The Ready Made Garments (RMG) Workers' Gender Ratio in Bangladesh: The case of Mapped in Bangladesh (MiB)

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A R T I C L E   I N F O

A B S T R A C T

It has been widely acknowledged that female workers account for 80% of the Ready Made Garments (RMG) industry's workforce in Bangladesh but a number of studies estimated different male to female workers' ratios ranging from 35: 65 to 55:45. To contribute to such debate, this paper leverage the data of 'Mapped in Bangladesh' (MiB) project. While the objective of the MiB project is to enable transparency and accountability in the RMG sector by providing the industry stakeholders accurate, updated and authentic factory data collected through factory census method and published in a digital map; this paper aims to shed light on the male to female ratio of workers employed in the RMG factories of Bangladesh is not 20:80, but it is 42:58 according to the findings from MiB data. Presenting such data, the study seeks to discuss how factory issues can influence the gender composition of RMG Workers. These issues such as factory locations, factory type, factory size and production sections are important to understand the challenges of future research addressing the gender composition of RMG workers in Bangladesh.

Introduction

Being part of the supply chain of highly globalized industry as one of the major contributors for manufacturing and exporting, Bangladesh Ready Made Garments (RMG) sector has the attention of a large pool of stakeholders. These stakeholders include global brands and buyers, suppliers, trade associations, government agencies and governance bodies, workers' rights advocates, media, national and international NGOs, trade union activists and researchers and academicians. As a result, any major incident in the sector generates enormous amount concerns among stakeholders.

The Rana Plaza disaster was such an incident where a building named Rana Plaza in Savar (Just outside of Dhaka, the capital of Bangladesh) having five garments factories collapsed on 24 April 2013 (Otlewski 2014). Resulting the death of over 1,100 garment workers, it is considered as the deadliest industrial accident in Bangladesh after which Bangladesh has experienced successful campaigns to improve labor safety (Paton 2020).

The Mapped in Bangladesh (MiB) project, previously known as the Digital RMG Factory Mapping in Bangladesh (DRFM-B), was initiated in 2017 by Centre for Entrepreneurship Development (CED) of Brac University (BracU) backed by the succession of its pilot phase titled 'Participatory Factory Mapping Research' (PFMR) during 2015. The project was materialized after the Rana Plaza incident when bridging the knowledge gap of the garment industry of Bangladesh had become mandatory to avoid misconceptions, misinformation and misinterpretations. Although the major knowledge concern of the project is to identify how many export-oriented Ready Made Garments (RMG) factories exist in Bangladesh and what are the locations of these factories, MiB has also stepped up to address the debate on what is the exact male to female gender ratio of RMG workers in Bangladesh.

To implement the project, CED is strategically partnered with the two apex trade associations of the industry which are Bangladesh Garments Manufacturers and Exporters Association (BGMEA) and Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA). At the same time, the project has been receiving strategic supports from the Department of Inspection for Factories and Establishments (DIFE) under the Ministry of Labour and Employment (MoLE) in Bangladesh. Being coordinated by BRAC, the project is funded by the Laudes Foundation and the Embassy of the Kingdom of the Netherlands (EKN).

MiB not only collects factory data, but also publishes the data in the digital map after a process of verification and validation. The data points for each factory in the map include factory name, address, GPS location; establishment year of the factory; membership of the factory; type of factory building structure (shared, standalone, etc.); number of workers with male-female ratio; countries where products of the factory are exported; buyers/brands working with the factory; distance of the nearby medical centers hospitals and fire service stations; existence of Workers Participation Committee (WPC) and Safety Committee; and Certifications and inspections of the factory such as Accord, Alliance, ISO, OEKO-TEX, LEED, WRAP, SEDEX, etc). At present, the map hosts data of more than 3000 export-oriented garment factories in Bangladesh the map can be accessible using the web address www.mappedinbangladesh.org.

While the objective of the ongoing MiB project is to enable accountability and transparency in the RMG sector by providing industry stakeholders authentic factory data, the aim of this research brief is to utilize MiB dataset for unearthing the male-female ratio of RMG workers in Bangladesh and for pursuing a discussion which shows some directions to the future research explorations.

