



CPD

Working Paper **118**

**Growth of Employment in the
Manufacturing Sector**
Impact of Trade and Trade-related Policies

Khondaker Golam Moazzem
Md Minhaz M Reza



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Publisher

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First Published August 2018

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Tk. 85

USD 6

ISSN 2225-8175 (Online)

ISSN 2225-8035 (Print)

Cover design

Avra Bhattacharjee

C42018_5WP118_TRC

Centre for Policy Dialogue (CPD) was established in 1993 as a civil society initiative to promote an ongoing dialogue between the principle partners in the decision-making and implementing process. Over the past 25 years, the Centre has emerged as a globally reputed independent think tank, with local roots and global reach. A key area of CPD's activism is to organise dialogues to address developmental policy issues that are critical to national, regional and global interests, with a view to seeking constructive solutions from major stakeholders. The other key area of CPD's activities is to undertake research programmes on current and strategic issues.

CPD's dialogues are designed to address important policy issues and to seek constructive solutions to these problems. In doing so, CPD involves all important cross-sections of the society, including public representatives, government officials, business leaders, activists of grassroots organisations, academics, development partners and other relevant interest groups. CPD focuses on frontier issues which are critical to the development process of Bangladesh, South Asia and LDCs in the present context, and those that are expected to shape and influence the country's development prospects from the mid-term perspectives. CPD seeks to provide voice to the interests and concerns of the low-income economies in the global development discourse. With a view to influencing policies, CPD deploys both research and dialogue which draw synergy from one another.

CPD's research programmes are both serviced by and intended to serve, as inputs for particular dialogues organised by the Centre throughout the year. Major research themes are: macroeconomic performance analysis; poverty and inequality; agriculture; trade; regional cooperation and global integration; infrastructure; employment, and enterprise development; climate change and environment; development governance; policies and institutions, and the 2030 Agenda for Sustainable Development.

CPD also conducts periodic public perception surveys on policy issues and issues of developmental concerns. With a view to promoting vision and policy awareness amongst the young people of the country, CPD is also implementing a *Youth Leadership Programme*. CPD serves as the Secretariat of two global initiatives. *LDC IV Monitor* is an independent global partnership for monitoring the outcome of the Fourth UN Conference on the LDCs. *Southern Voice on Post-MDGs* is a network of 50 think tanks, which seeks to contribute to the ongoing global discourse on the SDGs. At the national level, CPD hosts the Secretariat of the *Citizen's Platform for SDGs, Bangladesh*—a civil society initiative that include about 90 Partner organisations, founded with an objective to contribute to the delivery of the SDGs and enhance accountability in its implementation process. In recognition of its track record in research, dialogue and policy influencing, CPD has been selected as one of the awardees of the Think Tank Initiative (TTI) through a globally competitive selection process for two consecutive times.

Dissemination of information and knowledge on critical developmental issues continues to remain an important component of CPD's activities. Pursuant to this, CPD maintains an active publication programme, both in Bangla and in English. As part of its dissemination programme, CPD has been bringing out CPD Occasional Paper Series on a regular basis. It may be noted in this connection that since November 2011, the Series has been re-introduced as **CPD Working Paper Series**. Research work in progress, background papers of dialogues, investigative reports and results of perception surveys which relate to issues of high public interest are published under this series.

The present paper titled **Growth of Employment in the Manufacturing Sector: Impact of Trade and Trade-related Policies** has been prepared by *Khondaker Golam Moazzem*, Research Director, Centre for Policy Dialogue (CPD) <moazzem@cpd.org.bd> and *Md Minhaz M Reza*, Programme Associate, CPD-RMG Project, <mminhaz.reza@gmail.com>

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Authors' Acknowledgements

This working paper would not have taken its current shape without the guidance and advice of *Dr Mohammed Muqtada*, Visiting Fellow, CPD and Former Director of Policy Planning in the Employment Sector, International Labour Organization (ILO), Geneva, who led the inclusive growth study under which this working paper is prepared. *Dr Muqtada* advised us to closely examine the issue of trade-led industrialisation of Bangladesh and its relation to employment beyond the traditional spectrum of either export-led or import-substituting industrialisation, and urged us to assess the strengths and weaknesses of both types of processes of industrialisation to seek an alternate explanation for employment generation. We would like to register our deep appreciation to him for opening up a new perspective to us in examining the industrialisation process of the country. At different stages of this study, we were benefitted with research support from *Mr Kishore Kumer Bashak* and *Ms Akashlina Arno*, former Research Associates of CPD. Our sincere appreciation to both of them for their contributions.

The growth of the manufacturing sector has been considered as one of the key policy tools for the structural transformation of the Bangladesh economy and as a major mean for achieving full employment. Following Jenkins and Sen (2007), this paper has tried to distinguish the impact of trade on employment through three distinct effects—‘size effect’, ‘composition effect’ and ‘process effect’. The analysis tends to suggest that no single type of effect reveals any clear pattern of growth in manufacturing employment due to trade. At the same time, domestic market-oriented industries have also been contributing to employment growth. In other words, trade-related policies and measures are likely to have a ‘partial’ role in influencing the nexus of growth of production, exports and employment. However, the study shows that attempts to create ‘exports at any cost’ or to overly protect domestic industries are likely to engender policy biases, rent-seeking and corruption. In the backdrop of different kinds of market failures and problems of governance, the choice of policies with regard to enhancing employment should be well calibrated with policy priorities to increase productivity and export, with appropriate emphasis on both domestic and export-oriented industries.

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Acronyms

AIT	Advance Income Tax
ATV	Advance Trade VAT
CD	Customs Duty
ECI	Export Concentration Index
EEF	Equity Entrepreneurship Fund
EOI	Export-Oriented Industrialisation
EPB	Export Promotion Bureau
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HEI	Highly Export-Oriented Manufacturing Industry
HHI	Herfindahl-Hirschman index
HPAE	High Performing Asian Economies
ISI	Import-Substituting Industrialisation
LEI	Low Export-Oriented Manufacturing Industry
MEI	Moderately Export-Oriented Manufacturing Industry
MFA	Multi Fibre Arrangement
MFN	Most Favoured Nation
RD	Regulatory Duty
REER	Real Effective Exchange Rate
RMG	Readymade Garment
SD	Supplementary Duty
SME	Small and Medium-sized Enterprise
TTI	Total Tax Incidence
VAT	Value-Added Tax

1. INTRODUCTION AND OBJECTIVES

Industrialisation in general, and the growth of the manufacturing sector in particular, have formed the basis of the key policy tools employed by the successive governments in Bangladesh for the structural transformation of the economy and as a major means for achieving full employment in the country. Achieving full employment is one of the major goals of inclusive growth in an economy (Felipe, 2012; Ali and Son, 2007¹). Most developing economies are confronted with a high and persistent incidence of unemployment and underemployment. While orthodox economists tend to attribute this to lack of competitiveness in the labour market (or distortions/mismatch of skills, lack of human capital, labour regulations, among others), there are others who consider different factors and systemic failures (for instance, slow growth of private investment, and rise in capital–labour pricing, impeding the economy from adequate and sustainable job creation). Full employment in an economy enables the opportunity to all members of the active labour force to be productive and earn a decent wage. Pursuing and designing a full employment strategy would essentially lie in articulating a combination of economic policies (including macroeconomic) and social policies which would fully engage the labour force in expanding productivity and developing a necessary institutional framework for achieving simultaneously freely chosen, productive employment, fundamental rights at work and adequate income from work.²

The present study focuses largely on the impact of the manufacturing sector on the generation of productive employment, and the support provided by the trade policies toward industrialisation and employment in the manufacturing sector (henceforth manufacturing employment) in Bangladesh. It is fairly evident from the trends in the growth of the manufacturing sector that in Bangladesh, the sector's gross domestic product (GDP) has grown steadily since the mid-1990s though its share is still relatively low compared to many of the Asian countries, and lower than what was achieved by the East Asian countries during their early periods of industrial expansion. Further, in the latter countries, the share of manufacturing in total employment was nearly twice as that of Bangladesh's share of manufacturing employment (14.4 per cent in 2016). The growth of manufacturing employment, according to Kaldorian hypothesis, and as has been historically observed, is the catalyst to structural transformation. In the high performing Asian economies, manufacturing employment, productivity and wages grew in tandem. As Table 1 shows, while wages of Bangladesh's manufacturing sector grew to some extent, there was negative growth in employment. The share of manufacturing is not only inadequate, but is also declining in the recent period. Between 2013 and 2016, the share fell from 16.4 per cent to 14.4 per cent. However, the share increased slightly in 2017 but was still lower than that of 2013.

Table 1: Manufacturing Wage and Employment Growth

Wage/Employment	2013	2016	2017	Average Yearly Changes between 2013 and 2017 (in %)
Average monthly income (wage) in manufacturing (Tk.)	11,703	12,380	12,068	0.78
Total employment in manufacturing (in thousand)	9,500	8,595	8,800	-1.84

Source: BBS (2018).

Note: In the previous surveys, average monthly income was not reported in similar patterns.

¹According to Ali and Son (2007), full employment and productive employment are two primary factors that determine inclusive growth. Referring to the example of the Philippines, the paper indicates that a high level of structural transformation where workers shifted from low-productive sectors to high-productive sectors, has contributed to economic growth and poverty reduction in the Philippines.

²See, among others, Muqtada (2010).

During the post-colonial period, most of the developing countries embarked on a process of industrialisation with objectives that ranged from consolidation of economic independence, enhancing productivity and generating productive jobs to absorb the high surplus labour observed in the agriculture sector. By and large these economies pursued a path of import-substituting industrialisation (ISI) through preferential treatment to imported machinery, access to capital, overvalued exchange rate, high protection and quantitative restrictions. The ISI strategy, as subsequently documented, led to high capital intensity, low labour absorption and high social costs, and failed to deliver on the primary objective of adequate generation of productive jobs.³ While many South Asian countries continued with inward-looking policies with some shift of policy emphasis toward small and less capital industries, the East Asian countries in particular swiftly shifted to outward policies, and embarked on what came to be subsequently known as the 'labour-intensive, export-oriented industrialisation (EOI) strategy'. Prices, policies and institutional mechanisms were set in place for domestic production and resource structure to take advantage of the trade boom of the period, and of the rising export opportunities for labour-intensive manufacturing goods.⁴ The success of attaining full employment through a labour-intensive EOI strategy however, was dependent on several contingent factors, especially on the growth and patterns of global trade during the period, as well as flow of foreign direct investment (FDI), and how individual countries, through easing of their respective supply constraints were poised to take advantage of these. Analysts have pointed out that it is not simply the fortuitous circumstances, trade liberalisation and greater export orientation that will automatically ensure industrial 'take-off' nor a state of full employment. Furthermore, the international environment for investment and industrialisation is fast changing, viz. trading environment, influence of trading blocs, technology, value chains and FDI patterns. While these have influences on the domestic environment, both through resources/technology availability as well as transaction costs, there are many other supply constraints that may inhibit such an industrialisation process.

While the East Asian (and some of Southeast Asian) countries and China have attained rapid structural transformation and full employment—most developing countries are yet to do so. Bangladesh is one of those countries requiring structural transformation and full employment. It may be noted that Bangladesh has undertaken significant trade liberalisation reforms starting from the mid-1980s, and has expanded export earnings quite significantly. Yet, as will be examined in detail below, the extent and pattern of industrial growth and more importantly, the share of industrial/manufacturing employment is less than encouraging, especially compared to the high performing Asian economies. EOI labour-intensive industrialisation is commendable, but this is a strategy for which a comprehensive trade and industrialisation strategy is required. While comparisons are not always useful, it may be instructive to look into the trade and industrialisation policies of Vietnam and Bangladesh. Starting from the mid-1990s till approximately 2016–2017, export earnings of Vietnam and Bangladesh have increased at a disproportionate rate which reached US\$ 214 billion and US\$ 35 billion in 2016 and 2017 respectively; FDIs (registered) amounted to US\$ 16 billion and less than US\$ 2 billion respectively. On the other hand, while in Bangladesh, the employment share of industries grew from 10 per cent in 1996 to 14.4 per cent in 2010, it grew from 11 per cent to 20.2 per cent in Vietnam over the same period. Vietnam undertook various other policies that intermediated with trade reforms and helped the economy to diversify. The export concentration ratio for Vietnam declined from 0.20 in 1990 to about 0.14 in 2016; whereas during the same period, the ratio for Bangladesh increased from 0.34 to 0.40. Vietnam diversified vigorously towards electronics, mobile phone and electrical machinery; whereas Bangladesh continued to depend overwhelmingly on readymade garment (RMG) and textiles. These are indicative of differential achievements with fairly similar liberalisation strategies. The examples tend to suggest that while trade liberalisation is significant in enhancing trade openness to facilitate

³For a detailed evaluation of ISI during that period, see Little *et al.* (1970); Bruton (1970).

