

Draft

**Growth Potentials of Small and Medium Enterprises:
A Review of Eight Sub-sectors in Bangladesh**

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I. Introduction

The prime objective of the Job Opportunities and Business Support Program (JOBS) is to create private sector employment for the poor in Bangladesh. The Program seeks to achieve this objective by focusing on employment creation in small, medium and micro enterprise sub-sectors. To this end, JOBS carried out a study to prioritize prospective sub-sectors for its support program. The study was based on available secondary data, limited field visits, and interviews of entrepreneurs and other knowledgeable persons.

Following the recommendations of the study report, JOBS commissioned detailed study of eight sub-sectors with a view to further narrowing down its area of initial intervention and preparing appropriate package of non-financial assistance for the selected sub-sectors. The sub-sectors selected for detailed study are Bakery, Specialized Handloom, Textile Dyeing and Printing, Footwear, Plastic Products, Steel Furniture, Electrical Goods and Engineering Workshop.

Sample surveys were carried out on the eight sub-sectors following the GEMINI survey approach and sub-sector reports have been prepared based on these surveys. The reports identify the key firms and actors in the sub-sectors, map each sub-sector's operations and highlight the constraints and the opportunities faced by the individual sub-sectors. The eight sub-sector studies are also intended to provide benchmark data from which sub-sector assistance can be measured.

The purpose of the present report is to provide a comparative assessment of the eight sub-sectors focusing on both the static and dynamic aspects of these sub-sectors. The objective is to rank the sub-sectors in terms of their potentials for growth and employment creation. To this end, the report draws on available macro data on the sub-sectors as well as the quantitative data available from the sample survey.

The report is organized as follows. After the introductory remarks in Section I, Section II reviews three structural attributes of the sub-sectors, namely, dominance, size of establishment and cost of employment creation. These characteristics provide a ranking of the sub-sectors from the static perspective. Section III examines the relative efficiency of the sub-sectors. This involves looking into the past growth performance of the sub-sectors, incidence of recent entrants, factor productivity, rate of return etc. These indicators provide the basis for deriving a second set of ranking reflecting the dynamic concerns. Finally, Section IV assesses the potentials for employment creation in the sub-sectors based on the rankings from Section II and III.

II. Structural Attributes of the Sub-sectors

(a) Dominance

The relative size of the sub-sector is an important structural attribute that may determine the priority of the sub-sector for assistance program. The more dominant the sub-sector, the greater is likely to be the impact of any assistance program.

As is well known, size of the sub-sector can be measured either in terms of number of establishments, employment, output, value added or fixed assets. However, since the prime objective of JOBS is employment creation, we have limited ourselves to employment criteria for assessing the relative size of the sub-sectors.

The sample survey data could not be drawn upon for this purpose, as the sampling design used in the sub-sector survey was not intended to provide macro estimates of the sub-sectors. Although, questions were asked about the number of similar firms currently existing in the area, this was intended more to indicate the degree of competition faced by the respondent rather than the size of the sub-sector and has been presented accordingly in the sub-sector report. Hence, information on aggregate employment had to be sought from available macro sources.

The main source of macro data on SMEs is the survey carried out by the Bangladesh Small and Cottage Industries Corporation (BSCIC). The latest available report of the BSCIC Survey of Small and Cottage Industries was published in 1994 although the reference period of the survey was somewhat earlier (1991). The BSCIC survey covers all small and cottage enterprises defined to have a maximum fixed investment of Tk. 30 million excluding investment in land and building.

The second source of macro data is the Bangladesh Bureau of Statistics (BBS). The BBS carries out annual Census of Manufacturing Industries (CMI) which covers large and medium enterprises having 10 or more workers. The latest available CMI Report is for the year 1991-92. The BBS also carries out Annual Establishment and Institution Survey (AEIS) covering units with fewer than 10 workers; the latest available report of the AEIS is for 1992-93.