Firstly, this paper explores previous literature with similar concern. Then, the paper presents the methodology of data collection followed by the presentation of the the data of male to female workers' ratios in terms of factory concentrating districts, factory types, factory memberships and factory size according to which the male to female ratio of workers employed in the RMG factories of Bangladesh is 42:58 although it can vary in different desegregations of the data. Subsequently, based on the desegregated data, the paper delivers a discussion on the issues which usually have impact on the gender composition at firm level.

The discussion to be drawn in this paper is still rudimentary yet necessary because different studies have drawn various results and explanations regarding the ratios of male-female workers without considering the issues like factory locations, factory type, factory size and production sections. These issues have been overlooked by most of the previous studies and research initiatives as the access to export oriented RMG factories and firm level data in Bangladesh has always been limited to the researchers until MiB starts to demonstrate factory data in a digital map collected by accessing factories through factory census.

Literature Review

RMG industry of Bangladesh has been marked as containing 80 percent female workforce that means only 20 per cent rest of the workforce consists male and male to female ratio is 20:80 according to a number of previous literatures. There are also some recent literatures which contradicts to such perception but also failed to show a consensus on the male and female employment of workers in the RMG sector as the reported ratios of these literature also varied from each other.

Referring to BGMEA, Bangladesh Bureau of Statistics (BBS) has reviewed in Gender Statistics 2018 that women employees in the garment industry was 3.20 million in 2012-13 among the total 4 million workers that means 80% workers of the industry are women (Bangladesh Bureau of Statistics [BBS], 2018). The same information, not necessarily from the same source, has also been mentioned in the website of Clean Clothes Campaign (Gender: Women Workers Mistreated, n.d.), in the report of Fair Wear Foundation (Standing Firm against Factory Floor Harassment, 2013), in the report commissioned by the Copenhagen Consensus Centre (Shadat et al. 2016) and in the academic contribution of a number of authors (Anwary 2017, Khatun & Shamsuzzaman 2017, Akhter, Rutherford, & Chu 2019).

On the other hand, different reports of International Labour Organization (ILO) documented different percentages of female labor force of Bangladesh RMG sector. For example, the ILO Brief (International Labour Organization [ILO], 2020) and ILO's working paper (ILO, 2019) reported that women account for approximately 80 per cent or even more of the workers of the RMG sector in Bangladesh. On the contrary, Bangladesh garments sector has been marked as having 55- 70% women workforce in the Global Gender Strategy of the BetterWork programme (ILO, 2018). A newspaper report in Bangladesh quoted ILO country director of Bangladesh and according to him women constitute 60 percent of the workforce in the Bangladesh ready-made garment industry ("Women bearing brunt", 2020).

On the website of BKMEA, female participation in the RMG workforce has been marked as 60 percent (We women, n.d.). In a newspaper report highlighting the findings of MiB, the president of BGMEA Dr. Rubana Haq was quoted. For her, on average, the

male-female ratio of 40 and 60 per cent can be generalized across the industry. However, the report mentions that female ratio is much higher than the MiB survey as per BGMEA's claim (Ovi, 2020).

The debate over the ratio has not received any contribution neither from the academia nor from the side of the other stakeholders such as trade associations, NGOs or INGOs. Instead, different commentators and sources kept mentioning the male-female workers' ratio as 20:80. This may be for the reason that so far the stakeholders of the sector have not received updated data and at the same time, data updating of the RMG industry has not been incentivized until the initiating of MiB. Before MiB, there are other studies which have generated ratios of male to female RMG workers which are close to the ratio that MiB proposes.

On 4 September 2019, The Daily Prothom Alo reported the statistics of BBS according to which 53.82 percent male workers occupy jobs in the sector and the number of female workers is only 46.18 percent (Jahan, 2019). In another earlier survey, BBS found that women represented 64 percent of the RMG sector's 2,762,334 employees (BBS, 2012).

