

# **Knitwear Industry in Bangladesh: A Case Study of Firms in Narayanganj**

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## **I. Introduction**

Bangladesh had a historical reputation in production of textile products in addition to famous Dhaka muslin. Fabrics from Bengal were found in ancient Egyptian tombs, and were traded with the Roman and Chinese empires in the medieval age. In ancient Bengal a great deal of expertise existed with regards to weaving of textile products as well as great reverence towards its trade. In rural communities both men and women were apprenticed in weaving. These skills and disciplines in sewing and weaving are passed down through generations and are quickly transferred to production lines in modern knitwear factories.

In the early 1980s, there were small-scale independent investments in the readymade garments (RMG) sector. At that time, it was not considered viable and received very little government attention. Within a decade, the RMG industry in Bangladesh had flourished and by the early 1990s it had emerged as a major employer. Under the dynamic leadership of the private sector together with policy support from the government, the export oriented RMG industry has shown a spectacular growth during the last two and a half decades. The textile sector initially could not keep pace with the requirement of yarn and fabrics particularly by the woven RMG sector as the textile and clothing industry was controlled by a fairly small community of local entrepreneurs. However, the sector grew with vengeance and the country currently exports over US\$11 billion in textiles and garments, with a projected target of US\$24 billion dollars by 2020.

Three independent associations are responsible for the textile sector: the Bangladesh Textile Manufacturers Association (BTMA), which represents spinners, woven fabric manufacturers and dyeing units; the Bangladesh Garment Manufacturers and Exporters Association (BGMEA), which represents the RMG sector, primarily the cutting and sewing units; and the Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA), which represents the knitwear fabric manufacturers, the fabric dyeing units and the knit garment cutting and sewing units. These three associations work either in collaboration, or independently from each other, subject to the agenda they may be forwarding. However, it should be borne in mind that the bulk of yarn manufactured by BTMA members is consumed by members of the BKMEA, which at times leave the two associations at loggerhead opposing sides of an industry issue. The three main government departments that work for apparel sector are the Ministry of Textile and Jute, the Ministry of Finance and the Ministry of Commerce.

Knitwear firms in Bangladesh are mainly located in Narayanganj district. Besides, a few firms are also located in Chittagong, Dhaka, and Gazipur districts. The knitwear industry in Narayanganj emerged at the early stage of the 19<sup>th</sup> century. Initially clothes were knitted from thread processed by wooden spindle wheels. Later handlooms were brought in from India. This transformed the local cloth industry into a specialized sector of hosiery items. The hosiery sector expanded and accelerated in the 1980s and 1990s into knitting industry when the expansion of RMG industry created demand for fabrics. The industry expanded both vertically and horizontally to meet growing demand for fabrics within a few years. Besides, production of sweaters and socks, the major output of the knitwear industry involves two processes; namely, knitting of fabric and making of knitwear using the fabric thus knitted.

The present case study attempts to explore the following issues by focusing on a selective number of knitwear firms in Narayanganj. How has the knitwear industry evolved? How has it sustained the successful performance? What are the sources of the industry's competitive strength? How are the structures of the constituting firms placed to productivity differentials within the dynamic performance of the industry? Are all firms growing at the same pace or the composition is changing over time with some firms falling and some going ahead? What are the proximate factors that are causing the differential changes?

After this Introduction, section 2 highlights some features along the path of development of the knitwear sector in Bangladesh. Section three sheds light on the momentum of the exports mainly to the EU and the US markets. Section four gives an idea of the production capacity and actual production of the sector. Section five attempts a rather qualitative presentation of the internal dynamics of small, medium and large firms based on a purposively selected sample. Section six sketches the rise and fall of firms within the sector. Finally, section seven makes a few concluding remarks.

## **II. Development of Knitwear Production in Bangladesh**

That knitwear manufacturing activities in Bangladesh have spatiality is evident from the unevenly distribution of these activities over several pockets in the country. However, there is a large concentration of these activities in Narayanganj. Economic history can shed lights behind this geographic concentration of interconnected businesses emerged in the area. Narayanganj is a town in central Bangladesh, 20 km southeast of Dhaka, the capital. The town was founded on the motive of being a center for trade and commerce by Mr. Bicon Lal Pandey, a Hindu religious leader by leasing in the area from the British East India

Company in 1766 following the Battle of Plassey to form a market place. He later donated the market and other lands on the banks of the river as *Devottor*.

In its early stages geographical location of Narayanganj posed a competitive attraction in terms of communications for entrepreneurs as it was flanked by rivers, the Shitalakshya on the east and the Buriganga on the south and southwest. Gradually it became the most prominent river port of Bengal and then Bangladesh with regular steam communication with Sylhet, Kolkata, Assam, and Kachar of India. The port used to handle an extensive trade with Kolkata, importing cloth, and salt, etc., and exporting agricultural produce of all kinds, especially jute. The port had also substantial trade with Chittagong, importing cotton, timber, oil, hides, etc., and exporting tobacco, pottery, and country produce, etc.

Historically this region has very renowned heritage regarding manufacturing of fine clothes. John Crawford, a long time servant of the East India Company, stated to a Committee of the British House of Commons in 1830-31 that the fine variety of cotton in the neighborhood of Dhaka, from which the fine muslins were produced, was cultivated by the natives alone and was not at all known in the English market, or even in Calcutta.

The Dhakeshwari Cotton Mill at Narayanganj, established by some Mr. Surya Kumar Bose on the bank of the Shitalakshya in 1927, was the first textile mill in the whole of the British East Bengal. The Chittaranjan Cotton Mill was established in 1929. Some Mr. Ramesh Chandra Roy Chowdhury established the Laxmi Narayan Cotton Mill in 1932. The Dhakeshwari owner opened a second cotton mill in 1937.

