

Size Structure of Manufacturing Industry and Implications for Growth and Poverty

Bangladesh Country Paper

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I. Introduction

The developmental odds faced by Bangladesh at the time of independence in 1971 were formidable. The challenges of high population growth, constant food shortages, recurring natural disaster, high aid-dependence, limited production of tradable, widespread poverty and low levels of human development were compounded by the dislocations caused by the war of liberation. Against that backdrop, the prospect of Bangladesh economy appeared rather bleak.

However, Bangladesh's achievements over the past four decades negated considerably that pessimistic outlook. Against the benchmark trend GDP growth rate of 3.2 percent during 1950-1970, Bangladesh achieved a reasonably steady annual rate of growth of over 4 percent during the first two decades of her independence and was successful in moving into the higher growth trajectory of nearly 5 percent during 1990s. The economy achieved a trend growth rate of 5.9 percent during 2000-2010.

The boom in export and remittance earnings, with yearly compound growth of more than 12 percent in each during 1980-2010, coupled with the decline in population growth rate from the post-independence peak of 2.7 percent to 1.2 percent in recent years helped raise average yearly per capita GNI growth to more than 5 percent during the past three decades. This was more than twice the global median for per capita growth during the same period.

The acceleration in the pace of growth started since the early 1990s when Bangladesh returned to a democratic form of government after almost a decade of autocratic rule. This also coincided with the intensified phase of wide ranging policy reforms involving deregulation of investment, trade liberalization, exchange rate, fiscal and financial sector reforms.

On the face of it, the rise in per capita income seems to have resulted in significant decline in the level of absolute poverty. Household income survey showed incidence of income-poverty to be around 31 percent in 2010 against 58.8 per cent in 1991-92. Bangladesh also achieved impressive successes in the broad area of human development as reflected in the aggregate measure of human development index and human poverty index.

However, despite these impressive records with growth and poverty reduction, Bangladesh continues to remain at the bottom of the income scale with per capita GNI of only \$750. There has also been some concern in recent years that economic growth in Bangladesh has not been sufficiently pro-poor and the low employment content of the growth achieved has been suggested as a reason behind this (Islam 2006). One aspect of this concern is that agriculture has continued to account for nearly 50 percent of employment although its share in GDP has been steadily declining. There has also been the disturbing evidence of widening social inequality as reflected in the rising Gini coefficient of income distribution (GOB 2009). The incidence of spatial inequality has also been high in Bangladesh.

In a labor surplus economy like Bangladesh the nexus between growth and equity is largely determined by the evolving pattern of structural changes of the economy. The pace at which surplus labor from agriculture is siphoned-off depends on how labor intensive is the growth outside agriculture, particularly in the manufacturing sector, which often shoulders key responsibility in carrying the economy forward.

Again, the employment intensity of manufacturing growth and its spatial attributes are expected to be closely linked with the size structure of the sector. Faced with factor prices closer to their social opportunity costs, smaller enterprises are often more efficient users of resource and tend to be more labor intensive in labor surplus economies. Low capital, skill and technology content also enable the smaller enterprises to be geographically more dispersed. These attributes thus render these enterprises more supportive of poverty reducing development strategies. The issue of size structure has generated considerable research interests in recent years (Mazumdar, 2003).

The present paper aims to examine the evolving pattern of size structure in the manufacturing sector of Bangladesh and its implications for growth and equity. The paper is organized in the following manner. After the introductory remarks in Section I, Section II provides an account of the structural transformation of Bangladesh economy during the past three decades. Section III looks at the changing pattern of size structure in the manufacturing sector and this is followed in Section IV by an analysis of productivity and wage differentials across different size groups in the manufacturing sector. Section V examines the factors contributing to the structural change in the manufacturing sector. Finally, Section VI provides the summary of findings and concluding remarks.

II. Structural Transformation of Bangladesh Economy

Bangladesh economy remained predominantly agrarian during the first two decades of her independence with agriculture (including fishery, livestock and forestry) accounting for almost 37 percent of GDP in 1988-89 (Table 1). During this period, the moderate decline in the share of agriculture was made up by growth in the service sector, particularly transport and communication. The decline in the share of agriculture accelerated during 1990s which coincided with the intensified phase of policy reform. During this and the subsequent decade, the decline in agriculture's share was matched by an increase in the share of industry (which includes manufacturing, utility, construction and mining), with the share of service sector remaining virtually unchanged. Thus, in terms of composition of GDP, the structural transformation of Bangladesh economy since early 1990s seems like a transition from agriculture to industry rather than to service. As mentioned earlier, this has also been the period when Bangladesh moved into a higher growth trajectory.

Table 1: Sectoral Composition (%) of GDP (1978 – 2009)

Year	Agriculture	Industry	Service	All
1978-79	44.9	18.2	36.9	100
1988-89	37.1	17.1	45.8	100
1998-99	25.3	25.7	49.0	100
2008-09	20.6	29.7	49.7	100

Source: BBS Statistical Yearbooks

The evidence with respect to employment, however, presents a different picture (Table 2). There has been some decline in the share of agriculture in employment and the consequent increase in the share of industry and service sector between 1985 and 1995, but beyond 1995 agriculture's share in employment declined only marginally with modest growth in the share of industry. Agriculture has thus continued to be the mainstay of employment accounting for as high as 48 percent of employment in 2005-06. Clearly, the employment content of the observed growth in industrial and service output has not been strong enough to reallocate surplus labor out of agriculture, although some components of the service sector such as health, education, public administration, real estate and transport experienced quite high growth in employment. As shown in Table 2, the overall yearly growth in employment during 1995-2006 was a paltry 3.1 percent while growth in labor force during the same period was estimated to be nearly 3.2 percent. The

picture becomes even more worrisome when the incidence of underemployment is taken into account, which stood at nearly 25 percent in 2005-06.

Table 2: Sectoral Composition (%) of Employment (1985 – 2006)

Year	Agriculture	Industry	Service	Total
1985-86	57.1	12.1	30.7	100
1995-96	48.9	13.3	37.8	100
2005-06	48.1	14.4	37.5	100
Yearly growth in employment 1995-2006 (%)	3.0	4.1	2.5	3.1

Source: BBS Labor Force Surveys

A second major structural change in Bangladesh economy has been the transition to a more open economy, particularly following the liberalization measures undertaken during early 1990s (Table 3). Exports rose from \$1718 million in 1990-91 to \$6467 million in 2000-01 indicating a yearly compound growth of 14.2 percent. Similar trends are observed with regard to imports and remittance. The openness of the economy shown by total external trade as a percentage of GDP increased from 21 percent in 1980-81 to 42.6 percent in 2008-09.