Based on secondary analysis of 4841 RMG factories from DIFE published in 2017, Bangladesh Institute of Labor Studies (BILS) showed that male to female workers' ratio is 43:57 (Islam, 2018). The survey of ACD (Asian Center for Development) on 173 factories found that male to female ratio of RMG workers is 35:65 (Asian Center for Development [ACD], 2015). The recent survey of the same organization on 160 factories marked male to female ratio of RMG workers as 40:60 (ACD, 2021). Center for Policy Dialogue (CPD) surveyed 226 enterprises and 2,123 workers for the study titled 'New Dynamics in Bangladesh's Apparels Enterprises: Perspectives on Restructuring, Upgradation, and Compliance Assurance' (Moazzem *et al*. 2019) and remarked that worker composition in the garment sector has experienced changes over time as the percentage of female workers has reduced from 58.4 percent in 2012 to 53.2 percent in 2016. A baseline study for International Labour Organizations (ILO) tilted "Improving Working Conditions in the Bangladesh Ready Made Garment Sector" (SANEM 2019) surveyed 111 ready-made garment factories and found women's share of the workforce was 61.17 percent while for men it was 38.83 percent. Reviewing the trends from the Survey of Manufacturing Industry (SMI) data in Bangladesh, the study suggested that women participation has not decreased from 80 percent to 61 percent; rather women participation was in the range of 72 to 76 percent from 1985 to 1994, and gradually declined within a range of 65 to 70 percent during 1994 to 2012 (SANEM 2019).

For the ILO Issue Brief titled 'Understanding the Gender Composition and Experience of Ready-Made Garment (RMG) Workers in Bangladesh', researchers collected data from 260 enterprises and revealed that women accounted for 60.5 percent of their workers in 2018, a decline from 63.4 percent in 2010 (Mastuura & Teng, 2020).

The decline of RMG factories has also marked as a reason to have impact on female employment while stakeholders of RMG suggested that the introduction of labour-saving machineries replaced the kind of jobs that previously mostly low-skilled female workers carried out (Raihan and Bidisha 2018).

More insights on the gender composition of garments workers can be brought when the data will be desegregated from MiB database in terms of factory location, factory type, factory membership and factory size. This paper further complements such desegregation with a discussion envisaging how different issues of factories in Bangladesh influence gender composition of garments workers.

Research and Methodology

MiB collects the data from the export-oriented garment factories in Bangladesh using factory census method. Field Officers (FOs) were trained to conduct the census by walking street to street of garments factory concentrating areas in the country.

Although the project started from April 2017, the data collection from factories was started in May 2018 from Dhaka district. Later, the project started its census respectively in Gazipur district in August 2018, Narayanganj district in April 2019, and in Chattogram district in December 2019 which ended in March 2020. After halting down the factory census since April 2020 due to Covid-19 restrictions in Bangladesh. MiB has started its data collection from the end of 2020 in the rest of the districts (except Dhaka, Gazipur, Narayanganj, and Chattogram) where factories are loosely concentrated according to secondary datasets available in DIFE, BGMEA and BKMEA. Moreover, from March 2021, MiB started to update the data of its mapped factories by visiting factories again although both the factory census in rest of the districts and data updating have to be stopped multiple times due to Covid-19 restrictions in 2021. However, the analysis to be presented in this paper is based on the MiB data collected during pre-Covid period within the timeline from May 2018 to March 2020.

According to the methodology of MiB factory census, FOs locate the export oriented garments factories and try to get appointments from the respondents who represent the factory management. FOs use the questionnaire in hard copy versions to conduct face to face interviews of the factory respondent during the census. Based on the hard copy questionnaires, FOs later fill the ODK (Open Data Kit) version of the questionnaire in their mobile phones and submit to the ODK server along with the images of the hard copy questionnaire, factory signboard, factory building etc. The DVV team checks factory data in terms of images sent from the field and different secondary sources such as BGMEA, BKMEA, Accord, Alliance, and National Initiative (NI). Contradictory and mismatched data get verified and validated again through phone calls to the factory contact.

After the data verification and validation, only those factories get published in the digital map which have been ensured as RMG factories and are export oriented. As per Bangladesh Export Policy 2015-2018 (Ministry of Commerce 2015), industries exporting at least 80% of their products will be considered as export oriented industries (Ministry of Commerce 2015).

Following the ethical commitment, FOs are instructed to request the respondents for signing a consent form after the data collection through which respondents give consents to make the data public. FOs also show the official letters of BGMEA, BKMEA, and DIFE to factory management to confirm that factory information is going to be collected with cooperation of concerned authorities.

As of June 2021, mappedinbangladesh.org is exhibiting information of 3251 factories. More factories to be added as the MiB census is still ongoing in cluster 5. However, the analysis of paper was made during December 2020 when number of export oriented factories in the map was 3212.

Analysis

Bangladesh has 64 districts but not all districts have export oriented garments producing factories. MiB has divided the garments producing districts into five clusters where Dhaka, Gazipur, Narayanganj, and Chattogram districts have been designated respectively as cluster 1, cluster 2, cluster 3 and cluster 4. As per MiB digital map, these are the major garments producing districts in Bangladesh. The rest of the districts are considered cluster 5 in MiB.