⁴See, for example, World Bank (1993); Khan (2007).

industrial and job growth, there is no automaticity about it. Further, while the expansion in exports is undoubtedly critical to industrial growth, the stance of 'exports at any cost' that may often lead to policy biases, price distortions and rent-seeking, has come under serious scrutiny.⁵

As shall be observed later, while Bangladesh's manufacturing growth was initially related to labour-intensive export growth, it would be tendentious to suggest that Bangladesh had a prior strategy and structured policies to pursue an EOI Labour based industrialisation policy. There have been various fortuitous circumstances which have been subsequently supported by trade reforms and other public policies. Nevertheless, growth in the manufacturing sector in the past decades followed two distinct streams—a) growth of export-oriented industries, and b) growth of domestic market oriented/import-competing industries. Major development policies emphasised the growth of both streams of industries. However, their impact on growth of production, export and employment have been different for different industries. More specifically, trade policies and related measures influence the nature and growth of employment in different manufacturing industries in different ways. This paper intends to examine, albeit in a limited scope, the nature of the growth-export-employment nexus in the manufacturing sector over the last few decades and how that growth was influenced by trade related policies and measures.

Based on the secondary data, the present study presents some perspectives on and an analysis of different sub-sectors of the manufacturing industry, such as: a) categorising different sub-sectors in terms of their level of export orientation, viz. 'highly export-oriented', 'moderately export-oriented' and 'low export-oriented' industries; b) conducting an in-depth analysis of the growth of production and export of different categories of industries and their implications on employment; and c) undertaking an analysis of changes in employment with regard to level of intensity of labour and capital in different sub-sectors. Based on these analyses, the study tries to appreciate the possible impact and implications of different policies (and trade related policies in particular) on changes in employment in the manufacturing sector during the 2000s.

2. TRADE LIBERALISATION IN BANGLADESH: BRIEF REFLECTIONS

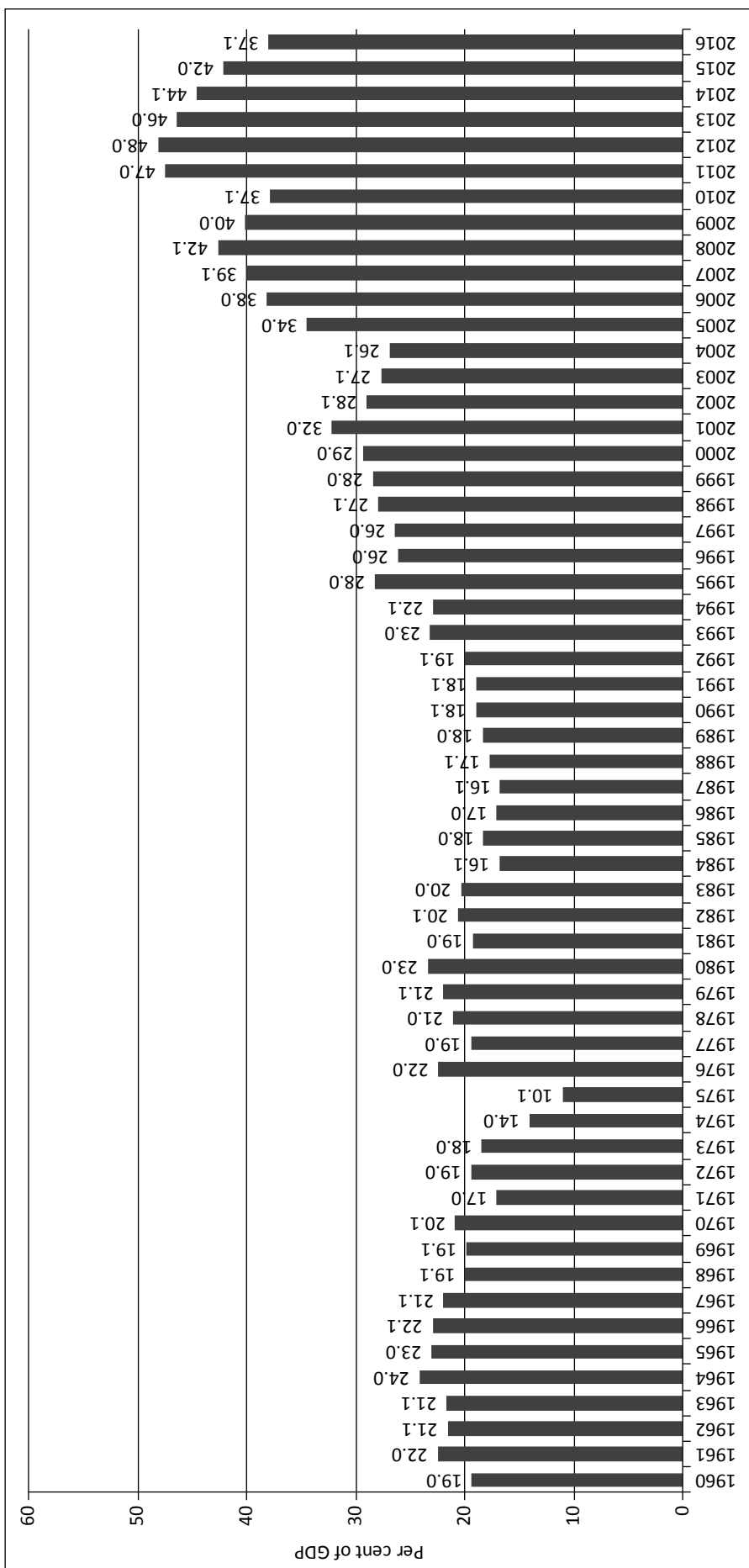
Bangladesh embarked on trade liberalisation reforms more than three decades ago, starting from the late 1980s. The various reforms which were consistent with the overall macroeconomic stabilisation policy framework supported the growth of exports and imports substantially, as observed in the expansion of the trade openness indicator (see Figure 1). It increased from a low of 16.1 per cent of GDP in 1987 prior to the reforms, to 48 per cent in 2012.

The change in the tariff structure was the key feature of tariff liberalisation in Bangladesh since the late 1980s. Table 2 shows that the maximum rate of tariff has been reduced from 35 per cent in 1992 to 37.5 per cent in 2001 and further reduced to 25 per cent in 2005. However, it remained 25 per cent for over a decade. The unweighted tariff rate reduced from 70 per cent in 1992 to 18.6 per cent in 2001 and has gradually reduced to 12.3 per cent in 2010. The most favoured nation (MFN) unweighted average tariff rate reduced from 57.2 per cent in 1992 to 21.4 per cent in 2001 and 14.4 per cent in 2015. In general, the pace of tariff reduction was the highest from 1992 to 2001 (Table 2).

Bangladesh, in general, has followed a tariff structure with lower tariff on raw materials and capital goods and higher tariff on finished products. The effective tariff includes a number of supplementary duties, which made the differences of tariff related costs between different categories of products

⁵See Mazumdar (1999) for a general scrutiny of an unchallenging acceptance of the EOI strategy; Khan (2007) for a rise in policy biases in the trade regime of Bangladesh.

Figure 1: Trade Openness of Bangladesh (total trade as % of GDP)



Source: World Bank (2018).

Table 2: Change in Tariff Structure, 1992–2015*(in Per cent)*

Year	Number of Tariff Bands	Maximum Rate	Unweighted Tariff Rate	Weighted Average	MFN unweighted Average
FY1991-92	18	35.0	70	24.1	57.2
FY2000-01	5	37.5	18.6	12.3	21.4
FY2005-06	4	25	13.4	8.4	16.4
FY2010-11	5	25	12.3	-	14.9
FY2014-15	5	25	-	-	14.4
Yearly Change (in %)					
FY1992-FY2001			-73.4	-49.0	-62.6
FY2001-FY2011			-33.9	-43.9	-29.0
FY2011-FY2015			-	-	-5.3

Source: Authors' calculations based on Tariff Schedule of NBR (2011–2018).

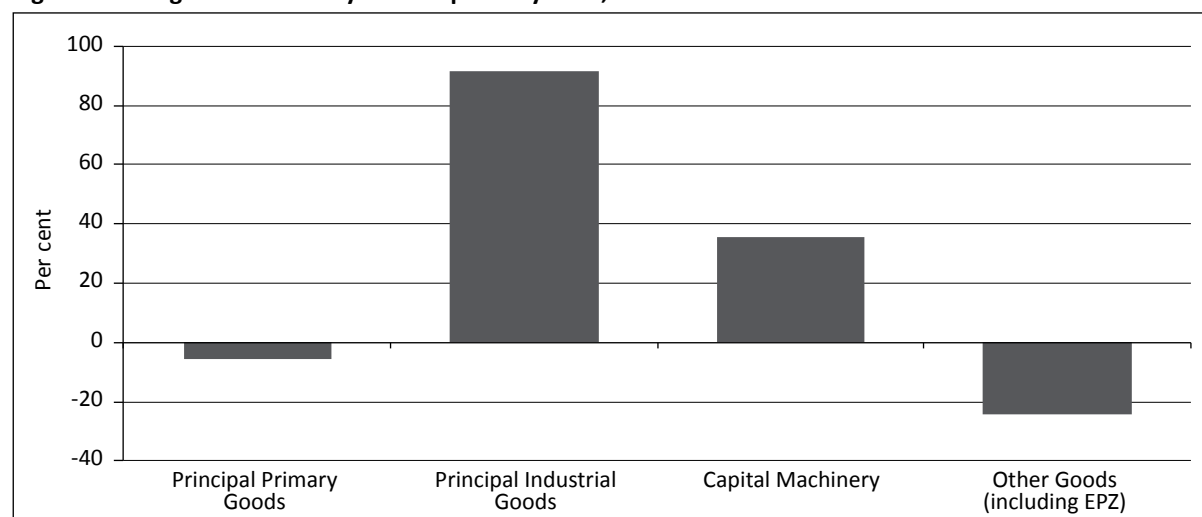
much higher (Table 3). Average weighted tariff for capital machineries is lower compared to that of primary and intermediate goods (4.7, 7.2 and 5.2 per cent respectively in FY2009), and much lower compared to that in final goods (9.6 per cent in FY2009). Such a tariff structure has been followed in order to protect the interest of domestic industries.

Table 3: Change in Tariff Structure by Various Types of Goods*(in Per cent)*

Type of Good	Average Weighted Tariff			Change	
	FY1991-92	FY2000-01	FY2008-09	Between FY1992 and FY2001	Between FY2001 and FY2009
Primary	23.4	14.9	4.7	-36.2	-68.5
Intermediate	24.1	15.0	7.2	-37.9	-52.0
Capital	18.7	10.4	5.2	-44.4	-50.0
Final	47.3	20.3	9.6	-57.1	-52.7

Source: Authors' calculations based on Tariff Schedule of NBR (2011–2018).

Following such a duty structure had diverse impacts on the import of these products during FY2003–FY2015. During the said period, the import of raw materials experienced a negative growth (-5.4 per cent), while that of industrial goods and capital machineries experienced a positive growth (Figure 2). The import of capital machinery is indicative of the growth of the manufacturing sector and/or

Figure 2: Change in Commodity-wise Import Payment, FY2003–FY2015

Source: Authors' calculations based on Bangladesh Bank (n.d.).

structural change in the sector in terms of factor intensity (Ahmed, Yunus and Bhuyan, 2009). However, the growth of import of capital machineries did not keep pace with the growth of the manufacturing output. Overall, trade policy appears to have a favourable impact on the growth of local industries (both domestic market oriented and export market oriented) which were likely to have a positive impact on employment. As will be examined later, the results have been mixed, and it is difficult to identify precise correlation between tariff reduction and employment outcomes of various sub-sectors of manufacturing, whether export-oriented or import-substituting.

Within the manufacturing sector, some sectors are more labour-intensive compared to other sectors. One strategic approach towards promoting labour-intensive manufacturing growth is to implement sub-sector based policies and measures. However, this sub-sector specific approach towards policy analysis has to be viewed critically as various sub-sectors are not isolated, rather integrated with other sub-sectors of the economy and one sub-sector might have competing interest with another sub-sector.

