GENDERED IMPACTS OF TRADE ON EMPLOYMENT:

Indian Manufacturing Industries in the Globalized Era

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Dissertation submitted in partial fulfillment of the requirements for the Degree of ***Master of Philosophy*** *in* ***Applied Economics*** *of the Jawaharlal Nehru University*

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I hereby affirm that the work for this Dissertation, ***Gendered Impacts of Trade on Employment: Indian Manufacturing Industries in the Globalized Era,*** being submitted as part of the requirements for award of the degree of Master of Philosophy in Applied Economics of the Jawaharlal Nehru University, was carried out entirely by myself. I also affirm that it was not part of any other programme of study and has not been submitted to any other university for the award of any Degree.

30th June, 2012

Chinju Johny

Certified that this study is the bona fide work of **Chinju Johny**, carried out under our supervision at the Centre for Development Studies.

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To My

Beautiful Family

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Abstract of the Dissertation

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New employment in manufacturing often consisted of labor intensive assembly line jobs, and the initial gains in manufacturing employment were greatest in countries with abundant unskilled labour and a comparative advantage in producing basic manufactures. The shift in geographic location of production promoted female labor force participation and 'feminization' of employment in manufacturing in developing countries, particularly in Asia and Central America. Recent literature provides evidence that the scenario is reversing as countries move up to value added goods (Wood and Meyer, 2001, Mitter, 2000, Luthje, 2004). In the context of changing dynamics in the global value chains, this phenomenon becomes further more interesting. Thus the study focuses on analyzing the trends and patterns of female employment in the organized and unorganized manufacturing sector probing the links between gender and trade, along with examining the determinants of female intensity of employment. We also explore the global value chain framework to explain the sustainability of feminization.

Our analysis shows that the Indian scenario fits into the global picture of shrinking employment in the organized sector. We found that the female shares of employment decreased in the medium and high technology industries in both organized and unorganized sector. The female intensities of employment in the organized manufacturing sector declined broadly in a majority of industries from 2000-01 onwards. The trends of female employment in the Indian manufacturing sector falls in line with that of the developing countries where, female share of employment increased in the resource based and low technology industries in the unorganized sector. We also found that export intensity was highly significant for the low technology industries.

This has to be read along with the transitions in the global value chains. The Indian manufacturing sector still caters to the labor intensive and low value added sections of GVC's. The government of India now favors policies that promote modernization and value added goods that are competitive globally. In the wake of government policies aiming at enhancing competitiveness in the manufacturing industries in India, women tend to be excluded if they are not well equipped. The present study draws attention to this inherent problem which can be overcome if simultaneous policies are formulated for enhancing skill and education which ensures that women are not left behind.

Keywords: Feminization, Defeminization, Global Value chains, Industrial Upgradation

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Abbreviations

BRFL	Bombay Rayons Fashion Limited
FDI	Foreign Direct Investments
FTC	Foreign Technology Cases
GDP	Gross Domestic Product
GVC	Global Value Chains
IT	Information Technology
IIP	Index of Industrial Production
ICT	Information and Communication Technology
MFA	Multi Fibre Arrangements
MPCE	Monthly Per Capita Expenditure
MVA	Manufacturing Value Added
NIC	Newly Industrialized Countries
OBM	Original Brand Manufacture
OEM	Original Equipment Manufacture
TUFS	Technology Upgradation Fund Scheme
UNIDO	United Nations Industrial Development Organization

Chapter 1

Introduction

1.1 Introduction

Colonialism transformed the Third world countries from being exporters of manufactured commodities to suppliers of raw materials. A reversal of this process began after the end of colonial rule and gathered momentum with trade liberalization, a key factor of economic globalization. Economic globalization is referred to as the growing interdependence of the countries world-wide through increasing volume and variety of cross border transactions in goods and services, free international capital flows, and more rapid and wide spread diffusion of technology (Atthil et al, 2007). It has encouraged export oriented industrialization and related manufacturing employment. These global processes will in turn have an impact on local labor markets and its employment structures and relationships, opportunities for women and men and their labor force participation (Jha, 2005).

Industrialization is perceived as the normal route to development and it has the potential for explosive growth especially with regard to manufacturing activity. As the economies prosper, their production structure changes which leads to a change in the number and the nature of available jobs. There occurs a gradual shift from agriculture jobs to industry and service sector jobs and new economic opportunities arise in different sectors. The development of the manufacturing sector is seen as a key indicator for sustainable development progress by many developing countries.

The effect of trade liberalization on gender inequalities in a country may be positive or negative. Export orientation appears to be more common in the manufacturing sector, which favors women, than in agriculture based economies. In agriculture, it favors men due to the production of cash crops. The impact of trade policies on subsistence agriculture is an important issue, although understudied. From a gender perspective, this is relevant, as women's

participation in subsistence agriculture is generally high, especially in the less developed countries.

Another important feature of economic globalization has been the generation of jobs for women in export-processing, free trade zones, and world market factories. This has enabled women in many developing countries to earn and control income and to break away from the hold of patriarchal structures, including traditional household and familial relations. At the same time, however, much of the work available to women is badly paid, or demeaning, or insecure; moreover, women's unemployment rates are higher than men's almost everywhere (Moghadam, 1999).

Globalization and trade liberalization generate complex and often contradictory effects on women's access to employment, livelihood and income. The advocates of globalization points out that, globalization helps in the creation of new employment opportunities for women and thus enhances their economic freedom. But one must not neglect that there are chances when reality could be starkly different and the new employment generated is itself a case of exploitation.

Women's participation in paid employment has increased in most of the countries in recent times (Mehra and Gammage, 1991). Trade liberalization has led to the feminization of the manufacturing labour force in developing countries. A cross-country study of formal sector employment in manufacturing in developed and developing countries over the period 1960-1985 (Wood, 1991) shows a strong relation between increased exports and increased female employment in manufacturing in the South. Evidence suggests that, in the manufacturing sector the extremely rapid growth of export capacity in developing countries has been particularly beneficial for women. In the 1980's in industrialized and developing countries, female unemployment declined relative to male, so that their open unemployment rate became lower than their male equivalent. This marked shift was attributed to the feminization of labor, a desire to have a more disposable labor force with lower fixed costs (Standing, 1989). The feminization of employment has been the direct outcome of the attempt to create

a pattern of flexible specialization to meet changing international demand requirements and provide the cheapest possible production for the international suppliers (Ghosh, 2002).

Over time, the trend suggests that the process of feminization of export employment may decline (Fontana, 2009). Global export manufacturing is switching from labour-intensive, female-dominated manufacturing to highly-skilled production and services. Export manufacturing competitiveness is increasingly defined by skill, advanced technology, and high quality output (Lall, 2000). As the skill content of production increases, there is evidence of a reduction in the share of female employment.

The direction of change towards feminisation or away from feminization is not uniform across countries (Joekes, 1995). Where feminisation has occurred, it may have reversed with the introduction of new technologies, skill upgrading of export producers and new organisations of production (Beneria and Lind, 1995; Ozler, 1999; Joekes, 1995). There is some evidence that women are constrained from moving into more skilled, higher-paying jobs created by trade liberalization because they have less access to resources, education and time (Korinek, 2005). The evidences from the studies by Ozler (2000) in the case of Turkey and Jayasinghe (2001 in the case of Caribbean suggest that women being replaced by men as production becomes more capital or machine. Ozler (2000) in her plant level study in Turkey finds that as the capital intensity increases the participation of women decreases. This was done using a sample of manufacturing plants in Istanbul during the period 1983-85. She also finds that female share of employment in a plant increases with the export to total output ratio of its sector. The case study of the textile manufacturing industry in Carribea also points to the fact that as the skill content in the job increases, more women lose out.

Evidence shows that trade tends to increase the availability of formal jobs in developing countries (United Nations Conference on Trade and Development, 2009). Women workers are being particularly sought after by the export-oriented industries because women are generally more readily available (have a lower reserve price), less unionized and less expensive. In India, employment of

women in the export oriented units is growing, and is significant in a number of industries in the informal sector (Ghosh, 2009). Micro studies also indicate feminisation of employment. The study on the knitwear industry in Tirupur over the years from 1925 to 1970 points out to the shift from a male dominated industry to that of an increasingly female dominated one (Neetha, 2001). This has been possible due to the rapid expansion in the export sector and the increased absorption of women associated with process of informalisation and sub contracting.

Shift of production to export oriented industries create new employment opportunities for women (Wood, 1991). There is some evidence that women are constrained from moving into more skilled, higher-paying jobs created by trade liberalization because they have less access to resources, education and time (Korinek, 2005). There is also evidence of women being replaced by men as production becomes more capital or machine-intensive (Ozler 2000 in Turkey; Jayasinghe in Caribbean, 2001). These findings point to a complex relationship between technology transfers, women in employment, and long-term growth.

1.2 Research Problem

As a key economic activity, manufacturing production has been used as a growth determinant, reflecting the stage of country development in terms of availability of human resources and capital. New employment in manufacturing often consisted of labor intensive assembly line jobs, and the initial gains in manufacturing employment were greatest in countries with abundant unskilled labour and a comparative advantage in producing basic manufactures. The shift in geographic location of production promoted female labor force participation and 'feminization' of employment in manufacturing in developing countries, particularly in Asia and Central America. Recent literature provides evidence that the scenario is reversing (Wood and Meyer, 2001; Mitter, 2000; Luthje, 2004). In the context of changing dynamics in the global value chains, this phenomenon becomes further more interesting. Is there feminization of employment in India or has defeminization set in? In the wake of the technological revolution which

has affected patterns of employment in industrializing countries, an attempt to understand the trends in female employment would kindle fruitful discussions.

