Global production methods and women employment in garment units of Mumbai Metropolitan Region

Sanjay R, Sanjay

Somaiya College, Mumbai University, India

26 December 2010

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Sanjay Rode*

Abstract

Production in the garment unit is depending on technology, efficiency and skills of workers. If the labors are young and more educated then they adjust with flexible production methods. The garment export units are following global standard methods of production and they provide the various production related facilities to workers. In Mumbai metropolitan region, export related units are more competitive as compare to the domestic garment units. The monthly incomes of the women workers are higher in export units. The medical allowances, maternal benefits are also more in such units. The multinomial logit regression model shows that the age of the women workers is higher and statistically significant in domestic and both type of units. The women workers work over time in the both and domestic garment units. The women workers do not have technological knowledge in domestic garment units. The decent work facilities are not provided to the women workers in domestic and both type of units. Technical up-gradation, work facilities and on job training will improve employment of women in domestic garment units in Mumbai metropolitan region.

Keywords: Global production system, Garment units, Decent Work, Export units

Introduction

              The Indian textile and apparel industry underwent a process of restructuring following the liberalization of trade and industrial regulatory policies beginning in the nineties (Ramaswamy K.V. 2009). The productive capacity of the garment units is changing and it is not similar in the long run. Some garment units are efficient and they are specialized in terms of technology, market, type of product and workers. It has been observed that there is a subtle difference between the export and domestic chain in terms of the governance structures or control used. In the export chain, the lead time and quality parameters play a crucial role in controlling the agents. These pressures are passed on to the agents lower down the chain and the final squeeze falls on the workers in the form of wage cuts and deferred payment. In the domestic chain, the lead time and quality payment are much more relaxed and flexible as compared to those in the international chain (Unni J. and Scaria S. 2009). In order to remain competitive in the global market, the export firms are using the variety of flexible production methods and strategies. The export units are using youngest labors in their production units. They also ensure that labors will be educated and skilled. Educated workers can do variety of jobs at work place and cope up with the new challenges in the job. The garment units are using the flexible methods of production to catch the international market. The labors need to work on different machines and new designs. The export firm expects job concentration of workers. It increases the quality of the product produced and ultimately affect on the export, market size of firm. But in less competitive domestic firm, technical knowledge and skills are not required. They are capital scarce firms and employing least educated workers and promote them at high level jobs based on the experience, age etc. The export units are bigger in size and they are always monitored by the industry inspectors and others. Therefore the benefits given to workers in terms of provident funds, compensation for injury, medical allowances and maternal benefits are more. They pay more salary to the workers involved in various work activities. The domestic units provide lower monthly income to their labors even though they are working for more hours. They are unskilled labors and working on simple machines. In garment units, workers are working for more hours in a day and it depending on the current work orders. Most of the labors do not join the labor union. They fear about their job loss. If any worker joins labor union then garment unit easily removes that worker from job. The decent work facilities that are rest room,

safe work and equipments are more in the export units. Some garment units are following the labor standards in their units but not all units are doing the same. The major objective of the study is to examine the change in technology and its effect on women labors in garment. This is mainly because as the technology changes, women labors are removed first. Secondly, to examine the women labors are working on high or lower skill jobs in the garment units. Thirdly training and education will help to improve the efficiency and productivity of women labor.

The first part of the paper examines the women workers background and work environment. Second section deals with regression result. Last section deals with policy implication and conclusion.

Data and methodology

We collected data of garment units in Mumbai, Thane and Raigad district. Mumbai is second largest exporter of apparel in value terms and third largest contributor in quantity term of export in India. Garment units are spread all over metropolitan region. The data was collected of 263 women workers from the 50 domestic, export and both type of units. The units are scattered in suburbs of Mumbai city. Data is collected in Ghatkopar, Andheri, Kurla, Bhandup, Byculla, and industrial estates of Dadar. Several units are spread in Thane and Raigad district. The detailed questionnaire was administered in July-September 2009.We selected the units based on the systematic circular random sample. The units are selected to examine the working conditions, benefits and skills of the women workers. We have used the multinomial logit regression to examine the difference of work environment, benefits at workplace and decent work in export, domestic and both type of units. For data analysis, we have used stata@10 software.