Narayanganj is also the principal hosiery manufacturing center of Bangladesh. The first hosiery factory, Hangsha Hosiery, was established in 1921 by some Mr. Shatish Chandra Pal in 1921. The factory started its operations at Tanbazar with four hand-driven ribbon machines. A major factor that promoted the expansion of hosiery industry at Narayanganj is its location on the bank of the Shitalakshya, which facilitated transportation of raw materials and the finished products and supplied good quality water to wash knitted clothes. At present, Narayanganj is one of the main centers for the knitwear garments industries.

### **III. Evolution of Knitwear Exports**

The RMG business was initiated with the export of knitwear consignment in 1973. Eventually the RMG sector accelerated exports dominated by woven garments. The knitwear sector's significant contribution in country's export share was 1.1% in FY 82. Since then it gradually increased its share in exports. While the contribution of woven garments to the

export basket was 42.8% in FY 91, the knitwear sector's contribution rose to 7.6%. Table 1 presents export performance and the extent of retention rate due to high contents of domestic inputs. In FY 04, knitwear sector for the first time exceeded woven sector and became the leader with an exported quantity of 91.6 million dozens. The sector continues to be the leader in terms of quantity exported with an increasing gap with the woven garments over time. Export quantity of knitwear items increased to 241.59 million dozens. This is roughly equal to 163.7% growth between FY 04 and FY 08. At present knitwear is the largest export earning sector of Bangladesh contributing 41.8% to national export earnings at the end of FY 09 (July-April).

**Table 1: Total Knitwear Exports and Net Retention in Bangladesh**

Year	Exports (US \$ million)		Share of Knitwear (%)	Net Retention (US \$ million)	Share of Net Retention (%)
	Total RMG	Knitwear			
1994-95	1850.3	393.3	21.3	157.3	40.0
1995-96	2006.6	598.3	29.8	253.7	42.4
1996-97	2316.9	763.3	33.0	335.9	44.0
1997-98	2775.4	940.3	33.9	443.8	47.2
1998-99	2700.0	1035.4	38.4	530.1	51.2
1999-00	3125.4	1269.8	40.6	695.9	54.8
2000-01	3755.6	1496.2	39.8	837.9	56.0
2001-02	3355.4	1459.2	43.5	826.9	56.7
2002-03	3601.4	1653.8	45.9	965.8	58.4
2003-04	4443.3	2148.0	48.3	1271.6	59.2
<b>2004-05</b>	<b>5429.7</b>	<b>2819.5</b>	<b>51.9</b>	<b>1691.7</b>	<b>60.0</b>
2005-06	6041.9	3817.0	63.2	2290.2	60.0
2006-07	7517.2	4553.6	60.6	2732.2	60.0
2007-08	8322.2	5532.5	66.5	3319.5	60.0

Source: Bangladesh Bank and BKMEA Website

Bangladeshi RMG products are mainly destined to the US and the EU markets. With their earnest efforts from late 1980s the RMG exporters were able to export US\$ 393.26 million in FY 95. Of this amount, the shares of the EU and the USA were US\$ 274 million and US\$ 98 million respectively. During FY 97, Bangladesh was the 7<sup>th</sup> and the 5<sup>th</sup> largest apparel exporter to the US and EU markets respectively. The cumulative average growth rate of the sector is about 20%. In recent years the EU market was the main export market for

Bangladeshi knitwear constituting 76% (US\$ 4.2 billion) of total knitwear export followed by the USA (14.59%, i.e. US\$ 807 million) in the year FY 08. The impressive growth of the knitwear in the EU market was partly due the market access opportunities provided under the Generalized Systems of Preference (GSP) facility. Further, the two-stage transformation requirement of the rules of origin (ROO) introduced in 1999 accelerated market penetration and deepened it in the EU. Since Bangladesh's knitwear production has very high domestic content of inputs and value added (around 80%) it is estimated that 95% of knitwear exports to the EU enter free of duty under the EBA initiative, thereby contributing to very rapid growth of Bangladesh's exports of knitwear.

Despite all these successes a recent WTO review points out that Bangladesh has not been able to exploit fully the duty free access to EU that it enjoys. This is an indication of untapped potential of capacity in this sector. In the year FY 08, the contribution of woven garments to the export earnings was 36.2% compared to 39% in the knitwear sector. Table 2 presents the performances of both the sectors last year, when the global economy experienced financial melt-down. Response to global crisis is another milestone for this sector. Given that the BKMEA reported declining orders for every month in 2009 and the time lag between orders and shipments is around 4 months for woven garments, and 2/3 months for knitwear garments, the slowdown in growth of the RMG exports has become evident in the fourth quarter of FY 09. Moreover, rebates of 10-20% on already placed orders are being negotiated.

**Table 2: Recent Export Performance of the Knitwear Sector in Bangladesh**

Exports of RMG in the Last Half of FY 09 (in Million USD)				Monthly Growth Rate Compared to Last Year (%)			
Month	Woven	Knit	Total	Month	Woven	Knit	Total
January	584.2	562.9	1147.18	January	18.7	21.2	19.9
February	532.8	466.7	999.51	February	11.5	2.6	7.1
March	541.9	480.3	1022.23	March	12.7	8.2	10.5
April	437.8	480.4	918.19	April	5.4	0.3	2.7
May	493.4	578.6	1072	May	11.7	7.9	9.6
June	522.6	619.4	1142.02	June	-3.2	2.7	-0.1

Source: Export Promotion Bureau (EPB), Bangladesh

But the strong resilience of this sector is very much evident as already Bangladesh registered a 12.5% export growth in woven products and 25.9% export growth in knit

products to the US market at a time when US imports of these items actually shrank by 3.6 and 1.6%. Overall exports to the US grew by 13.6% in the face of a mere 2% growth in total US imports over the July-December, 2008 period. This implies that Bangladesh has been increasing its RMG market share in the US apparel market despite the recession. However, Bangladesh has been facing problems in the EU market. Its exports to the EU markets grew by 3.6% in July-December 2008.