1.3 Objectives

The present study has the following objectives

- To analyze the trends and patterns of female employment in the Indian organized and unorganized manufacturing sector in the post liberalized era.
- To understand the changing dynamics of production networks and their impact on female labor through value chain analysis.

1.4 Significance of the Study

Issues in globalization, trade and gender have taken on a new meaning and dimension since January 1995, when a comprehensive round of multilateral trade agreements embodying the results of the Uruguay Round of Multilateral Trade Negotiations was concluded and the World Trade Organization (WTO) was formed (Senapathy, 2000). Despite the important economic differences between the role of men and women in the era of globalization, the effects of trade openness and other forms of economic globalization continue to be discussed mainly in economic and political terms. Debates on the gendered impact of trade have been confined to the circles of feminist economists and women's non-governmental organizations (Meyer, 2006). The most obvious reason for addressing gender issues is that women workers make up the overwhelming majority of the workforces of labour-intensive, export industries in developing countries, dominate the international migration of care services workers, and tend to be concentrated in the most vulnerable jobs of global production systems. Empirical research on gender dimensions of globalization and trade are quite scanty at best (Jha, 2005). More over the existing studies in the Indian scenario have yielded mixed results, which is makes it all the while worth exploring (Senapathy, 2000 and Gosh, 2002).

1.5 Why Women in the Manufacturing Sector?

The structural transformation of the Indian economy over the last three decades has been denoted by a spectacular growth of the services sector, which now accounts for about 50 per cent of the GDP. The spread of ICT's has expanded trade in services and has promoted the growth of ICT sectors in developing countries. This is believed to have opened a new avenue of opportunities for women employment.

However, the rapid growth of the services sector much before the manufacturing industry attaining maturity may not be a healthy sign. A knowledge-based economy cannot be sustained in the long run unless it is adequately supported by a growing manufacturing sector. Moreover, a service economy cannot continue to thrive on a long-term basis in a country where over 80 per cent of the population has education of only below the middle-school level (United Nations Industrial Development Organization, 2005).

We see a shift in employment in manufacturing and in the process, the demand for 'nimble fingers' on the assembly line is giving way to tasks that are more automated and sophisticated (Barrientos et al, 2004). The newer activities that are much cited - such as IT and finance - continue to absorb only a tiny proportion of urban women workers (Chandrasekhar and Ghosh, 2007). Thus, women workers in all IT related activities - that is, computer hardware and software as well as IT-enabled services - account for only 0.3 per cent of the urban women workers. The authors point to the necessity of getting beyond the image of Indian women's job with the high technology and IT sectors. Some sectors, such as IT and pharmaceuticals, will compete globally, employing perhaps 2 percent of the population and bringing wealth to many parts of India. At the same time, around 60 percent of the population will remain dependent on the agricultural sector, sharing less than one-quarter of India's GDP (United Nations Industrial Development Organization, 2005).

New ICT - enabled jobs in services particularly information processing in banking, insurance, printing and publishing provide opportunities for women but not the socio-economic cohort of women who seek manufacturing sector jobs

or are at risk of losing them in the event of downsizing. New ICT-enabled jobs require skills, including keyboarding and proficiency in English language, premised upon higher levels of formal education (World Bank, 2011). Indeed, even with appropriate policy intervention it could still take several decades to upgrade the skills of the socio-economic cohort of women who offer themselves for low skilled manufacturing jobs. Thus, despite the growing visibility of service sector jobs, there continues to be strong reason to focus on women's employment in the manufacturing sector.

Table 1.1 gives an account of the proportion of the household with no female literate in India according to monthly per capita expenditure. Even in 2004-05, half of the rural households do not have a female literate member above the age of 15 (NSSO, 2006). The proportion of households with no female literate member is very high in the lower expenditure classes and it decreases as we move to higher expenditure classes. It does not seem that service sector jobs which require a minimum education could be handled by such a population.

Table 1.1: Proportion of Households with no literate member/ female member of age 15 & above per 1000 households

Rural India				Urban India			
1999-00		2004-05		1999-00		2004-05	
MPCE class	Pr. of HH	MPCE class	Pr. of HH	MPCE class	Pr. of HH	MPCE class	Pr. of HH
<225	0.78	<235	0.64	< 300	0.62	<335	0.50
225-255	0.75	235-270	0.71	300-350	0.57	335-395	0.48
255-300	0.72	270-320	0.68	350-425	0.48	395-485	0.43
300-340	0.68	320-365	0.63	425-500	0.40	485-580	0.33
340-380	0.66	365-410	0.58	500-575	0.34	580-675	0.30
380-420	0.63	410-455	0.57	575-665	0.31	675-790	0.23
420-470	0.60	455-510	0.54	665-775	0.29	790-930	0.19
470-525	0.55	510-580	0.50	775-915	0.28	930-1100	0.13
525-615	0.52	580-690	0.44	915-1120	0.28	1100-1380	0.09
615-775	0.48	690-890	0.39	1120-1500	0.26	1380-1880	0.06
775-950	0.43	890-1155	0.30	1500-1925	0.20	1880-2540	0.03
>950	0.40	>1155	0.18	>1925	0.21	>2540	0.01

Source: Various rounds of NSSO

It is estimated that India needs to create 7-8 million new jobs each year outside agriculture to stay at its current unemployment level of 7 percent. Manufacturing jobs are crucial for workers moving out of agriculture (Kabeer, 2004) as service jobs require high level of education and professionalism. The revival of

manufacturing sector could create close to 2.5 million new jobs every year. With the removal of all quantitative restrictions on imports and the falling import tariffs under the WTO regime, it is all the more important for the Indian industry to improve its competitive edge. The sheer volume of international trade with over 70 per cent of the seven trillion dollar market being in processed manufacturing, strongly indicates the necessity of developing global competitiveness in this sector (United Nations Industrial Development Organization, 2005). Hence it is of importance to study the nature and prospects of women's employment in the manufacturing sector and the response of the latter to policy changes.

1.5 Theoretical Background

Theoretical literature concludes that trade liberalization decreases the gender wage gap and that trade policies are class, race and gender-neutral. The main theoretical foundations come from the Heckscher-Ohlin/Stolper-Samuelson (HO/SS) theory or Becker's theory of discrimination. The crux of the Heckscher-Ohlin theory of trade is that countries tend to export goods that are intensive in the factors with which they are abundantly supplied. This has strong income distribution effects in which the owners of the abundant factors gain while the owners of the scarce factors lose. This should lead to factor price equalization which is not observed in reality due to wide differences in resources, barriers of trade and international differences in technology.

However researchers argue that trade gave rise to a segmented labor market reflecting and reproducing patterns of social inequalities along lines of class, gender, race, caste etc. This also resulted in a pattern of international trade in which poorer countries specialized in the production of primary commodities using their abundant supplies of low-wage, unskilled labour while higher-wage countries specialized in capital-intensive forms of production and the export of manufactured goods (Kabeer, 2004).

The neo-classical view is that trade will open the economy to greater competition and therefore allocate labour to its most productive use, so as to minimize costs. Gender discrimination and resulting wage differentials are economically costly

insofar as it leads to an allocation of resources that does not maximize output. This would suggest that trade liberalization and increased competition would provoke a decrease in the gender differential in wages. Another view which is based on the Heckscher-Ohlin model points to the factor-price equalization effect of trade. Countries abundant in unskilled labour tend to specialize in unskilled labour-intensive exports. Demand for lower-skilled labour will therefore rise. The wages of unskilled labour will thus increase relative to skilled labour. This effect also points to a narrowing of the gender wage gap in developing countries open to trade since women are often employed in lower-wage, lower-skilled jobs than men.

According to trade theory (Heckscher-Ohlin), trade liberalization affects the level and composition of employment and markets adjust to move labour from non-tradables to tradables and ultimately the economy achieves full employment. Assumptions of fast adjusting markets, complete mobility of labour and full employment are strong ones for developing countries and are very significant from a gender perspective (Senapathy, 2000). Trade liberalization based on comparative advantage has become an integral part of international relations in today's globalizing economy. According to some researchers, trade liberalization contributes to national development, resulting in a wide range of benefits such as increased employment, decreased wage differentials and enhanced access to technology.

The narrowing of gender wage gap due to increased trade openness does not hold well in a number of cases. In fact, a number of studies have shown persistent wage gaps due to increased trade openness. Alternative theories suggest that trade can actually increase the wage gap, especially when women are concentrated in the lower wage; labor intensive sectors and when their bargaining powers are less. Although researchers argue that it has resulted in an increase in the paid employment, much of it has been in the casual or temporary or of flexible nature.

In the current global environment of open economies, new trade regimes, and competitive export industries, global accumulation relies heavily on the work of

women, both waged and unwaged, in formal sectors and in the home, in manufacturing, and in public and private services. This phenomenon has been termed the "feminization of labor." Standing (1989) has hypothesized that the increasing globalization of production and the pursuit of flexible forms of labor to retain or increase competitiveness, as well as changing job structures in industrial enterprises, favor the "feminization of employment" in the dual sense of an increase in the numbers of women in the labor force and a deterioration of work conditions (labor standards, income, and employment status). This hypothesis based on the supply side model which entails a global strategy of growth based on open economics with trade liberalization as vital and export led growth as the viable development strategy. The global pursuit of flexible low cost labor has encouraged industrial enterprises everywhere to reduce their fixed wage labor force, make payment systems more flexible and use more contract workers, temporary labor and out sourcing through use of home working and subcontracting to small informal enterprises. This would change according to the locale, nature and kind of industry and stage of globalization.