Workers profile in various garment units

In the global economy, garment units are producing the wide range of styles. The market for new products is changing fast. There is competition is catch the market share. The firms are using the technology, communication and flexible employment. It is flexible production approach adopted by the garment unit in present time. Firms are employing young labors to increase the productivity in the units. It is a new flexible employment pattern adopted by the firms in textile and garment units. The nature and pattern of employment in the domestic and export related firm is different. Export firm has to achieve targets of production in short period of

time. Therefore they require younger and qualified staff. It is not similar to the firm related in the domestic production.

Table 1 Age profile of workers in units (Percent)

Type of unit	Domestic	Export	Both	Total
Below 15	2.3	0.4	0.4	3.1
15-25	17.4	32.2	0.8	50.4
25-35	4.2	2.3	0.0	6.5
35-above	28.0	0.4	4.5	32.9

Above table shows that the domestic firms are employing 2.3 percent labors which are below fifteen age group. The workers in the domestic units in the age of 15-25 are 17.4 percent. In the age group of 25-35, only 4.2 percent of workers are hired by domestic units. Above 35 age group workers are 28 percent in the domestic units and they are more in terms of percent. In the export oriented units, 32.2 percent workers are in 15-25 age groups. It means that the export oriented units are employing young workers in their units. In the both kind of units, 4.5 percent of the workers are in above 35 age groups. Nearly half of the workers are in the age group of 15-25. The possible reason is that women worker may leave the job due to work stress and hazardous or marriage (Paul Mujumder P. and Begam A. 2000). But women workers in the production process are not uniformly spread either in age group or type of units. The education of worker plays an important role in production process. A highly educated worker will always work for innovation and skilled jobs. Similarly more educated workers are doing better in acquiring skills compared with the less educated ones (Chakravarty D. 2004). Most of the export related firms are employing highly educated workers in their production process. Such firms often give training to these workers in new and changing production methods.

Table 2 Educational achievement of women workers (Percent)

Type of unit	Domestic	Export	Both	Total
Secondary school	39.8	18.2	4.9	62.9
Higher secondary	10.6	15.5	6.8	32.9
Graduates	1.5	1.1	1.1	3.7
Graduates and above	0.0	0.4	0.0	0.4

In the domestic units, below secondary school studied workers are 39.8 percent. In the export units, it is 18.2 percent and in both type of units, they are 4.9 percent. As far as graduate

workers are concerned then in the export units, they are 0.4 percent only. The export units have advantage in employing more educated workers than other units. Above table shows that the less educated workers move towards domestic units and highly educated workers move towards export units. It also means that educated workers get attracted to technical and skilled jobs as compare to the less educated workers.

Type of job

In Mumbai, labor cost is close to the technological development. There is pressure by workers on wages. Therefore several garment units have no choice but to apply better technology to increase productivity and make garment production viable. Garment units, big and small units have replaced several manual operations. Today different machines are used for different types of stitching. Manual cutting of garment has mostly been replaced with high speed cutting machines. Several big and small size firms have adopted computer technology designing. The export units are housed in big industrial estates. The entire fabric cutting takes place on one floor while stitching completely takes place on another floor where a hundred sewing machines are placed. The work related to garment making like embroidery cutting button and kaja. Stitching has been taken over by the machines.

Workers are working in different units but their skills and available instruments matters in production process. Export and domestic units have difference in their nature of production, work orders and machinery.

Table 3 Type of job of workers (Percent)

Type of job	Domestic	Export	Both	Total
Tailor	2.3	4.9	2.3	9.5
Cutting	3.8	3.0	1.1	7.9
Button and Kaja	0.8	0.4	0.0	1.2
Designer	1.1	3.4	1.5	6.0
Mechanic	0.4	0.0	0.0	0.4
Finishing	7.6	3.8	1.1	12.5
Helper	22.3	10.2	3.0	35.5
Packer	13.3	6.4	2.3	22
Merchandiser	0.4	1.9	1.5	3.8
Production Supervisor	0.0	1.2	0.0	1.2

