PARTICIPATION OF WOMEN IN INDIAN MANUFACTURING SECTOR: A TREND ANALYSIS

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Abstract: ***Women are always considered to be the backbone of any economy as such importance has been given to the principle of gender equality even by our Constitution makers by empowering the state to adopt measures in favour of women for removing cumulative socio-economic and various other disadvantages faced by them. Despites so many initiatives taken by the government to empower women socially, economically, politically etc, women status in our society is far from being satisfactory. There is no dearth of rule and regulations enshrined in the Indian constitution which guarantees equal status for men and women. Yet the ground reality refuses to match the one manifested in the documents and paper work. There is huge gender disparity evident in all spheres of economic and social activities in India and manufacturing sector is no exception to it. The present paper tries to throw light on the exclusion of women in manufacturing sector of India by focussing on women labour force participation in Indian manufacturing sector. The study analyses the trends in women labour force participation in manufacturing sector in comparison to men for the time period 2008-09 to 2014-15 from three aspects viz. overall manufacturing, state wise and industry wise manufacturing industries. The data used to support the evidences has been collected mainly from the Annual Survey of Industries. A huge gap in participation of women and men in the states and industry has been witnessed during the analysis. The study also tries to ascertain various reasons responsible for such high gender disparities in terms of labour force participation in manufacturing industries.***

Index Terms: Gender disparity, Social and Economic exclusion, Manufacturing industries, Annual Survey of Industries.
JEL Code: J16

1. Introduction

Since time immemorial, India is considered to be a blend of various cultures and traditions, wherein worship of various Goddesses in the form of Laxmi, Sarawasti, Durga etc is considered to be the supreme. With such a glorious past and perfect potential pathway for future, India marks its way towards becoming one of the most promising emerging economies of the world. Even with this potential India is considered to be backward when it comes to the status enjoyed by the women in our society. With time social evils like sati, Purdah system, child marriage etc crept into our society and lowered the status of women with respect to the males. As such women have become socially, politically and economically backward in the society. With lot of social issues, problems and restrictions on the women, taking birth in India as women has in itself become a curse. The paramount and gravity of manufacturing sector in developing country is unquestionable. It not only provides employment with good wages but also helps to spur growth in all directions by stimulating its strong forward and backward linkages. Despite its important role in the economy, the manufacturing in India has not contributed much compared to its south Asian neighbours. The contribution of manufacturing sector in India's GDP was not sizeable after independence. It accounted mere 8.98 per cent to GDP after independence. The share of manufacturing sector in Gross Value Added (GVA) at basic constant (2011-12) price in 2016-17 is 17.98 per cent (source: MOSPI, 2017). It generated 12 per cent employment in the economy in the year 2014. Brushing aside the statistics, one can definitely not ignore the crucial role of developed manufacturing sector in any economy. Researchers have shown that the multiplier effect of manufacturing sector is higher than in other sectors. The Make in India initiative launched by the government in the year 2014 was focussed initiative to boost manufacturing sector and make India a manufacturing hub. The government vowed to create 100 million jobs in the manufacturing sector by 2025 and increase the share of manufacturing sector in GDP to 25 per cent. With Indian manufacturing industry focussing on such expansion, the present study seeks to analyse the position of women in the manufacturing sector by studying the recent trends of employment in comparison to their male counter parts. Women constitute about half of the Indian population (48 per cent approx) and thus half of the potential labour force. But the labour force participation rate for India is only 27 per cent according to World Bank report 2013. The number is extremely low in comparison to its other Asian counterparts such as China, Nepal, Bangladesh and Sri Lanka. Andres, Dasgupta, Joseph, Abraham and Correia (2013) in their report published by World Bank found that women participation in the labour force in India declined from 42.6 per cent in 1993-94 to 31.2 per cent in 2011-12.