Neoclassical/human capital theory addresses the factors that influence the employer's preference for men and women workers. Occupations requiring a high level of education are more likely given to men and the same hold good for jobs that require experience and on-the-job training. Both these are contested as well (Anker, 1999). There also exists the compensating differentials model in which women prefer to stay in occupations in which some payments are made in non wage forms, which explains the lower monetary payment. There are also cultural restrictions to women's work.

1.6 Data Sources and Methodology

The study uses both primary and secondary data sources. The secondary data sources include the Annual Survey of Industries (ASI) brought out by the Central Statistical Organization (CSO) for data on organized industries. Various rounds of NSSO are used for data on unorganized industries. The source of trade data used in the study is from United Nations Commodity Trade Statistics (COMTRADE). The World Integrated Software (WITS) was used for data

extraction. For the first objective, we employed various statistical tools like shares and indexes along with a panel data regression for finding the determinants of female intensity of employment. UNIDO Reports, the Handbook on Indian Economy by RBI, World Bank Indicators and various government websites were also used for data. For the case studies for value chain analysis, field visits were undertaken to factories and telephonic interviews were conducted with the managers of two firms.

National Industrial Classification-1998 (NIC-1998) is followed in the study and has one to one correspondence with the International Standard of Industrial Classification (ISIC Revision 3). NIC 1987 classification has been concorded to NIC 1998 classification. The cut off points are taken broadly on the availability of data from the unorganized sector.

1.7 Chapter Scheme

The study is organized into five chapters. The introductory chapter broadly discusses the research problem and the theoretical background of the study. In the second section we review the existing literature which outlines the process of feminization and defeminization. We also look into the flexible production systems and the gendered nature of work and conclude with the patterns of female employment in India through macro and micro studies. The third chapter discusses the trends and patterns in female employment in the organized and unorganized manufacturing industries. We also undertake an empirical analysis on the determinants of the female intensity of employment. The fourth chapter addresses the role of industrial upgrading and global value chain analysis. We discuss the impacts of these changes in global value chains on women through case studies of units from the two major industries which employ women, the garment and the footwear sector. The findings and the conclusions are discussed in the final chapter.

Chapter 2

Gender, Trade Liberalization and Manufacturing Sector Employment: A Review of Issues

Globalization has created tremendous impacts across the world and especially on women in developing nations. Broadly speaking, the relationship between gender and processes of globalization and trade liberalization has been more often than not assumed to be 'neutral'. Although these assumptions over time are being challenged with a string of evidence based research and analysis, a critical mass of debate, discussion and dialogue amongst concerned stakeholders is yet to emerge. For an objective assessment, trade linked gender impacts need to be approached in a sector and country specific manner. Despite this realization, on account of various factors studies of trade gender linkages are relatively scanty. Also, there has been a felt need to focus on the gender dimensions of the trade policies at the bilateral, regional and multilateral levels. This helps in factoring gender outcomes in trade policy formulation and implementation processes.

In this chapter we review the existing studies on gender and trade linkages. In the first section we deal with the literature on gender and trade expansion. Here we examine the feminisation concept in detail. The second section briefly discusses the sectoral impacts of trade expansion. The third section is on the production structures and employment followed by a review into the nature of women's work. We discuss the literature on women and resistance in the fifth section. Defeminisation literature is reviewed in the sixth section. We conclude by a discussion of the literature in India.

2.1 Gender and Trade Expansion

Cagatay et al (1995) identifies the two basic premises on which research on gender and international trade is based. First, trade liberalization brings different costs and benefits to men and women, and this gender discrimination cuts across all economic and social categories; and that the impact of trade liberalization is mediated by gender relations and gendered social, economic and political structures. These structures may be in the form of gender gaps in education and health; patterns of labour market discrimination and labour force participation

levels; gendered patterns of rights and resources; and other socio-cultural factors. In other words, the authors argue that gender and trade is a two-way relationship, not only does trade have differential gender impacts but gender biases and gender barriers also influence trade policy outcomes.

The world has become increasingly integrated through trade in the last several decades, and the structure of trade has shifted towards more outsourcing, or vertical specialization. The off-shoring of labour intensive activities into the developing countries resulted in faster economic growth, creation of employment and foreign exchange earnings. Changes in the global production and distribution were accompanied by growing economic opportunities for women in manufacturing. Greater trade openness and economic integration have in many countries led to significant growth of export oriented sectors, with some such as garments and light manufacturing, employing large numbers of women in recent decades.

There has been a rapid expansion of world trade in the last two decades (World Bank, 2011). Trade liberalization entails the reduction of barriers to trade, such as import tariffs, in order to promote international trade and competition. Economic integration was believed to create a global economy and concurrently a new form of International Division of Labour. There were opportunities for export oriented industrialization in which the developing countries comparative advantage was in lower labour costs, informal welfare nets and fewer regulations against pollution (Kaur, 2004a). While the conventional wisdom simply assumed that trade liberalization was itself the key factor that would automatically ensure the growth and development of poor countries, there is an emerging consensus that trade liberalization does not always reduce poverty and may increase inequality.

The intensification of trade liberalization has increasingly led women's organizations and other civil society groups to pay close attention to the impact of trade liberalization on economic and social development. Williams (2004) argues that conventional wisdom presupposes that the effects of trade expansion are always unambiguously positive for development as well as for poverty reduction within and across countries. It also assumes that the impact of trade is

gender neutral or that it benefits both men and women. However, trade liberalization has specific economic, political and social effects which can worsen an already unequal situation of women in terms of access to land, credit, training, technology and domestic and house hold responsibilities. Trade liberalization can stimulate increased employment for some groups of women and men. It can provide opportunities for entrepreneurship and sustainable livelihoods, access to resources and technology and to overseas market. But, it can also lead to reduced accessibility to affordable food, shelter and basic services (*ibid*). Trade creates or expands some activities and destroys or diminishes others. If an individual works in an expanding sector or is able to switch to one, she or he is likely to benefit. Evidence shows that trade tends to increase the availability of wage jobs for women, particularly in export sectors. But certain factors—such as discrimination, lower skills and gender inequalities in access to resources—may impede women's ability to benefit from trade expansion (World Bank, 2011).

Trade expansion typically results in an increase in labor-intensive exports from developing countries. Production of many of these exports requires manual dexterity and stamina but not great physical strength. Employers in these industries often prefer to hire women, and the growth of exports such as garments, shoes, jewelry, and electronics has almost always been accompanied by a significant increase in female wage employment in the formal sector. Joekes (1987) traces the reasons for the concentration of women in the labor intensive sectors. She attributes this to the importance of wages compared to capital as a factor of production and hence minimizing the unit labor cost is the priority. This can be done either by enhancing productivity or by minimizing the wages. Since in the light industries the scope of former is limited, it is the latter which is the key instrument. Labor costs are a major element in production costs in the industries in which women are concentrated and competition tend to drive employers to cheapen the costs of labor. Since women are the source of the cheapest labor, increasing export orientation tends to not only favor the light industrial consumer goods in which developing countries have a comparative advantage over the others but also to increase the use of female labor *within* such industries (Standing 1989; Joekes, 1987).

Broad trends based on cross country analysis indicate that export promotion and trade liberalization policies have led to the feminization of labor force in developing countries (Ozler, 2000). The observed patterns and underlying reasons are diverse and complex. In contrast to these, a number of recent studies have observed a *defeminization* of manufacturing employment in developing countries, even as globalization continues (Jomo, 2009; Joekes, 1999; Standing, 1999).

Trade agreements may directly change the types of work available for women, the conditions of work, and the wages for work. Howes and Singh (2000) observes that women are disproportionately poorer than men, as a result of social and cultural discrimination which limits their access to education, technological training, credit, and land. Trade agreements may both create new gendered effects - such as creating new jobs, for example in export-processing zones, where women are the preferred employees and perpetuate or exacerbate existing gender-based discrimination. Women often obtain less pay than men for the same or similar types of jobs, and are usually the last workers hired and the first fired. Many women are in the labour market for fewer years than men, entering and leaving employment more frequently than men in order to care for children and older family members. This is represented in the U-shaped feminization curve. On the left side of the U-curve, the feminization rates fall as per capita income rises and on the right hand side, the feminization rates rises as per capita income goes up (Erturk and Darity, 2000). For this reason, women's advocates have been calling for gender and social assessments of trade agreements. In the following section we discuss what literature terms as the feminisation of labor force.

2.1.1 Feminisation of the labor force:

The term 'feminisation of labour' is used in two ways. Firstly, it is used to refer to the rapid and substantial increase in the proportions of women in paid work over the last two decades. The trend in the feminisation of labour has been accompanied by a shift in employment from manufacturing to services in developed countries, and from agriculture to manufacturing and services in

developing countries. It is also used to describe the flexibilization of labour for women and men, a fallout of the changing nature of employment where irregular conditions once thought to be the hallmark of women's 'secondary' employment have become widespread for both sexes. Informal activities, subcontracting, part-time work and home-based work have proliferated while rates of unionization have declined (Standing, 1989; 1999). In the South in particular, standard labour legislation has applied to fewer workers, because governments have either not enforced it or abolished it outright, or because existing legislation is weak and enterprises have been able to circumvent and bypass it. The deregulation of labour markets, fragmentation of production processes, de-industrialization and emergence of new areas of export specialization have all generated an increased demand for low-paid, flexible female labour.