In Table 1, we have provided information on sub-sector employment obtained from these three sources. In the case of CMI, employment figures have been presented for enterprises having 10-99 workers so as to exclude the large enterprises. Because of somewhat different industrial classification scheme used by the BBS, the employment figures could not be compiled for 2 sub-sectors for CMI and AEIS data.

Table 1
Macro Evidence on Sub-Sectoral Employment

Sub-sector	Employment Size		
	BSCIC Survey	CMI	AEIS
Bakery	41653	15125	10791
Specialized Handloom	4122	N.A	N.A
Dyeing and Printing	3964	6115	9
Footwear	14438	2370	4938
Plastic Products	4466	2690	469
Steel Furniture	5072	1850	1920
Electrical Goods	10786	2685	205
Engineering Workshop	39346	N.A	N.A

Source: BSCIC, *Survey Report on Small and Cottage Industries 1994*
BBS, *Report on Bangladesh Census of Manufacturing Industries 1991-92*
BBS, *Report on Annual Establishment & Institution Survey 1992-93*

According to the BSCIC data, the top three sub-sectors in terms of employment are Bakery, Engineering workshop and Footwear. Bakery ranked third in terms of employment amongst all small industries of Bangladesh in the BSCIC survey. The importance of this sub-sector as a small and medium industry is also borne out by the evidence from the CMI and AEIS. Similarly, Engineering workshops ranked sixth in terms of employment amongst all small industries during the reference year.

Footwear sub-sector consists of Leather footwear and non-leather (mainly Plastic and Rubber) footwear production. Leather footwear accounted for 74% of the employment in the Footwear sub-sector. In contrast to Bakery and Engineering workshop, bulk of the employment in the Footwear sub-sector (71%) belonged to the cottage category. The relative importance of the Footwear sub-sector and the higher incidence of micro enterprises in the Footwear sub-sector are also borne out by the CMI and the AEIS data.

One observes certain amount of discrepancy between BBS and BSCIC employment data in the ranking of the other sub-sectors. Since all three surveys are known to suffer from some degree of under-coverage, we have accepted the higher employment figure from the two sources to determine the final ranking of the industries.

Based on the revised figures the distribution of the sub-sectors in terms of "Top five" and "Bottom three" on the basis of dominance seems to be as follows:

Top Five (Dominance)		Bottom Three (Dominance)	
Bakery	41653	Steel Furniture	5072
Engineering Workshop	39346	Plastic Products	4466
Footwear	14438	Specialized Handloom	4122
Electrical Goods	10786		
Dyeing and Printing	6124		

(b) Average Size of Employment

While the aggregate size of sub-sectoral employment is important from the point of view of sustaining existing employment, average employment size may be more pertinent in the context of generating new employment. Accordingly we have presented information on average employment size for the eight sub-sectors in Table 2 on the basis of the sample survey data.

However, since the average may be sensitive to extreme values, we have also presented information on the proportion of enterprises falling in the different employment size categories. As can be seen from the Table, 62% of the enterprises in Dyeing and Printing have 20 or more workers. The proportion is 47.6% in the case of Specialized Handloom and 30.9% in the case of Plastic Products. At the other end, 80% of the enterprises in Electric goods have fewer than 20 workers. The incidence is 77.5% in the case of Steel Furniture and 76.2% in the case of Footwear. One observes broad correspondence between the ranking of the sub-sectors on the basis of average employment size and the incidence of larger enterprises.

Table 2
Average Employment Size and Distribution of Enterprises by Size Categories

Sub-sector	Average Employment	% of Enterprises in the Size Category			
		< 10 workers	10-19 workers	20-49 workers	50 or more workers
Bakery	20.9	23.1	46.2	20.5	5.2
Specialized Handloom	38.0	31.0	21.4	31.0	16.6
Dyeing and Printing	41.5	19.0	19.0	35.7	26.3
Footwear	14.6	26.2	50.0	23.8	0.0
Plastic Products	24.0	23.1	41.0	30.8	5.1
Steel Furniture	15.3	30.0	47.5	22.5	0.0
Electrical Goods	15.4	32.5	47.5	15.0	5.0
Engineering Workshop	16.5	41.5	26.8	26.8	4.9

