An Analysis of the Garment Sector of Pakistan within a Global Value Chain Framework

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***Abstract*— The textile industry is Pakistan's largest and one of the oldest manufacturing industries. Widely available local cotton and continuous public support have been important factors in the growth of the textile industry. However, the garment sector in Pakistan is trapped at a low-equilibrium in a high value-added category—producing low-price items for mass retailers. The objective of this paper is to identify the main reasons for the relative stagnation and lack of competitiveness of Pakistan's garments sector in light of survey data collected form 234 garments manufacturers. We use Global Value Chain (GVC) framework to analyze Pakistan's garment industry. To come out of low-equilibrium and move up the garments value chain, the sector requires continual investment in state of the art technology, a trained workforce, and agglomeration economies or intra-cluster spill-overs.**

Keywords*— *Global Value Chain, Garment Sector, Garment Value Chain, Vertical Integration.

1. Introduction

The textile industry is Pakistan's largest and one of the oldest manufacturing industries. Hence, not surprisingly, textile has the greatest share, roughly 52%, in total exports of the country. It accounts for nearly 40% of the total manufacturing labour force, employing approximately 3 million people directly and 9 million people indirectly, and contributes 46% to the total manufacturing output of the country. Textile's value added in GDP is around 8.5%. Even with such a long mercantile history and contribution to the national economy the firms in the sector on average remain small. This is evident from industry's low market capitalization of only 8.3% out of the total capitalization of listed companies.

The textile value chain in Pakistan originates in cotton production, after which the ginned cotton is spun into cotton yarn or mixed with synthetic polymers to make synthetic fibers. The yarn is then woven or knit into fabric which is consequently used to make garments, hosiery, bed linen, towels, industrial textiles and the like. Pakistan has had a unique structure where it has built production capacity in all segments of the textile value chain however these capacities are not without their shortcomings.

Widely available local cotton and continuous public support have been important factors in the growth of the textile industry. Pakistan currently produces over 3 Million Kg of yarn out of which 18% is exported and the remaining is available for local consumption. Cloth production in the country is around 9,018 Million Sq. Meters out of which 25.5% is exported and remaining (74.5%) is consumed locally [1]. Even with this strong backend support and availability of raw material, moving up the value chain has not been as rapid or successful as many had hoped (cotton yarn and cotton cloth still form the bulk of Pakistan's textile exports). Though clothing exports constitute a significant proportion of Pakistan's export revenue, this sector has not progressed in tandem with international trends, especially if compared with the growth of similar sectors in other countries, such as Bangladesh and Turkey. This has contributed to a declining share of textile exports in overall exports of Pakistan as shown in the figure below.

The trends show that share of garments in total textile exports has been same over the last fifteen years. The shares of bed wear and hosiery on the other hand have been increasing but at a slow pace. Moreover, the evidence suggests that the elimination of the quota regime had no positive impact on exports in the value added segments of the textile value chain in Pakistan. The textile sector in Pakistan as a whole has declined post 2005. These trends are not similar to competing countries such as India, China, Turkey and Bangladesh which have seen their garment exports grow significantly over the recent years.

This is a cause for concern since it implies a failure of the industry to add value to cotton commodities and consequently, to earn greater export revenues. Moving from raw cotton to cotton fabric increases the price fetched by a bale of cotton by 400%, while moving from cotton

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fabric to garments further increases it by roughly 150% (ADB, 2010). Each bale of cotton that is not processed into garments and so stops shorts of the top stage of the value chain significantly lowers revenue for the industry, as well as resulting in lost employment potential. It is not surprising to see low dollar price fetched on average by Pakistani exports. Pakistan is consistently adding very little value to its production of cotton.

The evidence above and that referred to in existing literature suggest that there has been significant investment and development in the value chain up to the spinning stage in Pakistan, however, the latter stages have not developed sufficiently. Even though the readymade garment industry provides the highest value addition and employment generation in the textile industry it has not attracted a proportionate share of total investment.

The value chain of garments sector has given rise to many interesting questions pertinent to the division and devolution of core and non-core functions between supplying firms and lead firms. Lead firms handle core functions such as brand and product development while supplying firms, largely located in developing countries, are responsible for non-core functions like mass production and manufacturing. The Global Value Chain (GVC) can also be described as a vertical relationship between international retailers (buying house agents, buying houses, MNCs, and small buyers) and manufacturers at home.

The objective of this paper is to identify the main reasons for the relative stagnation and lack of competitiveness of Pakistan's garments sector. We use GVC framework to analyze Pakistan's garment industry. This is done by utilizing secondary and primary sources of information on the garments sector.

The primary analysis based on the GVC is done on a survey data of 234 garment firms across the major garment clusters in the country**.** The survey has been done exclusively for this particular study. The analysis of this data is subsequently carried out using GVC framework14. The methodology is discussed in Section 2 of this paper. The next section discusses results within the framework of GVC approach to identify and explain the positioning of the Pakistan garments manufacturers.

2. Methodology

2.1 Global value chain approach

Global value chain framework is widely used by different industries across the world. The value chain is particularly important for the garment sector since it forms vertical relationship between suppliers and manufacturers. Ref. [3] refers that the likelihood of global value chains existing is greater in industries that have low entry barriers to manufacturing, such as the garment industry, as there are more options for externalizing and finding suppliers globally.

Ref. [4] refers that transnational, Asian firms can play a pivotal role in modelling the geography and organizational restructuring of the global value chain. Drawing on secondary sources and primary research they illustrated how such firms manage complex international production linkages to enhance their exports worldwide. Ref. [5] refers a thoroughly reviewed existing literature on global value chain framework. The focus of their research was to measure outcomes of a global value chain configuration in terms of performance and upgrading and identify potential gaps in research.

The value chain of garments sector has given rise to many interesting questions pertinent to the division and devolution of core and non-core functions between supplying firms and lead firms. Lead firms handle core functions such as brand and product development while supplying firms, largely located in developing countries, are responsible for non-core functions like mass production and manufacturing. The GVC can also be described as a vertical relationship between international retailers (buying house agents, buying houses, MNCs, and small buyers) and manufacturers at home (Appendix 1).

With rising international trade and integration of markets, garment manufacturing has been off shored to different parts of the world. The garment manufacturing is based in labor-abundant countries like China, India, Bangladesh, Pakistan, Cambodia, and other Asian countries which export most of their products to US and European markets. The market outcomes (prices, degree of value-addition of products) from the relationship between supplying and lead firms are contingent upon the type and nature of GVC. The nature or governance structure of the global value chain, broadly in manufacturing products, and specifically within the apparel/clothing industry, can be categorized into five different types: markets, modular, relational, captive, and hierarchy [Figure 1 (a)].

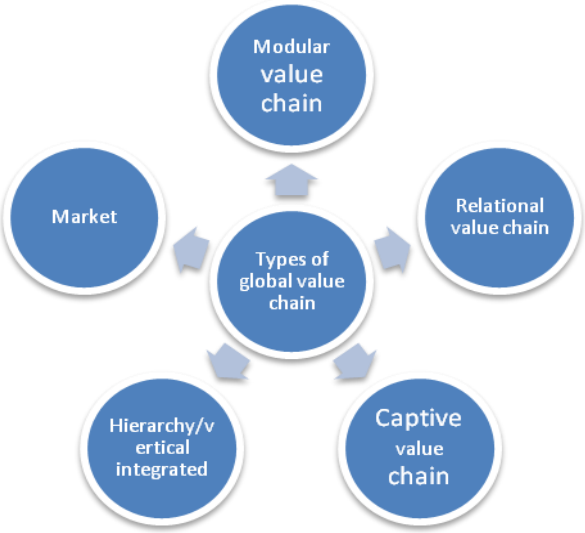


Figure 1 (a). Different types of global value chains
Source: "The governance of global value chain", by Gary Gereffi et al.,2005, *Journal of Political Economy*, 12(1) [2].