1.1 Evolution and Importance of Manufacturing sector in India

Every sector in India has its own importance and due share in both GDP as well as in the employment generation. Like other sectors, India is not at all new to manufacturing. Some of the sectors such as pharmaceuticals, automotive and auto ancillary, textiles have flourished themselves well in the constrained environment both on the domestic and global grounds. According to Imbs and Wacziarg (2003), modern economic growth has been led by structural change at broadly aggregated levels of agriculture, industry and services but sustained economic growth includes structural change not only at the aggregate level also at disaggregated levels within the manufacturing sector through technological enhancement and diversification and then specialisation at advance stage. Figure 1.1 shows the categorization of manufacturing industries under major heads which includes- basic goods, capital goods, intermediate goods and finally the consumer goods industry.

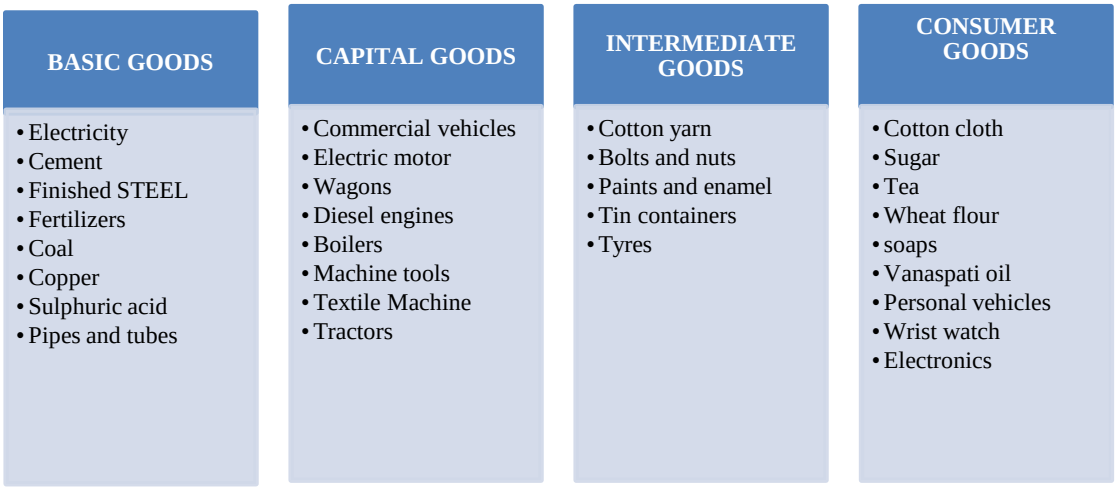

Figure 1.1: Categorization of Major Manufacturing Industries

Source: Author's compilations

Manufacturing sector occupies a strategically important place in Indian industry, witnessed from the fact that manufacturing sector alone accounts for 77.6 per cent of total output of Industry in 2017. The manufacturing sector backed the overall industrial sector get over from the shackles of low growth in the other two sub-segments of IIP[1], Mining and Quarrying (14.2 weight age in IIP) and Electricity (10.3 weight age in IIP) which grabs share of 14.4 percent and 8 per cent respectively in industrial output source (MOSPI 2016, para 4).

1.2 Outline of Women in India

Women in India constitute a major portion of population (48 per cent as per census of India, 2011) and therefore form a potential labour force which has remained untapped over the decades. Before making a discussion on the plight of women in manufacturing sector, it becomes pertinent to throw light on overall status of women in India. This section is divided into two segments. The first one reviews the general profile of women in India while the second one analyses female labour force participation rate for India in comparison to other Asian counter parts.

1.2.1 Brief Profile of Women in India (2015-16)

This part of the study delineates the status of Indian women in terms of various indicators such as demography, health, education, participation in politics and work. The data used for the analysis has been extracted from UNICEF Data: Monitoring the Situation of Children and Women, National Family Health Survey-4 2015 -16, The World Bank (IBRD): Data.

1. Demography:
Female population (census, 2011): 48.26 per cent
Sex ratio: 991/100
Life expectancy (2016): 70 years

2. Women's Health:
Anaemic Women: 53 per cent
Maternal mortality rate: 174 per one lakh live births
Women suffering from Chronic Energy Deficiency: 22.9 per cent
Women getting assistance from medical expert during their Delivery (2010-2014): 81.4 per cent.