Accordingly, the distribution of the sub-sectors between "Top five" and "Bottom three" in terms of establishment size appears to be as follows:

Top Five (Incidence of larger units)		Bottom Three (Incidence of larger units)	
Dyeing and Printing	62.0%	Footwear	23.8%
Specialized Handloom	47.6%	Steel Furniture	22.5%
Plastic Products	35.9%	Electrical Goods	20.0%
Engineering Workshop	31.7%		
Bakery	25.7%		

(c) *Cost of Employment Generation*

In the static context, cost of employment generation may be measured in terms of capital deployed per unit of labor. For our purpose here, we have defined capital as the replacement cost of fixed assets excluding land and building. Information on capital per worker based on the sample survey and BSCIC data has been presented in Table 3.

Table 3

Cost of Employment Generation: Sample Survey and BSCIC Data

Figures within parentheses give the rank of the sub-sector

Sub-sector	Fixed Capital per Worker (Tk)	
	Sample Survey	BSCIC
Bakery	(2) 9732	(1) 10613
Specialized Handloom	(1) 5526	(2) 11330
Dyeing and Printing	(7) 45337	(6) 54160
Footwear	(4) 34625	(3) 14812
Plastic Products	(8) 172998	(8) 112641
Steel Furniture	(6) 40116	(7) 94448
Electrical Goods	(3) 24325	(5) 53595
Engineering Workshop	(5) 38316	(4) 51552

As is evident from the Table, Plastic Products, Dyeing and Printing and Steel furniture are the most capital-intensive sub-sectors according to both sources of information. Similarly, both data sources identify Bakery and Specialized Handloom as the most labor-intensive sub-sectors. Footwear, Electrical Goods and Engineering Workshop are identified as moderately capital intensive. Within the Footwear sub-sector, Leather Footwear has been found to be highly labor intensive while Plastic and Rubber Footwear have been found to be quite capital intensive. Similarly, while Dyeing and Printing of fabric is quite capital intensive, the yarn-dyeing component has been found to be only moderately capital intensive.

Thus, the distribution of the sub-sectors between "Top Five" and "Bottom Three" in terms of cost of employment generation works out to be as follows:

Top Five (Capital per Worker)		Bottom Three (Capital per Worker)	
Specialized Handloom	5526	Steel Furniture	40116
Bakery	9732	Dyeing and Printing	45337
Electrical Goods	24325	Plastic Products	172998
Footwear	34625		
Engineering Workshop	38316		

(d) *Combined Ranking based on Structural Attributes*

In Table 4, we have attempted to derive the combined ranking of the 8 sub-sectors based on the three structural attributes, namely, dominance, size of establishment and cost of employment generation. For this purpose, the average rank of each sub-sector was calculated on the basis of the sub-sector's ranks under the three separate criteria. Aggregate rank was then assigned on the basis of the average rank worked out in the above manner.

Table 4**Combined Ranking of the Sub-Sectors based on Structural Attributes**

Sub-sector	Rank based on			Aggregate Rank ^a based on column (2), (3) & (4)
	Total employment	% of units with 20 or more workers	Cost of Employment	
(1)	(2)	(3)	(4)	(5)
Bakery	1	5	2	1
Specialized Handloom	8	2	1	3
Dyeing and Printing	5	1	7	5
Footwear	3	6	4	4
Plastic Products	7	3	6	7
Steel Furniture	6	7	8	8
Electrical Goods	4	8	3	6
Engineering Workshop	2	4	5	2

^a Assigned on the basis average rank from the three criteria

The distribution of the sub-sectors between "Top five" and "Bottom three" according to the combination of the three attributes is as follows:

Top Five (Structural Attributes)	Bottom Three (Structural Attributes)
Bakery Engineering Workshop Specialized Handloom Footwear Dyeing and Printing	Electrical Goods Plastic Products Steel Furniture

As explained earlier, the sub-sectors which are top according to the combined ranking are the ones in which (a) cost of employment generation is low, (b) a larger employment is created per establishment, and (c) the spread effect of support program across the sub-sector is likely to be higher because of larger employment size.