This governance structure of a global value chain is primarily determined by transaction costs along the value chain and the capabilities of supplying firms [Figure 1 (b)]. Transaction costs are essentially the costs incurred in the information and knowledge transfer between the lead and the supplying firms with respect to product and process specifications. These are dependent on both the complexity and codification ability of a particular transaction.

The GVC or vertical relationship of the garments/apparel industry has undergone significant changes with the increase in product standardization and development of production processes. This is due to the fact that the extent of standardization and the particular process of production require a certain degree of transaction and information costs for a given level of firm capability. Information regarding the quality, design, and other aspects of non-standard (more customized) products requires greater coordination and codification, which would lead to higher transaction costs. In contrast, a standard product can be produced with relatively less coordination and eventually with low transaction costs. The switching costs from one supplier to another for the lead firm increases manifold in production involving customized products.

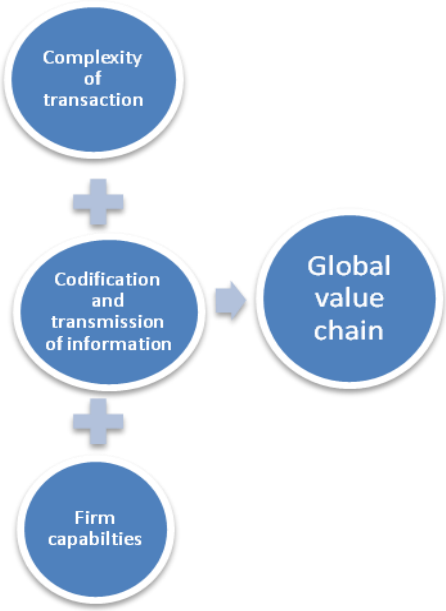


Figure 1 (b). Key determinants of the global value chain
Source: "The governance of global value chain", by Gary Gereffi et al., 2005, *Journal of Political Economy*, 12(1) [2].

The 'market' and 'hierarchy' structures are the two opposite extremes of the vertical relationship (Table 1). The hierarchy market structure is primarily found in a situation where the products are non-standard, capabilities of the supplying firms are low, and the transaction costs are high. In such a situation, lead firms would choose to develop products in-house [2]. On the other hand, when products are standard, transactions are easily codified, and supplying firms have the requisite capability, the vertical relationship takes the market form.

In between these two extremes (market and hierarchy) lie the captive, relational, and modular value chains with varying combinations of transaction and information costs and firm capabilities. In captive value chains, codification and the complexity of product specification is high but the supplier capability is low, thus requiring greater intervention and monitoring by the lead firms. In such a relationship the dependence of supplier firms on lead firms is high in terms, of technology up-gradation, design, logistics etc. This greater reliance on lead firms makes switching costs for supplying firms substantially high resulting in what is called a 'captive' relationship.

The relational value chain is when product specification cannot be codified, transactions are complex and supplier capability is high. It is marked by frequent interactions, and a reliance on reputation, among firms. A certain level of trust makes coordination smooth and easy for the lead firms. However, the contracting firms have to incur asset-specific investment in order to meet the lead firms' quality and design requirements. Due to the asset-specific investment, the codification of information becomes less challenging in relational value chain networks of firms. The modular value chain entails high ability to codify, greater complexity of transactions and high firm capability. The suppliers have the ability to produce according to the detailed specifications of the lead firms. In other words, various components of the products can be manufactured easily since the coordination and information about quality and design can be transmitted efficiently to various upstream firms.

The various types of value chains described above determine the bargaining power between the lead firms and the suppliers. The market structure of suppliers or local garment manufacturing industry is fairly close to a perfectly competitive market with little product diversification. The lead firms are primarily dominated by brands (product differentiation) with reputation and market power. These divergent market structures create an asymmetry in power relations between the suppliers and lead firms in the global value chain. However, the extent of market power of lead firms changes with different types of GVC. For example, the buyers bargaining power increases as we move down from market to hierarchy relation in the GVC (Table 1).

Table 1. Global value chain in clothing/apparel industry

Type of governance structure	Complexity of transaction	Ability to codify transaction	Capabilities in the supply base	Degree of explicit coordination and power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	↑
Relational	High	Low	High	↕
Captive	High	High	Low	↓
Hierarchy	High	Low	Low	High

Source: The governance of global value chain", by Gary Gereffi et al., 2005, *Journal of Political Economy*, 12(1) [2].

In the next section we use the global value chain framework described to both identify and explain the positioning of Pakistan's garment sector in the global apparel market.

3. Analysis of Firm Competitiveness in a Global Value Chain Framework

This section will discuss based on survey findings that: where does Pakistan's garment sector stand in the global value chain and why does it stand there? This comparative trade data analysis showed that Pakistan is stuck at a lower rung of the global value chain, manufacturing and exporting a narrow range of low value added garments. In this section, we corroborate that finding at the micro level by analyzing the survey data of 234 firms from two subsectors—knitwear and woven across the main garment clusters of Pakistan. Using key parameters such as branding, contracting, nature of clientele, average export price and firm strategy we determine Pakistan's position in the garments GVC.

The garment sector in Pakistan is trapped at a low-equilibrium in a high value-added category—producing low-price items for mass retailers. To come out of this trap and move up the garments value chain, the sector requires continual investment in state of the art technology, a trained workforce, and agglomeration economies or intra-cluster spill-overs. In addition, supportive government policies that improve business environment, infrastructure and trade facilitation are also critically important for the garment sector to climb up the value chain. The following section attempts to divulge the reasons behind the weak positioning of Pakistan's garment sector in the GVC by drawing into the firm level data collected in the survey. This will be done by analyzing firm level capabilities and transaction costs which are key determinants of the positioning of the garments sector in the GVC.

Firm level capabilities are affected by both internal and external factors. The major internal factors influencing firm capabilities within the garments sector are technology and labour skills. On the other hand, external factors range from clustering (agglomeration economies) to the business environment. Transaction costs measure both the complexity of information and knowledge transfer between lead and supply firm with respect to product and process specification, and, the extent to which information and knowledge can be codified and transmitted efficiently between lead and supplying firms. The data analysis conducted in this section is further substantiated by focus group discussions with relevant garments associations.

4. Why does Pakistan stand here?

A firm's capability and transaction costs determine the type of global value chain that it is involved in [2]. Firms build up capabilities through technological up-gradation, internal organization and cluster formation not only to shift up from low to high value-added products, but also to strengthen the bargaining power vis-a-vis international buyers by moving up from captive to more assertive market based global value chain. A firm's capability can be divided into internal (technology and skilled labor) and external capabilities (clusters and business environment). For given transaction/information costs, high capability firms move up from a low to high value-added stage by entering into design and product development services, and marketing. Low capability reduces the potential bargaining power of local firms with international buyers by leaving them in a captive relationship with low export prices.