The above table shows the various types of jobs performed by the women workers in the domestic, export and both type of units. There are 2.3 percent women are tailors in the domestic units. In the export units, they are 4.9 percent. In both type of units that is export and domestic units, women tailors are only 2.3 percent. The cutting jobs are performed by 3.8 percent women workers in the units involved in the domestic market. The units involved in the export are using the readymade buttons. There are 3.4 percent of the women workers working as designer in export units. In domestic and both units, they are below two percent. In the domestic firm, 0.4 percent of the women are working as mechanic. Domestic units have old machines and they require mechanic to repair them. The firms involved in the export are using the new machines in their production house. They do not require mechanic in their production process. In the domestic firms, 7.6 percent of the women workers are doing the job of finishing. In the export units, they are only 3.8 percent. In the domestic units, 22.3 percent of the women workers are working as helpers. Usually, the domestic firms recruits more helpers and promote them in long run as a tailor or packing workers. The entry in to skilled jobs such as stitching and cutting are not direct and the entry is mostly through that of helpers and then gradually promoted to the level of tailor or cutter (Neetha N. 2002). It is also depending on the workers ability, willingness and efficiency. Domestic firms cannot hire more skilled workers due to financial problem and lack of work orders etc. The domestic firms have 10.2 percent women workers as helpers. In both type of firms, helper women workers are only 3 percent. The packing job is done by the 13.3 percent women workers in the domestic units. In the export units, the women workers doing the packaging work are 6.4 percent. The difference in percentage is because export related firms are employing the machines for packaging. Women workers have to monitor the packaging process. The both type of firms employ only 2.3 percent women workers for packaging. The export units are employing 1.1 percent workers as production supervisors. The domestic and other firms do not have workers as production supervisors. Their volume of production is less and it can be handled by the unit workers only. For export firms, supervisors are required in production and distribution process.

Benefits on job

Garment firms are providing different benefits to workers such as maternal leave, medical allowances, increments, compensation for injury etc. If the firm is export related firm, then the benefits to the workers are higher. Such firms are following the global labor standards in their

production process. But domestic firms are inclined to give all the benefits due to the uncertainty in their demand of product and sale.

Table 4 Benefits to the workers (Percent)

Particular benefits	Domestic	Export	Both	Total
Regular wages	51.5	34.8	12.9	99.2
Increments	38.6	28.4	9.8	76.8
Medical allowance	0.4	0.8	0.8	2.0
Maternity benefits	1.1	2.7	1.1	4.9
Compensation for injury	1.9	2.3	0.8	5.0
Provident fund	2.7	8.0	3.0	13.7

Nearly 51.1 percent of the workers have the regular wages in domestic firms. In the export related firms, it is 34.8 percent. In both type of firms, it is 12.9 percent. All women workers in different garment units have regular wages. In the export firms, 38.6 percent of the women workers get regular increments. In both type of firms, only 9.8 percent women workers get increments. Medical allowances are 0.4 percent in the domestic units. In the export and both type of units, medical allowances are 0.8 percent each. On an average only two percent of the women workers get the medical allowances in all the garment units. Maternity benefits are 2.7 percent in the export related units. In the domestic and both type of units, they are 1.1 percent each. Compensation for injury is 2.3 percent in the export related units. In the domestic units, it is 1.9 percent. The provident fund given to the women workers in the export units is 8 percent. In the both type of units, it is 3 percent only. Only 13.7 percent of the women workers in all types of units get the provident fund.

Income of workers

The remuneration received by the worker is depending on the education, experience, type of work etc. Higher is the experience and education then higher is the current wage. The export units are offering higher wage to their workers to improve workers ability and capabilities. The highly paid workers concentrate more on their jobs and they give quality output.

Table 5 Monthly incomes of the women workers (Percent)

Monthly Income (Rs.)	Domestic	Export	Both	Total
Below 1000	0.4	1.5	0.4	2.3
1000-3000	20.2	5.3	0.8	26.3
3000-5000	25.7	18.6	6.8	51.1
5000-7000	3.5	5.7	2.3	11.5
7000-9000	0.8	1.2	0.4	2.4
9000-11000	0.1	0.8	1.2	2.1
11000-12000	0.8	1.5	0.4	2.7
12000-above	0.0	0.8	0.8	1.6