The main point to note about the above ranking is that the traditional sub-sectors such as Bakery, Engineering Workshop, Specialized Handloom and Footwear are in the top in this combined ranking while the more modern sub-sectors such as Plastic, Electric Goods and Steel Furniture are ranked low. The explanation lies in the fact that the traditional sub-sectors have a more dominant employment base and are more labor-intensive compared to the modern sub-sectors.

It should be noted, however, that this ranking based on cost of employment generation, employment per establishment and current aggregate size of the sub-sector reflect static concerns only. To assess employment potential in the dynamic context, one needs to look into efficiency and performance issues. A sub-sector that is currently dominant in terms of its employment size and in which the cost of employment creation is low may contribute less to employment generation in the long run if it ranks low in terms of productivity and returns. These issues are addressed in the next section.

III. Relative Performance of the Sub-sectors

To assess the relative performance of the sub-sectors, we have used several indicators. The first indicator is the recent growth performance of the sub-sector. The sample survey collected information pertaining to output, employment, investment etc for the years 1991-92, 1993-94 and 1996-97. Amongst these, the output data was found to be of somewhat better quality. Hence, we have assessed growth of the sub-sector on the basis of the output data. We have calculated nominal yearly rate of growth (simple) in output for the reference period for each sub-sector. Real rate of output growth could not

be calculated because of lack of suitable price indices. We also looked at the proportion of enterprises reporting negative growth during the period.

Age of the enterprise has been used as a proxy indicator of the growth of the sub-sector. Lower the average age, higher is the incidence of recent entrance, which may be interpreted as a reflection of the greater vibrancy of the sub-sector. To deal with the problem of extreme values we have also looked at the proportion of enterprises set up during recent years (1990 on wards).

Other indicators of performance included partial factor productivity and rate of return. Partial factor productivity was calculated in terms of value added per worker while rate of return was estimated in terms of gross return (value added - wage bill) per unit of output. Because of lack of satisfactory data pertaining to land, building, rent and interest, calculation of profit per unit of capital could not be attempted.

Evidence on the above six indicators of performance has been presented in Table 5. The ranking of the individual sub-sectors based on these indicators have been shown in Table 6.

As is evident from the Tables, Plastic Products and Dyeing and Printing experienced the highest rate of growth in output during the reference period while the lowest growth was observed in the case of Footwear. The highest and lowest incidence of negative growth in output were observed in the case of Plastic Products and Footwear respectively.

Sub-sectors falling in the smallest age group are Electric Goods and Plastic Products. These two sub-sectors also registered the highest entry of enterprises since 1990. In contrast, Specialized Handloom and Engineering Workshop consist of relatively aged units and the incidence of recent entry is the lowest in these two sub-sectors.

Dyeing and Printing and Plastic Products yielded highest levels of labor productivity while the highest rates of returns were observed in the case of Electrical Goods and Dyeing and Printing. Sub-sectors at the other end of the productivity scale are Specialized Handloom and Footwear. These two sub-sectors also registered the lowest rates of return.