3. Women Education:
Female literacy: 68.4 per cent
Gender gap in literacy rate: 21 per cent

4. Women in Politics:
Female electors:
Women Member of Parliament (2017): 11.8 per cent
Participation in Panchayati Raj (2015): 46 per cent
The above analysis gives a brief view about the participation of women in general in the Indian economy.

1.2.2 Overall Labour Force Participation of Women

This section elaborates the female labour force participation (FLFP) rate in India and its neighbouring countries. It traces out the trends in the female labour force participation rates from 1990 to 2013 for five countries viz. India, Bangladesh, Sri Lanka, Nepal, Pakistan and China. Table 1.1 illustrates the trends of female labour force participation for India and its Asian counter parts. The data for the analysis has been derived from statistics published by International Labour Organisation (2015).

[1] Index of Industrial Production

Table 1.1: Estimated Female Labour Force Participation Rates for All Ages (in per cents)

	1990	1995	2000	2005	2010	2013
India	34.8	35.4	33.9	36.9	28.6	27
Bangladesh	61.7	58.3	54.2	55.5	56.9	57.4
Sri Lanka	36.4	36.3	37.3	34.4	34.8	35.1
Nepal	79.8	80	81.7	80.5	79.9	79.9
Pakistan	13.4	12.5	16	19.3	23.9	24.6
China	72.7	72.2	70.7	66.5	63.5	63.9

Source: ILOSTAT 2015 as mentioned in Andres et al.(2013)

The table 1.1 very clearly depicts that India ranks lowest in comparison to its neighbouring countries in terms of female labour force participation rate except Pakistan. Along the time period starting from 1990 to 2013, the FLFP rate has declined from 34.8 per cent to 27 per cent for India which constitutes a fall of approximately 8 percentage points. This rate was highest for India in the year 2005 (36.9 per cent) while the lowest rate was recorded in the year 2013 (27 per cent). In countries like Bangladesh, Nepal and china the FLFP rate is more than double in comparison to India for year 2013.

Therefore, this analysis depicts huge disparities in FLFP rate of India and its neighbours. This opens up a big scope in India for tapping up large reserves of untapped labour force present.

2. Labour Force Participation of Women in Indian Manufacturing Industries

Despite the promising growth offered by manufacturing industries, one major lag continues to widen- the primacy of men in the share of employment. Men have always grabbed a major chunk of employment in the manufacturing sector and their share in terms of employment in the manufacturing sector has been on the rise in the study period too which is from 2008-09 to 2014-15. The present section discusses the problem of exclusion of women in manufacturing sector from three aspects. *Firstly*, it takes into account the participation of women in labour force for overall manufacturing sector. *Secondly*, it studies the women participation in labour force for the selected states. *Lastly*, it also studies the industry wise contribution of women labour force. The data for carrying out analysis was mainly extracted from Annual survey of Industries.

2.1 Participation of women Labour Force in overall manufacturing sector

Figure 2.1 very clearly depicts the fate of women in Indian manufacturing where there share has not shown any recovery over the span of 7 years from 2008-09 to 2014-15. The share of women in workforce in manufacturing industries remained stagnant over the study period. However a slight decline was observed in the female labour force participation from 2008-09 to 2014-15 but their share remained sluggish at low level. The maximum participation was observed in the year 2013 where around 22 per cent women participated in the workforce of manufacturing industries but it underwent a slight dip in the year 2014 and accounted for 19 per cent of the women participation in labour force of manufacturing industries. In general the female labour force participation observed a slight dip from 20.04 per cent in the year 2008-09 to 19.9 per cent in the year 2014-15.