The composition of the export basket has also undergone significant changes during this period (Table 4). In 1981-82, raw jute and jute goods were the dominant export items accounting for 16.2 percent and 46.5 percent respectively of total exports. Woven garments accounted for a tiny 1.1 percent of total exports and there was no export of knitwear in that year. In 1991-92, the share of raw jute and jute goods in total exports came down to 4.3 percent and 6.4 percent respectively while the share of woven garment went up to 53.4 percent. This was the first year of knitwear export and accounted for 5.9 percent of total export. In 2008-09, one finds a very different picture with knitwear accounting for 41.3 percent of export followed by woven garment accounting for 38 percent of exports. The combined export of raw jute and jute goods stood at less than 3 per cent of total exports. During this period the share of manufactured goods in total exports rose significantly while that of primary goods registered commensurate decline. Bangladesh, thus, seems to have made successful transition from resource based export to process based exports, although exports remains precariously dependent on one item, namely, readymade garments.

Table 3: Trend in the Openness of the Economy

Description	1980-81	1990-91	2000-01	2008-09
Export (Million \$)	710	1718	6467	15565
Yearly export growth (%)	-	9.2	14.2	11.6
Import (Million \$)	2282	3510	9364	22507
Yearly import growth (%)	-	4.4	10.3	11.6
Remittance (Million \$)	381	764	1882	9689
Yearly remittance growth (%)	-	7.2	9.4	22.7
Export as % of GDP	5.0	7.3	13.7	17.4
Import as % of GDP	16.0	15.0	19.9	25.2
Remittance as % of GDP	2.7	3.3	4.0	10.8
Openness of the economy	21.0	22.3	36.9	42.6

Source: GOB Ministry of Finance, Economic Review

Table 4: Share (%) of Major Export Items

Year	Jute good	Raw jute	Frozen food	Woven garment	Knitwear	Primary commodity	Manufactured goods
1981-82	46.5	16.2	8.4	1.1	0.0	35.0	65.0
1991-92	6.4	4.3	7.3	53.4	5.9	15.0	85.0
2008-09	1.8	1.0	3.0	38.0	41.3	5.6	94.4

Source: GOB, Ministry of Finance, Economic Review

A third aspect of structural change in Bangladesh has been with regard to the relative role of the public and private sector. Policies towards private sector development underwent significant changes during the first three decades of independence. These changes were often closely associated with political changes in the country.

The development philosophy of the government at the time of Bangladesh's independence in 1971 was to confer on the state the leading role in the development process. Accordingly, immediately after independence, the government took over all industrial units abandoned by the non-Bengali entrepreneurs and also nationalized all Bangladeshi owned banks, insurance companies and industrial enterprises in the large and medium category. The scope of domestic private investment was limited to small and cottage enterprises.

The strategy of public sector led industrialization was abandoned after the political change in 1975 and the stage was set for the pursuit of mixed economy strategy with simultaneous emphasis on public and private sector. Between 1975 and 1981, a number of policy changes were made to give more room to the private sector. These included elimination of ceiling on private investment, amendment of the constitution to allow denationalization and actual divestiture of a number of public enterprises.

After the political change in 1981, the New Industrial Policy was announced in 1982 which marked a clear shift towards private sector led industrialization strategy. All subsequent governments adhered to this strategy of letting the private sector play the leading role in industrialization. In line with this strategy, privatization of public enterprises has been pursued and policies have been reformed to facilitate private sector growth resulting in secular decline in the share of public enterprises in industrial value added and employment (Table 5).

There have also been some changes in the composition of the industrial sector (Table 6). Manufacturing has all along been the dominant component of the industrial sector and its share in GDP increased from about 10 percent in 1988-89 to nearly 18 percent in 2008-09. However, its share in industrial output registered some decline as mining, construction and utilities experienced significant gains following deregulation of investment and inflow of foreign investment in some of these subsectors. A similar picture is seen with regard to employment share, with manufacturing having a more dominant position because of higher labor intensity in manufacturing compared to the other components of the industrial sector (Table 7).

Table 5: Declining Share of Public Enterprises in Industrial Value Added and Employment

Year	Share in VA (%)	Share in employment (%)
1976-77	55.1	78.3
1986-87	44.1	45.9
1991-92	23.1	21.1
1995-96	11.4	10.6
2001-02	6.9	5.6
2005-06	1.6	2.7

Source: BBS Census of Manufacturing Industries 2005-06

**Table 6: Changing Composition of the Industrial Sector in terms of GDP Share
1978 – 2009**

Year	Share in GDP (%)					Share of Mfg in Industry (%)
	Manufacturing	Construction	Utility	Mining	Industry	
1978-79	12.25	5.69	0.28	0.01	18.23	67.2
1988-89	9.89	6.18	1.03	0.00	17.10	57.8
1998-99	15.60	7.67	1.42	1.00	25.69	60.7
2008-09	17.78	9.13	1.57	1.25	29.70	59.9

Source: GOB Ministry of Finance, Economic Review

**Table 7: Changing Composition of the Industrial Sector in terms of Employment
1995-2006**

Year	Employment (Million persons)					Share of Mfg in Industry (%)
	Manufacturing	Construction	Utilities	Mining	Industry	
1995-96	3.5	1.0	0.1	0.0	4.6	76.1
2005-06	5.2	1.5	0.1	0.1	6.9	75.4

Source: BBS Labor Force Surveys

As shown in Table 7, manufacturing employment increased from 3.5 million in 1995-96 to 5.2 million in 2005-06 registering a yearly compound growth of 4 percent. According to the national income data, manufacturing value added increased at an annual compound rate of 6.6 percent during the same 10 year period. This would imply an employment elasticity of nearly 0.61 with respect to value addition, which suggests that recent manufacturing growth in Bangladesh has been moderately employment-intensive.

Table 8: Share of Manufacturing in Non-farm Employment 1986-2002

Year	Share in non-farm employment (%)			All
	Manufacturing	Wholesale & retail trade	Other services	
1986	42.9	33.0	24.1	100
2002	31.1	35.4	33.5	100

Source: BBS Economic Census 1986 and 2001/03

Manufacturing industry also seems to have lost some ground to service sector with regard to share in non-farm employment during 1986-2002. Thus, according to the data from the Economic Census, while manufacturing employment recorded modest growth during the inter census period of 1986-2002, the share of manufacturing employment in total non-farm

employment declined from 42.9 percent in 1986 to 31.1 percent in 2002, which was largely taken up various service activities (Table 8).