An explanation to this phenomenon must take into account both supply and demand factors. There exists a proposition dating from Karl Marx, that women as the "reserve" part of the labor force are drawn into formal employment only when male labor is no longer available and are the first to be expelled from the labor force when job opportunities shrink (Joekes, 1987). The author draws evidence for this as cross country data shows women are drawn into the manufacturing labor force most rapidly when growth of total employment is fastest and the availability of male labor most stretched.

On the supply side the key factors are increase in labor supply associated with the movement of workers from the traditional to the modern sectors, population growth, and employment opportunities for women arising from rapid economic growth; cultural values and states education policies. On the demand side are the opportunities presented by those countries which offer low cost workers and labour market flexibility (Kaur, 2004).

Women enter the labor force during times of expansion and withdraw during times of contraction. Changes in the composition of output towards sectors where women are concentrated increases their employment in relation to men. Women replace men in jobs that are traditionally held by men (Erturk and Darity, 2000). The underlying reasons for feminization of the labor force can be

interpreted in various ways. The occupational segregation of the industrial labor market by sex allows a direct connection to be made between the export performance and female employment. Increases in exports translate into specific demands for female labor because manufactured exports mostly consists of the types of goods produced by female labor. Standing (1989), claims that the employment of women has been rising especially in that of manufacturing sector. "The trend is evident in Asia, Latin America and Africa, but it is strongest in the Southeast Asian countries as a group where female employment as a share of industrial employment in these countries now exceeds that of any industrial economy" (ibid). They also argue that the increased female labor force participation would have been simply due to a shift in the developmental strategy which emphasized on the sectors that traditionally employ women.

Ozler (2000) points out that it can be either due to a shift to the production structures where women have been traditionally employed or a substitution for cheap women's labor or a decline in the men's job. Standing (1989) takes the view that men are rapidly being substituted by women owing to the "combined effect of macroeconomic stabilization policies and structural adjustment policies to foster export oriented industrialization". Joekes (1987) attributes the increasing importance of women in the industrial labor force to direct and indirect factors. "Women are typically concentrated in branches making light industrial consumer goods by relatively labor intensive techniques" (*ibid*). It was these traditional industries which added a new value to developing countries in the modern world economy. The rapid growth of the manufactured industry in the developing countries directly led to a growth in female employment and it follows that "industrialization in the post war period has been as much *female* led as *export* led". The other is that there is a three way association among rates of industrial growth, export orientation and increasing female employment. The more the countries have integrated their industrial sector with the international markets, the more rapid their industrial growth. She also notes that there is an integral connection between the existence of female labor in certain parts of industry and the deepening of international integration in manufactures and that female labor per se has been the basis of international competitiveness.

Wood (1991) had found an "apparently fortunate asymmetry". The asymmetry was that trade between developed and developing countries increased female intensity of employment in developing countries and had no noticeable negative effect on the female intensity of employment in the industrialized countries. This contradicted with the research held in the mid 1980s which found that trade had a distinctive positive effect on male employment and negative effect on female employment (Kucera and Milberg, 2000).

Kucera and Milberg (2000) revisited the Wood's asymmetry using more recent and disaggregated data to analyze the changes in the male and female employment associated with trade expansion. The authors found that the gender bias in the employment effects of the expansion of international trade for the ten OECD[1] countries did exist. They also observe that the gender bias was not due to gender segregation but due to the differences in trade performance in the Textiles, Apparel, Leather and Leather goods industry. North-South trade of manufactures has in many industrialized countries reduced female employment more than male employment. Globalization according to the authors does not present a win-win situation for the Northern and Southern women workers as Wood finds in his asymmetry.

2. 2 Sectoral Impacts

Trade policies affect men and women differently due to gender norms and gender inequalities in access to and control of economic and social resources and decision-making. Trade liberalization has different outcomes for men and women. These differential impacts relates to many of the most fundamental aspects of livelihoods and well-being, including employment, income, food security and access to health services. Their impact is also mediated by the different roles that men and women have within societies - in particular, the gendered division of labour. Trade liberalization has no doubt led to an increase in employment opportunities for women - particularly in export -oriented sectors such as textiles. Earning an income through work outside to the household can

[1] Australia, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, United Kingdom and United States.

lead to greater empowerment for women, both in the home and in the wider community. However, trade liberalization can also lead to unemployment and the restructuring of labour markets - a situation that tends to affect poor and marginalized groups of women more than men (Randriamaro, 2005).

The outcomes will differ between countries and regions and are based on the type of economic area and specific sector, measures, timing and sequencing of trade policies. They will also cut across different sectors and subsectors of trade liberalization: agriculture, services, clothing and textiles, and intellectual property. Hence, we provide a sector-wise review below.

2.2.1 Agriculture

Agriculture plays a significant role in the lives of men and women in the global economy, but particularly so in developing countries, where it is still a significant part of total domestic output as well as a source of employment for a large proportion of the population. Agricultural policies, including those around trade of agricultural produce, have major implications for food security within the household and sustainable livelihoods (Williams, 2004).

Gender issues in agriculture cover a broad range of areas that are critical for the maintenance of families and communities in developing countries. Women tend to dominate in the agricultural sector in most developing countries. A decade ago, agriculture accounted for 62 per cent of all female employment in southern countries, and in India it now accounts for about 84 per cent of the total female workforce in rural areas (World Bank, 2012). International trade and exchange of technology has differential impacts on male and female employment in the agricultural sector. Trade policies that promote cash crops and prioritize export-orientated growth, work to the benefit of men who have overall responsibility in this area. Similarly, gender inequalities in access to and command of productive assets such as land and credit, or storage and transport facilities, tend to constrain women's benefits from such policies. Moreover, women also lack access to technology and training.

2.2.2 *Services*

Services are emerging as a major economic sector in many developing countries. Because of its critical inputs to production in other sectors such as agriculture and manufacturing, it is intertwined in all other economic activities. Services covers a vast range of activities including advertising, audio-visual services, banking and finance, communications, construction, data processing, education, environmental services, healthcare services, insurance, professional services, retail and wholesale trade, transportation and tourism. It is also part of the core infrastructure of a country (e.g. transportation, telecommunications, utilities and essential services such as water and energy and the internet). The developmental implications of trade liberalization in services are of critical importance to developing countries, who currently export a minimum of 40 different services that represented approximately 28 per cent of world services exports in 2002 (UNCTAD, 2004).

In view of the heterogeneity of the service sector, it is surprising that very little study has been made of the causes of growth and employment and nature of the work and the sexual division of labor in services (Joekes, 1987). Due to gender roles that give women responsibility for the domestic sphere, women tend to predominate in micro or small service firms - in particular, as service suppliers for domestic consumption. Women are heavily represented in three sectors mainly the community services, commerce (retail services) and domestic services.

There has been a significant increase in the services sector in India. The greatest increase has been in the domestic service, while the much talked about information technology and finance sectors employ only 0.3 percent and 1.4 percent, respectively of urban workers (Chandrasekhar and Ghosh, 2007; Chhachhi, 20102). They caution us that we need to get beyond the contemporary images of gender and labor in India which relates to IT and finance sectors and that women are employed in other sectors of industrial manufacturing in different phases of industrialization.

2.2.3 *Manufacturing*

Study of formal sector employment in manufacturing in developed and developing countries during 1980-85 showed evidence of association between increased exports and increased female employment in manufacturing. The largest increases in both appeared to be in Mauritius, Tunisia, Sri Lanka, Malaysia, and the four East Asian 'Tigers', Wood (1991). Female labor is more important in the export sector of the developing countries industry than in the industrial sector as a whole (Joekes, 1987). Female employment constituted the majority of the employment in the export processing zones in East and South-East Asia and in Latin America (Ghosh, 2002).

"The industries in which female labor is found can be characterized as light industries producing consumer goods of varying degrees of modernity, ranging from food processing, textiles and garments to chemicals, rubber and plastics, and electronics. Clothing and electronics are two industries that almost universally employ disproportionately large numbers of women". The highest female percentage of employment was to be found in the Textiles, Apparel, Leather and Leather goods industry which are relatively labor intensive (Kucera & Milberg, 2000). They were absorbed in these industries due to the flexibility, inferior work conditions and the low wages they were willing to accept (Elson and Pearson, 1981; Joekes, 2002; Balakrishan, 2002).

Industrial employment is not limited to factories alone as rightly pointed out by Joekes (1987). Much of it is found in the informal sector, where industrial work is sub-contracted. Occupational and wage segregation is widening and poor working conditions are rise in many export industries. The need for flexible workers to respond to market fluctuations has led to a rise in the numbers of informal sector workers, of which a high percentage are women (Randriamaro, 2005). We now get into a deeper detail of the changes in production structures and its influences on determining the patterns of female work in the next two sections.

2.3. Production structures and employment

The early years of trade liberalization were mainly characterized by the move of textile and information technology manufacturing from developed to developing countries. New employment in manufacturing often consisted of labor intensive assembly line jobs, and the initial gains in manufacturing employment were greatest in countries with abundant unskilled labour and a comparative advantage in producing basic manufactures. The shift in geographic location of production promoted female labor force participation and feminization of employment in manufacturing in developing countries, particularly in Asia and Central America (World Bank, 2011).