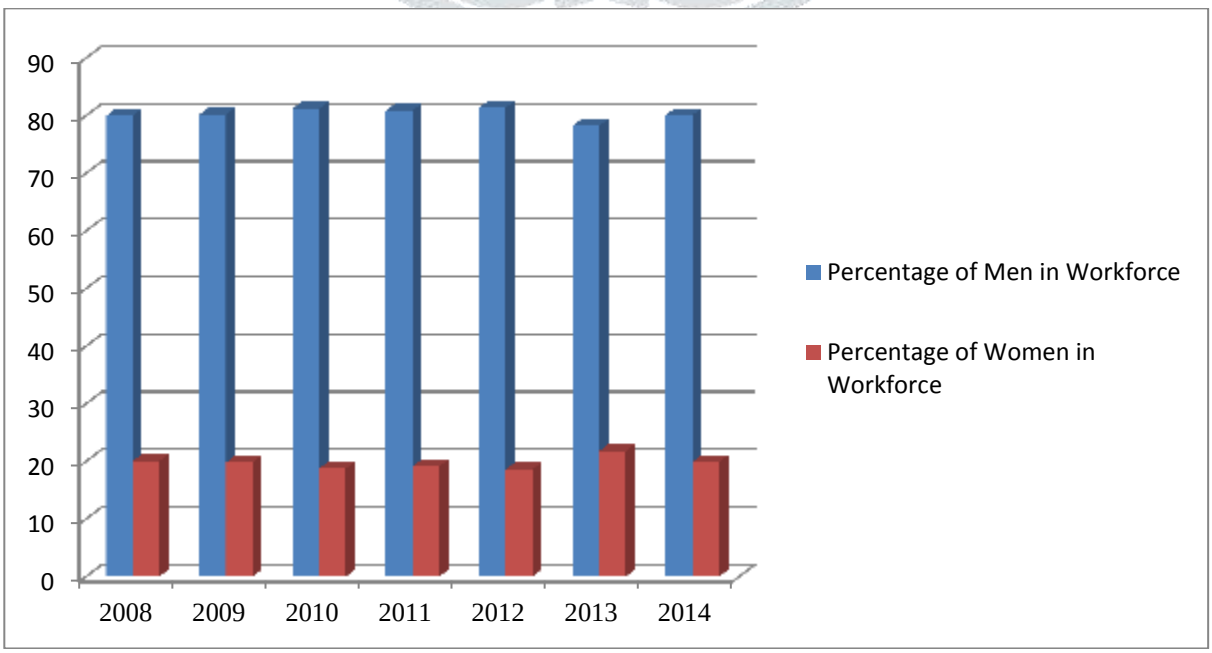

Figure 2.1 Shares of Men and Women in Workforce of Manufacturing Industries

Source: Author's Compilation

2.2 State Wise Participation of Women Labour Force

For a country like India, covering a wide geographical boundary, it would be vital to study state wise participation of female labour force. In order to accomplish it, this study tries to analyse the participation of women in manufacturing industries of around ten states. The states have been selected on the basis of their employment share in the manufacturing industries. The selection has also been done keeping in view the territorial extent of the country. The study has tried to represent all the regions. The analysis has been carried out for three year viz. 2008, 2011 and 2014.

Table 2.1 gives a brief preview of share of selected Indian states in the total employment of manufacturing Industries of India. The state with maximum share in employment stands to be Tamil Nadu with total share of 15.66, 14.45 and 15.33 per cent in the years 2008, 2011 and 2014 respectively followed by Maharashtra and Gujarat while the state securing least employment share in manufacturing industries for all the three years is Jammu and Kashmir. Together these 10 states account for 67 per cent (approx) share in total employment of Indian manufacturing industries. Therefore these can be regarded as a good representation of India
in terms of employment share in total manufacturing Industries.