One also notices significant changes in the composition of the formal manufacturing sector during the past two decades. Table 9 and 10 lists top ten (in terms of value added share) 4-digit industries in “10 or more workers” size category for 1990-91 and 2005-06. As is evident from the Tables, the formal manufacturing sector in Bangladesh remained quite narrowly based during the 15 year period 1990-2005. The top ten 4-digit industries in terms of value added accounted for about 53 percent of establishments, 62 percent of manufacturing value added and 73 percent of manufacturing employment in the 10 or more workers size category in 2005-06. A number of industries gained significantly in terms of value added contribution during the reference period and this includes woven garments, knitwear, bricks, cement, iron and steel re-rolling and processed fish and seafood.

The impact of the observed changes in the composition of the formal manufacturing sector on employment generation was somewhat mixed. Readymade garments of the woven category replaced jute textiles as the top most industry both in terms of value added and employment share. In fact, readymade garments, with average employment size of 353 against 107 recorded for all manufacturing enterprises (with 10 or more workers), accounted for nearly 40 percent of all employment in the manufacturing sector in the stated size category in 2005-06. In addition, knitwear industry with average employment size of 806 accounted for another 14 percent of manufacturing employment in the same size category. Rapid growth of the readymade garment and knitwear industry, in turn, contributed to the growth of backward linkage industry, namely cotton textile. However, being less labor intensive the employment contribution of this backward linkage industry has been much less than readymade garment and knitwear industry. Similarly, pharmaceutical is also a less labor intensive industry whose growth has been facilitated largely by WTO waiver regarding patent protection for LDCs.

Cement, bricks and tiles, and iron and steel re-rolling mills gained from rapid growth of the construction sector. While brick making is quite labor intensive, cement, iron and steel re-rolling mills are less so. Thus, growth of manufacturing industry in Bangladesh during 1990-2005 presents a mixed picture in terms its contribution to employment generation, which corroborates the earlier

stated finding that manufacturing growth in Bangladesh during 1990s has been moderately labor intensive.

Table 9: Top Ten 4-digit Industries in terms of Value Added Share (10 or more workers) 1990-91

Sl. No.	BSIC (old code)	Industry	Value added share (%)	Employment share (%)
1	3213	Jute textile	11.51	19.91
2	3231	Readymade garments (woven)	10.98	16.73
3	3141	Cigarettes	10.82	0.87
4	3524	Fertilizer	6.82	0.67
5	3211	Cotton textile	5.82	8.60
6	3511	Pharmaceuticals	5.44	1.30
7	3216	Handloom textile	3.68	13.36
8	3123	Sugar factories	3.42	1.78
9	3533	Soap and detergents	1.94	0.51
10	3713	Iron and steel re-rolling	1.84	0.91
Total			62.27	64.64

Source: BBS Census of Manufacturing Industries 1990-91

Table 10: Top Ten 4-digit Industries in terms of Value Added Share (10 or more workers) 2005-06

Sl. No.	BSIC Code	Industry	Value added share (%)	Employment Share (%)	Average number of workers
1	1811	Readymade garments (woven)	23.9	39.7	353
2	1730	Knitwear	9.2	13.8	806
3	2692	Bricks & tiles	7.1	5.7	81
4	1601	Cigarettes	6.3	0.5	648
5	2423	Pharmaceuticals	4.7	1.8	180
6	2713	Iron & steel re-rolling mills	3.3	0.6	123
7	1711	Cotton textile	2.0	4.1	101
8	2694	Mfg. of cement	1.9	0.4	656
9	1512	Processed fish & seafood	1.7	0.4	145
10	1716	Handloom	1.5	6.3	27
Total			61.6	73.4	149

Source: BBS Survey of Manufacturing Industries 2005-06

III. Size Structure of Manufacturing Enterprises in Bangladesh

Official data pertaining to manufacturing industry in Bangladesh is available from several sources. These include the following:

- i) Labor Force Survey (LFS)
- ii) Economic Census (EC)
- iii) Annual Establishment and Institution Survey (AEIS), and
- iv) Survey of Manufacturing Industries (SMI) - Erstwhile Census of Manufacturing Industries (CMI)

These censuses and surveys are all carried out by the Bangladesh Bureau of Statistics (BBS). However, the reference period of the latest manufacturing data is not the same in all cases. There are also differences with regard to coverage, definitions and methodology used, both between data sources and also within each source at different points in time.

The manufacturing employment data from LFS has already been reported. Unfortunately, LFS does not provide employment data by size classes. Hence in this section, we examine data from the remaining three sources only.

Economic Census (EC)

The first census of non-farm economic activities in Bangladesh was carried out by the BBS in 1986. The census was repeated in 2001 but was limited to the urban areas. Enumeration of the rural undertakings was done in 2003. The main limitation of the EC data is that information for less than 10 workers category is not available broken down by smaller size groups, e.g. 1-5 workers and 6-9 workers category. Similarly, beyond 100 workers, the information is not broken down by disaggregate size groups such 100-299 workers, 300-499 workers etc. The EC data also does not provide value added information.

Table 11 shows distribution of manufacturing employment by size classes in the two census periods. The Table shows a U shaped distribution with the size groups at the two ends accounting for bulk of employment. However, one notices significant change in the size distribution of the manufacturing undertakings between 1986 and 2001-03. In 1986, micro

manufacturing units (less than 10 workers) accounted for nearly 61 per cent of all manufacturing employment. A large part of these micro units consisted of household based cottage industries that are operated wholly or mainly with family labor. These are mostly residual type activities using traditional technologies where factor productivity and rates of return are abysmally low, often lower than the wage rate of agricultural laborers. People are usually driven to these activities when more productive employment is not available. During the inter-census period, both the absolute level of employment and share in total manufacturing employment declined significantly for this smallest size group.

Table 11: Changes in the Size Distribution of Manufacturing Employment according to Economic Census Data

Year	Share in manufacturing employment (%)				Total
	Less than 10 workers	10-49 workers	50-99 workers	100 or more workers	
1986	60.5	9.3	3.3	26.9	100
2001/03	40.4	13.1	4.2	42.3	100

Source: BBS Economic Census Report

In contrast, small (10-49 workers) and large enterprises (100 and more workers) demonstrated a more vibrant situation. Employment share of small enterprises went up by nearly 4 percentage points from 9.3 percent to 13.1 percent while the employment share of large enterprises went up by nearly 15 percentage points from 26.9 percent to 42.3 percent. In contrast, medium enterprises (50-99 workers) experienced growth in employment share by less than 1 percentage point. However, significant inter-industry variations were also observed amongst enterprises in 10-99 employment size-group with respect to employment growth. Of the top 25 industries in terms of employment share in 2001/03, 14 experienced yearly employment growth of more than 5 percent. This means that there has been a fairly dynamic component within the 10-99 workers size category although, on the whole, this size group has registered only moderate growth in employment (Table 12).