It is important to trace the factors that led to the relocation of production. Kabeer (2004a) argues that there occurred a constant search of low cost labor and there was a suitable environment in the developing countries which fastened this process. Advances in technology and transportation made the relocation of production cheaper along with the incentives provided by the governments in developing countries. These fragmented the production processes geographically and permitted their co-ordination on a global scale.

The structure of domestic labor markets and global production chains is highly gendered. Despite the advantages, in many contexts trade liberalization is coupled with persistent occupational segregation by sex, both vertical and horizontal. These are industries that require large numbers of low-cost workers; these industries depend on pre-existing inequalities between men and women. Women not only supply a cheaper workforce, but are also supposedly more docile. And, because of the gendered division of labour, work with textiles, for example, fits in accordance with existing gender norms. Women therefore tend to have less skilled jobs than men; most of the time their wages are lower than men's, and they often work in unhealthy and exploitative conditions (Randriamaro, 2005).

Elson and Pearson (1981) find that it was the intensity of the labor and continuity of production that was required in these activities; not superior technology and women catered to be the right choice. They also argue that the reason behind the

high labor intensity is that the relocated tasks are assembly level activities which cannot be automated further. These include garments, footwear and electrical goods whose design and value added segments are carried out in the developed nations and the labor intensive operations are done in the low labor cost regions. These denote a geographical shift in the production structures and value chains. The decimation of the textile and garment industries in the OECD countries over the past few decades, and their reappearance in lower-income regions of the world, is a particularly visible testimony to this international reconstitution of comparative advantage (Kabeer, 2004).

In the year 2000, almost 35 per cent of the manufacturing workforces in Latin America were women and 41 per cent in Asia. In the south-east Asian countries women accounted for more than 80 per cent of the workforce in the export industries where electrical components are assembled, textiles are processed, and garments and shoes are produced (Sexton, Nair and Kirbat, 2004).

Literature provides us with various insights on the impact of export oriented industrialization on women employees. Joekes (1987) claims that women in the manufacturing industry are crowded into the bottom of the command pyramid, without formal responsibility of production and no decision making capability within the terms of the enterprise. She identifies that the possible reasons for the concentration of women's work in this kind are, differentiations between male and female labor relating to wages, education and training, and degrees of deference. But, the other side of this argument has to be looked into. Women are aware that there exists exploitation in the factories and that they are poorly paid. But they are certain that the jobs have given them personal and material benefits. The conditions outside do not permit them to afford this. Majority of women workers in Bangladesh rated their access to employment in the garment factories in positive terms because of its improvements on what life had been like before (Kabeer, 2000). They used their power of earnings to renegotiate their relations within marriage and enjoyed greater decision making.

Competition is also another factor which influences the male - female employment. Competition acts against male privilege. The increased

international integration signifies increase in the degree of competition to which the industries are subjected to. As the producers are compelled to keep their final prices low, it affects the potential wages and depresses the productivity. Joekes (1982) cites evidence on the increasing absorption of women in the already feminized industries owing to greater international competition. Even in the highly capitalized industries, the strength of competition can drive the firms to minimize their labor cost in those parts of production that are labor intensive, making savings wherever they can. Women were the preferred workforce in the manufacturing activities. There are solid reasons as to why there existed a preference which had to do with the nature of women's work. We explain this in detail in the following section.

2.4. Gender and the Nature of Women's Work

To look into the historical nature of women's work, factory work institutionalized low wages for women and emphasized their inferior status in the workplace. It became a hierarchy of labor from a sexual division of labor and women were assigned the lowest jobs, the least responsibilities and the lowest wages throughout Europe. This was due to the association of males with technical know-how and their supervisory roles along with their physical strength (Falkus, 2004). These outline the key characteristics of female employment in the past and present.

Literature marks the second half of the nineteenth century as a new phase with technological innovations and changing production systems. It denoted the rise of man's work as new heavy industries grew and traditional sectors declined in the North. On the contrary, labor intensive exports and assembly line activities expanded in the developing countries which employed women on a large scale as this was a source of cheap labour. Industrialization coincided with a rising participation of females in the workforce in Asia and falling rate in Europe.

The emergence of the female workforce in the industries can be traced to the internationalization of production and industrial restructuring. The need to lower labour cost and the new technologies in the communication and transportation fields reoriented the production network geography. The labor

intensive sectors were located in the South while the technological and research designs were formulated in the North. This led to the demand for a specific labour force - female, single, and young hired to do what was called the unskilled manual work.

For certain tasks, small fingers, small bodies and manual dexterity were preferred. But the root to this is the need to find a ready supply of cheap labor for a labor intensive industry (Falkus, 2004). Women are often concentrated in what are called the relatively unskilled jobs which require repetition and patience. "Nimble fingers" and "docility" are commonly referred to in this context. Elson and Pearson (1981) make a strong point as to why there exists a sexual division of labor in production process. The cost involved in employing women is less compared to that of men. They explain that women are considered to be the best choice due to their manual dexterity, natural docile character, less inclination in joining trade unions and utmost they are naturally suitable for doing tedious, monotonous and repetitive work. Also the production process as a whole does not require technical knowledge and skill which are inclined with men.

Kaur (2004) argues that women's increased entry into paid work force coincided with the trade liberalization and labor intensive manufactures. Even when most of the jobs were not gender stereotyped, women were preferred in certain jobs. This was the consequence of the production niches that the developing countries were channeled into. The work that these countries received due to the global restructuring of manufacturing required high levels of accuracy and manual dexterity and repetition. This embodied the kinds of tasks traditionally carried out by women.

Unni and Bali (2002) in their article on the subcontracted women workers in the garment industry clearly finds a sexual division of labor. There were the so-called "women's" activities and women's garments were entrusted to them, these being labeled less skilled work. The skilled cutting work and men's garments were entrusted to men. Women were always engaged in minor activities which obtained them lower piece rates. This study was based on garment workers in the city of Ahmedabad and used primary and secondary data. While she finds that

women were not the beneficiaries of the growth in the garment industry, they gained employment and had more decision making powers.

Lindberg (2004) in her study on cashew workers in Kerala states that the employers associate machines with men's work. The peeling of the cashews exclusively was women's work, which required patience and nimble fingers, while roasting of the cashews was something that only men did as it involved machines. This was not the case in the 1930's as she notes and claims that the strict gender division of labor only dated from 1950's which was implemented by the state officials. It was decided to assign women two-thirds of a man's wage and designate certain departments of cashew factories exclusively male or female.

Several other factors also contributed into the gender division of labor. The whole production set up was based on lower costs and women could be legally paid lower wages. Productivity was dependent on the labour of the workers rather than technology. Women were deemed to be more efficient and reliable and their docility, passivity and capacity to do hard work were additional contributing factors. These factors in turn have played their roles in the export led growth performances and foreign direct investment flows of many developing countries[2]. Also the reproductive requirements of the female employees were an added advantage for the employers in varying the size of their labor force to adjust to fluctuating demands in the world market.

Sen (1999) refers to a circular logic underpinning the association of women with lower skills in wider public discourses - the perception that employers paid women less than men because women performed tasks designated as 'unskilled'. Conversely, employers deemed certain tasks unskilled and fixed lower wages for them if these tasks were habitually undertaken by women. Men workers associated low wages, low skill and lower status with women's tasks. Until 1911, factory legislation did not intervene into conditions of adult male employment but regulated the hours of work for women and children and prohibited night work for these categories of women. These legal provisions reduced women's

[2] Ozler (2000), Seguino (2000), Erturk and Darity (2000) also supports this.

employment in the organized sector such that protective legislation in effect became the restrictive legislation. Thus women and children earned less because they were forced to work fewer hours and not to work at all in the night shifts and with moving machinery. The parts of the factory that women are usually employed in required less skilled work and therefore the rates were lower. The highest paid women earned less than the lowest paid man and the highest paid man earned double what the highest paid women earned. Possibly, it did suit women to come and go as they pleased (Sen, 1999; Kumar, 2012).

Earlier studies on women in garments and electronic sector in India has pointed out that one reason young, unmarried women had started working in these industries was a short term strategy to earn their dowries. Chhachhi (1999) challenges this norm of unmarried women as the conditions and pattern of employment changed with more and more women staying back in work. It was impossible to manage without the income from the women's work. Marriage in fact did not end women's waged labour but marriage and child rearing required women's wages (Chhachhi and Pittin, 1996). But the author also admits the fact that gender is a crucial factor in determining patterns of employment.

Joshi (2011) comments that women enter and exit the work site as laborers irrespective of the number of years they worked there. Unlike the men who come in as small boys and graduate as masons as time comes in the construction sector, women never climb up the social ladder. This phenomenon happens due to varied reasons. Most families do not prefer young unmarried women going to the construction sites because it is male dominated environment as well as the physical work is strenuous. They take up the job forced by necessity and by then it is too late for specialization, and women begin and end their careers as laborers (Joshi, 2011).

The decline of female labour was not seen as something entirely negative. Women preferred marriage to a man who could afford to keep them out of the mills (Lindberg, 2004). A minimal advancement in the house hold living standard prompted her preference to be a housewife. The double burden of the house work and mill work suffocated them and they preferred to shed a part of their

work load. The female workers did their best to keep their daughters away from factory work by securing them a bright future through heavy dowry, and this consumed all their earnings of a lifetime by engaging in factory work. But there are instances when women see work as a permanent way of life[3] inspite of the oppressive conditions and that they resisted being displaced.