Table clearly shows that 20.2 percent of the women workers in the domestic units get income in the range of Rs.1000-3000. Total one fourth of the women workers get income range between Rs.3000-5000in the domestic units. In the export units, 18.6 percent women workers get income between Rs.3000-5000. If we observe carefully, then women workers of the domestic units do not get income above Rs.12000 but in export units 0.8 percent women workers get the monthly income above Rs. 12000. In the both type of units, 0.8 percent of the women workers get income above Rs.12000. In both and export related units, it is similar. We have observed that, half of the workers have received income in the range of Rs.3000-5000 in all units. The monthly income of the workers is depending on the overtime, type of job and job skills. If the skills at jobs are higher and workers are working more hours then monthly income of the workers is always higher. It is important to examine the daily hours of the women workers in all units.

Table 6 Working hours of the women workers (Percent)

Daily Hrs.	Domestic	Export	Both	Total
0-4	1.9	0.8	0.8	3.5
8	8.7	9.5	3.8	22.0
9	12.5	6.1	0.4	19.0
10	23.1	14.8	5.7	43.6
11	2.7	0.4	0.0	3.1
12-above	3.0	3.8	2.3	9.1

Above table shows that below four hours 1.9 percent of women labors are working in domestic units. In the export and both kind of units, it is only 0.8 percent each. Nearly, 8.7 percent of the domestic workers are working for eight hours. In the export units, eight hours daily work is done by 9.5 percent workers. In the both kind of garment units, 3.8 percent women workers are working up to eight hours. In the domestic units, 3 percent of the women workers are working up to 12 hours in a day. In the both kinds of units, 2.3 units of women workers are working for twelve hours. For the export firms, women workers working more than twelve hours are 3.8 percent. It is important to examine, whether women workers get the overtime for their work. But we cannot co-relate the hours of work and income. It is too much complex to study the relation. But daily workings hours may get fluctuate and working hours are depending on the work orders. Sometimes workers are not allowed to leave until the day's quota has been fulfilled no matter how long it takes (Siddiqi D.M. 2000). The weekly working hours will give some insights about the work done by the women in different garment units.

Table 7 Weekly hours of women workers (Percent)

Weekly Hours	Domestic	Export	Both	Total
Below 46	0.4	0.4	1.2	2.0
46-48	8.3	7.5	2.0	17.8
48-54	13.9	6.3	0.4	20.6
54-60	23.4	15.5	6.0	34.9
60-66	13.9	0.4	0.0	14.3
66-72	2.8	4.0	2.4	9.2
72-above	0.4	0.4	0.8	1.6

The number of weekly working hours gives the adequate knowledge of the work done by the women workers. Above table shows that the 23.4 percent of women labors in the domestic units and 15.5 percent women workers of export units are working up to 60 hours per week. In both kinds of units, it is 6 percent. It means every day women labors are working up to ten hours in garment units. Women workers working more than 72 hours per week are same (0.4 percent) in the domestic and export units. In the both types of units, it is 0.8 percent. It means per week, total 1.6 percent of women workers are working above 72hours in various garment units. In short, above table also shows that nearly three fourth of the women workers are working up to sixty hours in a week. But there are certain standard of work conditions which are given by the International Labor Organization (ILO). The firm has to follow the labor standards at work place and provide more benefits to the labors. Most of the garment units are forcing women worker to work more hours and provide less salary.

Table 8 Decent Work in garment units (Percent)

Decent Work	Domestic	Export	Both	Total
Access to Drinking water and toilet	51.1	34.8	12.9	98.8
Clean, spacious healthy and safe work condition	24.2	32.2	12.1	68.5
Safety tools/ equipment	0.0	0.8	0.0	0.8
Child care facilities	0.4	0.4	1.0	1.8
Rest room	2.3	16.7	3.0	22.0
Medical facilities at work place	36.7	33.3	11.4	81.4