2.1 Export-Oriented Industries

Nevertheless, successive governments took measures under the broader economic liberalisation initiative to induce the growth of the labour-intensive manufacturing sector. The main objective of the policies was to promote export-oriented industries by removing the anti-export bias in the economy. These policies had significant implications on exports and employment in one particular sub-sector, i.e. RMG. The policies included duty-free access to imported inputs, the reduction in tariff levels and a number of tariff rates, streamlining and simplification of import procedures, provision for financial assistance on traditional exports, tax rebates on export earnings and concessionary duties on imported capital, accelerated depreciation allowance and excise fund refund on domestic raw materials and inputs, and proportionate income tax rebates of at least 30 per cent on export earnings.

During FY2005, the government took bold tariff measures for promoting the country's textile sector as the backward linkage industries of the RMG sector. It proposed a reduction in the existing rates of duty on most of the raw materials and essential machinery and spares needed by this industry. The number of HS 8 digit level items for the textile sector, which would enjoy duty-free and Value-Added tax (VAT) free import, was 34. Considering the importance of the textile industry as a backward linkage industry of the RMG sector, which was under tremendous pressure at the advent of the Multi Fibre Arrangement (MFA) phase out, the government proposed to reduce the income tax for the sector from 20 per cent to 15 per cent.

During FY2006, one positive move was that imports of spare parts, dyes and chemicals for RMG had been zero-tariffed. An initiative had been taken to formulate a programme titled 'Post-MFA Action Program' at the cost of US\$ 40 million, with assistance from development partners. In FY2005, the government allocated Tk. 30 crore for retaining retrenched garment workers. As a token of proactive fiscal measure towards increasing employment opportunities, the budget proposed setting up a special fund of Tk.20 crore for retraining and creating employment opportunities for employees/labourers of the RMG industry.

In FY2007, the government allocated an additional Tk. 30 crore for retraining retrenched garment workers in continuation to the previous year. Considering the huge demand of workers in the RMG sector, such funds for retrenchment were not necessary. During FY2008, the government provided support to the textile sector by withdrawing import duty on textile machinery along with other items. In FY2010, the government extended the tax holiday facility, in a staggered manner, for new industries to be set up between July 2008 and June 2011, which include textiles and RMG enterprises. Also, the

government announced a special package of Tk. 3,424 crore for FY2008-09 targeting industries which were affected by the global financial crisis. A second package was announced at the time of the budget for FY2009-10 with an allocation of Tk. 5,000 crore. In 2011, it unfolded that the textiles and apparels had been among the most adversely affected sectors due to the global financial crisis, particularly in FY2009-10. The government allocated Tk. 2,000 crore under the second stimulus package as part of providing support to encourage export diversification (5 per cent additional cash incentive in FY2008-09, 4 per cent for FY2010-11, and 2 per cent for FY2011-12); 5 per cent additional cash incentive for small and medium-sized enterprises (SMEs) against their apparels export in FY2008-09; and 10 per cent cash incentives on electricity bill for FY2010, for SMEs which did not have captive generator facility.

In FY2012, the budget proposed the increase of supplementary duty (SD) on the import of all kinds of fabrics and RMG articles from 20 per cent to 45 per cent. This enhanced the protection available for domestic market-oriented apparel industries. At the same time, the proposed measure to continue with 5 per cent regulatory duty (RD) on the import of finished products (along with 25 per cent import duty) was also likely to help protect the local industry.

2.2 Domestic Market-Oriented Industries

Besides the textile and RMG sector, the government provided support to domestic market oriented industries—such as it proposed to impose VAT on processed, and primarily agricultural products like fruit, pulp and paste, packed spices in powdered form, flavoured milk and yoghurt, etc. In order to give a further boost to the dairy and poultry industry of the country, the government proposed to withdraw customs duty (CD) and VAT on 87 capital machineries needed for this sector. The government continued the allocation in EEF (Equity Entrepreneurship Fund) in FY2005. This fund is reserved for providing equity support to computer software, food processing and agro-based industries. It is to be mentioned that the system and framework of EEF was restructured.

The agro-based industry and paper industry received priority in FY2007. An analysis shows that the proposed budget increased allocation for credit support under the agro-based industries programme from Tk. 100 crore in the previous budget, to Tk. 150 crore. Budgetary allocation under the “Equity Development Fund” was increased from Tk. 100 crore in the revised budget of FY2006, to Tk. 200 crore in FY2007. The government extended the benefit of tax exemption and rebate to agro-processing, jute and textile industries up to 30 June 2008. This is a positive measure for the promotion of agro-based industries. In the budget for FY2007, SD of 15 per cent was imposed on the import of advertising materials, commercial catalogues, etc. This would support domestic paper industries. The domestic tiles industry was actively promoted by the government, which is complementary to the booming construction sector. For this, the government decided to reduce SD on locally manufactured tiles from 20 per cent to 5 per cent.

The FY2009-10 budget proposed a reduction/increase of CD, SD and VAT for various imported raw materials, intermediate products and finished products, which was likely to raise the effective rate of protection for domestic industries. According to CPD (2009), these would not substantially affect total tax incidence (TTI); CPD estimated a decrease by (-) 1.5 per cent. Increasing SD for various imported materials was also suggested, which was expected to aid import-substituting industries.⁶

Apropos CPD (2010), various fiscal measures to aid import-substituting industries were proposed, especially those involved with manufacturing electronic items and vehicles. The fiscal measures and particularly time-bound ones, were positive for the investment climate in the domestic electronics

⁶For details, see (CPD, 2009).

industry. As indicated in the Budget, this initiative was aimed at protecting the interest of domestic industries by enhancing the effective rate of protection for import-substituting industries, and discouraging import of those commodities. For the same purpose, 5 per cent RD has been imposed on 43 items (at 8 digit level) that are eligible for paying 10 per cent CD but not treated as intermediate goods. On the other hand, RD has been exempted for eight items (at 8 digit level) which were to pay 25 per cent CD. However, these items are treated mainly as intermediate goods. Different sectors will be benefited from the revised duty structures of the National Budget of FY2013-14. SDs on import of milk powder and ceramic bathroom fittings have been made zero. The domestic ceramics industry was a promising one and reducing import duties could hurt the industry.

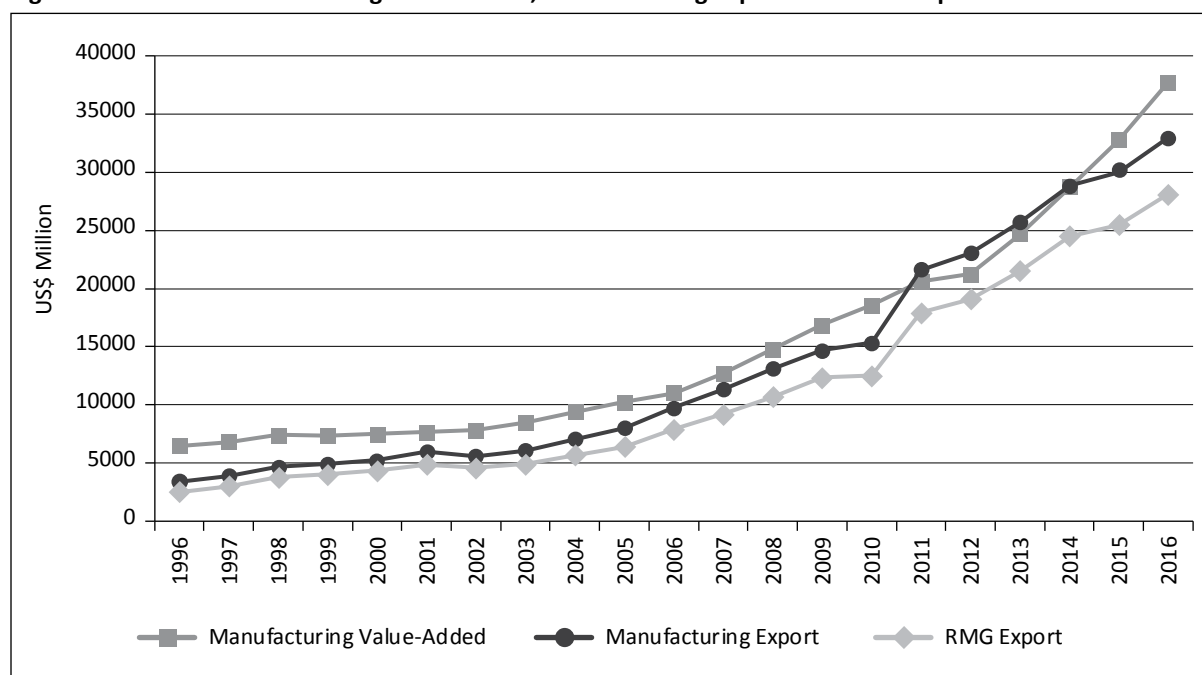
In order to ameliorate the competitiveness of emerging local products in the domestic market (such as glass and ceramics) against imported ones, the National Budget for FY2013-14 proposed to increase SD, (such as on the import of float glass in the glass industry) to render imported products (e.g. glass) more expensive in the domestic market (CPD, 2013).

There is scant analytical comparative assessment of the relative influences ('biases') of the liberalisation and tariff strategy on the growth of domestic and export-oriented industries. From among the latter, it is evident that the RMG in particular has received various forms of policy and fiscal support. It has grown substantially, and has dominated the export share of manufacturing exports (Figure 3). It may be noted that RMG exports as percentage of total exports was 3.9 per cent in 1983–84; it was 81 per cent in 2016–17.

Similarly, the RMG sub-sector, being labour-intensive, has played a significant role in employment generation and has accounted for 36.5 per cent (2015–16) of total manufacturing employment in the country (Table 4). It is noteworthy that RMG has played a pioneering role in creating paid employment for female workers, whose current share in total RMG sector employment is 45.8 per cent (2015–16).

Despite the rapid achievements of the RMG sector, Bangladesh has not quite succeeded in establishing an EOI labour-intensive industrialisation strategy that would significantly absorb the 2 million net

Figure 3: Trends in Manufacturing Value-Added, Manufacturing Exports and RMG Exports



Sources: Authors' calculations based on Census of Manufacturing Industries (CMI) and Survey of Manufacturing Industries (SMI) data of Bangladesh Bureau of Statistics (BBS); Bangladesh Economic Review, various years.

additions to the workforce and move the economy toward full-employment as in the high performing Asian Economies (HPAEs). For various reasons, no other sub-sector has been able to follow the RMG trail, an issue that requires closer scrutiny. Whether it is the alleged anti-export biases and/or the protection structure towards import-substituting industries, the employment outcomes appear to be inadequate.

Table 4: Employment Scenario of Manufacturing and RMG Sectors in Bangladesh

(in Per cent)

Employment in Manufacturing and RMG Sectors	1995-96	2005-06	2015-16
Share of manufacturing in total GDP	15.3	15.6	17.6
Share of manufacturing employment in total employment	7.5	11.0	14.4
Share of RMG in manufacturing employment	-	32.8	36.5
Share of female employment in total RMG employment	-	45.2	45.8

Source: Bangladesh Bureau of Statistics (BBS), various years.

3. FULL EMPLOYMENT THROUGH IMPLEMENTING TRADE POLICIES: A REVIEW

The foreign and domestic trade environments not only affect the demand for labour in the economy but also the skill composition and workers' wages of the existing labour force as higher industrialisation is expected to result in more skilled jobs. Policies towards foreign trade, as many experts have pointed out, are among the most important factors for promoting economic growth and development (Fischer, 2000). These policies also shape the structure and growth of employment. According to Puyana (2011), trade liberalisation would increase the elasticity of employment. However, such a relationship could be constrained if there is low labour absorption in the industrial sector owing to increasing incentives towards capital intensity and undue protection under cover of import substitution policies (Nassar, 2010). Trade policies including export and import policies focusing on export diversification have an impact on economic growth and employment. International competitiveness also plays an important role for the smaller economies as their higher level of economic growth is dependent, among others, on international trade and investment.

There are various empirical studies that document the interlinkages between trade liberalisation, exports and impact on employment, skills and wages. Trade and market openness can have a positive effect not only on boosting economic growth but also on the total employment in an economy (OECD, 2012). In the OECD study, the 14 main multi-country econometric studies show that trade plays an independent and positive role in raising incomes. The higher wages attract a higher number of workers in the formal and more productive sectors, leading to an overall increase in employment.⁷ Orbeta (2002) shows that an increase in the propensity to export shifts the demand for labour upward. In terms of the employment structure, the impact of openness on the proportion of women workers is not significant at the aggregate level but at the manufacturing sub-industry level, the increase in the propensity to export is a boon for women workers. An increase in export propensity also leads to an increase in the proportion of low-skilled production workers both at the aggregate and manufacturing sub-industries level.