Annual Establishment and Institution Survey (AEIS)

The AEIS is a sample survey of non-farm economic activities. Its coverage includes the following six sub-sectors.

- Manufacturing establishments with less than 10 workers
- All household based manufacturing activities
- Wholesale and retail trade (all employment sizes)
- Hotels and restaurants (all employment sizes)
- Establishments providing business, community, social, cultural and personal services (all employment sizes)
- Household based non-manufacturing service activities

Table 12: Growth in Employment in Top 25 Industries with 10-99 workers 1986-2001/03

ISIC	Description	Employment		Yearly growth in employment (%) 1986-2002
		1986	2001/03	
171	Spinning, weaving & textiles finishing	156565	234186	2.55
269	Non-metallic mineral products	34126	78727	5.36
153	Grain mill products	49386	69919	2.20
181	Wearing apparel	10591	36323	8.01
154	Other food	9778	32878	7.87
361	Furniture	7128	17252	5.68
252	Plastic products	4367	15070	8.05
172	Other textiles	4848	13754	6.73
281	Metal tanks and reservoirs	5389	12601	5.45
222	Job printing	4176	11778	6.70
192	Footwear	3475	11701	7.88
242	Other chemical products	3948	11536	6.93
173	Knitted wear and fabrics	3805	11024	6.87
210	Paper products	1357	8456	12.11
369	Jewelry, musical, sports & stationary	3759	8084	4.90
289	Other fabricated metal products	14648	7097	-4.43
271	Basic iron and steel	7641	6215	-1.28
160	Tobacco products	10833	5970	-3.66
191	Luggage, handbags etc.	3323	4705	2.20
201	Saw milling	7142	4213	-3.25
151	Processing meat, fish, fruit etc	1261	3933	7.37
221	Publishing	6139	3874	-2.84
362	Decorative handicrafts	1652	3286	4.39
351	Repairing and building of ship and boat	1382	2740	4.37
251	Rubber products	914	2551	6.63
Total		357633	617873	3.48

Source: BBS Economic Census Reports

Table 13 presents evidence on employment and value added at constant price for the manufacturing segment of the AEIS during 1992-93 and 2002-03. As can be seen from the Table, the evidence reaffirms the Economic Census findings that household based manufacturing activities have been on decline since early 1990s. Non-household based manufacturing establishment with less than 10 workers also stagnated with about 2.5 per cent yearly growth in employment during the reference period. The only silver lining in the case of the non-household based manufacturing is the improvement in labor productivity, which rose from Tk. 37,661 in 1992-93 to Tk. 42,667 in 2002-03 at constant 1995-96 price.

Table 13: Employment and Value Added in Manufacturing Units Covered by the AEIS

Description	Household based manufacturing			Non-household based manufacturing with <10 workers		
	1992-93	2002-03	Growth (%)	1992-93	2002-03	Growth (%)
Total persons engaged	1166085	1082957	Negative	495653	631800	2.5
Value added at 1995-96 prices (million Tk.)	25521	24896	Negative	18667	26957	3.7

Source: BBS Annual Establishment and Institution Survey

Survey of Manufacturing Industry (SMI)

The SMI, which until recently was known as the CMI, is a sample survey of manufacturing enterprises with 10 or more workers. To get a complete picture of the size distribution of non-household manufacturing we need to combine AEIS data with CMI data. But AEIS data are available only for 1992-93 and 2002-03 while the comparable disaggregate CMI data are available for the years 1995-96 and 2001-02. Hence, to present employment and value added share of different size categories in the total non-household sector we have estimated employment and value added in the less than 10 workers non-household manufacturing for the same years as CMI data (1995-96 and 2001-02) on the basis of available AEIS data using inter-survey growth rates (Table 14). Although SMI data for 2005-06 is now available, we have left it out of this calculation for comparability with the available AEIS data.

Table 14: Percentage Distribution of Employment and Value Added by Size Groups of Non-household Manufacturing Enterprises

Size groups (No. of workers)	Employment share (%)		Value added share (%)	
	1995-96	2001-02	1995-96	2001-02
<10 Non-household	21.1	18.1	10.1	9.6
10 – 49	13.9	9.3	8.0	4.8
50 – 99	5.0	5.8	4.9	5.6
100 – 199	9.5	7.4	8.0	6.4
200 – 499	20.6	22.4	21.3	23.7
500 or more	29.9	37.0	47.6	49.9
All	100	100	100	100

Source: BBS, Annual Enterprise and Establishment Survey, and Census of Manufacturing Industries

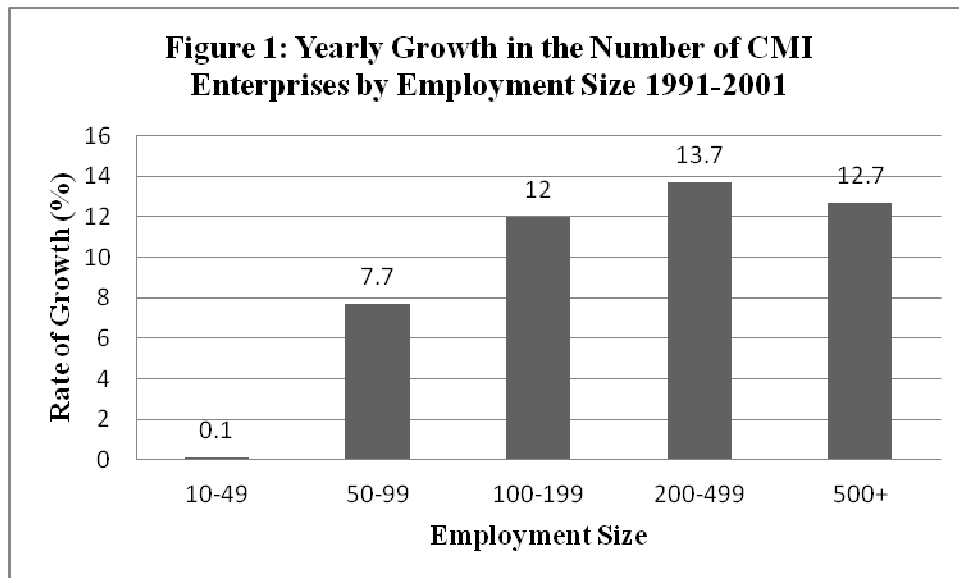
The evidence again presents a U shaped distribution, particularly during 1995-96 with large enterprises (500 and more workers) dominating the scene. The bottom end of the manufacturing spectrum, however, seems to be losing ground over time. Clearly, growth in non-household manufacturing in Bangladesh during 1990s has been overwhelmingly led by large enterprises. This was also reflected in the average employment size of the top 10 four-digit industries in Table 10.