5. Determinants of firm capability

5.1 Technology and Skilled Labor

The industrial sectors that are dominated by exporting firms are exposed to both competition and technological know-how in the global market. Over time, exporting firms learn faster than non-exporting firms about how to 'do things better', how to 'make better things', and how to improve through 'functional upgrading', that is, by moving into a higher value-added stage [6]. There is a rich literature on how firms in developing countries learn and innovate upon becoming part of a global value chain [7].

Given the indispensible role of this sector in the country's economy, it is unfortunate that technology is largely an ignored input, with the industry lagging behind its competitors due to a shortage of scientific and technological infrastructure and thus remaining one of the most labor-intensive sectors of the country.

The extent of technology development in Pakistan garments sector in terms of utilizing computer-aided design (CAD), computer numerical control (CNC) cutting and computer-aided manufacturing has been limited. The following discussion highlights how garments manufacturers in the survey assess their technological capability.

The argument that our technology development has been limited is supported by the survey findings which show that 75% of the firms want to upgrade to a higher level of technology while 23.9% are satisfied with the existing level. The majority of firms are eager to upgrade technology in both the woven and knitwear sectors as well as across firm size and geographic location. Interestingly, in all these categories, smaller firms are the most willing to upgrade technology indicating that these firms are fully aware of the limitations they face due to low levels of mechanization as well as the advantages that they could gain with updated technology. Across cities, about 88% of the small and medium firms in Faisalabad want to upgrade their technology as compared to 47% of large firms. The least willingness for technological uptake is found in Sialkot where only 59% of the small and medium, and 17% of the large firms seem dissatisfied with their current level of technology [Figure 2 (a)].

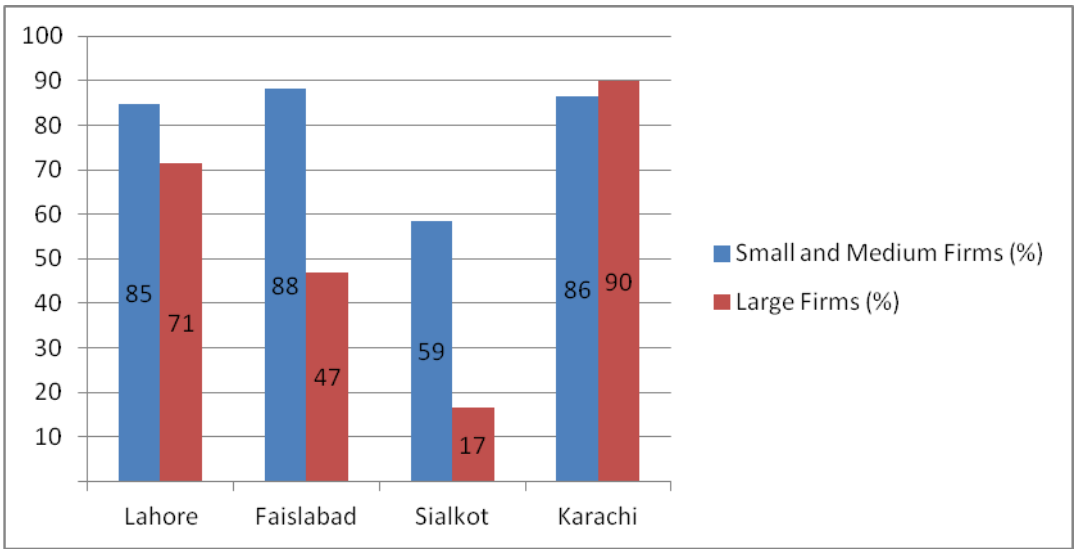


Figure 2 (a). Demand for technological up-gradation across size and cluster (%)
Source: LUMS and IGC Survey 2012-2013 [8]

Technology remains one of the most crucial barriers that impede the industry's potential for growth, competitiveness, and value addition. Excessive reliance on labor-intensive production techniques might hinder the performance of this sector, specifically its potential to grow on a global level.

5.2 Costs and obstacles in upgrading technology

Although majority of the surveyed firms want to upgrade their technology, the high costs involved act a major barrier to up gradation especially for smaller firms. Figure 2 (b) illustrates the fact that most firms (38.5%) consider their cost of upgrading technology to lie in the region of Rs 30 million to 49 million.

Disaggregating by firm size shows that smaller firms make up the majority of the firms which consider the costs of technology up-gradation to be over Rs 50million. This holds true for both sectors—in both woven (45.5%) and knitwear (44.4%) the highest percentage of firms facing costs greater than Rs 50 million are the smaller firms. This trend also continues across different clusters. The larger perceived cost of technological up-gradation by smaller firms is expected given that these firms currently operate at a relatively rudimentary or low technology level. This also emphasizes the fact that because of their small size, high costs and narrower margins smaller firms are unlikely to exploit the latest technological advances, thus inhibiting any increase in scale and productivity.

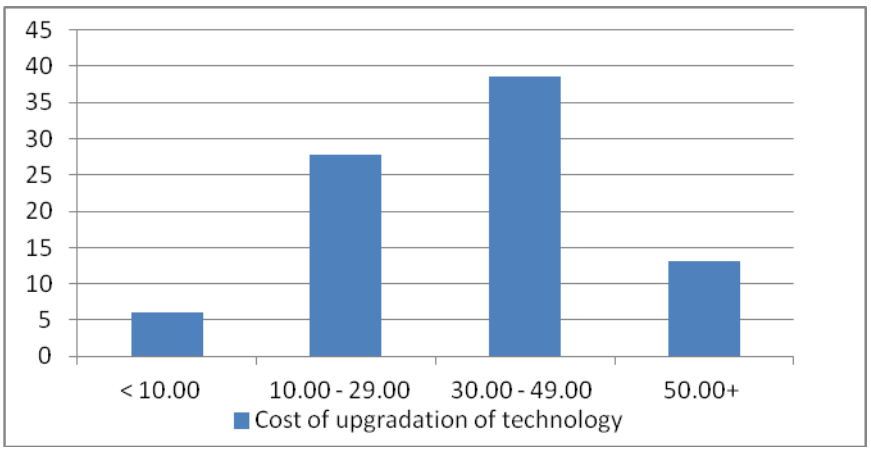


Figure 2 (b). Cost of upgrading technology (US $ Millions)
Source: LUMS and IGC Survey 2012-2013

Analyzing the main obstacles across sectors reveals that more than 80% of the small and medium firms across both sectors identify finance as the biggest constraint in upgrading technology [Figure 2 (c)]. In contrast, a smaller percentage of large firms (60%) across both sectors identified finance as the main constraint to technology up-

gradation. This clearly shows that small- and medium-sized firms compared to large firms have limited access to credit markets due to both high interest rates and collateral requirements.