Table 5
Performance Indicators of the Sub-sectors

Sub-sector	Yearly 'g' in output (%)	% of units reporting negative growth	Average age of the enterprise (years)	% of units set up since 1990	Labor productivity (Tk.)	Gross return as % of output
Bakery	13.1 (N = 39)	10.2 (N = 39)	16 (N = 39)	35.9 (N = 39)	59397 (N = 33)	10.9 (N = 33)
Specialized Handloom	10.3 (N = 42)	28.6 (N = 42)	20 (N = 42)	19.0 (N = 42)	22226 (N = 36)	8.8 (N = 36)
Dyeing and Printing	23.7 (N = 42)	19.0 (N = 42)	12 (N = 42)	50.0 (N = 42)	80490 (N = 37)	20.7 (N = 37)
Footwear	1.4 (N = 42)	35.7 (N = 42)	12 (N = 42)	28.6 (N = 42)	38929 (N = 34)	10.3 (N = 34)
Plastic Products	30.5 (N = 39)	7.7 (N = 39)	10 (N = 39)	59.0 (N = 39)	73575 (N = 28)	14.4 (N = 28)
Steel Furniture	4.1 (N = 40)	17.5 (N = 40)	13 (N = 40)	32.5 (N = 40)	42992 (N = 35)	12.6 (N = 35)
Electrical Goods	14.8 (N = 40)	12.5 (N = 40)	9 (N = 40)	55.0 (N = 40)	45072 (N = 32)	27.9 (N = 32)
Engineering Workshop	10.9 (N = 41)	31.7 (N = 41)	16 (N = 41)	19.5 (N = 41)	44952 (N = 34)	19.8 (N = 34)

Source: Sample Survey

(Figures inside the parentheses indicate the number of respondents on which the calculation is based)

Table 6**Rank of the Sub-sectors based on Performance Indicators**

Sub-sector	Rank in terms of						Aggre-gate Rank
	Yearly 'g' in output	% of units reporting negative growth	Average age of the enterprise	% of units set up since 1990	Labor productivity	Gross return as % of output	
Bakery	4	2	6	4	3	6	4
Specialized Handloom	6	6	8	8	8	8	8
Dyeing and Printing	2	5	3	3	1	2	3
Footwear	8	8	4	6	7	7	7
Plastic Products	1	1	2	1	2	4	1
Steel Furniture	7	4	5	5	6	5	5
Electrical Goods	3	3	1	2	4	1	2
Eng. Workshop	5	7	7	7	5	3	6

The distribution of the sub-sectors between "Top five" and "Bottom three" according to the performance indicators, thus, works out as follows:

Top Five (Performance Indicators)	Bottom Three (Performance Indicators)
Plastic Products Electrical Goods Dyeing and Printing Bakery Steel Furniture	Engineering Workshop Footwear Specialized Handloom

IV. Potentials for Employment Generation

The evidence presented above shows that there is a complete dichotomy between the ranking obtained on the basis of the structural attributes and that obtained on the basis of performance indicators. The traditional sub-sectors which are dominant in terms of current employment and in which cost of employment creation is relatively less, rank low in terms of recent growth performance, productivity level and the rate of return. These sub-sectors, thus, hold out less potential for employment generation in the medium and long term. Sub-sectors falling into this category are Engineering Workshop, Footwear and Specialized Handloom.

On the other hand, sub-sectors which have grown more in recent years are the ones which are less dominant in terms of current employment, entail a higher cost of employment creation but enjoy relatively higher level of labor productivity. As indicated in Table 5, the nominal growth in output was significantly high in the case of Plastic Products and Dyeing and Printing - 30.5% and 23.7% respectively. More than half of the sample enterprises in these sub-sectors was set up after 1990. The level of fixed assets per worker is highest in these two sectors and they also enjoy the highest levels of labor productivity.

The following correlation matrix constructed for the eight sub-sectors bring out these facts more clearly.

Table 7
Correlation Matrix

	Yearly 'g' in output	% of units set up after 1990	VA/L	K/L
Yearly 'g' in output	1			
% of units set up after 1990	0.74	1		
VA/L	0.78	0.73	1	
K/L	0.69	0.59	0.57	1

The evidence suggests that sectors that have higher capital intensity enjoyed a higher level of labor productivity, and the incidence of recent entry into the sub-sector was higher which contributed to higher growth in output.

However, this relationship between factor intensity, factor productivity and growth did not hold good at the disaggregate level for certain sub-sectors. The case of Leather and non-leather Footwear illustrates this fact while the case of Yarn dyeing and Fabric dyeing and printing seems to conform to the aggregate situation (Table 7).