Table 15: Percentage Distribution of Firms by Size Groups and the Share of Readymade Garments Industry 1991/92 – 2001/02

Size Group (No. of workers)	Share in number of firms (%)		Yearly growth in number of firms	Share of readymade garments in number of firms (%)	
	1991/92	2001/02		1991/92	2001/02
10 – 49	86.2	71.0	0.1	0.2	5.5
50 – 99	6.3	9.9	7.7	1.2	5.0
100 – 199	2.8	6.6	12.0	18.7	22.6
200 – 499	3.0	8.3	13.7	68.9	75.5
500 or more	1.7	4.2	12.7	22.8	62.6
All	100	100	2.3	2.6	14.8

Source: BBS, Census of Manufacturing Industries

To explain the observed change in the size structure of the manufacturing sector in terms of growth of readymade garments in Bangladesh, we have presented percentage distribution of firms in 10 or more workers category and the share of readymade garments industry in each size category of firms for 1991-92 and 2001-02 (Table 15). As can be seen from the Table, the share of enterprises with 200 or more workers has increased significantly during 1990s and readymade garment industry accounts for bulk of this increase in large firms.



IV Employment, Wages and Productivity Trends

The AEIS based evidence presented in the earlier section showed that employment in the “less than 10 workers non-household manufacturing” increased at a yearly rate of 2.5 percent during the ten year period 1992-2002 while the rate of growth of value added during the same period was 3.7 percent. This implies an employment elasticity of 0.68 with respect to value added for this size group of manufacturing establishments. The evidence also shows that labor productivity for these enterprises increased from about Tk. 37.7 thousand in 1992-93 to about Tk. 42.7 thousand in 2002-03 in constant 1995-96 price indicating a yearly growth in productivity of 1.3 percent only. The contrasting picture with regard to the formal manufacturing sector employing 10 or more workers based on CMI data for 1991-92, 2001-02 and 2005-06 is shown in Table 16.

Table 16: Labor Productivity Trends in Formal Manufacturing in Bangladesh

(All values are in constant 1995-96 prices)

Description	1991-92	2001-02	2005-06	Yearly rate of growth (%) 1991-2001	Yearly rate of growth (%) 1991-2005
No. of employees (000 persons)	1156	2466	3335	7.9	7.9
Value added (million Tk.)	85272	247520	491820	11.2	13.3
Value added per employee (Tk.)	73765	100385	147466	3.1	5.1
Employment cost (million Tk.)	30235	66500	121187	8.2	10.4
Annual wage rate (Tk.)	26155	26970	36336	0.3	2.4
Fixed capital per employee (Tk.)	103118	115995	189956	1.2	4.5

Source: BBS, Census of Manufacturing Industries

The evidence presents a much more vibrant picture of the formal manufacturing sector for the same period (1991-2001) with employment growth estimated at 7.9 percent while value added growth is estimated at 11.2 percent indicating an employment elasticity of nearly 0.71. As can be seen from the Table, labor productivity in formal manufacturing (employing 10 or more workers) was nearly double of that in non-household manufacturing (employing less than 10 workers) in early 1990s. During 1991-2001, labor productivity in the former group increased at a yearly rate of about 3.1 percent, which though modest was higher than that observed for the latter group. As a result, productivity differential between the two groups widened further and in 2002 stood at 2.4:1. The formal manufacturing sector experienced even higher growth in labor productivity during 2001-05.

However, productivity differentials between different size groups within the formal sector (employing 10 or more workers), shows a somewhat different trend. Table 17 depicts indices of fixed assets per worker (K/L), value added per worker (VA/L) and wage rate for different size groups of enterprises with values for the largest size group (500 or more workers) equal to 100. The indices have been presented for two years – 1995/96 and 2001/02. The evidence clearly shows a narrowing of the spread between the large enterprises (500 or more workers) and small and medium enterprise (10-199 workers) with respect to all three parameters.

Table 17: Factor Intensity and Labor Productivity Indices by Size Groups

No. of workers	1995-96				2001-02			
	K/L	VA/L	Wage	Wage as % of VA/L	K/L	VA/L	Wage	Wage as % of VA/L
10-49	23	36	41	30.4	64	38	65	38.8
50-99	38	62	50	21.5	47	72	74	23.5
100-199	32	53	54	27.2	69	64	90	32.2
200-499	32	65	77	31.8	44	79	95	27.9
500+	100	100	100	26.6	100	100	100	23.0

Source: BBS, CMI Unit Level data

Growth of large manufacturing enterprises (500 or more workers) has been spearheaded mainly by readymade garments and knitwear industries, which are highly labor intensive activities, and this has resulted in capital intensity and labor productivity in this size group to decline. At the same time, the evidence also supports the notion that significant capital deepening has taken place amongst the small manufacturing enterprises in Bangladesh during 1990s. Although as indicated by the Economic Census data, a number of traditional small industries such as grain mill, saw mill, handloom etc. either stagnated or experienced decline in employment, there were the more dynamic components of the small and medium industry group who by taking advantage of the liberalized trade regime upgraded their technology and catered to both domestic and export markets. According to the Economic Census data, this group included plastic products, footwear, miscellaneous food products, job printing, apparel making, knitted wear, chemical products etc.

Case study of leather footwear industry in Bangladesh carried out in connection with the present study has presented the evidence that side by side with the growth of modern leather footwear industry catering to both domestic and export markets, there has been very significant expansion of domestic market oriented small leather footwear enterprises with 10-49 workers, which now produce quality leather footwear taking advantage of easier access to imported raw materials. However, these enterprises seem to have remained largely outside the coverage of the Survey of Manufacturing Industries.

Similarly, case study of knitwear industry in Bangladesh carried out in connection with the present study has shown that rapid growth of export oriented knitwear industry of large and

medium size has facilitated the growth of a fairly large number of small knitwear enterprises who mainly perform sub-contracting jobs for the larger enterprises under a somewhat flexible production arrangement.