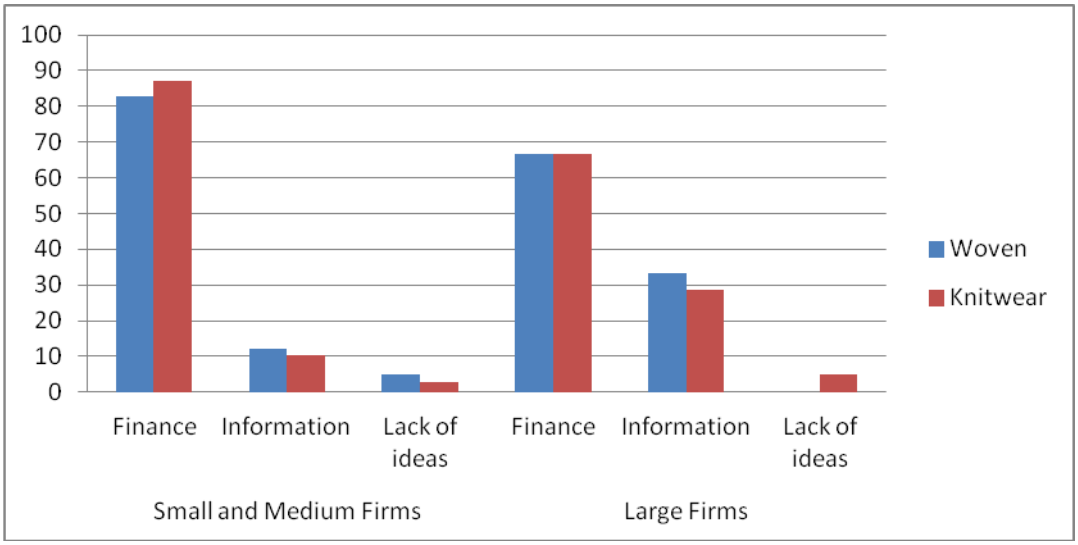


Figure 2 (c). Obstacles to upgrading technology
Source: LUMS and IGC Survey 2012-2013

5.3 Access to skilled labor

The garment industry of Pakistan is one of the most labor-intensive sectors of the country. For too long, the garments subsector has been perceived as a low-tech, unskilled labor-intensive activity, surviving on cheap labor. However, low wages will be of less importance in the future, and in its place skills and technological capabilities in clustered networks, investment in modern production facilities, development of training institutes, and quality of infrastructure facilities will decide which countries remain active partners in the global value chain and eventually increase their share in value-added products through design and brand development.

Table 2 (a). Work-force skill Profile in the Garment Global Value Chain [9]

	Formal Education Requirements (Range)	Training/Experience	Skill-Level	Required Skill-Set
CMT	No formal Education- High School Diploma	Experience with some technical training	Low-Medium	Sewing, cutting and pressing
Full Package Supplier /OEM	High School Diploma-Bachelor's Degree	Technical training and industry experience	Medium	Quality control, sourcing, purchasing and supply chain management
ODM	Bachelors-Masters Degree (Clothing design)	Technical Education/ training and experience	Medium-High	Designers, Fabric and Apparel Patten makers, Tailors, Dressmakers and Custom Sewers
OBM	Bachelors-Masters Degree (Business and Engineering)	Marketing specialization and Experience	High	General Business Skills, Branding and Marketing Skills

Source: Duke, Center on Globalization, Governance and Competitions

Pakistan is trapped in the production of low-price items in garment manufacturing. In most cases, production of such low-price items requires low-skilled workers and low technology. The low-skilled workers mainly need to know how to operate sewing machines, cutting and pressing equipment. At this stage formal education requirements are low. As countries upgrade to a higher value stage, the requisite labour skills also rise to more advanced levels in order to support new functions, such as logistics, finance, design and marketing. Full package suppliers require trained workers with knowledge of the industry for sourcing functions, while financial and logistics specialists are required for upstream and downstream activities. ODM and OBM have higher education requirements along with more advanced skills related to designing, marketing and consumer research. The description of skill level in the garment sector along with the value chain up gradation is given in the following [Table 3 (a)].

The workforce skill level in Pakistan garment industry falls in the low-medium to medium category of the value chain. Large firms in the knitwear sector in particular have no difficulty in acquiring workforce, with 100% reporting access. Analyzing across clusters shows that, across firm size, more than 80% firms had access to workforce [Figure 2 (d)], with the exception of small- and medium-sized firms in Karachi (70%).

5.4 Availability of worker training institute

Although firms do not face any issues in hiring workers in the low-medium to medium skill category, for greater value addition in the sector there needs to be a substantial improvement in worker skills. A major constraint identified by firms in the survey was the lack of technical and vocational training institutes for the labour force. The lack of availability of institutes is more severely felt by the small- and medium-sized firms, with less than 25% of the firms reporting the availability of a training institute, across both sectors size [Figure 2 (e)].

In contrast, a greater number of large firms claimed they have availability of training institute—55% in the woven sector and 40% in knitwear. Analyzing across cities reveals that less than 40% of the firms located in Lahore, Sialkot, and Faisalabad have the opportunity to train their workers, across firm size [Figure 2 (f)], with the exception of large firms in Sialkot (65%). In contrast, more than 90% of the firms located in Karachi (across size) have availability of a technical/vocational training institute. The lack of a skilled labor force is one of the most important factors hindering the garment sector from moving into the category of high value-added products. A skilled workforce has become a prerequisite for firms to climb up the value chain and enter the ranks of ODMs and OBMs.

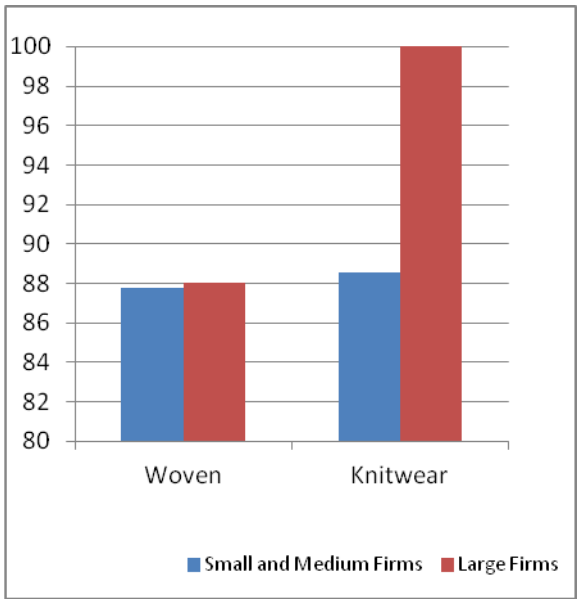


Figure 2 (d). Availability of skilled workers across sector and firm size (%)

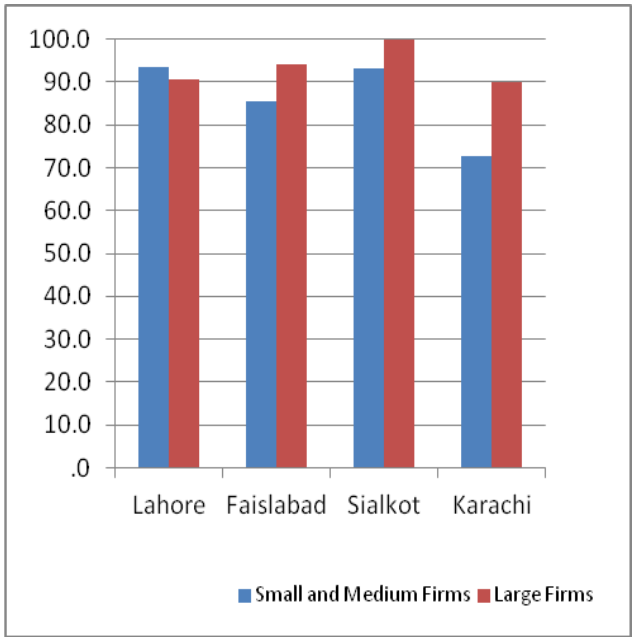


Figure 2 (e). Availability of skilled workers across size and cluster (%)

