating within each countries various sectors of activity, as in the

OECD-WTO's TiVA database which, in its May 2013 release, presents indicators for 58 economies broken down by 18 industrial sectors. IDE-JETRO's Asian input-output matrices, while covering less countries (10 economies), do offer a much granular industrial disaggregation (76 sectors).

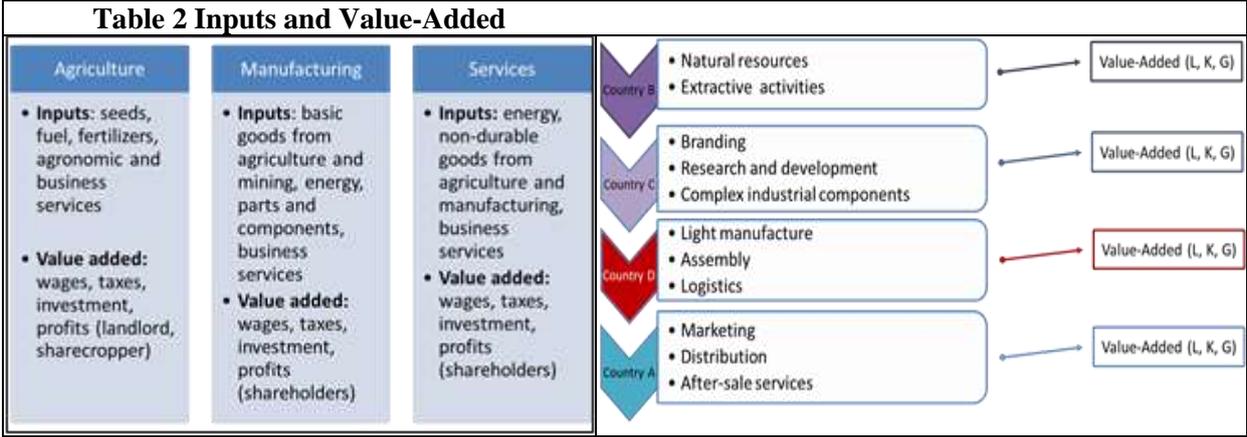
**Table 1 Matrix representation of trade in tasks**

| Countries             | A (lead firms)   | B   | C                                      | D                                       |
|-----------------------|--|---|--|---|
| <b>A (lead firms)</b> | <i>Branding-Marketing<br/>Distribution<br/>After-sale</i>  | <b><u>Final product</u></b><br><b><u>After-Sale</u></b> |  |   |
| <b>B</b>              |  | <i>Extractive activities</i>                            | <b><u>Natural resources</u></b>        |   |
| <b>C</b>              | <b><u>R&amp;D services</u></b><br><b><u>Components</u></b> |   | <i>R&amp;D<br/>Complex manufacture</i> | <b><u>Components</u></b>                |
| <b>D</b>              | <b><u>Manufacture and logistics services</u></b>           |   |  | <i>Light manufacture,<br/>Logistics</i> |

**b. From Trade in Tasks to Trade in Value-Added**

When confronted to the challenge of measuring trade in tasks, statisticians extended the concept of value-added (the building block of national accounts and Gross Domestic Product) to international trade. Value-Added is a concept relatively close to the business community, and what remains in an industry once all intermediate inputs (goods and services purchased outside the industry in order to produce the output) have being accounted for. Value-added is the gross margin that will be used to pay the wages, replace and extend productive capital (gross investment), pay indirect taxes and remunerate the shareholders.

**Table 2 Inputs and Value-Added**



An interesting aspect is that what is the output of one activity is also the input of another one: all activities depend from each other, determining what the *Physiocrats* in the early XIX century called the “*Tableau d’Echange Economique*” which forms the backbone of modern-days national accounts.

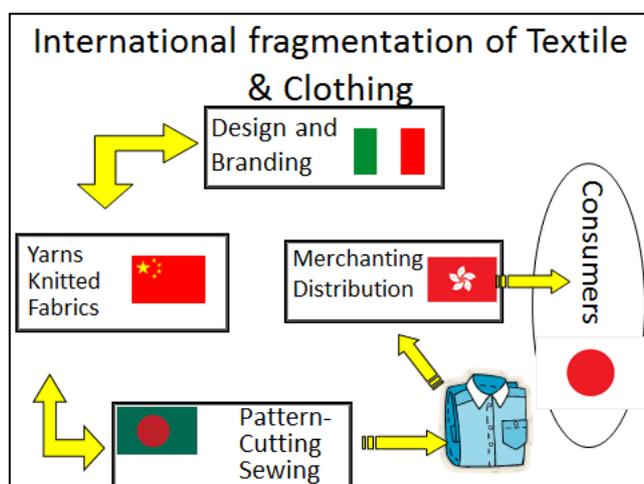
### c. A simple example of apparel value-chain

Let's take a simple example from the clothing industry. To manufacture and sell apparels, the industry needs fabrics made of cotton yarns. Fabrics will be cut according to pattern made by designers, then assembled before being sent to their respective markets of final destination. The final price will depend of the production cost, the retail margin of the retailer and the royalties paid to the owner of the brand. In a traditional industrial organization where everything is done under a single roof, the production of a shirt "made in Italy" and sold to Japan would have required only a few transactions: the Italian textile factory purchasing cotton to make yarns and fabrics, the clothing industry purchasing the fabric then cutting and sawing it according to the instructions of its designers. The final product would have been exported directly to Japan.

In a Global Production Network, the design and the brand will remain in Italy, but the production will be outsourced to an intermediate operator, located in Hong Kong, who will order fabrics from China and send them to Bangladesh for cutting and sawing, before repatriating all the production in its warehouses in HK then distribute the output to the respective destination markets. While only two countries (Italy and Japan) were involved in the previous model, this fragmentation will create job and business opportunities in three additional countries (Bangladesh, China and Hong Kong).

While Italian industries appear as losing jobs in such a context, this may not be the case when (i) international outsourcing allows the lead firm to gain efficiency and maintain competitiveness against lower cost producers and (ii) international outsourcing allows to focus on the tasks where the firm has competitive advantage. While the first effect will allow at least part of the jobs to be preserved if the firm is confronted with lower-cost competition from other countries, the second effect will allow to retain at home the segments with highest value-added (eg, designer clothes) and to outsource low or medium quality mass production products. While the net effect on numbers of jobs is uncertain, outsourcing generally increase the average wages paid to lead-firms workers. As far as Japan is concerned, the consumers may benefit from a lower price for the final product, if the lower production cost is not compensated by a higher retail margin.