2.5 Women and Resistance

Even when the work offered to women are not ideal, there conditions outside are bleak. Therefore women have been slow in organizing unions because of their fear of losing jobs. This has earned them an income in the first place and better negotiation capabilities in their family and among relatives (Dannecker, 1998). Lindberg (2004) also find that women do not engage in trade union activities in their informal sector workplaces as they fear job losses. They are also aware that many a women are desperate to take their places as workers if they opposed and quit. The absence of female workers in unionism was related to their high rate of illiteracy, female conservatism with regard to social and religious traditions and lack of free time due to domestic responsibilities (Lindberg, 2004).

As long as there is an untapped pool of female labour that is willing and able to take up employment in export-oriented manufacturing, or a large informal economy where wages and conditions are far worse than those that prevailed in the export sector, the ability of workers employed in these sectors to collectively bargain up their wages is likely to be limited (Kabeer, 2004). Ghosh (1999) also finds that in most developing countries, exporting industries are able to survive and profit from low wages and terrible working conditions simply because the other job alternatives for workers are even worse or are non-existent.

Negative attitudes of the women workers towards trade unionism originate from the fact that the trade unions usually prioritize the interests of permanent male workers in their negotiations with the management. It is also possible to look at women's apparent aversion towards traditional trade unionism as just a strategy in order to secure jobs in an otherwise man's world (Chakravarty, 2007).

[3] Kabeer (2004) gives details of women entering the labor force on their own decision, to make use of their skills and to be outside home in countries like Turkey, Philippines and China.

However, there are signs of resistance among the women workers. Unionization still continues to spread in the industry initiated by young women. They are open to new ideas, militant and innovative (Chhachhi, 1999). Kumar (2012) argues that women's wage labour was first described as supplementary with the assertion that women's primary role was as reproducer. She explains that women workers responded to cutbacks in the working days, cuts in wages and number of workers employed through strikes and unionization. Through this they attempted to define what they saw as their 'right'. Elson and Pearson (1981) affirms that the single most important requirement for women is to make resources and information available to organizations and to develop new forms of association through which women can establish elements of a social identity in their own right.

2.6 Defeminisation

Globally economic development has been accompanied by growing economic opportunities for women particularly in manufacturing and services. Greater trade openness and economic integration have in many countries led to significant growth of export oriented sectors, with some such as garments and light manufacturing, employing large numbers of women in recent decades. These developments incentivized women's labor force participation (World Bank, 2012).

Production in export sectors has changed recently in two ways. Firms have recapitalized to adopt production systems based on generalized rather than specialized equipment, shifting comparative advantages in export oriented manufacturing from labor intensive to capital intensive technology. The shape of global manufacturing supply chains has changed dramatically with the application of computers and telecommunications. Manufacturing has been 'de-constructed'. Cost advantage used to be obtained through 'scale' in large factories. Activities in the value chain can be dispersed across the world to combine the best with the best - such as back-end engineering services in India and Japan, component production in China and India, and assembly in many countries (United Nations Industrial Development Organization, 2009).

Moreover, producers of manufactured products must respond more rapidly to changing market needs. Product life cycles are reducing and the variety of options manufacturers must provide to their customers is proliferating. Therefore, the ability to engineer products quickly and at low cost is becoming an increasing source of competitive advantage (Government of India, 2011). These changes are the background for our discussion on feminsation.

The "de-feminization" of the manufacturing industry started in Japan, the first of the Asian industrializers, where a shift in female employment from large-scale manufacturing industry into services occurred from the 1970s. Over 36 per cent of women workers were in manufacturing in 1960, a proportion which declined to 26 per cent by 1990. In the Republic of Korea, the share of women employed in manufacturing grew from 6 percent in 1970 to around 30 percent in early 1990's and hence after it declined to 14 percent in 2007 (Wood and Meyer, 2001). Industrial restructuring in Hong Kong (China) from the late 1980s meant an overall decline in manufacturing employment, but the brunt of job losses in industry were borne by women. The number of women workers in manufacturing fell by 61 per cent between 1987 and 1995. In Malaysia, women made up to 80 percent in manufacturing workers in the first phase of globalization, but by 1987 the percentage fell to 67 and has since continued to decline (Mitter, 2000). In Latin America, low skilled female workers in light manufacturing, particularly electronics lost their jobs as various aspects of production became automated. As technology improved in the Malaysian semiconductor sector during the 1980s, the demand for multi-skilled operators increased. However, female representation fell from 80 per cent in the first phase of the industry to 67 per cent in 1986, and was even lower by the 1990s (Narayan and Rajah 1990, cited in Jayasinghe, 2001).

The reorganization of production has also been in terms of flexibility, cost lowering, shortening lead times and differentiating product lines. Fierce competition and the requirement of skilled labor have contributed to defeminization and informalisation in export oriented sectors (Barrientos et al, 2004). Kaur (2004b) finds that the manufacturing production system has brought

both benefits and costs to women workers to the Asian women. The benefits are the income and the independence in the family; and improvement in the absolute wages over time. On the other hand, they have to encounter occupational segregation and lacked access to advancement. Their wages are lower than that of men and they have fewer opportunities to upgrade their skills. According to the author, they remain the peripheral workforce which bears the brunt of cost cutting strategies of the management.

Literature identifies that both supply factors and demand factors led to the recomposition of the industrial workforce in the Maquiladora industry in Mexico. Second-generation Maquiladoras incorporate much more advanced technology, more capital-intensive methods, a more masculine labor force, and more manufacturing (Wilson, 1992). There is the inability of female workers to meet the increasing demand generated by high growth in maquila employment and changing skill requirements owing to technological changes in the production process respectively (Brown and Cunningham, 2002). Household structures played an important role in the inability of women to make it to work or the defeminization in the Maquiladora workforce. There are also evidences that women who remain in the labor force in the face of technological and organizational change emerge as multi skilled workers crucial to the flexible and just in time production (Pearson, 1988).

We conclude the debate by pointing out the dilemma in the entire process. "While women's willingness to accept lower wages make them attractive as employees when profitability is based on the low costs of labour in a labour-intensive production process, the shift to a "high road" of new, flexible and technologically and managerially more sophisticated modes of production, in which the cost of labour is less important than its quality, presents an important development dilemma for low-income countries. The "high road" is capital-intensive and reduces employment opportunities, particularly for unskilled, primarily female, labour. On the other hand, failure to adopt this strategy may constrain the growth of exports which meet standards for products and services

that are being increasingly demanded in advanced countries" (Barrientos et al, 2004).

The Indian Case

The Indian economy underwent a structural transition in the 1990's following economic reforms and liberalization. There is a wide consensus that there is a sharp deterioration in the quality of the employment through intensification of the growth of the informal sector of the employment as well as the decline of the formal sector employment due to labor market flexibility (Chhachhi, 2012). We trace through the developments in the Indian literature in brief.

Deshpande and Deshpande (1992) analyses the future patterns of female employment in the context of the new economic policies in India. They assume that as exports and trade increases, contract labor, female labor and other casual and temporary labor would be preferred to permanent male labour. The employment of the flexible labor will increase, and there are chances that this can be either women's labor or contract labor. They argue that on the whole the employment of females would increase mainly because deregulation will lead to decentralization which will increase female employment. This has not been supported with empirical data and hence opens up an area for further research.

Ghosh (1999) in her study on the macro-economic trends and female employment finds that there is growing casual female labor which clearly indicates that the growing use of female labor is associated with greater insecurity of labour contracts and the generally inferior conditions and pay involved in employing women rather than men. Ghosh further explains that the focus should be on the nature, quality and remuneration for the employment. She suspects that feminization of labor process may be in operation in India in the 1990's like a number of other Asian countries undergoing structural change.

Banerjee (1999) states that in the period of relative liberalization in India, the employment of women in the manufacturing sector fell drastically in almost all states. She argues that it would be unrealistic to expect a mechanical reproduction of the international trends of feminization of labor in India whose

manufacturing sector is fairly small and when the exporting industries would account for a small percentage of India's total employment. Women's employment, levels of development and exports are more complex than a linear one. She concludes that there are no signs of feminization of the Indian workforce referring to it as the "bogey of feminization". This model follows the lead of supply side economists who advocates growth through liberalized policy regimes placing excessive faith on the role of exports.

Senapathy (2002) in her analysis of female employment trends find that the female share in total manufacturing sector employment increased marginally from 1987-88 to 1993-94. Female employment intensity has remained stagnant in most important export sectors like textiles. She comments on the need to examine the employment trends in the major export sectors on a regular basis so as to trace the changes to suggest corrective policy measures. In major export sectors such as gem and jewellery, leather and footwear and engineering products, female form a small share of total employment in that sector. In the most important export sector like textiles, female employment intensity has remained stagnant. In some other major sectors like agriculture and allied sector, musical and sports goods, female intensity has shown a decline. This analysis would suggest limited increase in share of female employment in major export sectors during early reform period in India.

It is generally conceived that men have the education and skill to handle new technologies. Hence, it is the female workers who lose out and are pushed to sub contracting. According to Ghosh (2002), the high export growth in India despite significant decrease in the women's share of employment was associated with an increase in sub contracting to home based workers or small manufacturers who worked on piece-rate basis.

Chandrasekhar and Ghosh (2007) in their study of urban women workers in India dismiss the chances that there occurred a boom in the female employment opportunities due to export orientation. They argue that the increase in the female employment was not substantial to what had been there in 1987-88. But interestingly, they find that the number of women employed in textiles has

nearly doubled and those in apparel and garments have increased by more than two and a half times. There has also been significant increase in employment in the leather goods sector and these sectors are indeed export oriented.