Feliciano (2001) using micro-level data, analyses the impact of trade reform on Mexican wages and employment. Industries that had greater reductions in protection levels had a larger percentage of low-skill workers. On the other hand, wage dispersion increased in both the non-tradable sector and, to a much greater degree, in the tradable sector. This pattern suggests that trade reform increased wage inequality. The decline in import license coverage led to a reduction in the relative wages of workers

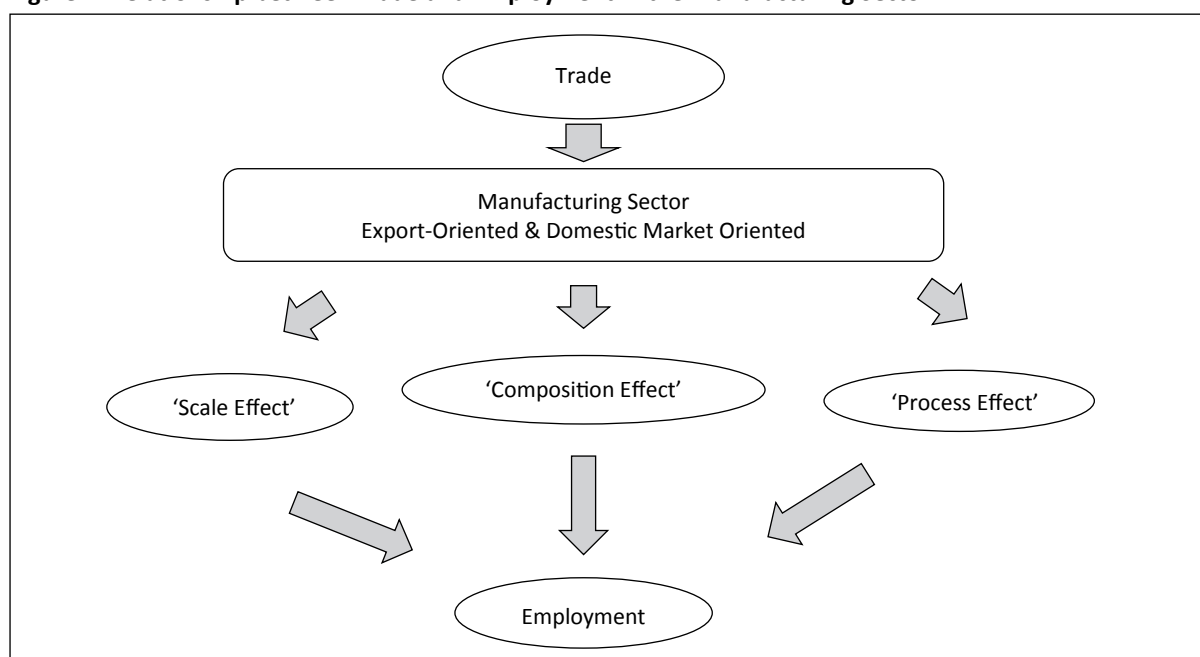
⁷According to the study, in order to increase productivity, employment and economic growth, it is important to protect the worker's rights rather than promote protectionist policies to protect jobs.

in reformed industries by 2 per cent, but did not affect the relative level of employment. Reductions in tariffs had no statistically significant effect on relative wages or relative employment. In general, while studies show that increased competition through trade liberalisation actually contribute towards the goal of full employment as the economies experience higher labour productivity (Krugman, 1981; Melitz, 2003), the above trade impacts are difficult to generalise.

On the other hand, Rodrik (2008) stressed on the importance of ‘effective industrial policy’ to correct the market failures in the markets for labour, credit, products and knowledge. The paper argues that industrial policy allows the government to target where the industry is failing in an effort to make a correction and create more indirect demand for labour in both the domestic and foreign markets. The paper argues that interventions through industrial policies are necessary to overcome market failures and allow the countries to catch up with the other economies in terms of industrial development and export competitiveness. Lall (2004) found that the differences in industrial competitiveness are among the main causes of disparities in income in the Asian economies. Trade liberalisation may result in skills acquired (by both men and women workers) and gender sensitivity among all workers. However, trade openness of an economy is not necessarily able to address the market failures particularly with regard to labour, credit, products and knowledge. Hence, government intervention through effective industrial policy could attempt to address those market failures, especially concerning job generation. Of course, for the latter, various other policies must come into play. Macroeconomic stability particularly through price stability is considered to be a major instrument for addressing the full employment issue.

Examining the various issues raised above is a tall order, and beyond the scope and space of the present study. According to Jenkins and Sen (2006), trade affects manufacturing employment in three ways a) impact on output of the manufacturing sector and thereby positively impacting employment (called ‘scale effect’); b) rise in output of exportables by replacing output of importables and thereby positively contributing to employment (called ‘composition effect’); and c) changes in labour coefficients within industries and thereby positively impacting employment (called ‘process effect’). Using both aggregate and sub-industry level manufacturing data, the study provides some insights, on these various effects and their implications for policy design. Figure 4 presents a schematic relationship between trade and employment in the manufacturing sector.

Figure 4: Relationship between Trade and Employment in the Manufacturing Sector



Source: Jenkins and Sen (2006).

4. OVERVIEW OF MANUFACTURING EMPLOYMENT: STRUCTURE, COMPOSITION AND GROWTH

4.1 Overall Employment Structure in Bangladesh Economy

The Bangladesh economy has experienced a major change in the structure and composition of employment over the last decades. Although the rate of labour force participation did not change much (around 58 per cent), the level of employment has considerably increased—from 39 million in 2000 to 60.8 million in 2017 (Table 5). However, both overall and sectoral growth of employment have slowed down over the years. A relatively higher level of employment growth was observed in case of manufacturing and services sectors; in contrast, employment growth in the agriculture sector had slowed down and ultimately reached negative terrain in recent years. Overall, the structure of employment has changed and shifted from agriculture to non-agriculture sectors, particularly in the manufacturing and services sectors. Even if the employment growth slowed down in agriculture, it still accounts for the largest share of employment.

These changes in the structure and composition of employment portray several messages: a) a higher level of economic growth over the years could not ensure a similar level of growth in employment, rather employment growth has slowed down over the years; b) the gap between sectoral GDP growth and employment growth is higher in case of the manufacturing sector; and c) shifting employment from agriculture is still slow due to limited scope of employment generation in the non-agriculture sector. Hence, it is important to explore the strengths and weaknesses in the manufacturing sector with regard to scope of employment generation in order to ensure inclusive development.

Table 5: Employment by Broad Economic Sectors

Sector	2000	2006	2010	2013	2015-16	2016-17
Employed by Broad Economic Sector (million)						
Agriculture	24.2	22.8	25.7	26.2	25.4	24.7
Industry	4.0	6.9	9.6	12.1	12.2	12.4
Services	9.2	17.7	19.1	19.8	22	23.7
Total	39.0	47.4	54.1	58.1	59.5	60.8
Composition by Broad Economic Sector (per cent)						
Agriculture	62.1	48.1	47.6	45.1	42.7	40.6
Industry	10.3	14.5	17.7	23	20.5	20.4
Services	23.5	37.4	25.5	32	36.9	39
Total	100	100	100	100	100	100
Year on Year Percentage Change (per cent)						
Agriculture	-	-0.9	3.2	0.6	-1.0	-2.8
Industry	-	12.1	9.8	8.7	0.3	1.6
Services	-	15.4	1.9	1.2	3.7	7.7
Total	-	3.6	3.5	2.5	0.8	2.2

Source: Authors' calculations based on BBS (2018).

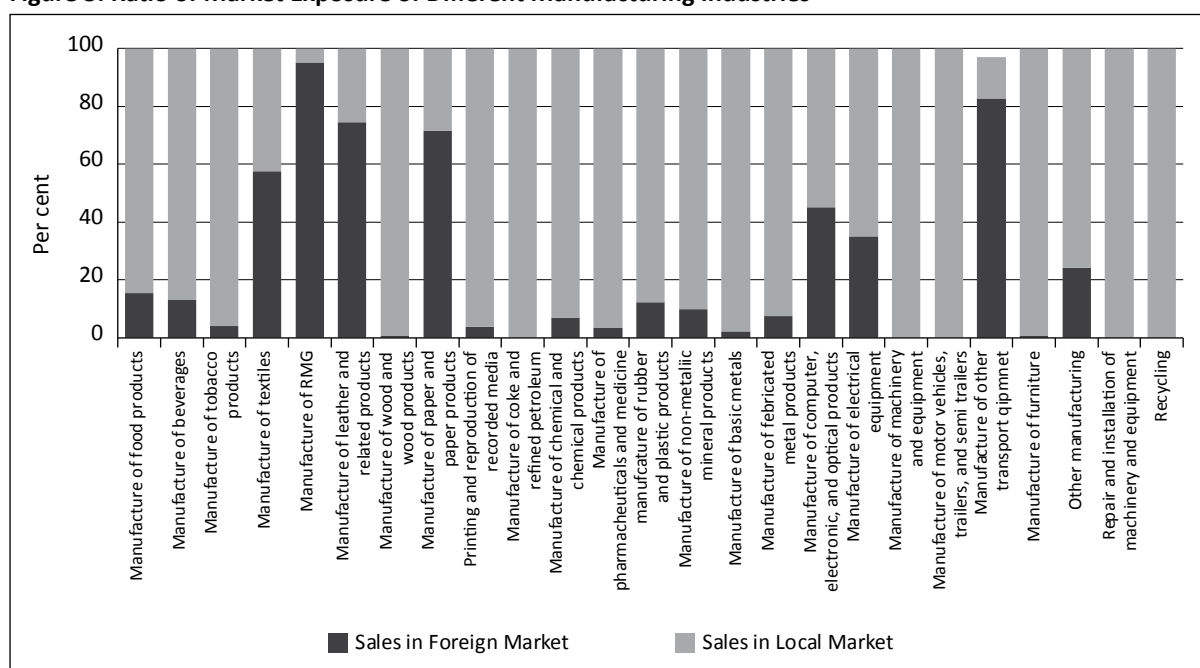
Rise in manufacturing employment has largely been driven by the robust growth of the RMG sub-sector over the last three decades. The overall employment in the manufacturing sector is about 8.8 million in 2016–17 which was only 3.7 million in 1999–2000; in other words, manufacturing employment has increased by 137 per cent within 17 years or on average 8.1 per cent per year. This rise in employment is mainly attributed to rise in the RMG sector over the years which constituted over 40 per cent of total manufacturing employment. In 2017, the share of employment of RMG workers was about 45.4 per cent of total employment. Such an overwhelming contribution of the RMG sector makes

the dynamics and changes in manufacturing employment dependent on the performance of a single sector. A robust growth of employment in the manufacturing sector requires the growth of a number of labour-intensive ‘RMG like’ sectors with export capacity of over US\$ 5–10 billion which could help to diversify the employment base in the manufacturing sector.

4.2 Structure of the Manufacturing Sector

The change in manufacturing employment is directly linked with the structure, composition and growth of the manufacturing sector. The manufacturing sector comprises of sub-sectors which are either export-oriented or domestic market oriented. The majority of enterprises in different sectors are domestic market oriented (Figure 5); industries which are fully domestic market-oriented include coke and refined petroleum, machinery and equipment, motor vehicles and trailers, installation of machinery and recycling etc. Industries which are exposed more to export market include RMG (95 per cent of total production), transport equipment (82 per cent), leather and leather goods (74 per cent) and textiles products (57 per cent). A part of enterprises of other sub-sectors is also exposed to export markets such as paper and paper products, computer, electronic and optical products and electrical equipment etc.⁸