#### **IV. Capacity and Actual Production of Knitwear Firms**

Bangladesh's entry into the "modern" textile trade is relatively new, but textile entrepreneurs have been able to quickly adapt to the nature of demands. The knitwear sector in Bangladesh is generating large efficiencies through operating as groups of spinning, fabric knitting, dyeing, finishing. In other words, knitwear firms are effectively operating as conglomerates, thereby reaping many of the efficiencies of vertical integration in a sector where individual capital shares and firm size remain relatively small. Table 3 presents the targeted categorization of yarn and fabric production scenario for the year 2009.

**Table 3: Production Targets of Yarn and Fabrics in 2009**

Type of textile processing unit	Volume of yarn and fabrics to be produced in year 2009	Capacity per year per unit
Spinning unit (25000 spindles/unit)	1075 million kg	4.6 million kg
Weaving (120 shuttle less looms/unit)	2924 million meters	13 million meters
Knitting and knit processing unit	523 million kg (3138 million meters)	1.75 million kg

Source: Cotlook, March 2009

The major strength of the Bangladesh textile industry is the pool of motivated workers. The sector has created jobs for about 2.5 million people (Table 4) of which 70% are women originating mostly from rural areas. Due to a liberal cultural attitude towards women in the workforce, the RMG sector has transformed a traditionally male dominated society to one where women have an equal status as earners in the household (see Zohir and Majumder, 1996). The number of factories in the RMG sector increased in tandem from less than a thousand in FY 91 to about five thousands in FY 08. Competitive wage rate together with easily trainable workforce helps transform the comparative advantages into competitive advantage in this sector. Directly employed labor force in the knitwear sector are 1 million and another 0.5 millions are indirectly employed.

The major impetus behind the phenomenal growth of the knitwear sector is the labor intensity in the production process. As the BKMEA claims, there were more than 2000 thousand establishments in FY 95 which increased to about 5000 thousand in FY 08 implying 5.88% growth per annum. Employment of workers grew in tandem. There were 1.5 million workers in FY 95 which increased to 2.5 in FY 08 implying a growth of 5.62% per annum. Comparing the number of establishments and the number workers employed one can discern that average size of the firm did not change during the period. So, entry and attrition were more or less simultaneous during the period.

**Table 4: Number of Establishments, Employment, and Firm Size in the Knitwear Sector**

Year	Number of Establishments	Employment (in million)	Employment per Firm
1994-95	2182	1.20	550
1995-96	2353	1.29	548
1996-97	2503	1.30	519
1997-98	2726	1.50	550
1998-99	2963	1.50	506
1999-00	3200	1.60	500
2000-01	3480	1.80	517
2001-02	3618	1.80	498
2002-03	3760	2.00	532
2003-04	3957	2.00	505
2004-05	4107	2.10	511
2005-06	4220	2.20	521
2006-07	4490	2.40	535
2007-08	4740	2.50	527

Source: BKMEA Website

**Table 5: Capacity of Different Components of the Knitwear Industry**

	No of mills	Installed machine capacity	Unit	Production capacity/year (in million)
Spinning mills (public)	24	460000	Kg	40
Spinning mills (private, cotton)	312	8230104	Kg	1495
Spinning mills (private, synthetic yarn)	27	673276	Kg	180
Terry towel	72	1896	Meter	
Dyeing finishing	359	6755	Eqv Meter	6084
Sweater	607	306848	Pcs	6568
Knitwear	462	148448	Pcs	5378
Knitting and knit dyeing	822	12891	Eqv Meter	7414

Source: Ministry of Textiles and Jute, GOB.

The core strength of the knitwear sector is its backward linkage. The entrepreneurs of this sector not only increased their stitching capacity overtime but also invested in allied

industries to augment the overall capacity of the sector in tandem (Table 5). In course of time the sector has become almost self-sufficient in production of fabrics and yarn. This improvement has become possible due to the integrated growth of spinning factories with the growth of country's stitching capacity and increased need of yarn and fabrics. As a result, local suppliers at present can provide up to 90% of the total fabric requirement of the sector and local yarn suppliers provide around 75% of the total requirement of the sector.

The backward linkage industry helped the knitwear industry to have the higher value addition and much higher net retention rate. This makes the knitwear sector as the highest contributor in terms of both gross and net export earnings. Besides, the sector opened up employment opportunities for many individuals through direct and indirect economic activities, which eventually helps the country's social development; woman empowerment and poverty alleviation (see, Bakht, Yamagata, and Yunus, 2009).