**Figure 3 A simple example of production fragmentation**



Incidentally, production fragmentation creates an accounting issue for trade statistics, because of double counting. In the traditional industrial model, an Italian shirt exported to Japan

would have increased the value of international trade by \$70 (CIF valuation). In the fragmented model, there is a cascading effect because the value of output at each stage of the production chain includes the costs of the inputs purchased from previous suppliers. In our small example (Table 3), the traditional trade statistics will record \$135 of trade in goods and services. This is the reason why trade statisticians have developed new methods to avoid double counting and measure only the domestic value-added corresponding to each step of the global value chain.<sup>2</sup>

**Table 3 Global Value Chains: Gross and Value-Added accounting**

| Country                     | Value Added | Output     | Gross value includes                   |
|-----------------------------|-------------|------------|--|
| <b>Italy</b>                | 30          |            |  |
| <b>China</b>                | 15          | 15         | Yarns, Cloth                           |
| <b>Bangladesh</b>           | 5           | 20         | plus Confection                        |
| <b>Hong Kong</b>            | 20          | 70         | plus Italy royalties and merchandising |
| <b>Japan</b>                | 30          | 100        | Retail value                           |
| <b>Gross Trade</b>          |             | <b>135</b> |  |
| <b>Trade in Goods (CIF)</b> |             | <b>105</b> | (15 + 20 + 70)                         |
| <b>Trade in Services</b>    |             | <b>30</b>  |  |
| <b>Trade in Value Added</b> |             | <b>70</b>  | (30 + 15 + 5 + 20)                     |

Note: 'merchandising' is considered as trade in merchandises, according to the new international recommendations.

#### d. Up-Grading in Global Value Chains

As mentioned, value-added translates into jobs and income revenue. It is therefore very important for developing countries to "capture" as much value-added as possible in order to increase per capita income, sustain growth and generate employment opportunities of increasing quality. It is the main priority for LDCs, as seen in Table 4 which presents the results of a survey implemented as part of OECD-WTO monitoring, in preparation for the 4<sup>th</sup> Global Review of Aid for Trade on "Connecting to Value Chains", WTO 8-10 July 2013.

**Table 4 Government's priorities to expand export of goods and services?**  
(Opinion survey in Least Developed Countries)

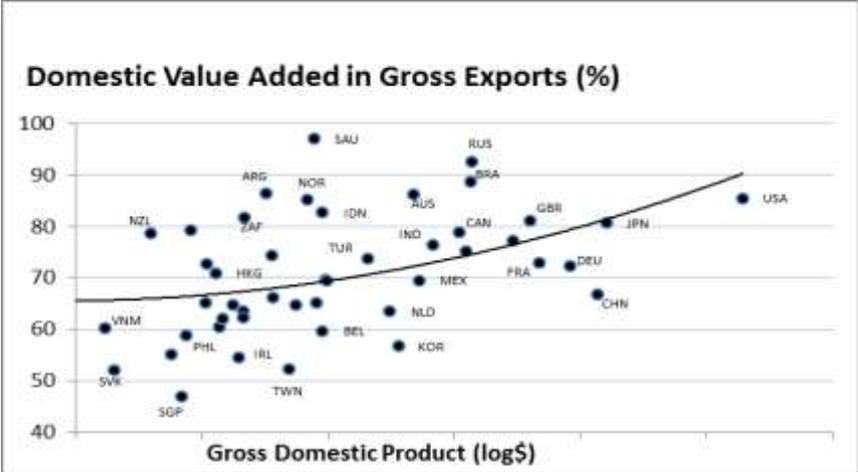
| Answer Options ( <i>1: most important</i> )  | 1  | 2 | 3  | 4 | 5  | 6  | (Response Count) |
|--|----|---|----|---|----|----|------------------|
| <b>Adding value to your exports</b>  | 20 | 4 | 3  | 5 | 1  | 0  | 33               |
| <b>Addressing export competitiveness issues</b>  | 5  | 7 | 11 | 4 | 6  | 1  | 34               |
| <b>Developing new export markets</b>   | 3  | 9 | 3  | 9 | 2  | 6  | 32               |
| <b>Developing new export products</b>  | 3  | 8 | 9  | 4 | 3  | 3  | 30               |
| <b>Promoting an enabling business environment</b>  | 3  | 4 | 7  | 6 | 13 | 0  | 33               |
| <b>Promoting specific trade policy objectives or agreements (e.g. Free Trade Agreements)</b> | 2  | 0 | 0  | 3 | 5  | 19 | 29               |
| <b>Total LDC partner respondents</b>   | -  | - | -  | - | -  | -  | 36               |

Source: WTO, based on a joint OECD and WTO survey.

<sup>2</sup> See WTO and IDE-JETRO (2011) for an introduction and Escaith (2013) for a formal discussion.

Available evidences show that there is a positive relationship between the domestic value-added content of exports and economic size. Even if this relationship will differ according to the type of exports (natural resources based products tend to have a larger domestic content than consumer electronics, for example), it remains that for small developing countries, incorporating more domestic content in their exports remains a challenge.

**Figure 4 Domestic Value-Added Content and Economic Size**  
*(Percentage and logarithm of GDP in dollar term, 2008)*

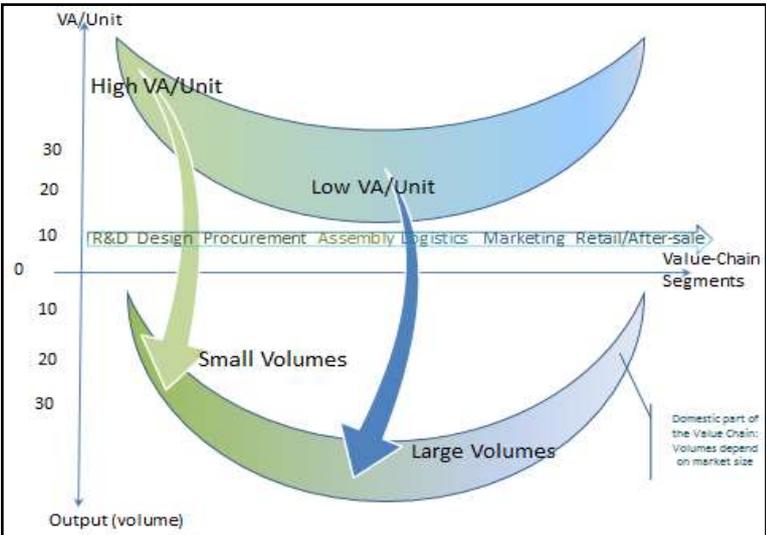


Source: Based on OECD-WTO TiVA database, May 2013 release.