Table:2.1 Share of Selected States in Total Employment

	2008	2011	2014
Gujarat	9.94	10.30	10.53
Haryana	5.36	4.34	5.36
Jammu & Kashmir	0.48	0.94	0.47
Kerala	3.37	2.93	2.77
Maharashtra	13.17	14.00	13.57
Punjab	4.81	4.47	4.20
Rajasthan	3.10	3.54	3.51
Tamil Nadu	15.66	14.45	15.33
Uttar Pradesh	6.52	6.44	6.36
West Bengal	4.85	4.87	4.56
Total	67.27	66.28	66.66

Source: Author's compilation
Note 1: All figures are expressed in percentages.
Note 2: Percentage is calculated as ratio of total persons engaged for a particular state to total persons engaged in India as a whole in manufacturing industries.

Table 2.2 drawn below delineates the trends in female labour force participation in the states mentioned above. The participation of women as confirmed from the table 2.2 is very flat. The state employing maximum female participation in the manufacturing industries is Kerala for all the three years. It is the only state where female labours exceed their male counterpart in employment. However, the FLFP has declined for Kerala from 2008 (65.46 per cent) to 2014 (58.88 per cent). Tamil Nadu has also shown impressive figures in terms of female participation in the labour force of manufacturing industries. The FLFP for Tamil Nadu too has shown a mild fall from 2008 (41.45 per cent) to 2014 (38.91 per cent). Kerala and Tamil Nadu are the only states where female labour force participation (FLFP) in manufacturing industries in comparison to male labour force is more than the FLFP for India. States like Maharashtra and Gujarat which occupies 2nd and 3rd place respectively in terms of employment generation in manufacturing industries have shown a very disappointing trend in FLFP in manufacturing industries. In Maharashtra, only 12 per cent of the labour engaged in manufacturing industries is women. Rest 88 per cent of the labour is men in the year 2014. Similarly in case of Gujarat, the FLFP in manufacturing industries in comparison to men is only 5.22, 4.46 and 4.99 per cents in the years 2008, 2011 and 2014 respectively. J&K accounted for the least share in employment in manufacturing industries of India but in terms of FLFP, the state with least percentage is West Bengal where only 3.36 per cent women work in manufacturing industries in contrast to 96.64 per cent men.

Table: 2.2 Female Labour Force Participation in Selected States

	2008	2011	2014
India	20.05	19.12	19.90
Gujarat	5.22	4.46	4.99
Haryana	4.25	5.52	6.04
Jammu & Kashmir	11.47	5.45	4.80
Kerala	65.46	63.96	58.88
Maharashtra	10.77	10.72	12.44
Punjab	3.14	6.24	7.08
Rajasthan	4.25	3.44	5.81
Tamil Nadu	41.45	38.43	38.91

Uttar Pradesh	2.81	3.69	4.08
West Bengal	2.35	1.77	3.36

Source: Author's compilation
Note 1: All figures are expressed in percentage.
Note 2: Percentage is calculated as ratio of number of women directly employed to number of persons directly employed in manufacturing industries of particular state.
Note 3: Percentage of men employed can be calculated by subtracting percentage of women for particular state and year from 100.

The analysis carried out in this section very clearly states the gender disparity in the states in manufacturing industries. With exception of Kerala and Tamil Nadu, the FLFP in manufacturing industries is not even comparable. Inter-state variations in terms of female employment in manufacturing industries are also very huge. While in Kerala 65 per cent of the workforce in manufacturing industries is female, only 3 per cent of the female workforce is employed in West Bengal. Therefore the analysis found a wide gender based inter-state and intra state disparities in the work force employed in manufacturing industries in various state.

2.3 Industry wise participation of Women Labour Force

Annual Survey of Industries publishes data every year for all the manufacturing industries. This study has selected seven manufacturing industries on the basis of their share in total employment. The selected industries generate around 60 per cent (approx) of the total employment in the manufacturing industries. The maximum share has been generated by textile product industry in all the three years followed by food products and wearing apparel industry. The minimum share among the selected industries is secured by rubber and plastic products.