## **V. Organization and Growth: Firm Level Perspectives**

### **V.1 Sample Firms**

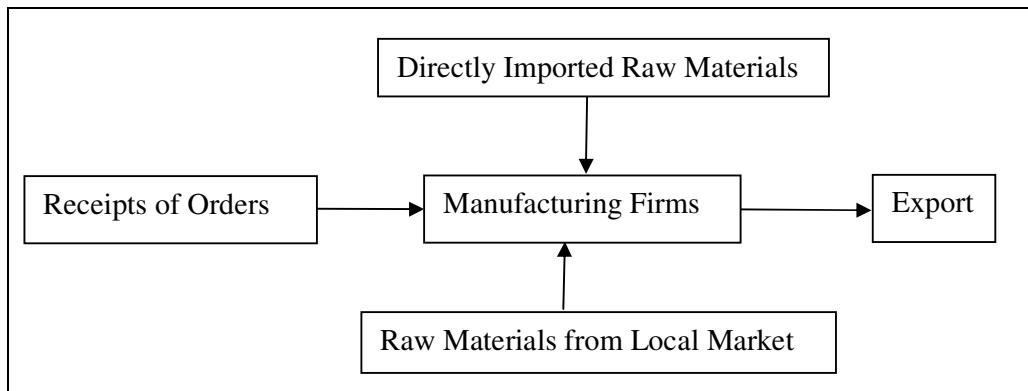
To gauge the development, structure, composition as well as opportunities and challenges of the knitwear sector a survey was conducted on a purposively selected sample of firms in Narayanganj. The other objective of the survey was to sketch a rough contour of differential value chain links across firm sizes. While choosing firms, it was ensured that the sample includes large, medium and small firms. In deciding size of a firm the number of workers employed was taken into consideration following the guidelines of the Small and Medium Enterprises Policy (SMEP) of the government. Eventually 15 firms were chosen with 4 from large category, 5 from medium category, and 6 from small category. Both quantitative and qualitative data collection techniques were applied in the survey. A semi-structured questionnaire was administered to collect relevant quantitative information. A checklist for the key informant interview was also administered with the key personnel of a few firms to capture the qualitative aspects in their evolution. Before administering the questionnaire it was pretested in two firms situated in Dhaka.

### **V.2 Organization of Production**

Knitwear manufacturers at Narayanganj evolved with different dimensions of market segments. Gradually these dimensions introduced by specific firms within the industry were sustained as new channels for vertical and horizontal integration. So, the organization of production and marketing is a complex juncture of overlapping dimensions. Production and

marketing conduits become more complex in the case of medium firms compared to those in the higher or lower rungs of the echelon. The most straight forward pattern consists of firms that attempt to control every conduit in the production and marketing process. Basically large firms are capable of maintaining such a complex and capital intensive process. Figure 1 presents the pattern of a prototype large firm in details.

**Fig. 1: Organization of Production at Large Firms**

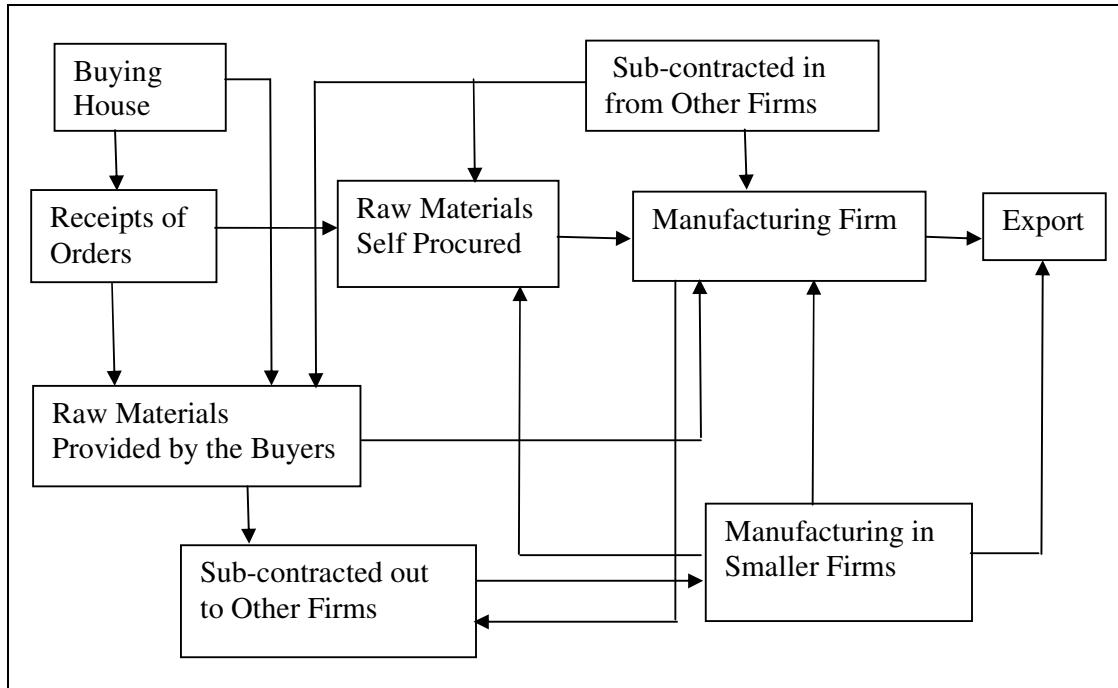


One variation that appears to differentiate this pattern is the process of procurement of raw materials depending of the nature of the buyers' orders. At times orders are placed by buyers with specific raw materials requisition and make it a binding constraint for the firm to collect such items from international markets. For other orders firms procure raw materials from local or international markets depending on price and quality. As large firms have capacity to handle more than one order at a time, they execute this order variation simultaneously and thus procure raw materials from the both sources. In a sense this straight forward production pattern indicates profit maximization motive of the firm. As there is no middleman, profit margin is higher than any other patterns. This pattern, prevailing only in firms that operate at the top echelon of the market segment, also exhibits scale-effect.

The most common pattern prevailing in the sector is a complex juncture of several market segments and production processes. Some production relations are informal in nature and have been continuing for long time on the basis of informal agreement and trust. Figure 2 presents production and marketing pattern of a prototype medium firm. The most interesting phenomenon of this pattern is that some firms are established or transformed into formal entities just acting on the basis of trust mentioned above. Apparently it is hard to analyze the process of how the firms involved assess the risk just on the basis of such informal contracts.

Obviously the role of social network, personal communication, and in some cases kinship status play vital role for engagement in such repeated game type interactions. This informal contract and the ensuing repeated game type behavior is more pronounced in the sub-contract portion of the market segment.