Therefore, it is only natural that development theory has become interested in the linkages between trade in tasks, value-added and the creation of jobs opportunities. The idea can be extended by taking into consideration two additional dimensions:

- (i) Different products may require similar tasks, thus product composition of international trade does not always reflect tasks and value added (in other words, it is easier to diversify exports when the imbedded tasks are similar); and
- (ii) GVC upgrading can be achieved at the intensive margin even at the bottom part of the smiley curve (small margins but high volumes) as in **Figure 5**.

**Figure 5 The Double Smiley Curve**



Source: Author's elaboration

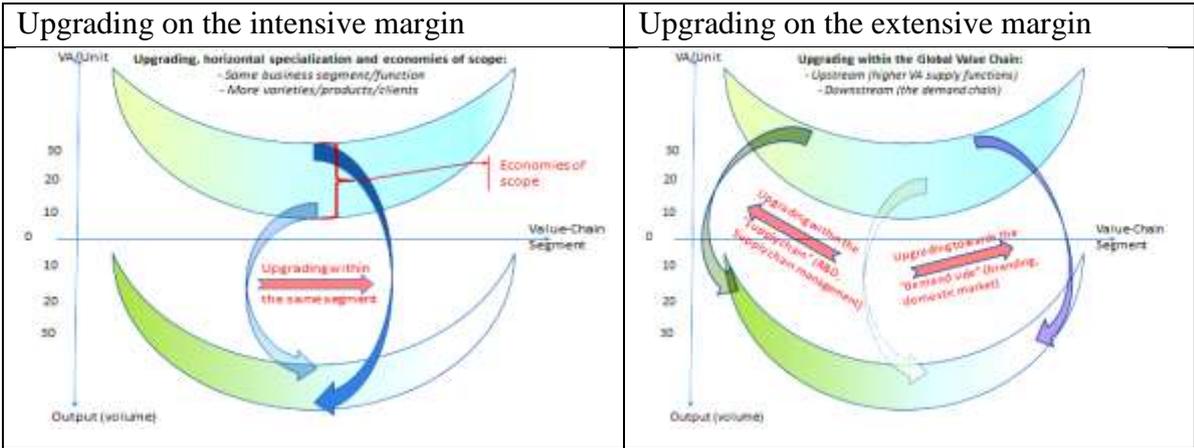
The Smiley Curve states that value-added depends upon tasks, or business functions, and that manufacturing today is at the bottom. High VA is found either upstream, at R&D and design, or downstream (marketing, distribution, after-sale services). But this traditional view forgets that in business, small margins can be more than compensated by high volumes. A large assembly company may only create 20 dollars value-added per smartphone assembled in its factories in China, but it makes millions of them; conversely, a start-up in Silicon Valley may make a lot of money with one patent, but not invent anything else after that.

**C. UPGRADING POLICIES: THE PRIVATE AND PUBLIC PERSPECTIVES**

The section will present from a conceptual perspective what are the objectives and issues at hand with up-grading, first from the firm perspective, then for the policy makers.

**a. Up-Grading from a Firm’s Perspective**

**Figure 6 Upgrading strategies**



Source: Author’s elaboration

Moving-up the value-chain (represented in the vertical axis of the upper “smiley face”) is often seen as “the” strategy for both firms and (developing) countries. This is nevertheless ambiguous at firm level, because there are two smiley faces which are possibly negatively correlated: the Unit-Value space (upper panel), the Quantity space (lower panel). On the left part of the upper smiley curve, we find design and R&D, typically low volume; on the right-hand side of the upper smiley curve, we have post-sale services, also with lower volume than manufacture production. Moving to R&D, branding or towards retail services may provide lower returns on investment; a firm invested in one segment may not have competitive advantage in other segments.

Moreover, as we seen, trade in tasks make easier to diversify, as different products may in fact require executing very similar tasks in their value chain. Thus, a firm can easily “jump” from one product to the other one, as long as the tasks required are of similar nature. What traditional trade economist would analyse as “extensive margin” diversification into new products may in fact be for a firm doing more of the same in terms of processes, but diversifying its markets and diluting its risks. When firms are trading in tasks, there is

therefore a grey area between the definition of intensive and extensive margins. Similarly, the traditional indicators of revealed competitive advantage (RCA) at country level may be misleading: China's and Mexico's high RCAs in high-technology products is reduced when only the domestic value-added content of trade is considered (WTO, 2013b).

On the other hand, the up-grading limitations that are present at the level of individual firms may not be binding at sectoral or macro-economic level: new business opportunities in a developing country may be created by the implantation of a large assembly plant, which may in turn sub-contract some activities to local firms. The potential for such diffusion will depend of the competitiveness of local firms and the lead firm's sector of activity; mining, agro-industries or electronic equipment offering opportunities which characteristics are specific to the respective industries.

The business perspective shows the limits of the value-added dimension when looking at profitability and investment decision. National accountants' value-added includes many elements that are actually costs for the firms (wages, taxes, even the part of the compensation for capital which corresponds to capital depreciation). Similarly, a high value-added per unit of output may not correspond to high-technology or to high quality jobs: the rate of value-added in traditional agriculture is close to 100%, because the monetary cost of inputs is nil. Eventually, what guides business decisions is net present value of expected cash-flows compared to the opportunity cost of initial investment plus non-financial considerations, such as strategic positioning in some key markets or, more recently, Corporate Social Responsibility. Those parameters do not coincide with value-added, creating a disjunctive between the respective logics of private and public decision making which may cause misunderstanding between these two players.

#### **b. Up-Grading and Economic Policy**

Firms looking for upgrading strategies have two different options opened to them: deepening at the intensive margin and diversifying at the extensive one. Actually, options open to firms may differ to those open to public policy makers and this is one of the most crucial distinction to be made when looking at the practical implications of GVC trade for development policies.