The improvement in product quality and technology has contributed to higher labor productivity and wage to workers in small enterprises. As can be seen from the Table, in 1995-96, wage rate in small enterprises was only 41 percent of wage in the large enterprises. But the wage spread seems to have declined overtime. However, wage as a proportion of labor productivity has remained higher in the case of small enterprises and the gap seems to have widened during the reference period. This means that growth of readymade garments industry despite being labor intensive has not been sufficiently poverty reducing because of low productive employment generated. As an illustration, it may be mentioned that in 2005-06, labor productivity in readymade garments (woven and knit) was Tk. 120 thousand in current price, which was only 43 percent of labor productivity of Tk. 279 thousand in the rest of the manufacturing sector (with 10 or more workers).

Another manifestation of the overwhelming contribution of readymade garment industry in the employment generated in the manufacturing sector is the fact that employment elasticity of the formal manufacturing sector (10 or more workers) excluding readymade garments was estimated to be around 0.50 during 1995-2001 while the employment elasticity of value added in the sector inclusive of readymade garment industry was estimated to be as high as 1.2 during the same period.

V. Factors Contributing to Structural Change in the Manufacturing Sector

The structural change in the manufacturing sector of Bangladesh witnessed during the past three decades was the outcome of the interplay of several factors. Of these, the role of public policy, particularly those relating to private sector promotion and external trade were critically important. A brief account of the major contributing factors behind the observed structural change in the manufacturing sector of Bangladesh is presented below.

Public vs. private sector led growth strategy

As mentioned earlier, Bangladesh started with a public sector led industrialization strategy under which private manufacturing investment was restricted to small and cottage industries. But within a few years the ceiling on private manufacturing investment was relaxed and eventually fully removed. Finally, Bangladesh shifted to a private sector led industrialization strategy and in that pursuit, regulatory regime governing private manufacturing investment was relaxed and wide ranging policy incentives were put in place. Bakht (1993, 2001), Ahmed and Bakht (2010), Ahmed and Yunus (2010) and Rahman and Bakht (1997) provide a detailed account of these policy shifts.

Historically, public manufacturing investment was channeled into large and capital intensive industries. Even after substantial privatization and reduction in manufacturing investment during the past two decades, per capita fixed assets in public manufacturing enterprises in 2005-06 remained significantly above the per capita fixed assets level in all enterprises of comparable size. As shown in Table 18, average employment size in public manufacturing enterprises in 2005-06 was 848 while fixed assets per worker in current prices was 650 thousand taka. In contrast, the average fixed assets per worker for all enterprises in 500+ workers size group was only 23 thousand taka. Clearly, the shift from public to private sector led industrialization strategy was partly responsible for the declining trend in capital intensity in the large manufacturing enterprises in Bangladesh during the reference period.

Table 18: Fixed assets per Worker in Public Enterprise 2005-06

Enterprise Type	Average employment size	Fixed assets per worker (000 Tk.)
Public	848	650
All enterprises with 500+ workers	551	23

Source: BBS, Report on Bangladesh SMI 2005-06

Liberalization of the trade and exchange rate regime

Historically, Bangladesh, like her neighbors in South Asia pursued a development strategy that was based on import substituting industrialization. The economic case for this inward looking strategy was built around the arguments of (a) conservation of scarce foreign exchange and (b) the need to create an industrial base through the provision of protected domestic market. The policy was pursued with the use of high tariff walls and extensive use of quantitative restrictions (QRs) and other non-tariff barriers. All foreign exchange earnings accrued to the government and were then allocated to competing uses through a discretionary mechanism of import licensing.

The main limitation of this autarkic strategy, however, was that it created a distorted incentive structure resulting in allocative and productive inefficiency. The policy also gave rise to anti-export bias and discouraged growth of export.

The outcome of this policy has been disappointing in terms of industrialization, export development, balance of payments situation, and development of the overall economy in sharp contrast to the rapid growth of the East Asian economies that followed a more outward oriented development strategy. Disenchanted with the import substitution strategy and pursued by donor conditionalities, the policy makers in Bangladesh as also in other South Asian economies, began to tilt towards a more open economy policy since the late 1970s.

Trade policy reforms in Bangladesh covered both tariff and non-tariff barriers (NTB). Under non-tariff barriers, the focus has been on deregulation of the import procedure and elimination of quantitative restrictions (QR). With regard to tariff barriers, the attempt has been to rationalize the tariff structure, reduce the number of duty slabs, and bring down tariff rates and their dispersion amongst similar commodities.

Extensive use of quantitative restrictions was a standard feature of Bangladesh's import control mechanism during 1970's and early 1980's. Table 19 shows the progress that has been made in reducing import restrictions since 1985-86, measured at the 4-digit level.

Table 19: Removal of QRs at the 4-digit HS Classification

Year	Restricted for		Total restricted
	Trade reasons	Non-trade reasons	
1985-86	429	49	478
1990-91	179	60	239
1995-96	27	93	120
2003-06	23	40	63

Since the mid 1980's, Bangladesh has come a long way in terms of dismantling its non-tariff barriers. The system of import license has been virtually eliminated and the control list of banned and restricted items has been brought down to a minimum.

Rationalization of the tariff structure has been one of the key elements of trade policy reforms in Bangladesh. Prior to 1986, the tariff code had 24 tariff slabs, which were not based on easily discernible principles for assigning different rates to different products. The duty rate varied widely, not only among different industries, but also between products in the same industry depending upon the type of importer, end use of the product, geographical location of the firm, or the size category of the industry. For many products, basic raw materials received higher protection than intermediate output, while these in turn were protected more than final products. Apart from distorting the incentive structure, these anomalies also created scope for wide spread abuse in tariff assessment and rent seeking by both importers and custom officials.

In a bid to rationalize the tariff structure, the government attempted to reduce the wide variations in tariff rates and ensure that statutory and actual rates do not vary much. The number of ad valorem custom duty rates has been reduced gradually which stood at 18 in 1991-92 and 7 in 1995-96. Preferential rates of duties applicable to public sector enterprise were eliminated in 1989. Tariff reform was accelerated significantly in the fiscal year 1992-93 by the compression of custom duty rates into a range of 7.5-100 percent for most products accompanied by the removal of many end user defined distinctions. As a part of the rationalization measures, maximum tariff rate was reduced from a level of 350 percent in 1991-92 to 50 percent in 1995-96 and then further down to 37.5 percent in 2000-01 (Table 20). Import weighted tariff rate declined from 42.1 percent in 1990-91 to 20.9 percent in 1994-95, 15.1 percent in 2000-01 and to 11.48 percent in 2003-04.