**Fig. 2: Organization of Production at Medium Firms**



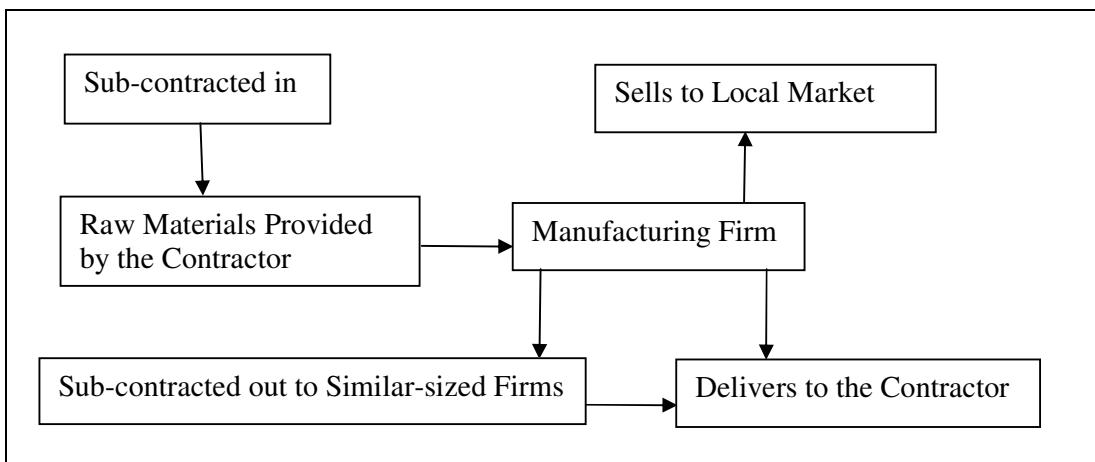
This generalized pattern is common among medium firms. The sub-contract portion is driven by demand factors. But in some cases the firm that receives the contract, which in most of the cases is smaller in size, only operates seasonally and effectively run as a *de facto* wing of larger firm(s). Generally these are partnership firms where prime motivation is to earn profits at no or least risk. From the perspective of large firms the arrangement is in a sense cost minimizing option to make higher profits. This production channel plays an important role in the industry as an out-sourcing unit for large firms' evolution.

Receipts of contracts trigger full capacity running. In the evolution of medium firms buying house plays a substantial role. But it is also common for the medium firms to receive orders directly from brand international retailers if the firm has 'requisite experiences'. Firms that have initiated operation very recently have to depend on the buying house or social

relationship to get the sub-contract for production initiation. It was revealed that some firms were actually able to receive orders beyond their production capacity and some had excess capacity. Eventually firms with excess capacity contract out the excess orders to similar firms. From the view point of risk minimization hardly any contract is transferred to a less capacity firm. Only the lower valued part of the output is commonly contracted out to lower sized firms. In most cases of sub-contract, raw materials are provided by the supplier to ensure quality. Tailoring houses are involved in this process where they just earn value equivalent to the making charge. In a very few cases when contracts are transferred to similar sized firms, raw materials are procured by the contract receiving firm.

The production pattern that is common at the bottom of the market echelon mainly consists of smaller firms in the industry (Figure 3). The relationships between agents among different market segments are informal in nature. Local market interaction also falls within this pattern. In most of the cases, local market orientation starts from distress sale. Once a contract in product fails to satisfy buyers' desirable quality the firm directly operates in local market for cost recovery. Based on these experiences firms confronted with slack of desired level of contract in a year starts operation in the local market targeting the seasonal demand. However, not all firms make their operations on the basis of local market demand except for firms that have setup for hosiery products.

**Fig. 3: Organization of Production at Small Firms**



Sub-contracting within this pattern involves middleman or groups. Firms with low capacity sometimes form a collective group with one firm playing lead role in contracting process with the other (larger) firm(s). The lead firm distributes the contracts among the members in exchange of a margin for sourcing. Dyeing, bleaching, and fabrics works are mainly conducted within this pattern virtually making the contracting group as a job unit.

Some of these firms have cyclical employment pattern and therefore lay off workers for 3/4 months during a year depending on the workload in the existing contracts and the ones, if any, in the pipeline. Procurement of raw materials within this pattern is tied with the contracts. Workloads are substantially higher in these firms compared to the medium and large firms within the industry. In this way these firms add to cost competitiveness and risk neutralization for the total industry. Further, this production pattern maintains linkages between informal and formal manufacturing within the industry.

### V.3 Product Varieties

Although various types of garments are manufactured in the country, only a few categories, such as shirts, T-shirts, trousers, jackets and sweaters, constitute the major production share (Nath, 2001). Economies of scale of large firms many of whom are holders of export-quota in the corresponding categories are one of the principal reasons for such a narrow product concentration (Table 6).

**Table 6: Exports of Different Knitwear Items (in US \$ million)**

Year	T-Shirt	Trousers	Sweater	Growth pattern over the period	
				Knitwear	Total RMG
2002-03	642.62	643.66	578.38	13.34	7.16
2003-04	1062.11	1334.85	616.31	29.88	15.76
2004-05	1349.71	1667.72	893.12	31.26	12.87
2005-06	1781.51	2165.25	1042.61	35.38	23.11

Source: Export Promotion Bureau, Bangladesh

Bangladesh has experienced some product diversification in its export of garments to the US market in recent years compared with the early 1990s. The top five products (coats, knit shirts and blouses, trousers, non-knit shirts and blouses, and undergarments) accounted for around 80% share of the total garment export earnings of Bangladesh from the US in 1990 which decreased to 58% in 2001. However, the country's performance in upgrading its products is not significant with regard to the US market (Haider, 2006). Bangladesh exported a total of 99 types of products in the textile and garment category to the US in 2005, but the contribution of most of the category was minimal.