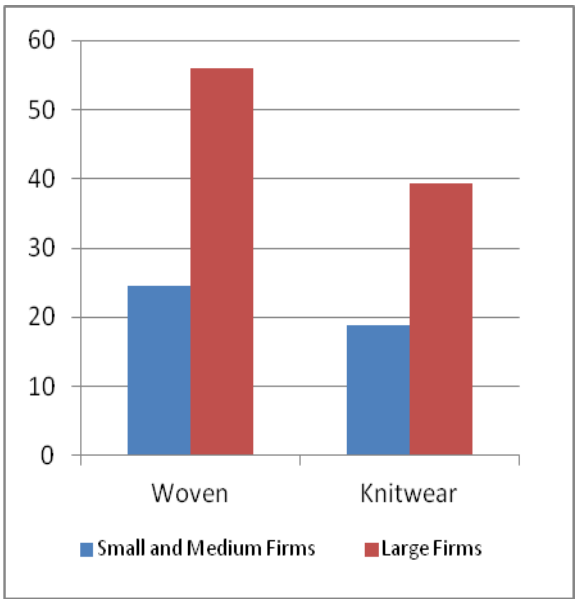


Figure 2 (f). Availability of training institute across sector and size (%)

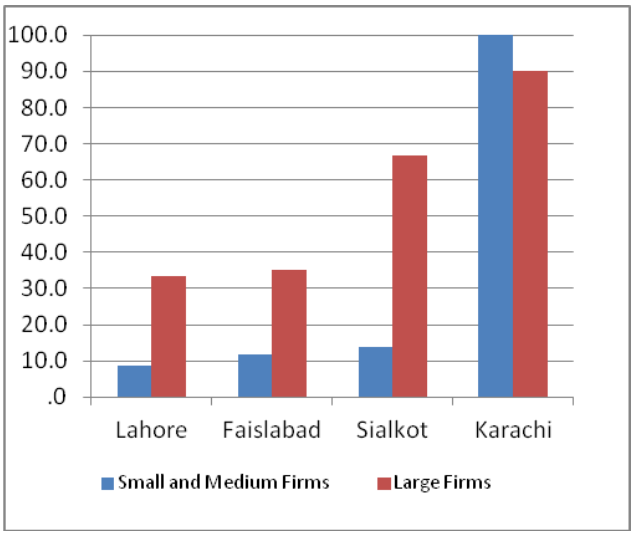


Figure 2 (g). Availability of worker training institute across size and cluster (%

Source: LUMS and IGC Survey 2012-2013

6. Clustering

In an export-orientated industry such as garments, the role of industrial clusters needs to be viewed in the context of a global value chain since clusters are inserted into the supply chain in different ways, and that has consequences for enabling local-level upgrading efforts [10]. Glocalization in the garment sector refers to the meaningful global integration of local sellers/clusters with international buyers. In other words, firms having strong backward linkages tend to formulate better forward linkages with international buyers.

The case of Thailand is particularly important, where cluster formation through glocalization not only increased industrial production but also helped the industry to connect with the global supply chain [11]. The majority of the garment firms in Pakistan did not reap the benefits through glocalization, however, a few firms were successful in tying up with global buyers to improve their performance and competitiveness by incorporating advanced technologies and organizational restructuring (US Apparel is one such example which is supplying to international brands such as Levi's, GAP, Tommy Hilfiger, etc.). China took the lead in creating technologically absorptive clusters by regional relocation and moved up the value chain; however, in Pakistan, owing to external and internal constraints, firms have not been able to reap the benefits from cluster formation and hence remain at the lower rung of the value chain.

There are numerous constraints on the growth of clusters in Pakistan, for instance, Karachi is identified by firms in the survey as having the best business location—43 percent [Table 3 (b)] of the firms based in Lahore rated Karachi as the best business cluster due to the availability and quality of infrastructure services and the availability of a pool of skilled labor, managerial talent, and industrial areas. However, due to the poor law and order situation prevailing in the city for many years, firms in all four locations identified Karachi as having the worst business environment in terms of crime and security. The poor law and order situation in Karachi has thus overshadowed other benefits of relocating to this cluster. Not only are firms reluctant to move to Karachi, but firms located in Karachi wanted to relocate to other clusters [Table 3 (b)]. Thus a potentially vibrant and internationally competitive cluster with all the necessary spill-overs and positive agglomeration effects has stagnated due to the deteriorating security environment.

Table 2 (b). Ranking of clusters in terms of the best business environment

		Desired Location			
		Lahore	Faisalabad	Sialkot	Karachi
Actual Location of Firms	Lahore	61	9	4	26
	Faisalabad	6	90		4
	Sialkot			100	
	Karachi	33	36	15	17

In the survey, firms were specifically asked to identify the cluster which has witnessed the maximum number of garment firm closures over the last five years. Figure 2 (h) suggests that businesses perceive Karachi as a cluster which has had the maximum number of firms shutting down over the last five years. Lahore on average is perceived to have the lowest amount of bankruptcies or closures. When asked about of the reasons for closure, electricity came out to be the top reason for closure in Lahore, Sialkot and Faisalabad. Poor Management of business has been another key reason leading to business closures in Lahore and Sialkot. However, in Karachi the dominating factors causing businesses to close down have been the poor law and order condition matched with high input and production costs.

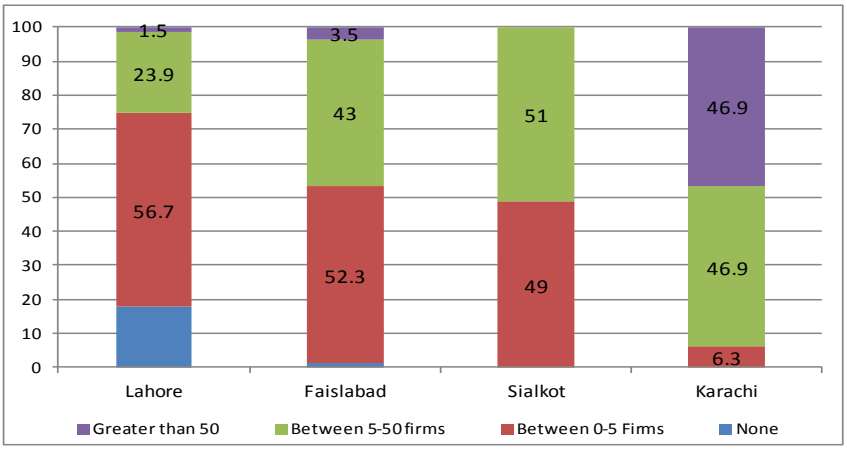


Figure 2 (h). Perception about Firm Closures across Clusters over last 5 Years (%)
Source: LUMS and IGC Survey 2012-2013

7. Business environment constraints

The business environment externally affects the competitiveness and capabilities of the geographical clusters in the supply chain context. Though the list of external issues is long, the following need urgent attention: the energy crisis, access to finance, and macroeconomic instability (intrinsically linked with political instability). According to a World Bank report, Pakistan scored 107 on a scale of 1 to 185 of ease of doing business compared to China (91), India (132) and Bangladesh (129). The overall picture of doing business in Pakistan seems to be better than Bangladesh and India, however, certain important issues such as trading across borders—customs clearance and technical controls and ports and terminal handling create hurdles for export-oriented industries [12].

Business environment constraints affect the competitiveness of firms and significantly raise the cost of doing business. These constraints can lead to higher costs, jeopardize timely delivery, eat into narrow margins, and eventually discourage international buyers. Our survey data also captures the constraints related to the business environment. Firms were asked to identify the three major constraints in their respective cluster. The most binding constraints for firms include electricity, access to finance, political instability, macroeconomic instability, tax administration, and corruption among others.