Table 20: Tariff Structure in Bangladesh

Year	Number of tariff bands	Maximum tariff rate (%)	Unweighted average tariff rate (%)
1991-92	18	350.0	70.0
1995-96	7	50.0	22.3
2000-01	5	37.5	18.6
2004-05	4	25.0	13.5

Source: GOB, Ministry of Finance, Economic Review

At inception in 1971, Bangladesh pegged its currency to pound sterling. In support of its import substitution strategy Bangladesh maintained an overvalued exchange rate. All foreign exchanges accrued to the government and were then allocated to competing uses through a discretionary and cumbersome mechanism of import licensing.

To attract remittance and to provide incentive for exports, a secondary exchange market (SEM) was also in operation since mid-1970's. Bangladeshi wage earners residing abroad could sell their remittance at a higher rate in the SEM. The exporters were also allowed to convert a part of their export earnings through the SEM. Thus, Bangladesh maintained a system of dual exchange rate for quite sometimes. In 1980, the fixed exchange rate regime was replaced by a system of "managed float" and the taka was pegged to a basket of currencies of the country's major trading partners. The intervention currency was changed from pound to US dollar. In 1992, the government abandoned the system of dual exchange rate by unifying the official exchange rate and the SEM rate. Bangladesh made its currency convertible on current account as of 1993.

The system of "managed float" continued up to 2003 when the country moved to a free floating system. Between 1980 and 2003, the nominal exchange rate was devalued in small amounts keeping in pace with inflation. In 1979-80, the exchange rate stood at Tk. 15.47/\$. By 2001-02, it rose to Tk.53.96/\$ implying an annual depreciation rate of about 5.8%. The Consumer Price Index (CPI) in 2001-02 stood at 245.92 with 1985-86=100, which implies an annual inflation rate of about 5.79 percent during this period.

After Bangladesh embarked on free float exchange rate system on March 31, 2003, the exchange rate depreciated moderately in the initial years. There was sharp depreciation in 2005-06 that may

have been linked to capital flight prior to election. After that the yearly depreciation became moderate again (Table 21). Between 2002-03 and 2006-07, the yearly rate of depreciation was estimated to be about 4.7 percent.

Table 21: Trend in Nominal Exchange Rate (Tk./\$) under Floating Exchange Rate System

2002-03	2003-04	2004-05	2005-06	2006-07
57.43	57.90	58.94	67.08	69.03

The liberalization of the trade regime and the pursuit of a market oriented exchange rate policy substantially reduced the anti-export bias that existed in the trade and exchange rate policy of Bangladesh in the initial years. The reform measures thus provided a favorable policy environment for the growth of export industries.

At around the same time, the international intermediaries faced with binding quota restrictions of the Multi-fibre Arrangement (MFA) in their own country were trying to relocate readymade garments industry in some other labor surplus country and Bangladesh became an obvious choice as it was still free from quota restriction and had very low labor wages. Thus, the initial investment in this export industry was made under joint venture with South Korean Daewoo Company. But Bangladeshi entrepreneurs realized the potentials of this industry and were quick to seize the opportunity by rapidly investing in the industry. In fact, with the take-off of the local readymade garments industry, FDI was initially barred from entering into readymade garments industry. Later, FDI was allowed in readymade garments industry only in the export processing zones. Thus, unlike the case of Sri Lanka and Vietnam, FDI has not been a very important factor behind the rapid growth of readymade garments industry in Bangladesh.

Although the trade regime was quite restrictive during the early years of the growth of readymade garments industry in Bangladesh (late 1970s and early 1980s), the industry was provided duty free access to imported raw materials under the bonded warehouse system, which was important in ensuring external competitiveness of the industry as Bangladesh had to import bulk of the raw materials for this industry. This system was also helpful in supporting the growth

of a number of backward linkage industries such as printing and packaging, plastic accessories for readymade garments, and textile spinning and weaving. Other export industries that have benefitted from liberalized trade and exchange rate regime include fish and seafood processing, leather and leather products, and light engineering.

Easier access to imported raw materials has also facilitated the growth of a number of domestic market oriented industries. These include pharmaceuticals, plastic products, leather footwear, and processed food products

Access to finance

The export industries which grew because of liberalized trade and exchange rate policy belonged mostly to medium and large-scale. In the case of knitwear industry the growth of large-scale export units also facilitated the growth of smaller sized knitwear units because of the scope of sub-contracting. The incidence of such sub-contracting was less significant in the case of other export industries. Some of the enterprises in backward linkage industries, particularly in printing and packaging were also of smaller size.

In contrast, most of the domestic market oriented industries such as plastic, leather footwear etc., which grew due to easier access to imported raw materials were of relatively smaller size. One factor that has contributed to this divergent growth of size groups in domestic and export industries is differential access to finance. The rapid growth of export oriented large-scale readymade garments, knitwear, leather and leather products industries was largely facilitated by the system of back-to-back LC and working capital financing under which exporters could avail financing for import of raw materials and other working capital needs at concessional rate against confirmed export LC. This facility was also extended to deemed exporters who supplied manufactured inputs to export industries, but domestic market oriented industries remained outside the scope of this facility. The implied segmentation of the capital market thus influenced size structure of the export industries in favor of larger enterprises.

Lack of access to institutional finance has been a persistent constraint to growth of small industries. In the past, government attempted to provide small enterprises with access to finance

through targeted lending. But the actual delivery of institutional credit to this sector remained grossly inadequate. The evidence presented in Table 22 shows that despite all the efforts to channel funds to small enterprises actual disbursement of bank credit to this sub-sector remained stagnant at around 2 per cent of total bank credit disbursement during 2001 -2005. Similar situation also existed prior to 2001.

Table 22: Percentage Distribution of Bank Credit by Sector

Sector	2000-01	2001-02	2002-03	2003-04	2004-05
Agriculture	13.5	12.6	11.0	10.4	9.6
Large & medium industry					
- Term loan	24.2	21.5	18.2	18.7	18.8
- Working capital loan	8.2	11.7	16.1	17.8	20.8
Small & cottage industry					
- Term loan	1.2	1.1	0.9	1.0	1.0
- Working capital loan	0.4	0.6	0.8	0.9	1.1
Construction	5.7	6.0	6.7	6.3	5.8
Transport & communication	1.4	1.6	1.5	1.4	1.3
Storage	1.4	1.3	1.0	1.0	0.9
Trade	29.6	30.7	32.9	31.0	28.7
Miscellaneous service	14.2	12.9	10.8	11.6	12.0
Total	100	100	100	100	100

Source: Bangladesh Bank

One of the factors that have hampered flow of institutional finance into small enterprises is banks' pre-occupation with collateral based lending. Traditionally banks have used fixed asset ownership particularly land ownership as the basis for judging credit-worthiness. This puts small enterprises at relative disadvantage as they often cannot put up such collateral for loan. Moreover, whatever collateral they can manage gets used up in taking the term loan leaving them with no means to seek working capital loan from institutional sources. Unlike their large-scale counterparts they cannot use influence and contacts and solve the problem by putting up collateral of dubious valuation. Banks, on their part, also tend to be less flexible about the collateral requirement in the case of the small enterprises as they perceive this type of loan to be more risky and the cost of monitoring and supervision to be higher.