Knitwear garments from Bangladesh have gained remarkable access to the EU market during the period 1996-2005 because mix of RMG products exported from Bangladesh to the EU changed significantly (Haider, 2007). The top five product groups contributed to 76% of

the total garment export earnings of Bangladesh from the EU in 1996, and that share increased to 82% in 2005. The share of shirts in total garment exports from Bangladesh to the EU has decreased, whereas the shares for overcoats, jackets, sweaters, suits and some other knitwear products have increased in recent years. These changes demonstrate that Bangladesh is achieving some level of product diversification in exporting garment products to the EU. In addition, a gender analysis of products indicates that Bangladesh has achieved some upgrading of its products recently in terms of exporting garment products to the EU. Garments for females are treated as upgraded products compared with garments for males, since they add more value. The earnings of Bangladesh from the export of garments for females to the EU have increased during the period 1996-2005 (Haider, 2006). Consistent with this analysis, products in our sample firms vary with T-shirt, ladies top, nightwear, pajamas, underwear, ladies wear, and polo shirts, etc. Firms that reported achieving milestone performance within the period 2000-2005 are common in ladies wear product category and emphasized on more value addition within the industry.

Firms operating at the bottom of the market mainly process fabrics from yarn provided. Besides, embroidery application and bleaching are common. Firms intended to produce for the local markets mainly produce hosiery products.

#### **V.4 Experiences of Business Operation**

Experience seems to be a catalytic factor in knitwear business. Most of the firm owners had prior experience in the same line of business before venturing into the current ones. This observation equally holds for the majority of the shareholders in case of partnership firms. Many of the shareholders reported to have involved into the business first as professionals. Gradually they gained both confidence and experiences in the crucial areas of the business and started similar business on their own. For small, medium, and large firms the average experience of owners in similar business before starting the current ones are about 9 years, 13 years, and 20 years respectively. From the sample it, thus, appears that experience is positively correlated with the size of the firm.

#### **V.5 Raw Materials**

Value addition in knitwear sector is the highest among the RMG manufacturing in Bangladesh. It varies between 70% and 90% depending on the type of products and firms. Scope of the business and production patterns mainly influence the choice of raw materials. At present procurement of raw materials from local market is common except for cases where

orders are tied with some specific origins of raw materials. Self-procurement of raw materials is most common. Larger firms procure raw materials on their own except for some contracts where the buyer supplies the raw materials. Almost all of the medium firms self-procure raw materials. In contrast, only a few small firms procure raw materials on their own; most of them receive the required raw materials with the orders because many of them are engaged in sub-contract from medium firms.

## **V.6 Enterprise Formation and Entrepreneurial Growth**

Most of the large firms were established at the beginning of the millennium and hence are in business for 8/9 years with sizeable investment. Within two years of operations majority of large firms reach the milestone and become profitable and sustainable. The history for medium firms is bit different. Most of the medium firms were established in the early 1990s. On average most of them are in operations for the last 15 years. Comparable to large firms the initial fixed capital for these firms was substantially lower.

Small firms revealed a mix trend: some firms are in operation for more than 15 years while other firms have initiated their business operations in the last 2/3 years. The business initiation costs which are captured through the indicator of fixed cost at the start of business are minimal for small firms across the three size groups.

Small, medium, and large firms on average start business with fixed asset worth about Tk.1.8 million, Tk. 2.9 million, and Tk.3.8 million respectively (Table 7). The late entrants of large firms have higher amount of fixed assets while the converse is true of the smaller firms. It was noted that irrespective of size, some firms had to run lower at capacity in their production operations. The lower utilization rate was higher for the medium firms. However, the lower utilization rates reported have transformed into overshooting rate after firms cross the milestone year. Some of the small firms established within last 2/3 years are yet to reap the benefit of milestone year.

**Table 7: Status of Firms at the Initial and Milestone Year of Business**

Initial Year				
Firm Size	Fixed Assets (Tk.)	Planned Capacity (Tk.)	Actual Production (Tk.)	Rate of Capacity Utilization
Large	3,750,000	8,000,000	7,266,667	90.83%
Medium	2,900,000	5,200,000	3,780,000	72.69%
Small	1,775,000	1,000,000	850,000	85.00%
Milestone Year				
Firm Size	Fixed Assets (Tk.)	Planned Capacity (Tk.)	Actual Production (Tk.)	Rate of Overshooting
Large	45,833,334	23,250,000	159,500,000	586%
Medium	22,500,000	13,375,000	84,000,000	151%
Small	NA	NA	NA	NA

Source: Own Estimates

It is evident that scale has a positive impact on production as some crude indicators show (Table 8). Though these ratios are not perfect measures of magnitude of the growing process, they nevertheless show the direction. Ratios of initial to milestone year reveal that large firms grow at a faster rate ostensibly due resource base effect. The ratio for fixed assets and actual production shows the same trend but for planned capacity the medium firms have faster growth rates.

**Table 8: Incremental Status of Firms between Initial and Milestone Years.**

Firm Size	Average time of achieving milestone year	Increment of Average fixed asset	Increment of planned capacity	Increment of actual production
Large	3.5 years	3.34	2.90	21.95
Medium	6.5 years	3.81	6.42	22.22
Small	12.5 years	Na	Na	Na

Source: Own Estimates

The higher rates in all of the indicators for medium firms might be indicative of their absorptive capacity because scope for further expansion is limited for large firms as they are already overshot and there is tendency in medium firms to keep up with the next larger firms. Marketing procedure or obtaining order plays crucial role in their quest for expansion as most of the entrepreneurs reported that experience and order collection were key factors for initiation of the business. As one owner of the medium firm says, “When I was employed in garments business, I observed an upsurge of orders of knit garments in the international market. I collected some orders as an experiment and found it very profitable. Eventually I converted my factory setup into a knit garment factory”.