The objectives, strategies and challenges are different for the public policy maker. Job creation, rather than return on investment, is often the main objective. This is particularly true when the economy is still in its industrialization phase and needs to provide job opportunities to its rural migrant or the informal urban workers.

Combining the business-oriented GVC strategy with the job-maximization of policy makers is best understood from the inter-industrial linkages perspective and the development of industrial complementarities. Productive complementarity arises when the production of one good or service requires intermediate inputs that can be competitively produced by second-tiers domestic suppliers rather than being imported. Complementarities can be found when developing both forward and backward linkages.

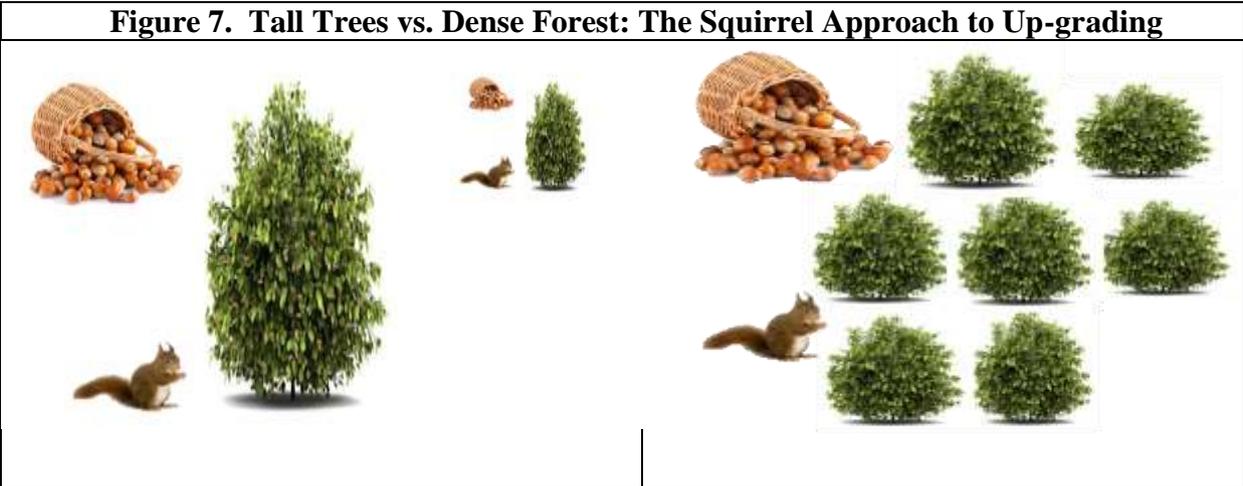
A forward linkage deals with the subsequent stages of the value chain (between the first-tier supplier and the final demand); a backward linkage is created when the first-tier supplier domestically purchases intermediate goods and services necessary for the production of its output. At sectoral level, those upstream and downstream complementarities (and business opportunities at micro-level) are captured by the input-output model. What the double-Smilely allegory and the review of relevant literature and development economics have to say is that

upstream and downstream linkages in value chains do matter when looking at the domestic impact of an increase in external demand

Referring to the matrix presentation of the trade in tasks, creating a new domestic forward linkage would be like substituting a foreign market for the output and moving part of the extra-diagonal values on the horizontal line to the diagonal cell. Similarly, fostering backward linkages would bring some of the extra-diagonal values of the vertical column into the diagonal element. Moreover, as we seen, trade in tasks make easier for firms to diversify into new products, as different products may in fact require executing very similar tasks in their value chain. Thus, a firm or an industry can easily “jump” from one product niche to another one, as long as the tasks and skills required are of similar nature. But some activities may be more promising than others, and the policy maker may wish to know what sectors provide more opportunities.

To formalise this relationship, development economists borrowed from the network sciences to define the concept of Product Space (Hidalgo et al., 2007). This is a network approach to trade by product grouping, similar to the idea of revealed comparative advantages. Countries export products for which they have comparative advantages, but not all products have the same potential for export diversification at the extensive margin (*id est*, with new products or markets). Being able to diversify into new products depends not only of the relative situation of the developing country from the production frontier, but also the easiness of moving to other products (connectedness).

Some areas of the product space are denser than others, and transition is easier. In a trade-in-task perspective, the product-space analysis should be done substituting products for tasks or business functions. A GVC niche can be promising either because it leads to high value-added per unit of output or high volume of activity. This will be called tall trees offering by themselves lots of opportunities for grabbing value-added from the same niche. But a GVC niche can also be promising because it helps to easily connect to neighbouring trees. Jumping from tree to tree would allow more value-added nuts to be collected. To my knowledge, no such analytical extension has been performed yet, probably because the statistical information relative to the business dimension of trade in tasks still remains to be compiled and harmonized at international level.



For development economists, this squirrel strategy reminds Hirschman’s early work (1958) on unbalanced growth. Indeed, task up-grading within global value chains at the extensive

margin have many points in common with “densifying” the domestic network of intra-industrial linkages. Yet, at the difference of ISI strategies, the policy makers have to keep in mind two additional dimensions that are proper to GVCs. The first, and obvious one, is that GVCs are international by nature: substitution can only take place if the domestic alternative is competitive at international prices and not at domestic one, thanks to, for example, escalating tariffs. Industrialists who process imported inputs will not purchase lower quality or higher priced alternative offered by domestic suppliers. The second difference relates to the governance aspect of GVCs. GVCs are often characterised by a monopolistic structure, especially when they are active in high-technology segment (aeronautics, medical equipment) or in highly differentiated mass production markets such as automobile (Milberg and Winkler, 2013). The governance structure of the value-chain and the lead-firm strategy may condition the possibility of external suppliers in entering into the supply chain.

When ISI policies worked, they meant building the whole supply chain at home. This strategy, nevertheless, was not feasible for smaller developing countries due to the reduced size of their domestic market and the anti-export bias proper to these industrial strategies. Resource-based industrialization (RBI) has also clear limitations because there is little scope for developing fully-fledged upstream or downstream industries with the necessary scale to reach international competitiveness and keep up with the innovation race. For these smaller economies, therefore, industrialization through GVCs are a good piece of news because make possible obtaining economies of scale within specific segments of the supply chain, irrespective of the size of their domestic market.