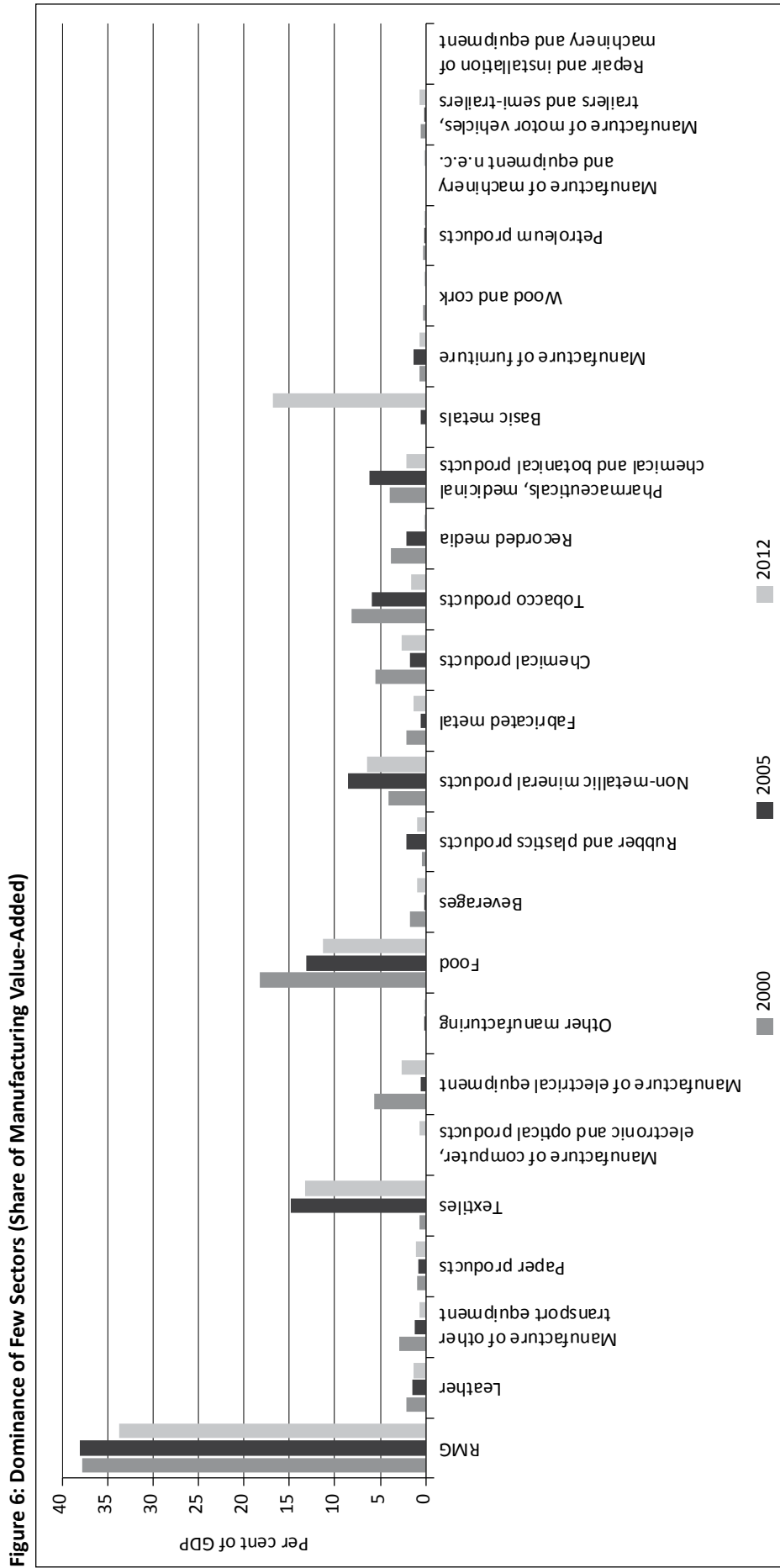
Figure 5: Ratio of Market Exposure of Different Manufacturing Industries



Sources: Authors’ calculations based on BBS (2010, 2011a, 2013).

The structure and composition of the manufacturing sector is still overwhelmingly dominated by the RMG and textiles industries, which accounted for 33.7 per cent and 13.3 per cent of total Value-Added of the manufacturing sector in 2012 for RMG and textiles respectively (Figure 6). However, RMG has lost its market share over time (from 38.5 per cent in 2000 to 33.7 per cent in 2012). In fact, other traditional manufacturing industries have also lost their shares such as food processing (from 18.2 per cent to 11.3 per cent), tobacco products (8 per cent to 2 per cent), chemical products (from 5.5 per cent to 1.6 per cent), and pharmaceuticals (from 4 per cent to 2 per cent). On the other hand, a number of non-traditional industries have been growing in the country which include basic metals (0.01 per cent to 16.8 per cent), non-metallic products (from 4.1 per cent to 6.5 per cent) and plastic,

⁸Lack of exposure to the export market is likely to happen due to limited capacity of these sub-sectors to participate in the export market.



Source: Authors' calculations based on BBS (2010, 2011a, 2013).

rubber products (from 0.4 per cent to 0.9 per cent) and computer, electronics and optical products (from 0.0 per cent to 0.7 per cent) etc. Most of the other industries are either stuck at the same level or declined in terms of market share; these include beverages, leather, paper products, fabricated metal products and transport equipment. Overall, the manufacturing sector has experienced compositional changes both in case of traditional and non-traditional industries. Such compositional changes in the manufacturing sector are likely to have impacts on employment as well.

The present study divides the manufacturing sector into three categories: a) highly export-oriented manufacturing industries (herein after HEIs); b) moderately export-oriented manufacturing industries (MEIs); and c) low export-oriented/domestic market- oriented manufacturing industries (LEIs).⁹ Table 6 presents the list of industries under these different categories. The contribution to manufacturing GDP is the highest for highly export-oriented industries followed by low export-oriented and moderately

Table 6: Share of Total Manufacturing Output

Category of Industry	Share of Total Manufacturing Output		
	2000	2005	2012
Highly Export-Oriented	44.4	56.4	50.9
RMG	37.8	38	33.7
Leather	2.1	1.5	1.4
Other transport equipment	2.9	1.2	0.7
Paper products	0.9	0.8	1.1
Textiles	0.7	14.9	13.3
Computer, electronic and optical products	0	0	0.7
Moderately Export-Oriented	26.1	16.2	16.1
Electrical equipment	5.7	0.6	2.7
Other manufacturing	0	0.1	0.2
Food	18.2	13.2	11.3
Beverages	1.8	0.2	1
Rubber and plastic products	0.4	2.1	0.9
Low Export-Oriented	29.60	27.30	32.90
Non-metallic mineral products	4.1	8.5	6.5
Fabricated metal	2.1	0.6	1.3
Chemical products	5.5	1.8	2.6
Tobacco products	8.2	5.9	1.6
Recorded media	3.9	2.1	0.2
Pharmaceuticals, medicinal chemical and botanical products	4	6.2	2.1
Basic metals	0	0.6	16.8
Furniture	0.7	1.4	0.7
Wood and Cork	0.3	0	0.1
Petroleum products	0.3	0.1	0.1
Machinery and equipment	0	0	0.2
Motor vehicles, trailers and semi-trailers	0.5	0.1	0.7

Sources: Authors' calculations based on BBS (2010, 2011a, 2013).

⁹Highly export-oriented industry (HEIs) – if the share of sales of a particular industry in the foreign market equals or exceeds 40 per cent of total market sale in 2012; Moderately export-oriented industry (MEIs) – if the share of sales of a particular industry in the foreign market equals or exceeds 10 but less than 40 per cent of total market sale in 2012; Low export-oriented industry (LEIs) – if the share of sales of a particular industry in the foreign market is less than 10 per cent of total market sale in 2012.

export-oriented industries. Interestingly, the contribution of export-oriented industries in the GDP has weakened while that of domestic market oriented industries has increased over time. During 2012, the share of HEIs was 50.9 per cent which was mainly driven by the production of RMG and textiles. A significant progress is found in case of contribution made by the LEI—their share to manufacturing GDP has increased from 6.6 per cent in 2001 to 24.4 per cent in 2012. These LEIs are largely domestic market oriented industries such as basic metals, non-metallic mineral, chemical, pharmaceuticals, and tobacco products. Hence, the dynamics and changes in the structure of manufacturing employment need to be explained both through sectors' orientation to export as well as their orientation to domestic market.

4.3 Export of Manufacturing Goods

The export of manufacturing goods is still highly concentrated in a limited number of products; for example, woven and knit garment products account for 81.6 per cent of total exports (Table 7). However, an intra-RMG compositional change is discerned with the share of woven products declining (from 49.8 per cent in 2003 to 41.9 per cent in 2017) vis-à-vis a rising share of knit products (from 25.3 per cent in 2003 to 39.7 per cent in 2017). In case of non-RMG products, the share of leather and leather goods has increased (from 2.9 per cent to 3.6 per cent) while the share of other export products have declined such as jute goods, footwear and handicrafts. The structure of export is measured by the export concentration index (ECI).¹⁰ The ECI value or the Herfindahl-Hirschman index (HHI)¹¹ of Bangladesh is high (0.60) which is largely driven by the high export share of RMG products (Figure 7); however, it has changed very little over the last several years. Between 2004 and 2014 Bangladesh ECI has increased by 7.6 per cent and the rise has slowed down in recent years.

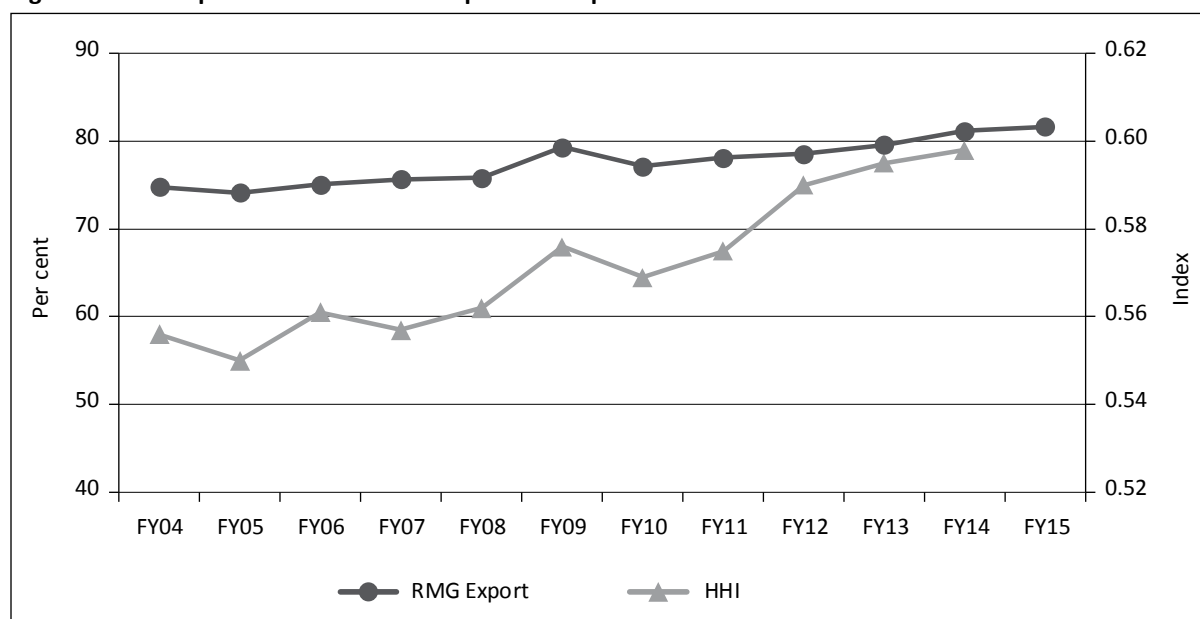
Table 7: Export of Different Manufacturing Industries

Export Item	Share of Total Export					
	2002-03	2004-05	2009-10	2014-15	2015-16	2016-17
Export of manufacturing goods (US\$ million)	6086	8006	15517	29922	21318	22009
Share of Manufacturing Goods (per cent)	100	100	100	100	100	100
Woven garments	49.8	41.6	37.1	41.9	43.2	41.9
Knitwear	25.3	32.6	40.0	39.8	39.0	39.7
Leather	2.9	2.6	1.4	2.1	3.4	3.6
Jute goods	3.4	3.6	4.9	2.9	2.2	2.3
Chemical products	1.5	2.3	0.6	0.4	0.4	0.4
Footwear	0.7	1.0	1.3	2.3	0.6	0.7
Ceramic products	0.3	0.3	0.2	0.2	0.1	0.1
Handicrafts	0.1	0.1	0.0	0.0	0.0	0.0
Others	16.1	16.1	14.5	10.4	11.1	11.3

Source: Bangladesh Export Promotion Bureau (EPB). Available at: <http://www.epb.gov.bd>

¹⁰The ECI portrays the degree of concentration of a country's export in a small number of products or a small region. The perfect concentrated index must hold the value of 1, implying the country is concentrated only on a single product.

¹¹The sectoral HHI is defined as the square root of the sum of the squared shares of exports of each industry in total exports; takes a value between 0 and 1. Higher values indicate that exports are concentrated in fewer sectors.

Figure 7: RMG Export as Share of Total Export and Export Concentration

Sources: Bangladesh Bank; Trade Map database, Ministry of Finance (MoF). Available at: <https://www.trademap.org>

Different categories of industries have experienced different levels of export growth during 2001–2012 (Table 8). The average yearly export growth in case of MEIs was found to be higher (111 per cent) compared to that of HEIs (32.8 per cent) and LEIs (79.7 per cent). Relatively high growth in export in case of MEI and LEI is partly owing to their low export-base compared to that of HEI. Among the HEIs, export growth is higher for such industries as textiles, paper products and transport equipment; on the other hand, among MEIs, high growth is found in case of beverages, plastic and electrical equipment; among LEIs high growth is found in case of non-metallic minerals, fabricated metals, pharmaceuticals and petroleum products. In other words, export-orientation alone may not sufficiently explain changes in employment in different manufacturing industries.