Table 1: Districts wise Garments Factories and Garments Workers' Ratio

Districts	Number of Factories	Male Workers	Female Workers	Total	Male to Female Ratio
Dhaka	1,160	323,700	505,707	829,407	39.03:60.97
Gazipur	1,053	531,799	662,356	11,94,155	44.53:55.47
Narayanganj	613	153,389	174,089	327,478	46.84:53.16
Chattogram	386	57,453	157,268	214,721	26.76:73.24
Total	**3,212**	**1,066,341**	**1,499,420**	**2,565,761**	**41.56:58.44**

Source: MiB Database

Table 1 illustrates that female workers are higher than male workers in all four garments producing districts of Bangladesh. In the table, district wise male to female ratios of workers has been incorporated with the number of factories, male workers, female workers and total number of workers. As per the table, total 2565,761 workers are working during the data collection of 3212 factories where 1,066,341 workers are male and 1,499,420 workers are female. Thus, there are 41.56% male and 58.44% female workers have been employed in those factories which makes the total male to female ratio of the workers is 42:58. The male to female ratio of workers is 39:61 in Dhaka, and is 45:55 in Gazipur where 1,160 factories, the highest among all the four clusters, are located. Gazipur has also the highest number of total workers along with the highest number of male workers and female workers. Chattogram, having lowest number of factories and lowest number of workers which constitute highest percentage of female workers and lowest percentage of male workers. Male to female workers' ratio in this district is 27:73. Having the male to female ratio of 47:53, the percentage of male workers in the 613 factories of Narayagang is the highest (46.84) among all four districts.

Four types of factories can be distinguished from the data of MiB. Woven factories (factories producing woven garments) and knit factories (factories producing knit garments) are two types of factories among those four. Although sweater garments are considered as knitwear, MiB operationalized sweater factories as the third type factories as the production processes (winding and linking) of sweater producing factories and machines (manual and jacquard) used those factories are different than other knitwear producing factories. The remaining category is mixed factories which produce both knitwear and woven products.

Table 2: Garments Factories and Garments Workers' Ratio in terms of Factory Type

Factory Type	Number of Factories	Male Workers	Female Workers	Total	Male to Female Ratio
Knit	1,368	427,495	547,045	974,540	43.87:56.13
Woven	983	358,086	654,266	1,012,352	35.37:64.63
Sweater	534	201,306	131,311	332,617	60.52:39.48
Mixed*	327	79,454	166,798	246,252	32.27:67.73
Total	3,212	1,066,341	1,499,420	2,565,761	41.56: 58.44

Source: MiB Database

The table 2 shows that 983 woven factories employ 1,012,352 workers which is highest among all four types of factories. . The male to female worker ratio in these woven factories is 35:65. 1368 knit factories constitute the biggest segment among the total 3212 factories. The male to female worker ratio is 43:57 in knit factories. The male to female ratio is 61:39 among 332,617 workers of sweater factories where the proportion of female worker is lower than any other type of factories. The male to female workers' ratio in mixed factories is 32:68.

MiB has termed BGMEA factories to those factories having BGMEA membership and BKMEA factories to those factories having BKMEA membership. Usually, the factories producing knit garments (including sweaters) receive the BKMEA membership while BGMEA member factories can be producers of woven and/or knit garments. There are factories having the memberships of both associations and also factories that do not have the membership of any of the associations. The former factories are termed BGMEA-BKMEA factories and the later factories are termed non-member factories.

Table 3: Garments Factories and Garments Workers' Ratio in terms of Trade Association Membership

Membership	Number of Factories	Male Workers	Female Workers	Total	Male to Female Ratio
Only BGMEA	1,872	744,483	10,99,865	1,844,348	40.36:59.64
Only BKMEA	488	110,533	133,962	244,495	45.21:54.79
Both BGMEA-BKMEA	260	164,808	197,626	362,434	45.47:54.53
Non-Member	592	46,517	67,967	114,484	40.63:59.37

MiB Database

According to the table 3, male to female workers' ratio as 40:60 exists in the 1,872 BGMEA factories which are also the highest in number among all four types of factories and employ the majority of the workers (1,844,348). 592 non-member factories, having the lowest number of workers (114,484) among the four types, also account for the almost similar male to female ratio as BGMEA factories which is 41:59. BKMEA factories mark the male to female ratio as 45:55 in 488 factories. The same ratio of male to female workers is being contained by 260 BGMEA-BKMEA factories but this group of factories is lowest in number among all four categories of factories.