Table 7

**Factor Intensity, Factor Productivity and Output Growth in
Leather and non-leather Footwear**

Industry	K/L (Tk.)	VA/L	% of units set up after 1990	Yearly 'g' in output
Leather footwear	6574	38885	29.6	7.5
Plastic footwear	68887	32439	28.6	-2.6
Rubber footwear	50828	50657	25	1.3

Yarn dyeing, and Fabric dyeing & printing

Yarn dyeing	15100	87088	25	42.7
Fabric dyeing and printing	49526	42616	60	-1.1

As is evident from the Table, Leather Footwear is much less capital-intensive than Plastic and Rubber Footwear but it enjoyed a significantly high level of labor productivity. The incidence of recent entrants and the rate of growth of output have also been higher in Leather Footwear compared to that in Plastic and Rubber Footwear. On the other hand, Yarn dyeing is a much less capital-intensive activity than Fabric dyeing & printing and it experienced lower labor productivity and lesser growth.

Thus, while the argument that the most labor-intensive sub-sector may not hold out the best potentials for employment creation is well taken, the counter argument that higher capital intensity always fosters higher productivity and employment growth is also not borne out by facts.

The correct identification of the determinants of productivity and growth, therefore, has to be sought not in the supply side characteristics alone but also in the nature of the demand and the market for the product. Findings from the present and the earlier studies suggest that sub-sectors whose products have income elastic demand and which face a sizeable niche market demonstrate higher levels of vibrancy in terms of productivity and growth and, therefore, hold out the highest potential for employment creation.

A final issue to be resolved is whether there is any size bias in the performance of the sub-sectors. To ascertain this, we have calculated labor productivity, output growth and rate of return for the three top ranking sub-sectors based on performance indicators separately for two size groups, namely, up to 19 workers size group and 20 or more workers size group. The results are shown in Table 8. The evidence suggest that larger sizes are more efficient in the case of Plastic Product and Dyeing & Printing but reverse is the case in the case of Electric Goods. This implies that the nature of the size bias is not systematic across sub-sectors.

Table 8
Performance Indicators by Size Groups

Sub-sector	Size Group	Yearly 'g' in output (%)	Labor Productivity (Tk)	Rate of Return (%)
Plastic Products	< 20	29.3	39898	9.8
	> 19	42.7	90113	15.5
Electric Goods	< 20	17.7	46282	41.4
	>19	11.3	43875	27.6
Dyeing & Printing	<20	-1.1	78651	10.4
	>19	15.3	80737	21.3

V. Concluding Remarks

The secondary data currently available on the SMEs in Bangladesh is somewhat dated. To cover the gap in information, detailed surveys of eight sub-sectors were carried out so that JOBS selection of sub-sectors and the design of the intervention plan could be based on recent data. However, due to a number of problems relating to the survey, the full set of data required for detailed efficiency analysis was not available on time. Critical missing data included capacity utilization, detail structure of input and output, interest payments, working capital etc. The above analysis has, thus, been significantly circumscribed by data limitations.

Notwithstanding this problem, however, the survey data clearly bears out some of the stylized facts and *a priori* notions about SMEs in Bangladesh.

A number of policy induced and structural factors have contributed to the growth of SMEs in Bangladesh during the past decade. These include trade policy reform, development of infrastructure in semi-urban areas, greater rural-urban integration etc. These factors have eased some of the supply and demand related problems faced by the SMEs and facilitated their growth.

Recent studies of SMEs in Bangladesh have shown that there has been differential growth performance within the sector. While most of the dominant SMEs stagnated growth has been quite pronounced in non-traditional sub-sectors involving larger employment size and higher capital intensity. These sub-sectors cater towards urban markets and higher income groups.

The critical determinants of the potential for future employment growth in SMEs, thus, seem to involve (a) the state of technology in use in the sub-sector and (b) the size and dynamism of the market faced by the sub-sector. The ranking of the sub-sectors derived on the basis of JOBS survey seems to vindicate this largely.