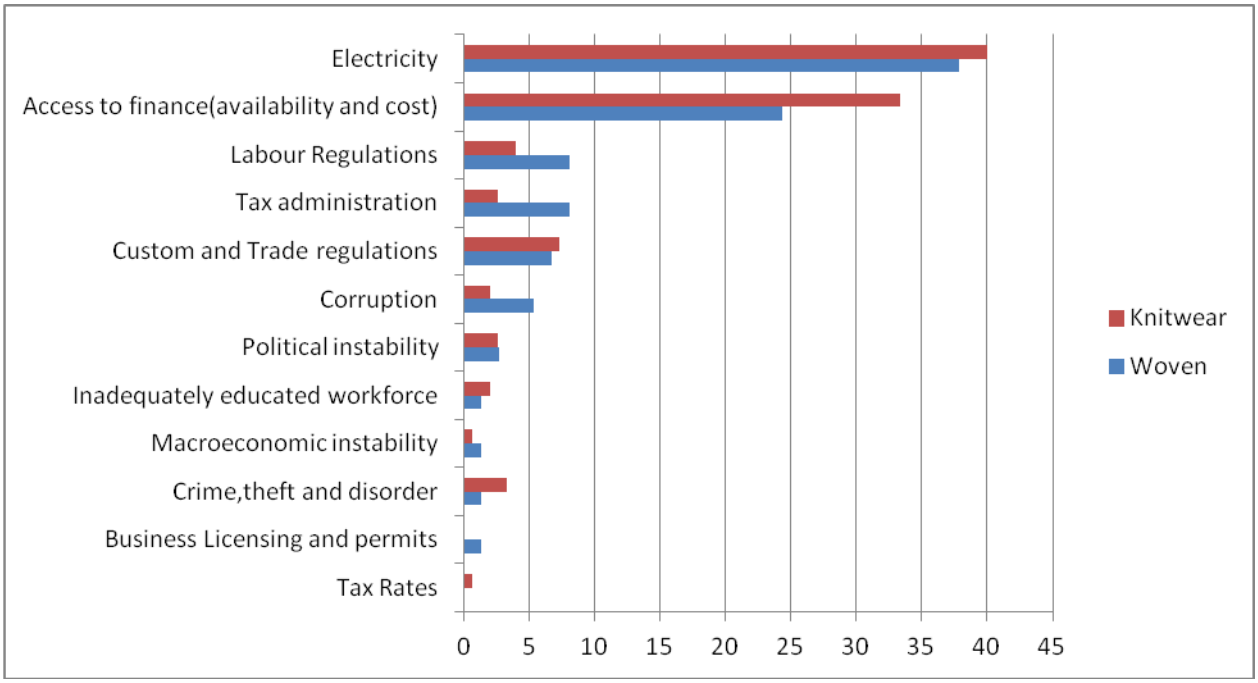


Figure 2 (i). Business environment constraints across sectors (%)
Source: LUMS and IGC Survey 2012-2013

An inadequate and erratic power supply remains the biggest problem for manufacturers in Pakistan, across sectors, firm size, and cluster (with the exception of Karachi), as identified in the survey. Almost 40 percent of the firms from both sectors declared electricity either as first, second, or third most severe constraint to growth [Figure 2 (i)].

Small- and medium-sized firms are particularly affected as energy alternatives are costly and deplete profit margins—over 40% listed electricity as a major constraint, compared with less than 30% of large firms [Figure 2 (j)]. Analyzing across clusters, the incidence of electricity crisis is higher in Lahore, Faisalabad, and Sialkot. Karachi is relatively least hit by electricity shortages among the clusters. However, electricity still is the second most severe constraint listed by firms in Karachi, preceding crime, theft, and disorder by a small margin.

Access to finance—both in terms of availability and cost of credit—remains the second most important constraint affecting the ease of doing business in the garment sector, across all dimensions. An exception is Karachi [Figure 2 (k)], where less than 5% of firms reported a problem accessing finance, compared with almost 40% of firms in Lahore. The knitwear sector is affected more than the woven by the lack of access to finance, as it has more small- and medium-sized firms. And as expected, small- and medium-sized firms are more affected than large firms.

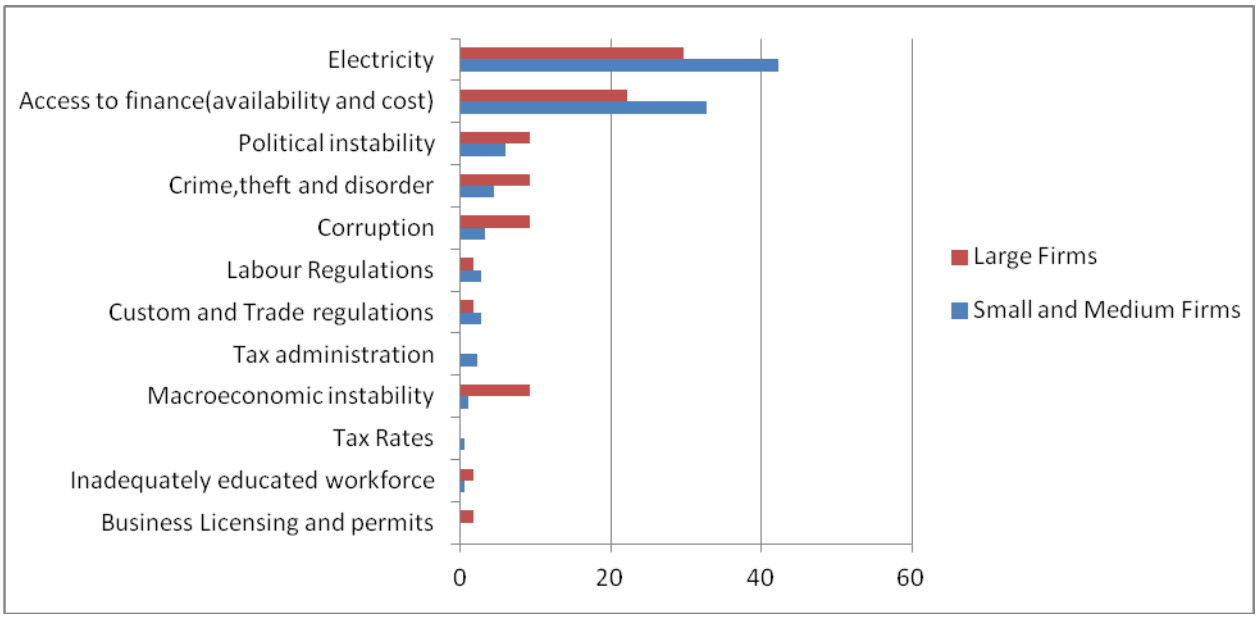


Figure 2 (j). Business environment constraints across firm size (%)
Source: LUMS and IGC Survey 2012-2013

In addition, large firms identified macroeconomic instability as the third important constraint. An unstable macroeconomic environment characterized by high rates of inflation, low GDP growth rates, large fiscal deficits, increasing external debt, and volatile exchange rate is in most instances accompanied by a fall in both investments and manufacturing growth especially in export-oriented industries. The textile and apparel sectors have been hit hard by macroeconomic instability, primarily by exposing manufacturing firm to more uncertainty and risk.