There are also a number of micro studies which describe the women workers in India. Sen (1999) finds that women's job were seriously reduced during the early periods of the 20th century. Gunny bags earlier sewn by women by hand began to be sewn by the Herakles sewing machine which only men operated. The hand-sewing department, which had employed large numbers of women now merely counted, bunched and sewed together large bundles of bags. This reduced the overall proportion of women employed in the mills. This was an instance of the job loss suffered due to mechanization. Chhachhi (1999) finds that industrial restructuring has led to new forms of differentiation among workers in the Indian electronic industry. Women's labor according to the author has been incorporated in specific ways with a continuing dynamic of exclusion and inclusion occurring in multiple sites along with individual acts of resistance and instances of collective action. The new landscape of labor is gendered as well as classed and casteist (Chhachhi, 2012).

Neetha (2001) in her study on the Tirupur knitwear industry finds that the early phase of the industry in the early twentieth century was characterized by masculinization of the organized labor. In the second phase women were employed in the process as helpers of the male workers often in the households. The third phase has been marked by the rapid expansion of exports and the employment of women in subcontracted works and informalized labor. The electronic industry in India also broadly follows this pattern with de-regulation in the labor market and linking production with global and local commodity chains (Chhachhi, 1999, 2012). Lindberg (2004) purposely chooses the term 'effeminization' instead of feminization as she describes the women cashew workers in Kerala. The former is more ideological and discursive, leading to qualitative implications. Nevertheless, Lindberg also points out that effeminization leads to the feminization of poverty and labor which is the case

with the women cashew workers in Kerala, who are the poorest sector in the society.

Hence the present study is an attempt to look into the changes in the female employment patterns both in the organized and the unorganized industries in the manufacturing sector, so that we have a compact understanding of the situations. We also undertake a global value chain analysis as we understand that apart from the other determinants of the female employment value chains and the role of upgrading are major factors.

Chapter 3

Gender and Trade Linkages: Organized and Unorganized Manufacturing Employment in India

The processes of globalization and the opening up of the economy has led to quite a lot of changes across the world and as a result, never ending debates. It has had different impacts on different countries; it expands some sectors and contracts others; some groups gains and some loses. One of the broad macro processes is the globalization of trade and trade culture and the changing nature of labor and gender struggle in the transforming economy (Sarkar, 2007).

Our interest here is the global restructuring of manufacturing, with a sharp shift of labor intensive operations from developed countries to developing countries. This occurred through export oriented industrialization which exploited the comparative advantage of the developing countries in labor intensive manufacturing. These industries were low technology and low skilled and depended entirely for profits on lower labour costs. This workforce was constituted by women who were hired for repetitive, low skilled jobs. This chapter examines the female employment in the organized and the unorganized sector in the Indian manufacturing industries with the changing pattern of trade and reorganization of production.

The chapter is organized into the following sections. We first look at trade in general and India's export structure in particular. In the second section we look into the quality of employment explained through gender segregation and wage disparities. The third section looks into the changing trends and patterns in the female employment in the manufacturing industries in the organized and the unorganized industries. This is done by observing the changes in the female share of total employment. In the fourth section we examine the determinants of female employment using regression analysis to explain the trends observed. The last section concludes.

We use different databases to explain the gender and trade linkages as there does not exist a single data source needed for our study. COMTRADE data is used for exports and imports data which is obtained in US dollars. To make data

consistent we convert dollars into rupee term using the exchange rate reported in the International Financial Statistics by The handbook on Indian Economy by RBI is used to obtain GDP figures. For the organized sector data on manufacturing industries we rely on the Annual Survey of Industries published by the Central Statistical Organization, Government of India. ASI provides comprehensive and disaggregated data on manufacturing industries. The unorganized sector data is obtained from the National Sample Survey Organization which provides detailed information on the unorganized sector in India. Two and three digit data are used[1].

3.1 Trade

The world has witnessed an enormous economic transformation over the past three decades, fostered by growing global flows of goods and services, technology and information. Merchandise trade in the low and middle income countries rose from 31 percent of Gross Domestic Product (GDP) in 1993 to 57 percent in 2008, reflecting both larger North-South and South-South flows. South Asia witnessed a massive openness when its merchandise trade rose from 16 percent to 41 percent of its GDP during the same period (World Bank, 2011). These have led to an expansion of economic opportunities for both male and female workers.

India had its history of protective regime until it finally opened up in the 1990's. The trade and industrial reforms resulted in a surge of imports and exports and thus increased trade openness. The table 1 shows that trade openness has been increasing continuously over the years in the Indian economy, but with a downturn in 2009 with the global financial crisis.

Trade in manufactures has boomed during the past several decades globally and in India. Important structural changes have taken place in global trade in manufactured goods including the increasing technological sophistication of manufactured exports from developing countries. Low technology exports are experiencing a slow decline in their share in the global manufactured exports.

[1] Refer Government of India (2008) for detailed description on two and three digit data

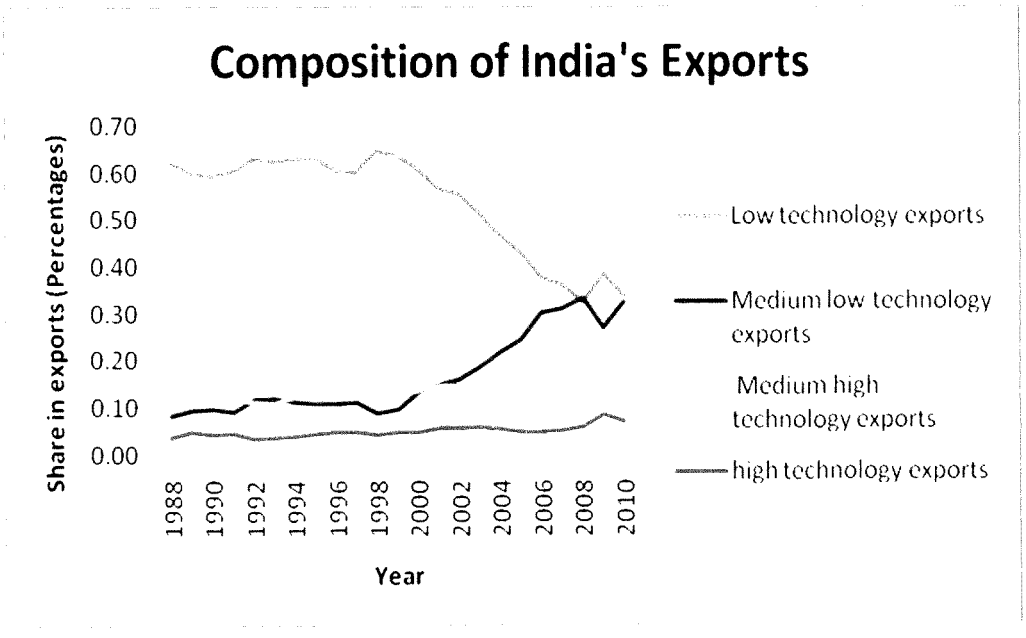
South Asia experienced the fastest growth reflecting India's rapid growth. We hence proceed to examine the export structure of Indian economy.

Table 3.1: India's Openness to Trade

Year	Exports/GDP	Imports/GDP	Trade/GDP
1991	0.06	0.04	0.11
1992	0.07	0.05	0.12
1993	0.08	0.06	0.14
1994	0.08	0.07	0.15
1995	0.08	0.08	0.16
1996	0.08	0.07	0.15
1997	0.08	0.07	0.15
1998	0.08	0.07	0.15
1999	0.08	0.07	0.15
2000	0.09	0.06	0.15
2001	0.09	0.06	0.15
2002	0.10	0.07	0.17
2003	0.10	0.08	0.18
2004	0.11	0.10	0.21
2005	0.12	0.12	0.24
2006	0.13	0.13	0.25
2007	0.13	0.13	0.26
2008	0.14	0.14	0.28
2009	0.13	0.13	0.27

Source: Handbook on Indian Economy by RBI and WITS

Figure 3.1: Composition of India's Exports



Source: COMTRADE data

The graph 3.1 shows that the percentage share of low technology exports[2] in total exports is decreasing drastically from 1999-00. It is the medium low technology exports that dominate the export structure from this point of liberalization. The medium high technology and high technology exports are also on the rise. This is an indication that India is gradually shifting away from its traditionally strong low sophisticated goods into more complex exports, marking a new phase in the liberalized era. In fact, South Asia's increase in complex manufactured growth is driven by India (United Nations Industrial Development Organization, 2009).

Recent research suggests that more advanced economies have more diverse industrial sectors and economies that export more sophisticated products -in terms of technology, organization, quality, design and logistics-grow faster. The Industrial Development Report (2009), provides new evidence that diversity and product sophistication in manufacturing are closely linked to faster economic growth in both low and middle income countries (United Nations Industrial Development Organization, 2009). Thus we have evidences that the Indian economy is pursuing the high growth and sophisticated path.

Having examined the trade and manufactured export structure, let us turn to the trends in the female employment in the manufacturing industries. Manufacturing industries are particularly interesting as they tend to show the fastest growth with in developing countries, they are the most likely to generate export-led growth and they are most likely to absorb new technologies (Berman et al, 2003). It is a matter of concern that the manufacturing sector has not shared in the dynamism of the Indian economy. As a result, the share of the manufacturing sector in GDP is only 15.0 per cent in India, compared with 34.0 per cent in China and 40.0 per cent in Thailand. The slow pace of growth in the manufacturing sector at this stage of India's development is a problem.