Following Low and Tijapa (2013), smaller economies are therefore constrained to industrialize through export-oriented industrialization and its ‘poor’ cousin, the export processing zones (EPZ). For lesser advanced countries, especially when they lack the proper infrastructure services to support productive and logistic activities, EPZs are a good way for joining GVCs. EPZs concentrate in a defined territory the required physical and regulatory conditions for the successful operation of export-oriented activities. But, while they can play a determining role as incubators, from a development perspective, successful EPZs are those that escape from the enclave and generate upstream and downstream opportunities for other domestic firms. This may require additional, and more horizontal, types of economic policies.

As stated by Baldwin (2012), building and joining a supply chain are different. For smaller economies, joining a supply chain is almost by definition finding a niche market. But building an industrial basis out of GVCs requires additional effort. While each strategy is context-specific, one can delineate a few recommendations. First, to be successful, the new ‘development policies’ have to solve a paradox: one the one hand, the policy should be cross-sectoral, because value-chains involve firms from diverse productive sectors, from agriculture to industry and services; on the other hand, the approach has to be much more granular than the horizontal approaches. In particular, public policies must have a close link with the microeconomic and the business perspectives, without falling into the ‘pick-the-winner’ temptation. The GVC-friendly policy is therefore based on a double articulation:

- dialogue between public and private actors, to identify main bottle necks and define priorities;
- dialogue between the central administration and the local levels of governments. Involving the territorial dimension in the GVC strategy is critical for avoiding the persistence of 'enclaves', like export processing zones, and for facilitating the incorporation of more domestic firms in the value chain. One of the important

conclusions of GVC is that the domestic content of exports is determined not only by the first tier exporters, but also by their network of domestic suppliers, often small and medium firms.

From the specific perspective of small developing countries, the public-private dialogue is probably much easier due to the closer relationship enjoyed in small communities, which favours the building of mutual trust and informal dialogue. At the contrary, the potential for developing long domestic value chains is objectively limited by the reduced number of existing firms with the sufficient size to join GVCs. Actually, even the largest firms operating in smaller developing countries are small and medium firms by international standards. On the other hand, the opportunities for developing around the core block of first-tier suppliers, directly involved in the GVC operation, a network of second-tier business service providers should not be dismissed.

A micro-perspective calls for detangling comparative advantage from competitive advantages, innovation and upgrading. Michael Porter's approach to industrialization, often referred to as the "cluster" approach, suggests that public and private actors can and should pursue cooperative strategies to foster industrial clusters and create high-value products that can sell on the international market. Porter (1985) distinguishes between primary activities and support activities. Primary activities (inbound logistics, operations, outbound logistics, marketing and sales, and service) are directly concerned with the creation or delivery of a product or service. Each of these primary activities is linked to support activities (human resources management, finance, logistics, etc.) which help to improve their effectiveness or efficiency.

To include the particular design of GVCs, this 'cluster' approach should also include transnational lead-firms in their cooperative strategy.<sup>3</sup> As stated by Gereffi (1999), moving in and up into GVCs require fitting into existing corporate strategies and establish close linkages with the foreign lead-firms. This may be conflictive at time, as lead-firms tend to impose asymmetric market relationship, retaining control over the higher value-added activities. In their critical review of the upgrading opportunities offered by GVCs, Milberg and Winkler (2013) highlight the oligopolistic nature of GVCs that can constitute significant barriers to entry or reduce, after joining, the opportunities for developing countries' firms to diversify away from the low value-added segments.

Yet there are examples showing that this is possible, even for smaller economies that have little bargaining power. Costa Rica is probably one of the best examples of a small country (less than 5 million habitants) which was able to attract high technology investment in electronics, than diversify into other high skill activities, ranging from medical equipment to aeronautics and related services. In this case, foreign direct investment (FDI) was the acting ingredient, while public policies were the enabling factors. FDI by large MNEs were of the green-field type, mostly oriented towards efficiency-seeking greenfield operations. Intel's decision to establish production facilities in Costa Rica in 1998 was a quantum leap for this economy, previously exporting mainly coffee and other agricultural products. Public policies, on the other hand, played a critical role in that shift, as the country has adopted, since the mid-1980s, a development strategy based on export promotion and attraction of FDI (Monge-González and Zolezzi, 2012). Most part of the Costa Rica strategy for attracting FDI and GVCs was based on policies close to what Low and Tijapa (2013) define as export-oriented

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<sup>3</sup> At the difference of previous ISI strategies, which either tried to displace foreign firms products from the domestic market place or lured them to invest in the country by offering protectionist rents

industrialization, with an additional component of focused EPZs to procure a supportive tax regime and structural horizontal policies aimed at improving the institutional environment and the human capital pool of potential workers.

More generally, what are the policies that can attract GVCs? Available surveys made in developing countries show that if labour cost is a comparative advantage, international competitiveness in attracting FDI and global supply chains goes much further than cheap labour. Wignaraja (2013) mentions that, even if large-scale and foreign ownership (two characteristics that are probably correlated) matters for entering GVCs, SMEs can improve their possibility for joining GVCs by investing in human capital and better technology. Management style must also matter, as the author mentions that younger firms are more likely to join production networks.

According to a WTO-OECD opinion survey (WTO, 2013a), for lead-firms, the stability of policy environment and the easiness of doing business, including logistic services, are key factors. Domestic firms do also refer to trade facilitation as an important dimension of their capacity to enter into international sub-contracting arrangements. All firms mention the scarcity of skilled workers as a critical constraint. The Annex presents an overview of the results of this survey realised to lead firms, domestic suppliers and main governmental and non-official stakeholders in Least Developed Countries, most of them being characterized as small countries, either on the basis of their population or for the shallowness of their domestic market.

As expected, the small size of the economy remains an obstacle, either because it limits the business possibilities, but also because it puts a limit to recruit skilled workers. Inadequate infrastructure and financial services are also often mentioned as limiting factors. Trade facilitation, labour force training and improved public-private dialogue are among the most cited areas where government support could be most effective. Interestingly, lead firms often facilitate supplying firms to comply with government directives, private standards and codes of conduct; moreover, they regularly apprise its suppliers along the supply chain of such standards. As far as public policy makers are concerned, most respondents identified "adding value to exports" as the most important government trade policy objective. Besides, addressing export competitiveness issues, developing new products and markets and promoting an enabling business environment figure high among the top priorities.