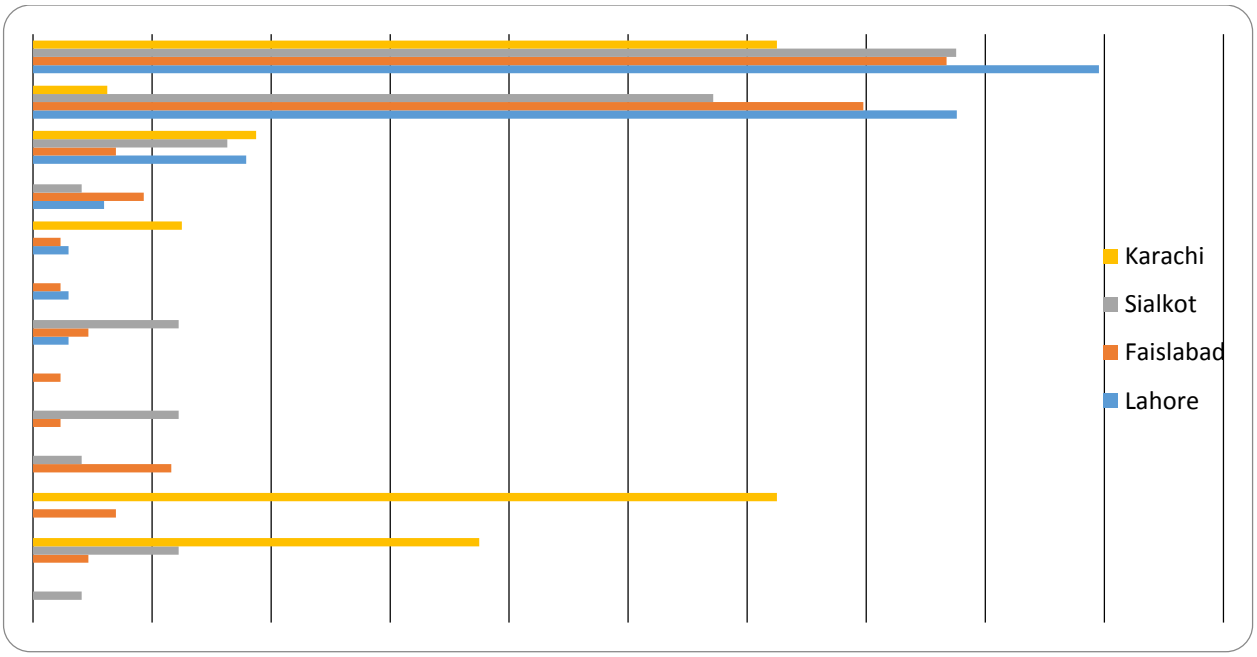


Figure 2 (k). Business environment constraints across clusters (%)
Source: LUMS and IGC Survey 2012-2013

7.1 Transaction costs

The sources of transaction cost in garments sector originate from complexity, transmission, and codification of information especially in design intensive and high value added products. Transaction cost is not only affected by technology both in terms of sophisticated production process & IT, but also the ability of firms to handle complex information.

7.2 Impact of Information technology's on transaction cost

The fragmented production network of the apparel industry raises significant transaction and information costs in the interaction between international buyers and domestic manufacturers. However, with the introduction of Information technology (IT) the ability to codify and transmit information and knowledge about products and processes between international buyers and local manufacturers has increased substantially. For instance, the introduction of computer and internet aided designs and tracking of production processes has made the codification and transmission of information of relatively complex products simpler. Empirical evidence suggests that IT improves firms' profitability in textile and apparel sectors by performing voluminous information intensive transactions with agility and at lower costs [13].

The role of IT in Pakistan's garments manufacturing in designing, cutting, and sewing through automated production processes needs to be explored further along with the ability of firms in transmitting information and coordination on design with international buyers. The scope of our survey data is limited in exploring the penetration of IT in garment sector. However, our focus group meetings with the industry associations reveal that firms in readymade and knitwear sectors have developed their own websites to disseminate information about their products.

7.3 Other factors influencing Transaction costs

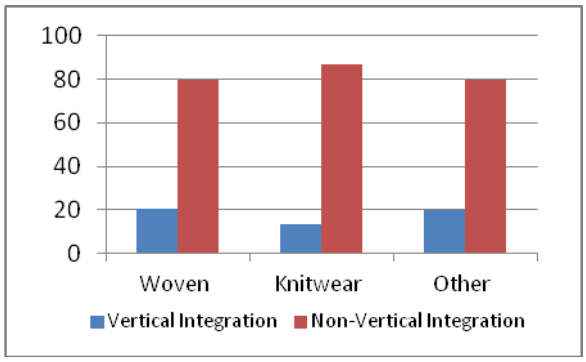
The literature on transaction costs broadly classifies its determinants into human (opportunism and bounded rationality) and environmental factors [14]. The human factors can be controlled through the repetition of a transaction, trust, and reputation building. In Pakistan, the challenging security situation, unstable macroeconomic environment, poor logistics, and weak contract enforcement leads to sub-optimal arrangements.

The measurement or monetization of transaction costs is difficult since the nature and myriad sources of transaction costs could be region and product specific. For example, the degree of sophistication of products in terms of design and cutting require complex codification and frequent coordination between lead and supply firms which raise transaction costs of sourcing from local firms. Moreover, a weak business environment further increases transaction costs through expenditures on off-balance sheets items like transport efficiency, customs and port procedures, security risks, design capabilities, product standards and development services, and corruption.

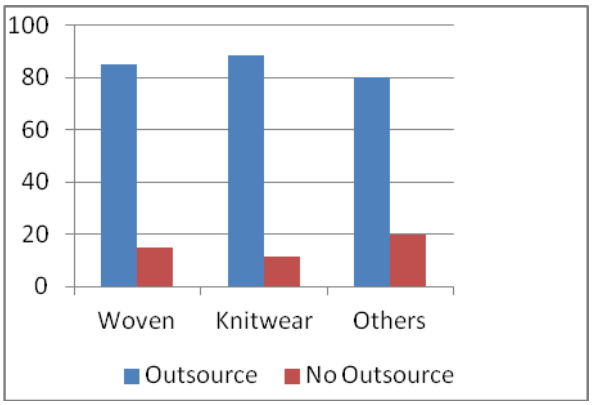
Transaction costs play a critical role in the formulation of both forward (with international buyers) and backward (ancillary support from other manufacturers) linkages of domestic firms. Firms decide to outsource activities to markets primarily on the basis of transaction costs. Low transaction costs lead to more reliance on markets enabling outsourcing of key inputs and processes at lower costs. By doing so, firms focus more on building core capabilities in certain areas of production through specialization and improvement in internal organizational structure.

In the post-MFA era, Pakistan's garments manufacturers experienced internal restructuring/reorganization – from vertical to non-vertical [15]. Our survey data confirms the non-vertically integrated nature of firms across sectors and size. On average 80 percent of firms classify themselves as non-vertical units across sectors whereas more than 90 percent of SMEs and 52.8 percent of large firms are non-vertically integrated units [Figure 2 (k), 2 (l)]. It is interesting to note that relative to small and medium firms a significantly higher percentage of large firms (47.2 percent) remain vertically integrated.