Changes of occupation or shifts are common for medium firms. As one entrepreneur mentioned, he initially entered the garments business as an agent of a buying house and later he himself started knitwear production by gathering contracts for himself. This type of change has also variations. One factory owner was involved in the business by supplying raw materials to other firms and learned the knowhow of the business. Later he developed a relationship with buyers and started his own business. So, business acumen, knowledge about the industry and its intriguing process were all prerequisites for successful transition from related trades into factory ownership for the medium firms. Owners of small firms have the same sorts of initiation to the business. Many of them started their business as suppliers of raw materials and then became sub-contracting firms. Assistance from foreign buyers is also common. One of the entrepreneurs of a medium firm reported that a foreign buyer initially provided him credit to start a knit section in his woven garment factory. Later he shifted his business from woven garments to knit garments production. Thus, there are two common factors: (a) prior experience from working in the garment business and (b) managing new orders and investing on basis of those orders.

The most common reason for achieving success in milestone years reported by the owners are obtaining orders from the EU. The opportunity to get market access in the EU triggers success for many firms in the business. This is consistent as milestone years of most of the firms were between 2002 and 2007. The second reason is bank loan for working capital. Adequate and timely bank loan makes possible for firms to maintain timely delivery of contractual items. Another important factor for achieving milestone performance reported by large and medium firms is the availability of modern machinery because the later vintage of machinery results in long uninterrupted production and help meet buyers' deadline and quality.

Financial constraint and non-cooperation from the concerned bodies of the government are two important constraints for the owners of knitwear firms. These problems are particularly severe for the medium and small entrepreneurs. Small firm owners complained that the payment method in the current subcontracting system is not beneficial for their growth. The contractors defer payments of as high as 60% to 70% of the contractual payment. This makes them dependent on the financial intermediaries for working capital who are reluctant to advance loan to them.

Uninterrupted power supply is also a crucial factor for the knitwear manufacturing sector. Interruption in power supply implies that firms are either unable to use necessary tools

and implements, or can do so only by bearing substantial cost for small electricity generators. This has discouraged up-gradation of techniques to a considerable extent and hinders their improvement. It was found that medium and large firms are operating with 45% power shortage. About three-fourth of these shortages are met through diesel operated generators and firms are closed for about 2 hours per working day.

### **V.7 Asset Categories**

Large firms have assets worth about Tk. 114 million with 51.7% in capital machinery and 38.5% in other tangible assets including factory premises. Most of these firms are sole proprietorship with 100% equity capital. The average value of asset holding of the medium firms is over one hundred million taka which is closer to the large firms' assets holding. But when ownership of assets is considered, average value of asset holdings declines to less than a million taka, which implies presence of debt capital. On average medium firms keep 70.33% of total assets in capital machinery, 14% hired assets and approximately 15% assets in other tangible forms. For small firms the asset holding pattern is quite different. On average asset portfolio of the smaller firms contains 38.25% in capital machinery, and 59.42% in other tangible forms. About 61.28% of the all assets are hired which is quite different from the other two groups' asset portfolios. On average firms have to pay about Tk.136 thousand for rental assets.

### **V.8 Sources of Finance**

Retained earnings are the single most source of financing for the knitwear firms. During FY 08 about 71.46% of the total finance (about Tk.195 million) originated from retained earnings or internal source. On average large firms retained Tk.35 million in FY 08. The rest were generated from other sources including bank loans and overdraft facilities. Only 3.08% of total fund was for used for new investment by the large firms in FY 08. Medium firms source about Tk.100 million a year and, bank loans are the prime sources of finance for medium firms which contribute to 49.26% of funds. Suppliers' credit constituted 4.92% of funds and only 1.47% originates from family and friends; all of the funds were used for working capital and only 0.49% was used for new investment in FY 08.

Small firms sourced Tk.20 million in FY 08; about 41% of total fund originated from retained earnings and 40% from banks and financial institutions. The rest originate from suppliers credit (15%) and family and friends (4%). Most of the funds sourced were used for

working capital and only 5% was used for new investment in FY 08. Global recession might be one of the reasons for reluctance of the entrepreneurs towards new investment.

### **V.9 Employment Pattern and Wage Structure**

Employment in the knitwear sector crucially varies with the flow of orders. With this caveat in mind it was found that large firms employed about 760 workers compared to 300 workers in medium firms and only 16 workers in small firm. Of the total labor force, large firms employed 46% as temporary workers compared to 57% in the medium firms. For small firms this rate is meager at less than 5%. The higher rate of temporary labor absorption within the medium firms is quite evident from lower receipts of contracts by these firms and is consistent with the nature of seasonal effects of their production. Large firms also encounter the same type of seasonality but the magnitude is smaller due to scale and integration effect. As a result, temporary employment is quite high for the both large and medium firms.

The gender distribution of labor force shows diverse pattern; administrative and managerial jobs, and those that need special technical skills are highly skewed towards male employment. Activities such as machine operation, quality control, and cutting, etc., where skills increase with experiences show more equal distribution pattern. Causal labor involvement is not frequent at all. Employments of unpaid proprietors are higher (60%) in medium firms. The corresponding rates for large and small firms are 25% and 33% respectively.

Usually small firms do not provide any technical training to their employees. The concept is also not common in medium firms. Large firms usually provide training in the form of apprentice but they constitute less than 5% of the total workers. Consequently the concept of stipend is not common; instead the apprentices receive wage around Tk.1800 to Tk.2000 per month.

Working hours vary across firms and the types of job assignments. In large firms managerial and administrative employees have to work about 42-48 hours a week. In contrast, production workers such as machine operator have to work for 72 hours a week. Working hours in medium firms increase to 60 hours for the administrative and managerial employees and decrease to 66 hours for the workers. Working hours of the executives in the small firms are comparable with the large and medium firms but production workers have to work longer.