Bangladesh Industry Policy 2015 has determined the size of the RMG industries in terms of worker numbers. Large RMG industries have more than 1000 workers while medium RMG industries have equal or less than 1000 workers. Workers number of small RMG industries is not separately considered but generally, small industries are considered those having 1 to 50 workers (Ministry of Industries 2015).

Table 4: Garments Factories and Garments Workers' Ratio in terms of Factory Size

Factory Size	Number of Factories	Male Workers	Female Workers	Total	Male to Female Ratio
Small (1 – 50 Workers)	211	3,533	3,367	6,900	51.20:48.80
Medium (51 – 1000 Workers)	2,210	320,190	516,702	836,892	38.26:61.74
Large (More than 1000 Workers)	791	742,618	979,351	1,721,969	43.13:56.87

Source: MiB Database

As the table 4 demonstrates, male to female workers' ratio in 791 large factories is 43:57 and such factories employ highest number of workers (1721969) among all three types of factories. Medium factories having 51 to 1000 workers are highest in number (2210) but it employs 836892 workers where male to female ratio is 38:62. Only in 211 small factories, the percentage of male workers is higher than female workers. The male to female workers' ratio in such factories is 51:49 within 6900 workers.

Discussion

Factory location, factory type and factory size have aided to desegregate the data of gender composition of garments workers as the presentation of data above showed. At the same time, these three issues along with production section of factory can be crucial reasons for which the gender ratio of male and female garment workers in Bangladesh can vary from factory to factory and even from study to study. While revisiting similarities and contradictions of MiB with some other studies, this discussion aims to draw attention to how the gender ratios of garments workers can be influenced by factory related issues.

The studies that can be revisited along with MiB in this discussion are: the ILO Issue Brief (Mastuura & Teng 2020), the ILO Baseline (SANEM 2019), the ACD Report 2015 (ACD, 2015), the ACD Report 2021 (ACD, 2021), and CPD-RMG Study (Moazzem et al. 2019). The reason for such selection is that, similarly as MiB, all of these accessible studies reported the proportion of female workers in the gender composition of garments workers based on primary data collection and most of these studies dealt with the designated factory issues. However, the main methodological contradiction between MiB and these studies lies in the fact that MiB is census based while all the other studies are survey based. Apart from such methodological differences, the similarities and contradictions between MiB and other studies are discussed in detail as below. This discussion relies on the disaggregated data of gender composition of garments workers which can be explained in terms of the influencing issues of factories such as Factory location, factory type, factory size and production sections.

Factory Locations

Table 1 of MiB data shows that not only the number factories vary district to district but the number of workers and male to female ratio also vary. Table 1 visualizes that Dhaka has 1160 factories, highest among all four districts, but 1053 factories in Gazipur have the highest number of workers including the highest number of male workers and highest number of female workers. The percentage of female workers in Dhaka (60.97%) is slightly higher than Gazipur (55.47%). On the other hand, both the number of factories and number of workers in Narayanganj and Chattogram are lesser than in Dhaka and Gazipur. However, the percentage of male workers in Narayanganj (53.16%) is higher than the other three districts and the percentage of female workers in Chattogram (73.24%) is higher than the other three districts.

The ILO Issue Brief (Mastuura & Teng 2020) also disaggregated the data of workers' gender composition by location. It found 58.7 percent of workers were female in its surveyed factories in Dhaka which is slightly lower than what MiB found. It also stated that women's employment shares in the sector declined in Gazipur, Narayanganj and Chattogram, but increased by 1.7 percentage points in Dhaka between 2010 (57 per cent) and 2018 (58.7 per cent).

CPD-RMG Study also found a higher share of female RMG workers in Chattogram, 76.6 percent, which is higher than other districts. Chattogram district having more woven enterprises was considered as a partial reason for such a result (Moazzem et al. 2019). This statement will seem contradictory with the findings from MiB data as this discussion progresses toward the argument on factory type but it is quite clear to mention that both Narayanganj and Chattogram districts demand greater attention for further research exploration whether these areas have any industrial, social or any other reasons to demonstrate disproportionate genders ratios among workers working the RMG factories in these regions.