#### **D. SUMMARY AND CONCLUSIONS**

Global Value Chains bring two dimensions in the trade and development policy debate. While the debate is relevant for all countries, be they developed or developing, the opportunities – and therefore the challenges—are greater for the smaller developing countries:

(1) ***The international dimension:*** how do national economies connect to the global production network, what are their comparative advantages in the new international economy and what is the role of trade policy in its three dimensions (domestic reforms, regional integration and multilateral trading system).

(2) ***The domestic dimension:*** how GVCs change the way we understand economic policy? Is upgrading always desirable for a firm? How can we upgrade in value-chains and increase the content of domestic value-added? Is there a role for industrial policy? If yes, what kind of policy? How to avoid conflict between the interest of the firms and the objective of the policy makers?

- The international dimension

Today's economies connect to the rest of the world differently than before. Trade in final goods is replaced by trade in value added, trade in tasks. Actually, what is traded is no more final products but production factors: labour, capital services, know-how, patents and intellectual property. Another important stylised fact is that trade is closely linked to investment and the organization of production. Today's comparative advantages are linked to the productive complementarity with lead firms (supply chain perspective) but also the capacity to produce different quality and different variety of what the lead firms produce. This creates enormous opportunities for small developing countries as they do not have to compete against more advanced countries to create a market niche; for example, Cambodia does not have to displace Italian designers' cloths when it sells apparels, as they belong to two different market segments.

Because of the trade-investment nexus, comparative advantages within GVCs are not only on production costs, because trade relationships in GVC are more of long term nature than they were in the past. The role of international commitments to reduce uncertainty cannot be overstated. The example of China and the boom in her exports after entry in WTO is the clearest example of the role of rule-based trade-cum-investment. Similarly, reducing the cost of trading is particularly important when trade is organized along global value chains, because goods in process will have to cross several borders before reaching their final destination.

Tariff barriers are one of these costs, but the non-tariff costs are today much higher than tariffs (Escaith and Inomata, 2013). Trade facilitation is a key dimension of trade policy today to improve competitiveness, and Aid for Trade can help lesser developed economies in incorporating themselves into the global production network, by simplifying administrative procedures and reducing not only the monetary cost of trading but also (and perhaps more importantly, in a world of just-in-time production models) the time required to deal with procedures.

Because many of the regulations to be negotiated go beyond purely border trade facilitation, to include investment facilitation and regulatory coordination, it is easier to negotiate in a regional rather than international perspective. But even if supply chains are often regional, they produce for the world market and it is important to keep the various regional arrangements in harmony with the multilateral system

- The domestic dimension: how GVC change the way we do economic policy?

While most government authorities and many analysts state that upgrading towards more value-added segments of the value chain is the way to go, this is not always necessarily the case for individual firms and may even not be a social priority at the earliest stage of economic development.

For a firm, the important criterion is to produce return on investment, and this may be achieved through different strategies. Upgrading by diversifying into higher value-added segments is one strategy, but the strategy is risky for a single firm, especially from a developing country: not everybody can establish its own brand recognition and capture a market niche of its own in the international market. Similarly, when looking at the upstream part of the value chain, not everybody can be a successful and sustainable innovating firm. Rather than diversifying, a safer option is often to look at economies of scale and scope at the

intensive margin, that are often much easier for a firm: concentrate on its core business and compete with low margin but high volumes.

Moreover, from the public policy perspective of a small and developing country, high volumes, even at the lower end of value-added may also be a desirable outcome: in many lesser developed countries, there is a situation of underemployment of unskilled workers. One of the priorities is therefore to provide enough low-skill employment opportunities for the mass of unemployed urban youth and the rural migrants. In the language of public choice, the social value of a low-skill job is higher than its economic value added.

This said, despite pressing social demand in most LDCs, it is obviously very important to prepare for the future. Because GVCs increase also demand for higher skills and the availability of skilled workers is a clear determinant in the decision of lead firms to invest in a country. Thus there is definitely a role for a new type of 'industrial policy', in addition to the horizontal type of reforms promoting a better institutional environment for trade and investment or investment in transport and telecommunication infrastructure.

On developing the domestic segment of global value chains, a lot can be learned from the numerous experiences of developing local industrial clusters inspired by the work of Michael Porter in the late 1980s. This calls also for extending the concept of 'trade facilitation' to the domestic market: in a GVC perspective, second-tier domestic suppliers have to be internationally competitive in cost, quality and time of delivery. Increasing upstream and downstream linkages can only be done if domestic trade is easy. Unfortunately, in many lesser developed countries, communications with the *hinterland* are often more difficult than with far away international markets.

The type of policy decisions encompasses many dimensions: international, national and territorial; economic, financial and social; public and private. But in most developing countries, decision makers lack the proper information to guide their choice.

Existing statistics are often unable to provide the basic data to orient the analysis and the decision making. As stated in Jara and Escaith (2012), informed debates and policy making should be based on appropriate information, and we are still far from having access to the necessary data, especially in developing countries. Developed countries are compiling detailed information on trade by firm characteristics, based on the rich and detail stock of data stored in their administrative registers. For lesser developed countries, the way to go is to start from the macro-picture then move from the general to the specific. Using data usually compiled to prepare national accounts, international input-output models such those developed by IDE-JETRO or OECD-WTO allow mapping the exchange of sectoral value-added and modelling a series of important development-related impacts like employment and demand multipliers. The next step is to disaggregate as much as desirable this macro perspective to understand the heterogeneity of firms active in the export sector, complementing the sectoral dimensions should be complemented by business surveys to provide decision makers from feed-backs from the actors that are directly involved in producing and marketing goods and services. Here, the small size of the lesser developed countries is an advantage: due to the small number of firms actually involved in external trade, compiling representative statistics can be done easily and at little cost.

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## ANNEX

This annex deals with the obstacles that LDC firms have in connecting to value chains is based on WTO (2013a) which builds on an analysis of the OECD-WTO monitoring and evaluation exercise based on surveys of the donor and partner communities as well as the private sector. It draws intensively on a more comprehensive report to be presented at the 4<sup>th</sup> Global Review of Aid for Trade: Connecting to Value Chains (WTO, 8-10 July 2013). Many government trade strategies include the identification of trade opportunities, with a view of facilitating their firms' participation in the export value chains.