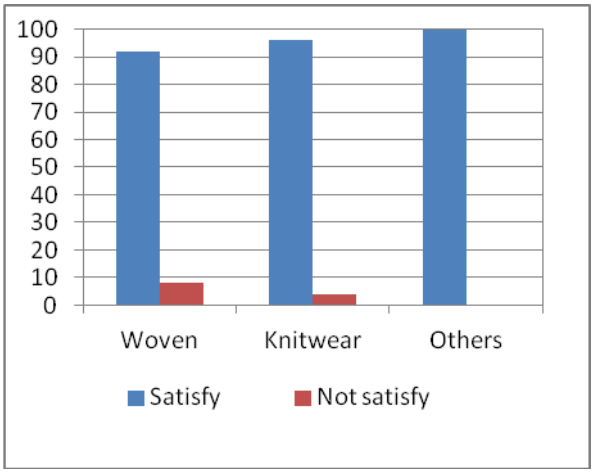
This finding is further substantiated by the survey data which shows that across size and sectors firms outsource certain inputs and processes which are available in the market at a lower price and are also of requisite quality [Figure 2 (k), 2 (l)]. More than 80 percent of the firms in both the woven and knitwear sectors rely on outsourcing to acquire inputs (fabric) as well as processes (dying, finishing, knitting, washing, and stitching) [Figure 2 (k), 2 (l)]. Although internal reorganization helped manufacturers to maintain cost competitiveness in the lower value added products, the sector could not improve its positioning, i.e., climbing up on the GVC producing high value added products.



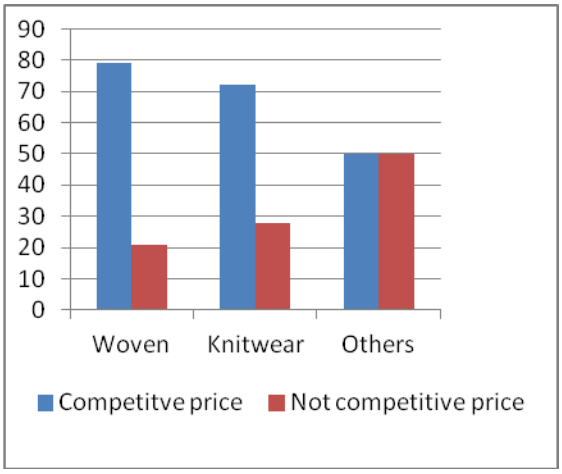
Firms with vertical/non-vertical organizational structure (%)



Do you outsource any process? (%)

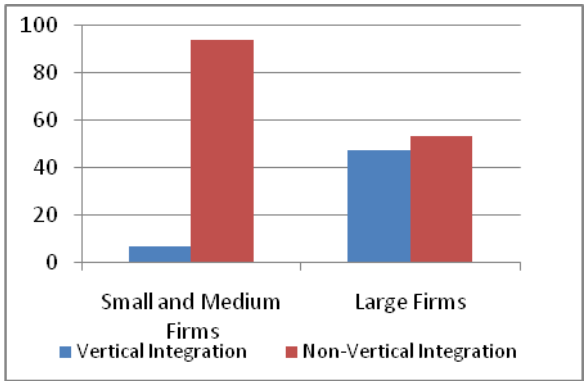


Are you satisfied with the quality of work outsourced? (%)

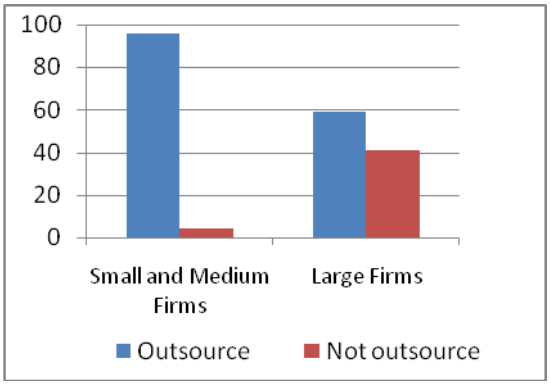


Are inputs available at competitive prices? (%)

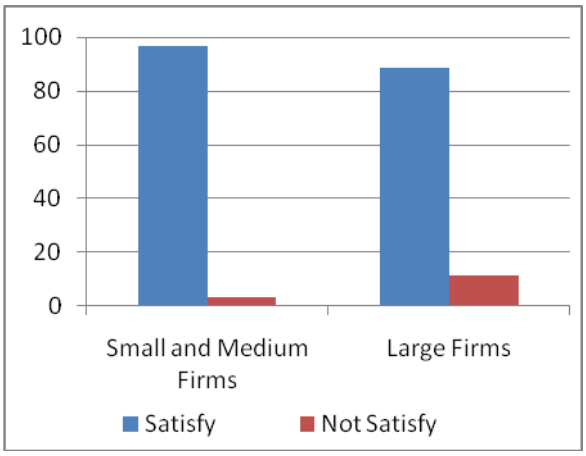
Figure 2 (l). Transaction Cost Analysis



Firms with vertical/non-vertical organizational structure (%)



Do you outsource any process? (%)



Are you satisfied with the quality of work outsourced? (%)

Are inputs available at competitive prices? (%)

Figure 2 (m). Transaction Cost Analysis

8. Conclusion

Pakistan's garment sector stands at a relatively lower rung of the global value chain where most of the manufacturers are full package firms supplying low-price items to retailers, brand marketers, and brand manufactures. There are a few firms which have been able to become own design manufacturer's. The majority of the firms fall under relational and modular forms of GVC governance structure with few examples of captive value chain.

The main factors which explain Pakistan's particular positioning in the GVC range from firm level capabilities to transaction costs. While the garment sector has shown considerable improvement in both transaction and information costs, there are still endemic problems associated with firm capability. Technology is one of the key variables impacting firm capability. The survey data indicates that most of the firms across size and cluster want to upgrade technology. However, the cost of upgrading technology precludes many firms, especially the smaller ones, from doing so. According to the survey, access to formal sources of finance remains the biggest hurdle preventing firms from upgrading technology.

Pakistan's garment manufacturing at its current low equilibrium does not face problems in terms of the availability of semi-skilled labour. Moving from low-value added to high-value added products, however, requires a higher level of skill-set than what is currently available across the country. Access to training institutes could potentially relieve this important constraint on firm capability. However, majority of the firms in the survey identified lack of access to training institutes, which to some extent explains why the sector is trapped in low productivity and resultantly at low value addition.

Cluster formation through glocalization has not been very successful in the garments industry of Pakistan. Karachi is an appropriate example, where due to the chronically poor law and order situation, firms could not reap the full benefits of the cluster despite the availability of infrastructure facilities, access to skilled labor, and access to port facilities. Business environment constraints such as energy, access to finance, and macroeconomic instability have also contributed significantly in terms of higher costs, jeopardizing timely delivery, eating up profit margins, and discouraging international buyers.

Garment manufacturers need to climb up the value chain to become ODMs, and eventually OBMs, by both acquiring the capabilities required to raise productivity, and, by producing a wider range of fashion garment and technical garments which offer much higher profit margins.

The market for technical garments amounted to $133 billion in 2010 and is growing by 10% to 13% per annum in Asia (with China supplying 26 percent) [16]. In 2010, technical garments made up to 38% of the total garment exports. The technical garment sector is more R&D-intensive than capital-intensive. The share of Pakistan in technical garments is negligible. Given the trends in global demand for garments, South Asian countries can get by, at least for some time, as manufacturers and exporters of conventional clothing. However, to maintain garments as a leading sector, these countries will have to develop technological capacity to anticipate and meet emerging shifts in demand [17]. They would also need to continuously innovate, and invest in the machinery and the IT hardware/software to sustain growth, climb up the value chain, and generate technological spillovers. These spillovers could potentially promote other activities that leverage off technologies in the garment industry.

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Appendix 1

Vertical relationship and competitive advantage of Pakistani manufacturers