Table 8: Average Yearly Manufacturing Export Growth, 2001-12*(in Per cent)*

Category of Industry	Average Yearly Export Growth
Highly Export-Oriented	32.8
RMG (HS 61 and 62)	34.3
Leather (HS 41)	3.5
Other transport equipment (HS 87)	183.3
Paper products (HS 48)	876.2
Textiles (HS 59)	3522.7
Computer, electronic & optical products (HS 90)	18.4
Moderately Export-Oriented	111.0
Electrical equipment (HS 85)	96.7
Other manufacturing (HS 96)	42.4
Food (HS 16)	-
Beverages (HS 22)	546.3
Rubber and plastic products (HS 39 and 40)	129.7
Low Export-Oriented	79.7
Non-metallic mineral products (HS 25)	410.2
Fabricated metal (HS 72, 72, 74, 75, 76, 78, 79 80, 81, 82 83)	265.1

(Table 8 contd.)

(Table 8 contd.)

Category of Industry	Average Yearly Export Growth
Chemical products (28 and 29)	12.0
Tobacco products (HS 24)	78.4
Recorded media (HS 92)	-4.0
Pharmaceuticals, medicinal chemical and botanical products (HS 30)	106.8
Basic metals (HS 71)	-
Manufacture of furniture (HS 94)	762.7
Wood and cork (HS 44 and 45)	-7.7
Petroleum products (HS 27)	474.3
Machinery and equipment n.e.c. (HS 84)	17.8
Motor vehicles, trailers and semi-trailers (HS 8716)	-
Repair and installation of machinery and equipment (HS 82)	48.2
Recycling	-

Source: Authors' calculations based on UN COMTRADE statistics in World Integrated Trade Solution (WITS) database (at 2 digit level). Available at: <https://wits.worldbank.org>

5. PRODUCTION, EXPORT AND EMPLOYMENT IN DIFFERENT MANUFACTURING INDUSTRIES

5.1 Exploring the 'Size Effect' of Trade on Employment

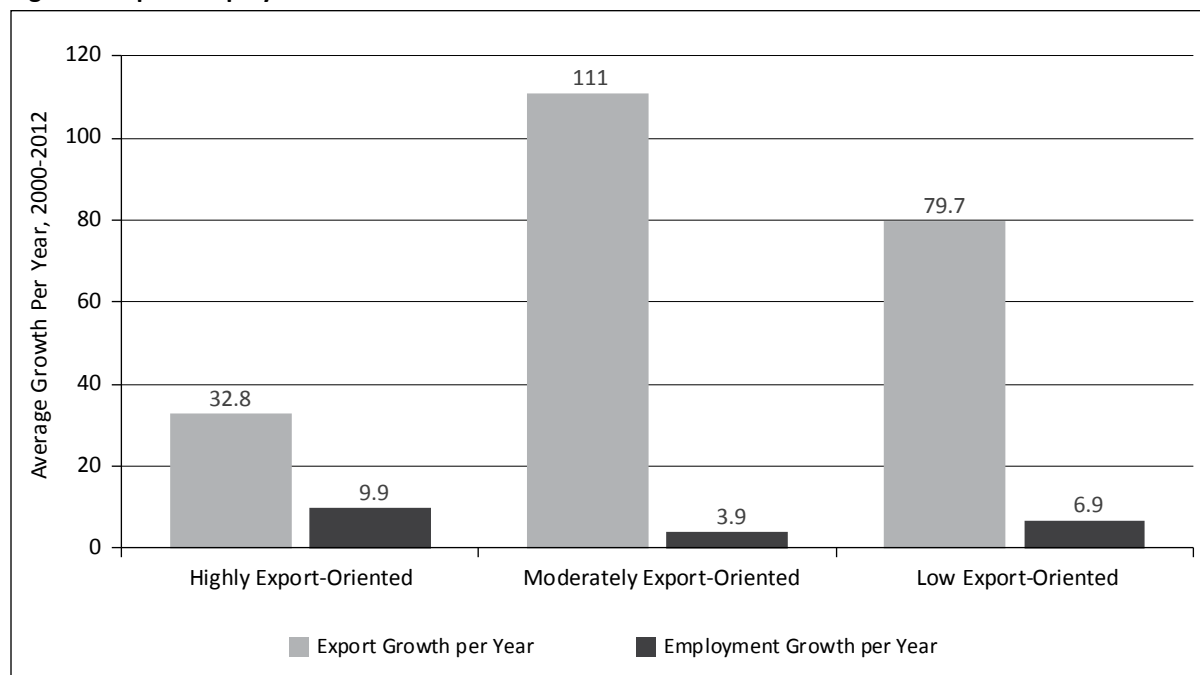
This section highlights the impact of trade on manufacturing production and its linkages with employment—how changes in production and export in different manufacturing sub-sectors impacted employment. The manufacturing sector accounted for about 5.0 million workers in 2012 which increased to about 8.6 million in 2016. Likewise, employment distribution is highly concentrated in a few sub-sectors.¹² The top five manufacturing sub-sectors which accounted for 81.6 per cent of manufacturing GDP comprised about 88.6 per cent of total manufacturing employment (Table 9). However, the nexus between the share of manufacturing production and share of manufacturing employment in the top five sectors are not necessarily at the same level over the years. While the share of manufacturing GDP has significantly increased between 2000 and 2012 for the top 5 sectors (from 60.7 per cent to 81.6 per cent), the share of employment has marginally increased during this period (from 86.6 per cent to 88.6 per cent). At the disaggregated level, the relationship between changes of shares of manufacturing GDP and manufacturing employment is found to be mixed—GDP and employment

Table 9: Relation between Share in Manufacturing Output and Manufacturing Employment

Manufacturing Industry	Share of Manufacturing Output			Share of Manufacturing Employment		
	1999-00	2005-06	2012	1999-00	2005-06	2012
Top 5 industries	60.7	75.2	81.6	86.6	86.5	88.6
Food	18.2	13.2	11.3	8.8	6.5	5.6
Textile	0.7	14.9	13.3	25.4	21	16.1
RMG	37.8	38	33.7	41.8	49.1	55.1
Non-metallic mineral products	4.1	8.5	6.5	9.9	8.9	9.4
Basic metals	0	0.6	16.8	0.7	1	2.4
Other manufacturing Industries	39.3	24.8	18.4	13.4	13.5	11.4
Total	100	100	100	100	100	100

Sources: Authors' calculations based on Bangladesh Bureau of Statistics (BBS) and Bangladesh Economic Review.

¹²The RMG industry is accounted for about 55 per cent of total manufacturing employment followed by textiles (16.1 per cent), non-metallic products (8.9 per cent) and beverages (5.6 per cent).

Figure 8: Export-Employment Nexus

Source: Authors' estimations.

changes in a 'positive' direction are discerned in the case of basic metals and partly of non-metallic industries; while both GDP and employment changes towards a 'negative' direction are observed in case of food processing; on the other hand, GDP and employment changes are in 'opposite' direction in RMG and textiles sub-sector. Hence, the 'size effect' in major manufacturing sub-sectors provides a mixed signal with regard to impact and implications of production on employment. Other than the top five sectors, a rise in the share of manufacturing employment owing either to a rise in the share of production or decline in the share of production, is observed only in cases of leather and wood-cork sub-sectors. On the other hand, a number of sectors have experienced decline in employment at the time of rise/decline in production such as beverages, tobacco products, paper products, petroleum products, chemical products, pharmaceuticals, rubber and plastic, fabricated metal, computer and electronics, electrical equipment and motor vehicles etc. Overall, sub-sectors other than the top 5 have lost their shares over the years both in terms of manufacturing output and employment.

In the case of the export of manufacturing industries, the growth in employment was not always commensurate with growth in export, as observed during the last decade (Figure 8). While the MEIs have experienced the highest level of growth in export during 2000–12, these industries have registered the lowest level of growth in employment generation. In contrast, the HEIs have registered the lowest level of growth compared to the other two categories but these industries have experienced the highest level of growth in employment.¹³

5.2 Exploring the 'Composition Effect' of Trade on Employment

This section highlights the 'composition effect' of trade on employment—how more production for export market-orientation shifts more employment from domestic market oriented/import-competing industries towards export-oriented industries. Traditionally, both share of production and share of employment are the highest in case of HEIs (Table 10). On the other hand, share of employment is higher in case of LEIs although their share is lower in manufacturing GDP. Over the years, there is no

¹³One must note the caveat that 'size' in the above analysis refers to the percentage share in value-added, and not to the size of enterprises

major compositional change observed in both manufacturing production and employment. However, some changes in shares of manufacturing GDP and employment are discerned in all three categories of industries. The composition effect is relatively strong in case of HEIs—as share of employment has increased consistently against moderate rise in manufacturing production. In contrast, ‘composition effect’ is either weak or negative in case of MEIs and LEIs. Three categories of industries have experienced three different levels of growth in employment between 2000 and 2012. Overall, ‘composition effect’ of trade on employment is rather low.

Table 10: Summary of Output-Export-Employment Nexus

Category of Industry	Share of Manufacturing Output			Share of Manufacturing Employment		
	2000	2005	2012	2000	2005	2012
Highly export-oriented	44.4	56.4	50.9	68.9	71.6	74.2
Moderately export-oriented	26.1	16.2	16.1	10.9	8.7	7.9
Low export-oriented	29.6	27.3	32.9	20.1	19.7	17.8

Source: Authors’ estimations.

5.3 Exploring the ‘Process Effect’ of Trade on Employment

The ‘process effect’ assesses the impact of changes in coefficients in terms of labour and capital in a particular industry and their likely impact on employment. The composition of capital and labour in different manufacturing sub-sectors, as measured by capital–labour ratio, widely varied; even within the same categories of industries, the composition is found to be different for different sub-sectors. This paper defines labour- and capital-intensive industries based on the capital–labour ratio in the production process of different industries.¹⁴ While most of the manufacturing industries in Bangladesh’s are labour-intensive, there are a few industries which are capital-intensive such as textiles, transport equipment, electrical equipment, beverages, chemical products, pharmaceutical products, basic metals and petroleum products (Table 11). Major labour-intensive industries are RMG, recycling,

Table 11: Capital-Labour Intensity in the Manufacturing Sector and Employment Growth

(in Per cent)

Category of Industry	Yearly Average Employment Growth		
	1996-2000	2000-2006	2006-2012
More Capital-Intensive			
Petroleum products	2.4	-10.8	61.5
Beverages	25.0	10.4	6.0
Chemical products	-15.8	-2.9	68.4
Pharmaceuticals, medicinal chemical and botanical products	7.8	28.4	-4.1
Basic metals	-4.2	13.8	51.7
Electrical equipment	-1.3	-8.0	23.8
Other transport equipment	-12.9	-8.7	29.8
Textiles	4.5	0.6	4.1
Average	2.44	1.65	6.40

(Table 11 contd.)

¹⁴We have considered the 70th (equal or more than that) percentile of capital–labour ratio for manufacturing industries as capital-intensive and below that considered as labour-intensive. And the given result is more congruent to the common scenario. Capital-intensive industries – if the value of capital–labour ratio of a particular industry is equal to or exceeds 400 Labour-intensive industries: if the value of capital–labour ratio of a particular industry is less than 400

(Table 11 contd.)

Category of Industry	Yearly Average Employment Growth		
	1996-2000	2000-2006	2006-2012
More Labour-Intensive			
Rubber and plastic products	-6.6	47.3	6.2
Machinery and equipment n.e.c.	-25.0	-	-
Paper products	10.6	1.3	22.7
Motor vehicles, trailers and semi-trailers	-14.4	-5.9	17.2
Computer, electronic and optical products	-	-	-
Food	6.2	-1.3	6.7
Leather	-21.2	14.5	42.5
Fabricated metal	4.4	-11.4	51.5
Wood and cork	-1.0	-15.1	89.4
Other manufacturing	2.4	72.2	44.8
Tobacco products	-4.5	-1.3	-2.7
Repair and installation of machinery and equipment	-	-	-
Non-metallic mineral products	16.0	2.1	12.0
Furniture	5.8	62.4	-1.9
Recycling	-	-	27.0
RMG	10.0	7.83	13.9
Recorded media	20.1	8.4	-11.3
Average	7.00	5.32	12.06

Source: Authors' estimations.

non-metallic products, tobacco, furniture and recorded media. It is found that, in general, employment growth in the labour-intensive industries is relatively higher compared to that in capital-intensive industries. During 2012, employment growth in both categories of industries was high; but the growth of employment in labour-intensive industries was almost twice as that of capital-intensive industries. It is important to examine whether such growth in employment in labour-intensive industries is induced by international trade.