Table:2.3 Share of Selected Industries in Total Employment

	2008	2011	2014
Food Products	13.76	13.22	12.93
Textile Products	16.93	15.41	15.96
Wearing Apparels	9.89	9.99	10.84
Chemical Products	9.89	4.71	4.47
Rubber and Plastic Products	3.99	4.41	4.42
Other Non Metallic Products	5.00	4.79	4.66
Basic Metals	7.04	6.72	6.10
Total share	66.50	59.26	59.37

Source: Author's compilation
Note 1: All figures are expressed in percentages.
Note 2: Percentage is calculated as ratio of total persons engaged for a particular industry to total persons engaged in India as a whole in manufacturing industries.

Table 2.4 elaborates industry wise share of female labour force in the selected manufacturing industries for three years. The industry employing maximum female labour force is wearing apparels which is the only industry where female labour force exceeds their male counterpart. This industry employs 52.56, 50.33, 51.22 per cents of female labour force in the years 2008, 2011 and 2014 respectively. The second industry in league is food product which employs 32.57, 29.84 and 29.43 per cents of the female workforce in the years 2008, 2011 and 2014 respectively. There are three industries for which share of FLFP is more than overall manufacturing industries. These industries constitute wearing apparels, food product and chemical products industry. The industry employing least percentage of female workforce is basic metal industry employing only 1.92, 1.82 and 1.85 per cent of the female work force.

Table: 2.4. Female Labour Force Participation in Selected Industries

	2008	2011	2014
India	20.05	19.12	19.90
Food Products	32.57	29.84	29.43
Textile Products	19.54	18.25	19.71
Wearing Apparels	52.56	50.33	51.22
Chemical Products	23.69	19.80	20.40
Rubber and Plastic Products	9.21	8.87	9.89
Other Non Metallic Products	8.94	8.84	10.49
Basic Metals	1.92	1.82	1.85

Source: Author's compilation

Note 1: All figures are expressed in percentage.
Note 2: Percentage is calculated as ratio of number of women directly employed to number of persons directly employed in particular manufacturing industries.
Note 3: Percentage of men employed can be calculated by subtracting percentage of women for particular industry and year from 100.

The above analysis makes it quite clear that there is a wide gap between female and male workforce in the manufacturing industries. The gap exists not only within the industry but between the industries too. While FLFP in the wearing apparel industry is 52 per cent, the same accounts for less than 2 per cent approximately in case of basic metal industries. It implies inter industry and intra industry disparities in the female labour force participation in the manufacturing industries.

3. Reasons for Impoverished Participation of Women

The analysis of women participation in workforce of manufacturing industries discussed in section 2 has clearly presented a gloomy picture of female participation in the manufacturing industries. Therefore it would be vital to consider the possible reasons for low participation of women in the manufacturing industries.

Firstly, the deep rooted blemish that manufacturing industries requires more difficult physical labour and is reserved only for men, keeps women labour force from entering into the manufacturing industries. However this stigma is been proven wrong in the present scenario where technology is a major game changer. With advancements in technology, manufacturing is no more what it was defined in the 19th century. It has changed its essence from being a dirty job reserved for lower middle class worker to a high tech and innovative skilled man force.

Second, women do not have access to cleaner safer and environment friendly technology in comparison to their men. They are more dependent on indigenous technology which not only increases the cost of production but also render them uncompetitive in the world of competition. According to a report published by UNIDO, women are seldom trained in operation, maintenance and repair of new and improved technology.

Third, the social attitude plays a significant role in shaping up the career of women. Women easily find jobs as nurses, teacher and secretary and so on but in manufacturing industries there is always a prejudice favoured towards men. It is generally observed in the India society that an employer generally prefer male employee over female even in case of similar qualifications.

Fourth, working women have to face occupational stress which involves mental stress, sexual harassment, discrimination at work place and so on which prevents them from entering into industries

Fifth, despite various rules and regulations enacted by government of India to ensure equal remuneration of wages to men and women, still women in the informal sector are paid lea than their counter parts for same work. Thus discourages women from seeking jobs in manufacturing industries.