Factory Type

The findings from MiB data contradicts with the CPD-RMG study's considerations that increasing number of woven factories influencing higher female RMG workers than male RMG workers in Chattogra. This is because the number of woven factories in Chattogram district found in MiB factory census is not that very significant, rather the number of knit factories is higher than the number of woven factories in the district. Interestingly, as the table 5 depicts, mixed factories are highest in number among all four types of factories in Chattogram.

Table 5: Factory Type by Districts

Factory Type	Districts				Total
	Dhaka	Gazipur	Narayanganj	Chattogram	
Knit	339	399	524	106	1368
Woven	553	316	29	85	983
Sweater	176	276	43	39	534
Mixed	92	62	17	156	327
Total	1160	1053	613	386	3212

Source: MiB Database

MiB has desegregated the four types of factories in terms of four districts as the table 5 shows. The table visualizes that each district contains the highest number of factories from each type. Thus, Dhaka has the highest number of woven factories, Narayanganj has the highest number of knit factories, Gazipur has the highest number of sweater factories, and Chattogram has the highest number of mixed factories. Therefore, woven factories can be a contributing factor for Dhaka district to have 60.97 percent women workers as per table 1.

Similarly, as MiB, ILO Baseline (SANEM, 2019) study covered the four production areas among which 50 were knitwear factories, 14 were sweater factories, 37 were woven and 10 were mixed factories. The other studies did not consider mixed factories in the factory type. Except for the CPD-RMG Study, most of those studies did not link the influence of the knitwear on the gender

composition of workers. In the survey of ACD 2015 Report, the sample included 48.84% woven factories, 27.91% knitwear factories, 12.79% sweater factories and 10.47% other factories based on BGMEA membership proportions (ACD, 2015). The sampling of factories in ACD Report 2021 consisted 43.8% woven (70), 25.6% knitwear (41), 16.9% sweater (27) and 13.8% other factories (22). These factories were also selected from BGMEA member factories (ACD, 2021).

The literature is in favour of Narayangaj having higher share of knit factories and thus, having greater share of male workers. Bangladesh produced only woven apparel products in the 1980s but there was rapid growth in exports of knit apparel products, principally sweaters and T-shirts, starting from the early 1990s (Mastuura and Teng 2020). Changing scenario of workers' gender composition in the RMG sector has historical linkage with growth of the knitwear industry because the belief that women are less capable of the physical and skill demands of the machinery used in knitwear and sweater production has made knitwear manufacturing as 'men's work' with (Hossain, 2012). Referring to the World Bank Bangladesh Job Diagnostic 2017 which suggested estimations that men made up 54 percent of the labor force in the garment sector in 2016, Kabeer et al. (2019) marked that the rise of the knitwear sector has been accompanied by a rising share of male employment in the industry. For her, one of the reason behind this was the operations of knitted fabric making sections of knitwear firms during the night where male workers have the advantage to afford and another reason is the widespread use of piece work which makes it possible to achieve higher earnings, attracting male workers.

Moazzem et al. (2019) has also remarked that The female-led characteristics of the garment industry has been fading away with declining share of female workers mainly in knit and sweater factories. MiB data has also reflected the same situation in table 2 according to which the proportion of male workers is higher than female workers in sweater factories. In contrast to sweater and knit factories, woven and mixed factories employ a relatively higher percentage of female workers.

Unlike woven and knitwear (knit and sweater), mixed factories have had a very limited attention in the previous studies although it has become very crucial on the ongoing discussion. Further research is required, why Chattogram has the highest proportion of mixed factories and whether such factories have any impact on the higher share of female workers in the gender composition of RMG workers in Chattogram. Moreover, MiB did not treat knit and sweater within the same segment as 'knitwear' which unearthed the male to female ratio of workers in sweater factory is 61:39 (see table 2), the most unusual gender ratio among all the factory types. Thus, future research can have profound focus on how sweater as a subsector is contributing to the changing dynamics of gender composition of RMG workers.

Factory Size

Only CPD-RMG study has sampled enterprises in terms of their size. Dividing the RMG enterprises into three categories such as small, medium, and large; it used proportional stratification to sample 226 enterprises. Out of 226 sample enterprises, 48.2 percent were small enterprises (109 enterprises), 44.2 percent were medium in size (100 enterprises) and 7.5 per cent were large enterprises (17 enterprises). Factories employing less than 500 workers are classified as 'small' while 'medium' factories employ 500–2500 workers. 'Large' factories were classified as having more than 2500 workers (Moazzem et al. 2019). According to the study, male employment is increasing in large and small enterprises.