At the disaggregated sub-sector level, employment growth in both categories of industries was rather mixed. With the labour-intensive industries, significant positive growth in employment between 2006 and 2012 was observed in case of RMG, leather, fabricated metal, wood and cork, and other manufacturing and recycling. On the other hand, negative growth in employment was discerned in case of furniture, tobacco and recorded media. The sub-sectors under the capital-intensive industries which portray higher growth in employment include petroleum, chemicals, basic metals, electrical equipment, and transport equipment.

Reviewing the growth of employment in capital and labour-intensive industries through the lens of their export-orientation, it is found that export-orientation of enterprises registers a major contribution to employment growth (Table 12). HEIs comprise both labour- and capital-intensive industries, and the current evidence shows that growth in employment in both categories of industries is relatively high. In case of MEIs, growth in employment is largely low except in electrical equipment and other manufacturing industries which are capital-intensive and labour-intensive industries respectively. In contrast, the employment performance in different labour and capital-intensive industries under low export-oriented industries is mixed. High growth is observed in case of fabricated metal, basic metal,

Table 12: Capital-Labour Intensity and Employment Growth under Different Types of Export-Oriented Industries

Category of Industry	Type of Intensity	Capital-Labour Ratio	Yearly Average Employment Growth		
			1996-2000	2000-2006	2006-2012
Highly Export-Oriented		-	5.7	5.0	11.4
RMG	Labour-Intensive	91.9	10.0	7.83	13.9
Leather	Labour-Intensive	302.9	-21.2	14.5	42.5
Other transport equipment	Capital-Intensive	438.6	-12.9	-8.7	29.8
Paper products	Labour-Intensive	313.7	10.6	1.3	22.7
Textiles	Capital-Intensive	425.3	4.5	0.6	4.1
Computer, electronic and optical products	Labour-Intensive	310.9	-	-	-
Moderately Export-Oriented		-	4.7	-0.2	8.1
Electrical equipment	Capital-Intensive	446.4	-1.3	-8.0	23.8
Other manufacturing	Labour-Intensive	196.9	2.4	72.2	44.8
Food	Labour-Intensive	304.4	6.2	-1.3	6.7
Beverages (HS 22)	Capital-Intensive	1354.6	25.0	10.4	6.0
Rubber and plastic products	Labour-Intensive	340.4	-6.6	47.3	6.2
Low Export-Oriented		-	5.0	3.9	8.0
Non-metallic mineral products	Labour-Intensive	179.0	16.0	2.1	12.0
Fabricated metal	Labour-Intensive	270.9	4.4	-11.4	51.5
Chemical products	Capital-Intensive	879.0	-15.8	-2.9	68.4
Tobacco products	Labour-Intensive	186.0	-4.5	-1.3	-2.7
Recorded media	Labour-Intensive	87.9	20.1	8.4	-11.3
Pharmaceuticals, medicinal chemical and botanical products	Capital-Intensive	844.7	7.8	28.4	-4.1
Basic metals	Capital-Intensive	736.6	-4.2	13.8	51.7
Furniture	Labour-Intensive	135.6	5.8	62.4	-1.9
Wood and cork	Labour-Intensive	244.8	-1.0	-15.1	89.4
Petroleum products	Capital-Intensive	1399.9	2.4	-10.8	61.5
Machinery and equipment n.e.c.	Labour-Intensive	331.0	-25.0	-	-
Motor vehicles, trailers and semi-trailers	Labour-Intensive	313.0	-14.4	-5.9	17.2
Repair and installation of machinery and equipment	Labour-Intensive	185.9	-	-	-
Recycling	Labour-Intensive	97.2	-	-	27.0

Source: Authors' estimations.

chemicals, wood and cork and petroleum products while negative employment growth is observed in case of furniture, media, pharmaceuticals, tobacco etc. Overall, trade (i.e. export-orientation) influences employment in both labour and capital-intensive industries. In other words, the 'process effect' is not unidirectional. More importantly, there is a combined effect of 'size', 'composition' and 'process' related to trade. There are various other factors besides export-orientation that affect employment; the impact of non-trade related issues on growth in employment, particularly in few domestic market-oriented industries, needs further analysis.

High import penetration was not found to be a contributing factor for growth of employment in all manufacturing sub-sectors. However, the nature and extent of linkages between import penetration and level of employment in different sub-sectors are not the same. On the one hand, industries with high import penetration ratio such as textiles, wearing apparels and leather experienced considerable growth of employment. On the other hand, industries with moderate import penetration ratio such as chemical industry experienced negative growth. While the rise of the shares of textiles, wearing apparels and leather in total industrial output have contributed to a rise of employment opportunities in these sectors, the shrinkage in the share of chemical and chemical products in total industrial output, perhaps is indicative of the creation of lower levels of employment opportunities in these sectors.

5.4 Employment Elasticity of Manufacturing Industries

The overall employment elasticity¹⁵ in the manufacturing sector is not very encouraging¹⁶ (0.28) (Table 13). However, highly export-oriented industries are more elastic compared to that of the moderate and low export-oriented industries. The scenario essentially depicts that country's employment growth and its relative concentration is strongly associated with the growth and gravity of different export-oriented industries.

Table 13: Employment Elasticity of Manufacturing Industries during 2000-2012

Category of Industry	Employment Elasticity
Highly Export-Oriented	0.42
RMG	0.42
Leather	0.97
Other transport equipment	0.32
Paper products	0.35
Textiles	0.04
Computer, electronic and optical products	-
Moderately Export-Oriented	0.36
Manufacture of electrical equipment	0.14
Other manufacturing	0.6
Food	0.13
Beverages	0.44
Rubber and plastic products	0.49
Low Export-Oriented	0.342
Non-metallic mineral products	0.21
Fabricated metal	0.13
Chemical products	0.89
Tobacco products	-0.34
Recorded media	1.18
Pharmaceuticals, medicinal chemical and botanical products	0.4
Basic metals	-
Manufacture of furniture	0.58

(Table 13 contd.)

¹⁵Employment elasticity is defined here as percentage change in manufacturing employment over percentage change in manufacturing GDP over a period.

¹⁶Islam (2001) showed that employment elasticity in manufacturing declined from 0.76 during 1981–85 to 0.66 during 1986–92 while using ILO-EMP/RECON database on employment; on the other hand, Islam (2004) calculated employment elasticity of the manufacturing sector as 0.39 based on the regression result in respect with poverty incidence and annual GDP growth.

(Table 13 contd.)

Category of Industry	Employment Elasticity
Wood and cork	-0.29
Petroleum products	0.57
Machinery and equipment n.e.c.	-
Motor vehicles, trailers and semi-trailers	0.09
Repair and installation of machinery and equipment	-
Recycling	-
Total	0.28

Source: Authors' estimations based on Survey of Manufacturing Industries (SMI) data.

Major industries such as RMG has employment elasticity higher than the average (0.42). Highest level of employment elasticity was found in case of leather (0.97), media (1.18) and chemical products (0.89). While low or even negative employment elasticity was found in case of tobacco products (-0.34), food (0.13), textiles (0.04), wood (-0.29), electrical equipment (0.14) and motor vehicles (0.09). Thus, from employment generation point of view RMG is still ahead of other industries which equally contribute to production, export and employment. A number of domestic market-oriented industries with moderate employment elasticity are contributing in production and employment (e.g. chemical products and plastic products). Besides, a number of manufacturing industries have experienced a negative employment elasticity which include tobacco and wood and cork which indicate negative relationship between growth in production and employment.

6. TRADE IMPULSES TO GROWTH OF MANUFACTURING SECTOR IN BANGLADESH: CONSTRAINTS

6.1 Policies for Labour-based and Export-Oriented Industrialisation

The analysis of policies reveals that successive policies have focused on the trade-led growth of the manufacturing sector, which will contribute to employment generation. The five-year plans, industrial policy, export policy and import policy order and SME policy among others, have more or less common objectives in terms of labour-intensive and export-oriented industrialisation. Several sectors have been specified as priority sectors in key development policies having fiscal and budgetary support. During the early stage of development in the 1980s, the RMG sector was hugely benefitted through a number of fiscal measures which include duty draw back facility, bonded warehouse facility, subsidised credit facility and zero duty import facility of machineries, raw materials and intermediate products. Interestingly, such facilities were allowed for other industries as well but the growth of non-RMG export sectors remained modest.

In recent years, the government's budgetary measures have emphasised issues and concerns raised by the business bodies of the RMG sector. During the last decade, a number of issues related to the RMG sector got priority in the government's fiscal measures, including the reduction of corporate tax, advanced income tax, reduction of import duties in different industrial items and providing cash incentives for export in non-traditional markets. These changes have been undertaken in accordance with demand from the business bodies of the RMG sector. On the other hand, the support provided to non-RMG enterprises was scant and sporadic. Considering the level of contribution made by different industries on employment such as non-RMG export-oriented as well as domestic market-oriented industries, government policies should pay more attention towards those industries. A major criticism of government policy support is that selected products under different sub-sectors, whether it is domestic market-oriented or export-oriented, is largely influenced by different pressure groups which raise the efficacy of support mechanism. In other words, given the limited scope for revenue

expenditure, such kinds of biased support deprive various important sub-sectors which might have higher potentiality to contribute to export and employment. The Ministry of Finance, which is the authority to provide the fiscal benefits, did not have any mechanism to assess the impact of these benefits to the industry. Hence, an irrational, pressure-group influenced, and un-assessed incentive mechanisms have been continued.

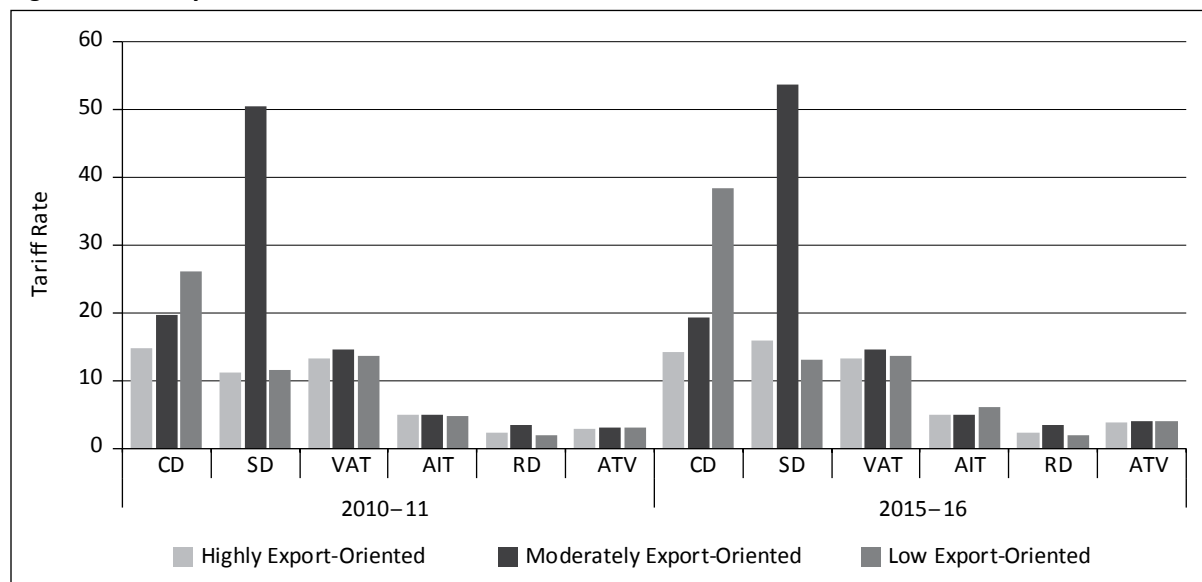
6.2 Tariff Regime and Implications on Growth of the Manufacturing Sector

Manufacturing industries’ production in Bangladesh is heavily influenced by tariff, para-tariff and other technical requirements at import stage on various kinds of raw materials, intermediate goods, capital machineries and finished goods. Thus tariff regime has direct and indirect impact on production of export-oriented and import-competing industries, thereby contributing to ‘size’, ‘composition’ and ‘process’ effects on employment. With a view to examining the impact and implications of the tariff regime over the last one and half decades, a total of 17 sectors have been identified on which necessary analysis has been carried out. The study measures relative burden of tariff and para-tariff by estimating the simple averages of tariff of different categories of industries (HEIs, MEIs, and LEIs).¹⁷ The products selected are known as the top importable products (top 5 products in each category at 6 digit level) in 2012 and 2016.