Above table shows that almost all workers in different garment units have access to drinking water supply and toilet. In the export units, 34.8 percent of workers have the access to

drinking water and toilet. In the domestic firms, 24.2 percent of the women labor said that the present work is clean, spacious, healthy and safe work. In export oriented firms, nearly 32.2 percent women said it is a safe clean specious, healthy and safe work and in both type of firms, it is 12.1 percent. Only 3.8 percent of the women workers said that the safe tools/equipments in export units. Garment units have machines for different purposes. The machines should be in good condition otherwise it may cause harm to workers. It is a responsibility of the garment unit owner to keep all machines in good working condition. In both type of units, 0.4 percent of the women workers said that child care facilities is available in the garment units. In the both units, it is only one percent. In export units, 16.7 percent of the women workers have said that there is rest room available in the unit. In the both type of unit, three percent women workers said that there is rest room available in the garment unit. Among domestic units, 36.7 percent of the workers have medical facilities at work place. In the export units, 33.3 percent of the women workers have the medical facilities at work place. Among the both type of units, medical facilities are available to the 11.4 percent. In short, the garment units have the equipment related problems. Child care and rest rooms are again a big problem in all the units.

Multinomial logit regression model

We have used multinomial logit regression (Greene W. 2005) to understand the difference of work environment and benefits to the women workers in different units. We assumed that all units are same and there is no difference in terms of work environment and skills required for job. The model is defined as follows.

$$\Pr(y_i = j) = \frac{\text{Exp}(X_i B_j)}{1 + \sum_j^J \exp(X_i B_j)}$$

and

$$\Pr(y_i = 0) = \frac{1}{1 + \sum_j^J \exp(X_i B_j)'}$$

Where for the ith worker, y_i is the observed outcome and X_j is a vector of explanatory variable. The parameters B_j are estimated by maximum likelihood. The positive and negative

parameters are compared with the reference category workers of export units. The results are presented in the following table.

Table 9 Multinomial logistic regression results

Variables	Domestic vs export units			Both vs export units		
	Co-efficient	Std error	T ratio	Co-efficient	Std error	T ratio
Personal factors						
Age	1.**23****	0.33	3.75	1.18**	0.43	2.75
Education	-0.05	0.48	-0.11	0.97***	0.58	1.65
Monthly Income	-0.99	0.17	-0.60	0.13	0.17	0.74
Contract/subcontract	0.04	0.68	0.06	-1.05	0.90	-1.17
Type of job						
Tailor	0.13	0.15	0.86	0.196	0.20	0.91
Cutting	-0.34	0.59	-0.58	0.11	0.90	-0.13
Benefits on job						
Regular wages	-19.79	3459	-0.01	-15.94	2121	-0.05
Medical allowance	35.30	0.00	0.00	67.39	0.00	0.00
Maternity benefits	-1.44	2.13	-0.68	0.94	1.56	0.60
Compensation for injury	0.63	2.30	0.27	-66.52	0.00	0.00
Provident fund	1.55	1.24	1.24	0.29	1.56	0.19
Work nature						
Contract/ regular job	-0.45	1.44	-0.31	-1.14	2.22	0.56
Daily hours	0.09	0.22	0.42	0.00	0.23	0.04
Week hours	0.02	0.36	0.55	0.01	0.04	0.36
Over time	-0.88**	0.34	-2.55	-0.94**	0.44	-2.11
Work load						
Unreachable targets	-1.35	1.03	-1.31	-18.62	0.00	-0.00
Heavy work load	-0.18	0.25	-0.71	0.78**	0.35	2.23

Changing designs	0.39	0.29	1.33	0.57	0.46	1.24
Close supervision	-0.13	0.24	-0.55	-0.20	0.29	-0.69
Pressure of deadlines	-0.13	0.25	-0.55	-0.05	0.34	-0.16
Skills required						
Complex operations	0.44	0.37	1.21	-34.19	0.00	-0.00
Technical knowhow	-0.65***	0.40	-1.58	-0.95	0.66	-1.44
Greater concentrate	0.11	0.27	0.41	0.77**	0.36	2.12
High risk of injury	-0.43	0.51	-0.85	-0.62	0.70	-0.90
More physical strength	-0.44	0.38	-1.15	-0.18	0.50	0.36
Less skill and high application of mind	0.08	0.29	0.29	-0.59	0.43	-1.35
High skill and high application of mind	-0.35	0.55	-0.69	-0.57	0.61	-0.94
Work Union						
No work union member	0.01	0.26	0.04	0.33	0.37	0.92
Remove worker from job	10.18*	0.57	17.66	9.61	0.30	0.23
Demand for high wage	-0.32	0.45	-0.72	0.26	0.56	0.47
Disrupt production process	-0.02	0.38	-0.04	0.00	0.23	0.70
Decent Work						
Access to drinking water and toilet	-16.04	3130	-0.01	0.17	0.48	0.35
Clean , healthy and Safe work condition	-1.33**	0.67	1.96	2.47	4.68	0.53
Safe tools /equipments	-36.68	0.00	-0.00	2.19**	1.05	2.09
Child care facilities	2.52	3.70	0.68	29.40	0.00	0.00
Rest room	-2.66*	0.74	-3.59	-3.63**	1.33	-2.73
Medical facilities	-1.31***	0.75	-1.75	-0.55	1.06	-0.52
Constant	36.72	0.69	12.0	7.69	1.67	0.85
LR c-0.52hi2(74)=223.12 prob.>chi2=0.00, log likelihood=-122.44 pseudo R2=0.48						