**Table A.1: LDC partner countries' trade priorities**

| <b>What are your government's priorities to expand export of goods and services? Please rank these objectives by order of importance (1 being the most important)</b> |    |   |    |   |    |    |                |
|---|----|---|----|---|----|----|----------------|
| Answer Options  | 1  | 2 | 3  | 4 | 5  | 6  | Response Count |
| Adding value to your exports  | 20 | 4 | 3  | 5 | 1  | 0  | 33             |
| Addressing export competitiveness issues  | 5  | 7 | 11 | 4 | 6  | 1  | 34             |
| Developing new export markets   | 3  | 9 | 3  | 9 | 2  | 6  | 32             |
| Developing new export products  | 3  | 8 | 9  | 4 | 3  | 3  | 30             |
| Promoting an enabling business environment  | 3  | 4 | 7  | 6 | 13 | 0  | 33             |
| Promoting specific trade policy objectives or agreements (e.g. Free Trade Agreements)   | 2  | 0 | 0  | 3 | 5  | 19 | 29             |
| Total LDC partner respondents   | -  | - | -  | - | -  | -  | 36             |

Among the main obstacles that LDC firms face in connecting to value chains, more than half the partner countries believe inadequate domestic infrastructure as the foremost issue. Issues regarding access to trade finance and compliance of SPS or technical standards are also serious obstacles that their firms face.

| <b>Table A.2: What do you consider to be the main obstacles to greater participation of your companies in value chains? Please rank the top 3 constraints (1 being the most serious constraint).</b> |    |   |   |                |
|--|----|---|---|----------------|
| Answer Options   | 1  | 2 | 3 | Response Count |
| Inadequate domestic infrastructure   | 19 | 6 | 1 | 26             |
| Limited access to trade finance  | 6  | 7 | 4 | 17             |
| Standards compliance   | 2  | 6 | 9 | 17             |
| Lack of comparative advantage  | 3  | 1 | 7 | 11             |
| Market entry costs   | 2  | 4 | 1 | 7              |

Value chains are inherently sector-specific, however, there are cross-cutting conditions across sectors that determine firms' abilities to economically upgrade and connect to value chains. Support through better market access feature high among LDC suppliers (73%) as well as among lead firms (44%). Both sets of firms also cited investment in infrastructure as one of the top areas where support would be most effective. A major obstacle for LDC suppliers across the sectors was that of access to trade finance and 56% of LDC suppliers would like support in this area. Lead firms, on the other hand, cited trade facilitation measures (44%) as the most crucial area where support would be effective in bringing LDC suppliers into value chains. Other major areas of support cited are in labour force training (51% LDC suppliers) and improving public-private dialogue with national authorities (43% Lead firms).

**Table A.3: Barriers for LDC firms to enter the global value chains**

| LDC Suppliers   |                  |                | Lead Firms   |                  |                |
|---|------------------|----------------|--|------------------|----------------|
| What type of support would be most effective in helping you enter, establish or move up value chains? Top 5 issues. |                  |                | What type of support would be most effective to bring new developing country and LDC suppliers into your value chain(s)? Top 5 issues. |                  |                |
| Answer Options  | Response Percent | Response Count | Answer Options   | Response Percent | Response Count |
| Better market access  | 72.5%            | 58             | Trade facilitation measures to streamline customs bureaucracy and border delays  | 44.1%            | 94             |
| Better access to finance  | 56.3%            | 45             | Better market access   | 43.7%            | 93             |
| Incentives for investment (domestic and foreign)  | 51.3%            | 41             | Better public-private dialogue with national authorities   | 42.7%            | 91             |
| Labour force training schemes   | 51.3%            | 41             | Investment in infrastructure (road, rail, port, airport capacity)  | 42.3%            | 90             |
| Investment in infrastructure (road, rail, port, airport capacity)   | 46.3%            | 37             | Support to improve business environment  | 34.3%            | 73             |

Besides positive and negative aspects determining investment and business decisions, the WTO-OECD Survey also sought to identify the activities that the private sector itself could undertake to better integrate developing country suppliers into value chains. A majority of firms felt that joint public-private training would be the best way for the private sector to engage in trade and development issues. This was closely followed by lead firms ensuring compliance with labour and environmental rules (141 lead firms), and through each company's corporate social responsibility (CSR) agenda (140 lead firms).

Lead firms are increasingly looking at the concept of "shared value" that encompasses enabling local cluster development, redefining productivity in the value chain, and by reconceiving products and markets (Porter and Kramer, 2011). This has broadened the traditional thinking of Corporate Social Responsibility (CSR) activities, with a more nuanced understanding of economic value and societal progress. Highlighting the cooperative business strategy that glue together lead and supplier firms in a GVC, many lead firms have stated that they facilitate supplying firms to comply with government directives. This is a win-win strategy, as it will eventually enhance the competitiveness of the lead firm itself. An interesting response has been the participation in business to business schemes (21%) whereby lead firms implement private standards and codes of conduct and regularly apprise its suppliers along the supply chain of such standards.

The next sections present more detailed results for some sectors of particular interest to least developed countries: agri-food and textile & clothing.

- **Agrifood value chains and LDC firms**

Modern agrifood value chains are characterized by vertical coordination, consolidation of the supply base, agro-industrial processing and use of standards throughout the chain. However, LDC suppliers face significant hurdles in all the stages entering or moving up the value chains. The table below enumerate what they as well as global or regional lead firms perceive as the major hurdles for LDC firms to connect to value chains.

On the supply side, the issue of access to finance (75%) figures most prominently as a national supply-side constraint for LDC firms. Short supply of labour skills (53%) is another important national constraint for firms in connecting to agrifood value chains. Infrastructure bottlenecks like inadequate cold storage (47%), transport (47%) and irrigation (41%) have also been cited by LDC suppliers as major supply-side constraints. On the "positive" factors motivating their business decision, Lead firms mentioned the ability of suppliers to consistently meet product specifications as the most positive factor (58%). Cost factors considerably influence sourcing and investment decisions of lead firms: corruption and graft (53%), high transportation and logistics costs (51%), opaque business and regulatory environment (48%) and customs delays (39%).