A mixed trend has been observed in case of tariffs and para-tariffs on the import of different categories of products (Figure 9). The HEIs have enjoyed relatively less burden in all types of tariffs and para-tariffs compared to that of MEIs and LEIs. This possibly happened owing to the government’s policy to protect domestic market-oriented industries through tariffs and para-tariffs, which are relatively large in number under MEIs and LEIs.

During 2012–2016, though CD in HEIs and MEIs have declined at different levels, the duty has increased in the case of LEIs. In case of different types of para-tariffs including SD, VAT, advance income tax (AIT),

Figure 9: Industry-wise Tariff and Para-Tariff



Source: Authors’ estimations.

¹⁷The data having zero (0) figures and blanks in all export and import data set have been replaced by 0.01 value. The justification for this kind of minor addition is that it would provide a better data set without having any mathematical errors. On the other hand, the data having zero (0) figures in tariff data set have also been replaced by 0.01 value, and leaving all the blanks unchanged.

RD and advance trade VAT (ATV)—these have either mostly increased or remained unchanged for all categories of industries. More specifically, para-tariffs are relatively high in case of MEIs and LEIs. Overall, these are indicative of the government's policy to support and protect domestic industries. Rahman *et al.* (2003) identified a number of consequences on employment due to changes in tariff. There is significant positive impact of restrictive CD, found in case of direct employment. However, when trade variables are used alone, significant negative coefficients are found on demand for labour.

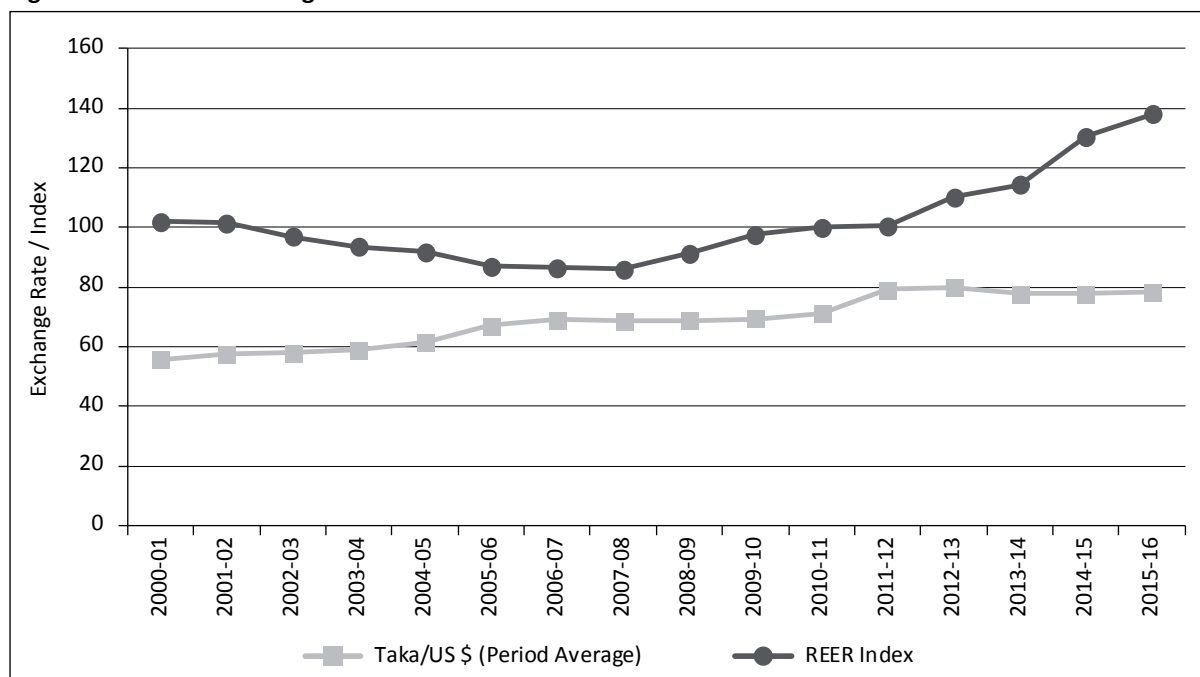
Figure 9 shows how tariffs and para-tariffs on different categories of export-oriented industries had been imposed between 2010–11 and 2015–16. This shows that tariffs and para-tariffs were not necessarily high in low export-oriented/domestic market-oriented industries. These indicate that protection/support is not necessarily always job creation, unless more support is provided to small and medium industries. Hence re-calibrate tariff regime to remove anti-export bias could not protect industries with high employment and/or their productivity prospects. The most important issue is to remove rent-seeking and corruption.

6.3 Effect of REER on Export and Import

Among the many, exchange rate is considered one of the major policy variables which could influence the country's external trade. The empirical results from different studies corroborate the fact of having a significant relationship of exchange rate volatility on export and import. Hasan *et al.* (2016), Younus and Chowdhury (2014) and Aziz (2008) evinced that an appreciation (depreciation) in real effective exchange rate (REER) decelerates (accelerates) the domestic export earnings and therefore, experienced a resultant effect on trade balance. An appreciation of REER makes import more affordable and export to be more expensive, driving off the potential demand for exportable products in the reported countries. Studies on selected Asian developing countries generally corroborate the above. Sharma (2003) and Veeramani (2008) showed that the demand for Indian exports increases when its export prices fall in relation to world prices and also deteriorates when export prices increase in relation to world prices. The Indian non-financial sector firms also experienced a downturn in export during 2000–2010 due to a real appreciation of rupee against the partner countries' currency (Cheung and Sengupta, 2013). The firms having a smaller share of total export are found to be more affected by an adverse effect of exchange rate. Dhasmana (2012) found India's trade balance to have a positive long-run association between real exchange rate depreciation, with its key trading partners. Volatility of real effective exchange rate also exhibits a negative long-term relationship. It is found in the case of Pakistan that REER has a positive impact on export performance only in the presence of trade openness (Zulfiqar and Kausar, 2012). Zulfiqar and Kausar's (2012) analysis also revealed that Pakistan experienced a negative association with export growth during 1981–2010, which actually oppugns the case of India (Sharma, 2003).

Over the last 15 years (i.e. 2001–2016), the REER index of Bangladesh has more or less a tendency to appreciate and it reaches at some 137.95 during 2015–16 (Figure 10). On the other hand, since an appreciation of REER makes import cheaper, import growth is likely to be influenced positively. The results essentially illustrate that due to an appreciation in REER, export earnings for the country get reduced and import gets encouraged substantially. According to Aziz (2012), during the period of 1976–2009, the devaluation of REER made a positive contribution to the country's external trade.

Figure 10: National Exchange Rate vs REER



Source: Bangladesh Bank.

7. CONCLUSION

The study has observed that, owing to trade reforms and several other factors, including fortuitous circumstances, Bangladesh over the past three decades appeared to have embarked on liberalisation and labour-intensive industrialisation, which could potentially generate productive jobs and reach a state of full-employment. This has been the characterisation of export and employment growth in the HPAEs during the early phases of their development. The growth of the RMG sector and its share in manufacturing value-added, exports and employment has been quite striking. However, unlike in HPAEs, it has not evolved into an EOI ‘strategy’ where exports have diversified and graduated into a broad-based export structure. While RMG has spearheaded the growth of formal, paid jobs, especially for women, its share in total employment is static or declining. Hence, while the share of manufacturing employment is steadily increasing, it is still far too low to ensure any structural transformation.

Meanwhile, Bangladesh has stepped up its protection and other support to domestic import-substituting industries. While domestic industries too should create jobs¹⁸, if properly planned, many experts believe that an anti-export bias has been created.¹⁹ The latter would imply that export diversification is likely to be adversely affected. Whether the lack of adequate diversification is due to trade regimes or to various constraints to growth of manufacturing industries per se (note: private investment is still relatively low) is unclear. Given the relatively low levels of FDI flows, in a milieu of rising imports in a fast-growth country, export growth would need to be boosted both for job growth as well as to ease potential foreign exchange constraints. The above leads to a number of issues which need to be thoroughly investigated in order to calibrate policies and interventions that minimise distortions towards the objectives of higher employment growth and export growth. This would in turn be contingent on an appropriate design of a comprehensive trade and industrialisation policy. The objectives of such a policy need to be clear and pragmatic, not only to include export expansion but also employment generation. The present study, within a limited framework, tends to argue that the

¹⁸Note that non-traded sector plays a significant role in employment generation.

¹⁹See Ahmed (2015); Khan (2007).

two are not automatic. Further, attempts to create 'exports at any cost' or to overly protect domestic industries are likely to engender policy biases, rent-seeking and corruption. Bangladesh would need to explore its own 'golden mean'.²⁰

The manufacturing sector of Bangladesh has experienced growth in employment over the years; however, growth in employment has slowed down in the more recent period. The present study shows that employment growth has been variable, and highly concentrated to a limited number of sub-sectors. This paper analyses how the employment growth in the manufacturing sector has been influenced by trade. Following Jenkins and Sen (2006), this paper has tried to distinguish the impact of trade on employment through three distinct effects – 'size effect', 'composition effect' and 'process effect'. The analysis tends to suggest that no single type of effect reveals any clear pattern of growth in manufacturing employment due to trade; rather, such growth is found to be a combined effect of all—'size', 'composition' and 'process'. While a large share of changes in employment have taken place in industries which are highly export-oriented, changes in employment are also observed in case of moderate and low export-oriented industries. Further, both the labour-intensive and capital-intensive industries under 'different export categories of industries' experienced growth in employment. However, higher growth in employment in both labour- and capital-intensive industries is revealed in HEIs. In contrast, a few LEIs have experienced negative growth in employment. While the employment content of export-oriented industries is heavily influenced by RMG, which is labour-intensive, not all export-oriented sub-sectors can be relied upon to deliver employment. Similarly, domestic market oriented industries have also been contributing to employment growth through 'size', 'composition' and 'process' effects. The observations require further probing and analysis, especially through per unit/enterprise level data, and compare trade effects on both employment and productivity, to ensure which sub-sectors are best supported.

The growth of the manufacturing sector has been constrained by various factors which have adverse effects on employment. According to the World Economic Forum, major problematic factors for enhancing competitiveness in Bangladesh includes some 16 different constraints. Among the five major constraints, 'corruption' has ranked number one for six times since 2006, implying that it has become a 'core chronic curse' to the potential and existing health of the economy. 'Inadequate supply of infrastructure' comes second in the ranking in 2017 as one of the major impediments for doing business in Bangladesh. It is evident that infrastructural backwardness deters the potential foreign investment in Bangladesh, since the constraint is unable to attract both foreign and domestic investment. Coupled with the following constraints, inefficient government bureaucracy has added to the uninviting business environment extensively. Further, 'policy instability' and 'inadequately educated labour force', and 'poor work ethic in national labour force' have become the newly perceived constraints in 2017, which are currently considered to be the top impediments for doing business in Bangladesh. While there are some constraints which have improved largely in the ranking (e.g. tax rates, tax regulations, crime and theft, foreign currency regulations), the business environment overall has been worsened by these emerging issues.

Poor technological readiness is a major weakness upgrading the manufacturing sector of Bangladesh. Bangladesh is specialised in bulk scale low value-added products, where skill requirement is low. Other than RMG, few other sectors have the potential to absorb such a large volume of workers. For such volume-led employment, the manufacturing base is rather limited in other potential sectors such as leather and footwear, pharmaceuticals, food processing. Given the poor educational background and low skill of the pool of labour force, it is difficult to develop industries which require higher skills.

²⁰Mazumdar (2008).

While the current policies are largely supportive of export-oriented industries through various trade and budgetary measures, low export-based and/or domestic market-oriented industries have also been partly supported by fiscal measures. The recent shifts in the tariff regime cater to domestic market-oriented industries which are low export-oriented and import-competing industries. Although such policy support partially contributed to a degree of rise in export and domestic production of both categories of industries, the impact on employment is not evident, except in a few sub-sectors. In other words, trade-related policies and measures are likely to play a 'partial' role in influencing the growth in production and exports, and thereby on growth in employment. However, there are a number of other factors which also influence the performance of industries both in the domestic and export markets. Hence, it is difficult to conclude that export-orientation of industries or labour-intensive nature of industries alone could contribute to a rise in employment in a labour-abundant economy like Bangladesh. In the backdrop of different kinds of market failures and problems of governance, the choice of policies with regard to enhancing employment should be well calibrated with policy priorities to increase productivity and export with appropriate emphasis on both domestic and export-oriented industries.

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