In 2003-04, a refinancing scheme for credit to small and medium enterprises was set up under the central bank. Under this scheme, the central bank charges participating institutions at the Bank Rate (5%) while the lending institutions decide on the lending rate of interest. This provides these institutions with the scope of attempting lending to small and medium enterprises without real estate based collateral as their risks will be covered through refinancing facility and they can accommodate any additional cost of loan administration through an appropriate spread between the borrowing and the lending rate. So far, the scheme appears successful in extending collateral free loan to small and medium enterprises although a disproportionately larger proportion of the loan recipients are seen to belong to trading rather than manufacturing.

Market access and fiscal incentives

Before its phasing out on the first of January 2005, MFA acted as a trade restrictive quantitative measure. However, for Bangladesh MFA was a blessing as it provided market access for its readymade garments for the first time in history thus allowing Bangladeshi apparels to get a foothold in the export market. The subsequent rapid growth of the readymade garment industry in Bangladesh also owes largely to MFA. Eventually the quota became binding and restrictive for Bangladesh also. However, by then Bangladesh had attained competitive advantage in the export of readymade garment so that it could sustain its readymade garments export even after the phasing out of MFA.

Another important aspect of market access facilitating the growth of readymade garments industry in Bangladesh was the Generalized System of Preference (GSP) under which Bangladesh as an LDC is granted duty free access to selected developed country markets subject to conditions relating to rules of origin, while the duty on comparable import from other developing countries stood at around 12 percent. The rules of origin for GSP in the European market required two-stage value addition, i.e. the readymade garment and the fabric input must be of Bangladesh origin. At one point, the rules of origin required three stage value addition, which means that the yarn used in the fabric input also has to be of Bangladesh origin.

This provided the incentive for setting up of backward linkage industry which was strengthened further with the fiscal incentive of 20 percent cash subsidy for readymade garments exported with fabric of local origin, which was introduced in early 1990. This means that for every \$100

worth of readymade garments exported, the government provided \$20 cash subsidy to the exporter if the fabric used was of local origin.

The market access granted through GSP and the fiscal incentive in the form of cash subsidy together resulted in rapid growth of large-scale composite knitwear mills, which produced all three products namely yarn, knit fabric and knit garments. This also facilitated setting up of large independent spinning and weaving mills. Given that production of knit fabric requires less lumpy investment than woven fabric the backward linkage expanded more rapidly for knit garments and consequently export of knitwear in European market grew very rapidly and ultimately knitwear surpassed woven garments as the country's top export earner.

The export oriented processed fish and seafood industry also grew rapidly benefitting from the European GSP facility.

Growth in domestic demand

As mentioned earlier, Bangladesh economy experienced steady increase in GDP growth from about 4 percent during 1980s to about 5 percent during 1990s and then to about 6 percent during the decade of 2000. The economy got a further boost through significant increase in remittance income. The consequent growth in domestic demand contributed to rapid expansion of many domestic market oriented consumer goods industries such as plastic, leather footwear, processed food products etc. As an illustration of growth in domestic demand, it may be mentioned that during 1980s, Bangladesh exported most of the tea it produced. Currently, bulk of the tea produced is consumed domestically.

One sector experiencing significant growth due to increase in domestic demand particularly that originating in remittance income is Construction. During 1990s, the construction sector grew at a trend rate of nearly 9 percent. Consequently, industries supplying input to the construction sector experienced rapid growth. These included bricks and tiles, iron and steel re-rolling, cement, wooden furniture etc. Easier access to imported raw materials also supported the growth of iron and steel re-rolling, cement and wooden furniture industry. The cement industry also benefitted from substantial inflow of FDI.

Of these construction related activities, bricks and tiles and wooden furniture are labor intensive industries while iron and steel re-rolling and cement are capital intensive industries. Except wooden furniture, all other industries belong to medium and large size category. Wooden furniture has a mix of both large and small enterprises.

VI. Concluding Remarks

The evidence presented has shown that the non-household manufacturing enterprises employing less than 10 workers and those employing between 10-49 workers accounted for a significant proportion of manufacturing establishment and employment during early 1990s. At the other end enterprises having 200 or more workers constituted the other major component of manufacturing establishment and employment and accounted for bulk of manufacturing value added. This conventional dualistic look of the manufacturing sector with a missing middle, however, seems to be on decline in Bangladesh.

During the decade of 1990s, non-household manufacturing establishments employing less than 10 workers stagnated with low employment and value added growth resulting in substantial decline in employment and value added share. Growth in manufacturing during this period has been spearheaded by large enterprises employing 200 or more workers. The disaggregate picture shows that growth of large manufacturing enterprises was again dominated by a single industry, namely, readymade garments.

Given the high labor intensity and low labor productivity entailed in readymade garments industry, the dominant contribution of the industry in the growth of large manufacturing resulted in capital intensity and labor productivity in the largest size group of enterprises (500+ workers) to decline.

At the same time, a core dynamic component in the small industry group (10-99 workers) seems to have undergone considerable modernization taking advantage of trade liberalization measures and raised both fixed assets per worker and labor productivity and has been successful in bringing under its fold a larger segment of the domestic market and also making foothold in the

export market. This has resulted in narrowing down of the spread with respect to capital intensity and labor productivity between small and large industry reflecting upward mobility on the part of the modern component of the small industry group. The formal manufacturing sector as a whole (employing 10 or more workers) experienced moderate growth in capital intensity and labor productivity during the decade of the 1990s. The picture improved somewhat during 2001-05.

An analysis of the factors contributing to structural change in the manufacturing sector of Bangladesh shows that shift in public policy with regard to the relative role of the public and the private sector, reforms in trade and exchange rate policy, differential access to institutional finance, preferential market access, fiscal incentives and growth in domestic demand shaped the pattern of structural change in the sector during the past three decades.

On the whole, however, the quality of manufacturing employment growth in Bangladesh seems to have been low as reflected in low growth of labor productivity and real wages with consequent low impact on poverty reduction and equitable growth. This has happened because manufacturing growth in Bangladesh has been too narrowly based on low productive readymade garments industry alone.

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