*significant at 1 percent ** significant at 5 percent *** significant at 10 percent

Above table shows that the women workers age in the domestic firm is positively correlated with type of unit. Domestic and both type of garment units prefer the mature labors in their production process. Most of the times, older workers are not ready to learn different required skills. They are easily available for any kind of work. Garment units do not differentiate women workers on the basis of age criteria for different work. It is a work shared by all the women workers in different units. Over time given to the women worker in the domestic firm is negatively co-related and it is statistically significant. It means women labors are given more work which they are not willing to do. Most of the garment units in India are forcing women workers to work more hours at lower wage. Technical knowledge of worker is negatively co-related in the domestic and both kind of units. Most of the women workers are less educated and they have less technical skills. On job training is also not given to the women workers. The work union is not preferred by the women workers and if they join work union then workers get easily removed from their jobs. Instead of many problems women labors are reluctant to unionize (Absar S.S 2002). It is statistically significant and positively co-related with domestic and both type of firm. Women workers in the domestic firm said, work place is clean, healthy and safe work and it is positively correlated and statistically significant. The rest room facility is negatively correlated in domestic and both type of units and it is statistically significant. In Mumbai and Thane city, the real estate prices are very high. It is difficult to invest more money in creating rest room in garment units. The different garment units have less space and small size. All units are adjusting their production in such small units only. Therefore rest room facility is negatively correlated with type of unit. Medical facilities in the domestic units are natively co-related and it is statistically significant. It simply means that women workers do not have medical facilities in domestic units.

 Conclusion

The women workers of the export units have more education and they are young. But the women workers do not get the overtime in their jobs. The export unit workers have more technological knowledge. The workers of the export units have more decent work than the domestic and both type of units. In general women workers are facing the problem

globalization, competition and flexible labor arrangement (Pascual C. G. 2008). Therefore following policies are required to improve the welfare of women workers in Mumbai Metropolitan Region (MMR). On job technical training to the women workers will improve the productivity of the work. The government should take the initiatives and train the women workers of garment units. Through such programs skill enhancement among women is possible (Anupama 2008).In Gujarat, SEWA is giving training to women of garment units. The women workers should be given the benefits such as medical allowances, maternal benefits, compensation for injury and provident fund etc. in each type of unit. Minimum monthly income to the women workers should be given on time. Government must fix the minimum wage in garment unit and it should be mandatory for the all garment owners. Domestic firms involved in garment production should adopt decent work facilities such as safe tools and equipments, child care etc. Government should make sure that the units are providing the various work facilities to women workers. Women labors require flexible working hours in all the units. The garment units should not impose their rules on women labor and exploit them. All garment units should have access to loans from various sources for technical up-gradation. There is fear among the women workers of joining labor unions. Garment units should not have conservative role about workers labor union. They must understand the importance of workers union in the entire production process. Workers unions always improve the welfare of the women workers in textile and garment sector. The trade union philosophy has indeed worked effectively in order to gain for workers in the west not only decent levels of wage but also a wide range of welfaristic measures that ensure them decent and secure standards of living (Choudhury Roy S. 2005). This is a right time where all units should implement better policies and improve the entire production process. All women workers of garment units should get the benefits of global flexible production methods.

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