**Table A.4: Barriers for LDC Firms to enter the Agrifood Value Chains**

| <b>LDC SUPPLIERS</b>   |           |                | <b>LEAD FIRMS</b>  |            |                |
|--|-----------|----------------|--|------------|----------------|
| <b>What difficulties do you face in entering, establishing or moving up agrifood value chains? Top 5 issues.</b> |           |                | <b>What are the most typical difficulties that you face in bringing new suppliers from developing or LDCs into your supply chain(s)? Top 5 issues.</b> |            |                |
| Answer Choices   | Response% | Response Count | Answer Choices   | Response % | Response Count |
| Access to business finance   | 84.38%    | 27             | Customs procedures   | 50.6%      | 41             |
| Transportation costs   | 62.50%    | 20             | Transportation costs and delays  | 40.7%      | 33             |
| Certification costs  | 53.13%    | 17             | Export or import licensing requirements  | 37.0%      | 30             |
| Access to trade finance  | 53.13%    | 17             | Inability to meet agrifood safety standards  | 32.1%      | 26             |
| Inadequate maritime transport and port capacity  | 28.13%    | 9              | Import duties  | 30.9%      | 25             |
| Lack of transparency in regulatory environment   | 25%       | 8              | Inadequate airport, maritime or transport capacity or links  | 30.9%      | 25             |

Unfortunately for smaller countries, lead firms also prefer to source from, or invest in markets that are typically big (38%), on the other hand, a smaller market size is seen as a negative factor. The findings on lead firms' sourcing decisions are corroborated by LDC suppliers. According to the responses from LDC firms, the ability to meet quantity requirements (76%), and quality and safety standards (70%) at a lower production costs (58%) are the most important factors that helps them connect to value chains.

#### - **Textiles and Apparel value chains**

The textiles and clothing sector have played crucial role for many developing countries in the initial stage of their industrialization. The abundance of low-cost labour and the relatively limited capital and technology required in the production of clothing obviously made this sector attractive in many developing countries. It also became one of the major outsourced industrial activities from the advanced economies. Production of clothing is highly globalized and fragmented.

| <b>Table A.5: LDC Suppliers:</b>   |                  |                | <b>Lead Firms</b>  |                  |                |
|--|------------------|----------------|--|------------------|----------------|
| <b>What difficulties do you face in entering, establishing or moving up textiles and apparel value chains? Top 5 issues.</b> |                  |                | <b>What are the most typical difficulties that you face in bringing new suppliers from developing or LDCs into your supply chain(s)? Top 5 issues.</b> |                  |                |
| Answer Choices   | Response Percent | Response Count | Answer Choices   | Response Percent | Response Count |
| Customs paperwork or delays  | 57.14%           | 4              | Customs procedures   | 46.9%            | 15             |
| Inadequate transport infrastructure capacity or links  | 57.14%           | 4              | Inadequate transport capacity or links   | 37.5%            | 12             |
| Access to trade finance  | 42.86%           | 3              | Export or import licensing requirements  | 34.4%            | 11             |
| Inadequate or unreliable power infrastructure  | 42.86%           | 3              | Import duties  | 34.4%            | 11             |
| Shipping costs and delays  | 28.57%           | 2              | Inability of suppliers to meet delivery times  | 34.4%            | 11             |
| Supply chain governance issues (e.g. anti-competitive practices)   | 28.57%           | 2              | Shipping costs and delays  | 31.3%            | 10             |

LDC suppliers as well as lead firms responding to the WTO-OECD Survey considered customs procedures and delays (57%, 47%) and inadequate transport capacity or links (57%, 38%) as the two main hurdles in connecting LDC firms to value chains. LDC suppliers further identified access to trade finance (43%), and inadequate or unreliable power infrastructure (43%) as barriers they face. Lead firms identified export or import licensing requirements, import duties and inability of suppliers to meet order delivery time (34% each) as other important hurdles in bringing new LDC suppliers to the value chain.

Textiles and apparel manufacturing is fairly labour-intensive and as such labour force skills (63%) and labour force turnover (50%) have been cited by LDC suppliers as major supply-side constraints. Poor supply chain management (63%) and domestic business environment (50%) are also cited as major supply-side constraints at the national level that impede LDC Suppliers ability to connect to textiles and apparel value chains.

**Table A.6: LDC Suppliers**

**What are the main NATIONAL SUPPLY-SIDE CONSTRAINTS that affect your ability to enter, establish or move up textile and apparel value chains? Top 5 issues.**

| Answer Choices                  | Response Percent | Response Count |
|---------------------------------|------------------|----------------|
| Labour force skills             | 62.50%           | 5              |
| Poor supply chain management    | 62.50%           | 5              |
| Domestic business environment   | 50%              | 4              |
| Labour force turnover           | 50%              | 4              |
| Unreliable power infrastructure | 37.50%           | 3              |

Lead firms in the textiles and apparel value chain were asked to enumerate the top factors that positively and negatively influence their decisions in sourcing and investment in their supply chain. While cost factors such as low cost of production (49%), low labour cost (40%) positively influence sourcing decisions, high transport and logistics costs are cited as negative factors. Equally important are suppliers' ability to consistently meet product specifications (47%) and a short lead time, or manufacturing order completion time (46%). Some policy-related hurdles such as customs delays (47%), uncertainty in trade regime (36%), and business and regulatory environment (33%) figure prominently as negatively influencing sourcing or investment decisions.

**Table A.7: Lead Firms**

**What factors most POSITIVELY influence sourcing and investment decisions in your supply chain(s)? Top 5 issues.**

| Answer Options                                      | Response Percent | Response Count | Answer Options                      | Response Percent | Response Count |
|---|------------------|----------------|-------------------------------------|------------------|----------------|
| Ability to consistently meet product specifications | 48.6%            | 17             | Customs delays                      | 47.2%            | 17             |
| Production cost                                     | 48.6%            | 17             | High transport and logistics costs  | 47.2%            | 17             |
| Short manufacturing order completion times          | 45.7%            | 16             | Uncertainty in trade regime         | 36.1%            | 13             |
| Labour cost   | 40.0%            | 14             | Business and regulatory environment | 33.3%            | 12             |
| Labour skills                                       | 34.3%            | 12             | Corruption and graft                | 33.3%            | 12             |

LDC suppliers, similarly cite ability to meet quality standards (75%), and labour skills and productivity (75%) as the most important factors that influence lead firms' sourcing and investment decisions. According to the LDC suppliers, production cost (63%) and low labour cost (50%), along with the business environment (50%) are other important factors.