As mentioned during the description of table 4, MiB has divided the small, medium and large industries in terms of workers' number given in Bangladesh Industrial Policy 2016, and found that male workers' percentage in small factories (1-50 workers) are higher than female workers. However, if the factory size is considered in terms of the ranges of the workers that CPD-RMG study desegregated, then the following table can be generated.

Table 6: Gender Ratio by Factory Size (Based on Category of CPD)

Factory Size	Number of Factories	Male Workers	Female Workers	Total	Male to Female Ratio
Small: Below 500 workers	1,761	142,350	241,777	384,127	37.06:62.94
Medium: 500 – 2,500 workers	1,263	570,105	816,805	1,386,910	41.11:58.89
Large: More than 2,500 workers	188	353,886	440,838	794,724	44.53:55.47

Source: MiB Database

Unlike table 4, table 6 shows that the percentage of female workers is higher in small factories. It is higher than male workers for medium and large factories as well. As per table 6, the difference between the percentages of male and female workers decreases as the factory size gets larger. Moreover, gender ratios of workers can be varied depending on which factory size classification has been applied. Research based policy driven reviews are necessary for forwarding suggestions to have best fit thresholds of workers correspond to each size and each type of RMG factories. Future research can concentrate on this context.

Production Section

It has been believed that Bangladeshi females carry expertise in sewing traditionally (Rahman & Siddiqui 2015). ILO Better Work also stated that 80 percent of line-operators in the sewing sections of the garment sector are women (Bangladesh Factories Set for More Female Supervisors 2019).

The ILO Issue Brief (Mastuura & Teng 2020) collected gender desegregated data by major production sections. According to such data, the majority of the workers, 995 among the total of 2784, were working in the sewing section of the surveyed enterprise in 2018. Thus, the sewing section of those enterprises had 32.6 percent of male workers and 67.4 percent of female workers. All the other sections of these enterprises in the same year had a higher number of male workers. Male workers constituted 61.9 percent in the knitting, 59.8 percent in cutting, 42 percent in finishing. 98.4 percent in dying, 53.8 percent in packaging and printing, 82.9 percent in washing, and 98.9 percent in Embroidery. Therefore, within the overall male to female ratio as 40:60 as this brief is reporting, the majority of the female workers are coming from the sewing section.

Research initiatives in future may pursue a crucial question that whether the widely used information of 80 percent women workers in the garment sector has been inappropriately influenced by the dominance of women workers in the sewing lines. From 2021, MiB started data updating of its mapped factories. In this data updating procedure, FOs are visiting the factories again and interviewing factory respondents to collect updated data. Along with the total number of male and female workers, MiB data updating is also now aimed to collect workers' numbers in terms of each production process of RMG factories. After the completion of data updating, MiB will be able to demonstrate to what extent sewing lines along with other production sections in export oriented garments factories have conceived female workers.

Conclusions

Although the analysis made here from the MiB data embraced a huge number of factories, it is not beyond limitations. The factories located in the Export Processing Zones (EPZ) are not part of the analysis as those factories are still not part of MiB coverage. Furthermore, the actual gender ratios of workers Bangladesh RMG sector also depend on the actual number of male and female workers employed in the sector. As the presented analysis did not include the data update of MiB and limited to the factory census in four districts only, the actual employment size of male and female workers is yet to be uncovered. However, MiB is very close to mitigate these limitations.

Despite of these limitations, the analysis of the paper has contribution to address that neither the discussion from MiB the data nor the previous studies based on primary data collection from garments factories has found any evidence on commonly perceived portion of women workers as 80 percent. The previous studies offered different percentages of male and female workers but all of these percentages are within a close range of MiB's findings that male to female workers' ratio is 58:42. While bringing the evidence that Chattogram having comparatively higher percentage of women workers with the significant existence of mixed factories, the discussion on desegregated data supports previous explanation and estimation that male workers constitute higher share in knit and sweater factories than the female workers of those factories. Male workers are also higher than female workers in small sized factories having 1-50 workers. It seems obvious from the discussion coupled with future research suggestions that gender composition of RMG workers in Bangladesh has close relation with factory location, factory type, factory size and production section.

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