Sixth, another reason may be rise in literacy rate among women. With attainment of higher education, women are opting out of the undesirable employment but appropriate jobs for educated women are not being created at the same rate. Thus has led to increased gender gap in manufacturing industries. Andres et al. (2017) suggested U shaped relationship between levels of education attainment and FLFP

Seventh, Indian economy since independence saw a major structural change with expanding service sector, declining agricultural sector and somewhat stagnant manufacturing sector. Structural change can also be regarded as an important factor responsible for low rate of participation in manufacturing industries. The service sector has expanded to create a bulk of jobs which have attracted educated women. Not only this, the environment of service sector has been more conducive and friendly as compared to manufacturing industries.

Eighth, Andres et al. (2017) observed 11.4 per cent decline in the women labour force participation. The factors he suggested for the fall were educational attainment, socio economic status and household composition. According to him, 53 per cent of the fall was observed in the rural areas and the factors he mentioned were more prominent in rural India.

The apprehensions behind low rate of female labour force participation in manufacturing industries are numerous. By discouraging participation of women workforce in manufacturing industries, the country is losing a substantial part of potential labour force. The role of women has always remained crucial in boosting the economy and they have built a significant impact across various sectors. Engaging women in manufacturing industries will not provide additional labour force to the sector but also help to boost the economy by reducing the unemployment rate.

4. Conclusion and Suggestions

The issues presented in the paper such as low rate of female labour force participation and contracting size of female labour in the total labour force of manufacturing industries are matter of utmost importance and concern.

4.1 Conclusion of the study

- The study found stagnant share of women labour force in manufacturing industries during the period 2008-09 and 2014-15. Their share slightly declined but somewhat remained stagnant at very low levels.
- The study very clearly found wide inter-state and intra state disparities in the female labour force participation in manufacturing industries. Kerala was found to be highest employer of women labour force in manufacturing industries while West Bengal was the lowest employer.
- It also found huge inter industry and intra industry disparities as well. Industry wise analysis found that wearing apparel industry has the maximum female labour force participation and Basic metal industry has the lowest.

On the one hand India is aiming to develop itself into manufacturing hub of the world by boosting various schemes such as make in India, skill India while on the other hand, women which can forms a potential part of the labour force is coldly ignored. As India is planning to launch itself on the path of higher levels of growth and development, it is very important to make this growth inclusive of women. To make it a reality, strong efforts in policy formulation and execution both at the national and local levels will be needed.

4.2 Suggestions

The perception of male dominated culture in manufacturing industries is a major setback to female participation in the labour force. Contouring such myths would surely boost the women participation in the sector. In addition to it, the focus should be on

- Special training programs for women focussed on imparting skill required by the employer. The government initiative under Skill India is one major step in this direction. The government should effectively impose policy aiming at developing skills among the female labour force.
- Providing vocational training at the elementary level would help to attract a big chunk of participants both men and women, which would not only increase education attainment but will also prepare them for manufacturing career.
- Employers should be encouraged to develop mentoring program so that women in all the areas of manufacturing industries have role models to provide guidance.
- Cheap and easy availability of loans for women who opt for learning technical knowledge or want to attain special skill.
- The government policies should aim at directing the employer to undertake special training program for women labour force which would help to boost their self confidence and make them more competitive
- Policies should be aimed to encourage Upgradation of technology among women who still adopt indigenous technology to carry on their work specially in agriculture sector and other women focused sectors such as food processing industry, textile industry etc.
- A report published by joint economic committee of United States congress on role of women suggested employers to work with community colleges to integrate trade-specific credentials into formal degree programs, which would provide a pathway from training to employment.

Andres et al. (2017) in his study suggested that the conventional approaches of increasing FLFP such as education, skill and legal provision will be insufficient to foster women participation the labour force. He suggested complementing the conventional approach by promoting the acceptability of female employment and boosting the economic areas which occur attractive for women. Women workforce forms an important constituent of the economic atmosphere of the country. Ignoring them would bring serious repercussions for the growing economy like India. Therefore there is a need of focused programs and policy to increase women participation in the manufacturing industries which is expanding and has higher prospects in growth of economy.

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