**Table 9: Wage Structure across Knitwear Firms**

		Ranges of Monthly Wages across Firms (in thousand taka)					
		Large firm		Medium firm		Small firm	
		Male	Female	Male	Female	Male	Female
Administration section	Managerial	21-35	Same	20-37.5	Same	10-25	NA
	Other Officers	10-25	Same	6-27	8-15	8-15	8-12
Garment section (sewing and knitting sweaters/socks)	Engineer	8-28	Same	13-25	NA	NA	NA
	Supervisor	6-23	Same	3-22	3-18	10-20	Same
	Quality Controller	4-20	Same	3-18	Same	8-15	Same
	Operator	3.5-15	3.5-12	2.1-15	3-12	2.5-10	Same
	Helper	2-5	Same	1.5-4	1.2-3	2-3	Same
Other production sections (knitting fabrics, dyeing and finishing)	Engineer	8-28	Same	11-23	NA	NA	NA
	Supervisor	6-25	Same	5-22	6-15	NA	NA
	Quality Controller	4-20	Same	6-18	Same	NA	NA
	Operator	3-15	3.5-12	3-15	3-12	4.5-6	Same
	Helper	2.5-5	1.8-4	2-4	1.5-3	2.5-4	1.5-3

Source: Own Estimates

It may be noted monthly wage rate varies with the size of the firm across the same category of employment (Table 9). There is also gender disparity in terms of wages; female workers are paid less for the same kind of works. Not surprisingly, the helpers are the least paid workers in each type of firms. However, Bakht, Yamagata, and Yunus (2009) showed that average earnings of helpers are higher than their opportunity costs of labor as the average earnings of the helpers are still higher than those of both casual wage laborers and the self-employed in the farm sector of Bangladesh in 1999/2000. From this perspective, the knitwear industry has contributed to poverty reduction of people living in rural areas of Bangladesh.

#### **V.10 Competitiveness and Efficiency Perceived by Firms**

Most of the large firms consider themselves as more competitive than their competitors. About three-fourth revealed this opinion and another two-thirds consider themselves as equally efficient as their next large firms. About 60% medium firms think that they are more efficient in intra-market segment competition and the rest consider themselves as equally efficient. The perception is quite different among small firms; only 30% firms think that they are equally efficient with their market competitors and the majority of the rest think that they are less efficient than their next large competitors.

Perception of large and medium firms indicates that majority of these firms spend time and resources for innovative activities to gain cutting edge competition. They often do so without specific financial and managerial resources. Thus, they tend to undertake a significant amount of innovative activities in their design, production and sales departments rather than in form of R&D expenditure which often do not exist at all.

## **VI. Rise and Fall and Rise ...of the Knitwear Manufacturing Firms in Bangladesh**

Knitwear manufacturing firms in Narayanganj comprises of small and medium size units operating with limited capital and low capacity. These firms depend entirely on regular turnover for generation of resources. Three factors were found responsible for their emergence and development: (a) pull factors (good prospect, ever increasing demand, etc.), (b) push factors (previous experience, family business, etc.) and (c) distress factors (low capital or skill required, etc.). According to the push factors many of the employees previously working in such units start new firms of their own after acquiring some training and experience. Such a step provides them with marginally higher income (from wages and profits) compared to the low wage paid by their ex-employers; about three-fourth of the firms initiated business due to push factors. But at mature stage many firms fall behind due to distress factors with low capital per units. Many of these firms report to suffer from both resource and marketing problems. At the opposite end, the relatively better off units are those that are enjoying higher capital and returns per capital. Recently established firms came into being due to pull factors.

Both composition and growth pattern of the knitwear industry have shown tremendous heterogeneity. There are segments of firms with linkage to the organized sector; fortunes of these types of firms vary with the whole industrial sector in the country. In contrast, there are segments that grow when the organized sector is slackening as people without alternative employment opportunities get deposited therein. While certain segments of them cater to the industrial demand for intermediaries, some others fulfill the demand of the final consumers. This heterogeneity is not only across size class of the units but across product groups also. As a result, their growth is influenced by diverse economic processes.

## **VII. Concluding Remarks**

The main focus of this study was to give a bird's eye view of the comparative look of the knitwear manufacturing sector of Bangladesh focusing cases from Narayanganj. In this context the study attempted to inquiry into the causal influence of size composition of firms on patterns of growth and dominant characteristics to relate the basis towards historical and institutional evolution of the industry. Based on the secondary data, documents as well as observational field survey the following remarks may be made.

- It has often been accused that the value additions in the RMG manufacturing sector are very low. Hence, policy makers in the past often tempted to ignore this sector,

hoping that with time it would add more value through backward linkages. Recently government is giving close attention to the affairs of the sector and allocating resources to serve the dual objectives of employment generation and ensuring comparatively higher returns to capital.

- The knitwear sector is one the important foreign exchange earners of the country and safe depository of the vast pool of rural unskilled workers for easy, albeit low-paid, employment. So, public policy towards the sector will have non-trivial repercussions.
- Certain size groups of the knitwear sector are continually handicapped due to adequate fund for working capital. Resource availability to these units has also to be facilitated. The large firms have so far been the main beneficiary of institutional credit. Time has come to redirect funds towards the medium and smaller ones which promise better return on investment. This assistance will roughly ensure the optimal utilization of the country's scarce capital. The medium and smaller firms warrant urgent assistance because of their rapid growths between the initial and milestone years. Besides, easy access of finance will encourage many hitherto employed personnel to venture to establish a firm of their own.
- It was evident that technical inefficiency in knitwear sector decreasing in Bangladesh. While this is true of most of the manufacturing industries knitwear sector warrants extra consideration because of its contribution to the foreign exchange earnings and employment.
- A closer analysis of this growth pattern, performance, problems, and prospects of the knitwear sector is necessary if one has to evolve a policy regime that is beneficial for their optimal development. In this context, region specific planning can play a much better role than centralized one as much of the growth dynamics of knitwear sector is guided by local rather than global characteristics.

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