Manufacturing must provide a large portion of the additional employment opportunities as opposed to agriculture for India's increasing number of youth. It should be releasing labour which has very low productivity in agriculture to be

[2] The exports are classified into low technology, medium low technology, medium high technology and high technology based on the OECD classification (OECD, 2011).

absorbed in other sectors. While the services sector has been growing fast, it alone cannot absorb the 250 million additional income-seekers that are expected to join the workforce in the next 15 years. According to the Planning Commission's approach paper to the Twelfth Five Year Plan, unless manufacturing becomes an engine of growth, providing at least 100 million additional decent jobs, it will be difficult for India's growth to be inclusive (Government of India, 2011). The priority sectors identified by the Planning Commission for the creation of mass employment are the following.

Sectors that will create large employment

- Textiles and Garments
- Leather and Footwear
- Gems and Jewellery
- Food Processing Industries
- Handlooms and Handicrafts

The above mentioned sectors employ the largest numbers of women. The female intensities of employment are high in these labor intensive sectors. They qualify to be the priority sectors (Government of India, 2011) and hence an examination of the employment aspects with special reference to female labour is especially important at this juncture. It will also be important to understand if the creation of employment aimed, is largely in terms of female employment.

3.2 Trends in Female Employment

The shift from import substituting (IS) policies to export-oriented industrialization (EOI) imposed a new industrial model, in which developing countries became increasingly incorporated into global production systems. The passage from IS to EOI represents what Bair (2005) refers to as the shift from the 'development project' to the 'globalization project'. Global trade and investment patterns tend to privilege capital, especially companies that can move quickly and easily across borders, and to disadvantage labour, especially lower-skilled workers that cannot migrate easily or at all (Rodrik, 1997). Openness to global production and trade can became the means or end of development in the changing economic world. To increase their global competitiveness, more and

more investors are moving to countries that have low labour costs or shifting to informal employment arrangements. Furthermore, there has been a radical restructuring of production and distribution in many key industries characterized by outsourcing or subcontracting through global commodity chains. The net result is that more and more workers are being paid very low wages and many of them have to absorb the non-wage costs of production.

In India, a majority of the industries were either export oriented or import competing and some where showing a movement from import competing to export orientation (capital goods especially auto component parts and accessories). The export oriented industries and those that moved from import to export orientation showed an increase in technical change in the unorganized sector. Liberalization of trade and industrial policies seems to have favored the inflow of technologies into export oriented industries as a whole and those moving towards export orientation in the unorganized sector. Reforms in the period after 1994 were favorable to the organized sector, and that appeared to surge ahead. Sub-contracting linkages with larger firms and the inflow of technology could have helped the growth process in many of these industries (Uma and Rani, 2008).

In examining the data for feminisation of the labour force it is useful to make a distinction between different referents of 'feminisation' since these are often conflated. Feminisation of the labour force has been used to refer to one or all of the following (1) Increase in the female participation rate relative to men; (2) The substitution of men by women who take over jobs traditionally handled by men; (3) The increase in women's involvement in 'invisible' work, i e, family labour and home working; and (4) The changing character of industrial work on the basis of new technology and managerial strategies whereby work is decentralized, low paid, irregular, with part time or temporary labour contracts (Shah et al, 1994).

It is absolutely necessary to have a look into the trends in female employment in the export oriented industries in India to address the debate of feminisation in the Indian context. The Annual Survey of Industries and the National Sample

Survey Reports provides data on the female employment in the organized and unorganized manufacturing respectively.

Uma and Rani (2008) points to the fact that there is a multilayered structure within the manufacturing sector. The organized manufacturing sector grew till about 1994-95 and then began to decline. The organized structure had an advantage in the beginning of liberalization but they lost in the later phase when the unorganized manufacturing sector found its feet.

3.2.1 Organized manufacturing

The opening up of the economy helped the organized manufacturing sector to grow for more than a decade before slowing down as Rani and Unni (2004) in their study notes down. Our own analysis shows that the trends are diverse with respect to female employment in the manufacturing industries. We have classified the industries into four categories based on the trends in the shares of female employment. These trends are explained below.

1. Industries showing increasing trend across years

Many of the low technology industries and electrical machinery manufactures show an increased trend in their female shares of employment. The manufacture of food products and beverages showed a marginal increase in the shares of the female employment except that of the sub sector grain mill products, starch products and prepared animal feeds. Manufacture of rubber and plastics products also showed an increasing trend. The manufacture of basic metals is on an increase in their female shares of employment. Office accounting and machinery shows a fluctuating trend as it decreased from 2000-01, but increased thereafter. Manufacture of electrical machinery and apparatus denotes an increasing share of women workers. Medical appliances and furniture are marginally increasing after 2004-05.

Table 3.2: Industries showing an increasing trend in female share of employment (3 digit)

Industries	1995-96	2000-01	% change	2004-05	2007-08	% change	Overall % change
Meat, Fish, Fruits, vegetables	6.53	8.3	1.77	8.33	9.48	1.15	2.95
Dairy products	1.21	1.31	0.1	1.79	2.49	0.7	1.28
Spinning, Weaving, Finishing	3.5	6.58	3.08	9.35	11.57	2.21	8.06
Sawmilling and Planing	6.71	23.11	16.4	17.23	18.8	1.57	12.09
Paper products	2.62	5.3	2.69	4.93	13.27	8.34	10.65
Publishing	0	0.65	0.65	0.64	0.82	0.17	0.82
Printing and Service	3.09	6.14	3.05	6.1	6.85	0.75	3.76
Recorded media	4.03	12.34	8.32	2.42	16.5	14.08	12.48
Rubber products	3.41	4.86	1.45	4.82	5.89	1.07	2.48
Plastic products	2.36	5.35	2.99	5.43	6.49	1.06	4.14
Basic iron and steel	0.51	6.24	5.73	0.55	0.75	0.2	0.24
Non-ferrous metals	0.88	1.43	0.55	0.79	1.56	0.76	0.68
Casting of metals	0.6	9.32	8.72	0.88	1.57	0.69	0.97
Fabricated metal products	0.82	9.22	8.4	2.05	2.91	0.86	2.1
Office accounting and computing machinery	0	8.98	8.98	7.15	7.82	0.67	7.82
Electricity distribution and control apparatus	0	6.24	6.24	6.1	7.28	1.19	7.28
Accumulators, cells and batteries	1.35	9.32	7.96	4.19	4.34	0.15	2.98
Electric lamps , Lighting equipments	9.47	9.99	0.52	9.51	14.45	4.95	4.98
Medical appliances	4.37	8.98	4.62	7.91	8.51	0.6	4.14
Furniture	0.85	1.74	0.89	1.44	2.04	0.6	1.18

Source: The Annual Survey of Industries

Note: NIC-98 classification is used. Concordance table was used to match NIC-1987 to NIC-1998 (See Appendix 3.1)

2. *Decreasing in the first half of the liberalization and increasing thereafter*

The table 3.3 depicts the industries in which the female shares of employment decreased initially and then increased. This category constitutes only four industries which are footwear, basic chemicals, watches and clocks and railways and tramways. Watches and clocks manufacturing is showing a considerable increase in the female intensity of employment from 2000-01. Basic chemicals had a larger presence of women which showed a reduction across years but a slight improvement after 2004-05.

Table 3.3: Industries in which female share of employment decreased in the first half of liberalization and increased thereafter (3 DIGIT)

Industries	1995-96	2000-01	% change	2004-05	2007-08	% change	overall % change
Footwear	28.20	25.97	-2.24	25.29	29.98	4.69	1.78
Basic chemicals	14.20	0.78	-13.42	0.82	0.92	0.10	-13.27
Watches and clocks	23.23	22.74	-0.49	25.13	34.06	8.93	10.83
Railway and Tramways	0.74	0.16	-0.57	0.46	0.51	0.05	-0.23

Source: Same as Table 3.2

3. Increasing in the first half of liberalization and decreasing thereafter

Table 3.4: Industries in which female share of employment increased in the first half of liberalization and declined thereafter (3 digit)

Industries	1995-96	2000-01	% change	2004-05	2007-08	% change	overall % change
Grain mill, starch products	5.77	9.06	3.30	7.28	6.23	-1.05	0.46
Other food products	17.71	24.14	6.43	29.34	28.75	-0.60	11.03
Beverages	4.74	4.89	0.15	4.57	4.06	-0.51	-0.68
Other Textiles	7.59	9.50	1.90	13.94	8.60	-5.34	1.01
Knitted and Crocheted	8.78	21.53	12.75	26.17	25.66	-0.51	16.88
Wearing Apparel	38.41	51.33	12.92	44.58	41.11	-3.47	2.70
Tanning and Dressing	10.10	16.35	6.25	16.04	11.38	-4.65	1.29
Coke oven products	0.51	4.02	3.51	2.97	2.62	-0.35	2.12
Refined Petroleum	0.72	0.73	0.02	0.36	0.27	-0.09	-0.45
Other chemicals	0.12	17.10	16.97	14.97	13.10	-1.87	12.98
Non-metallic mineral products	0.80	4.36	3.56	4.81	4.42	-0.39	3.62
General purpose machinery	0.49	16.73	16.24	0.89	0.50	-0.39	0.02
Special purpose machinery	3.25	10.69	7.44	0.98	0.70	-0.29	-2.55
Domestic appliances	9.17	23.20	14.02	5.96	5.14	-0.82	-4.04
Electric motors, generators, transformers	2.20	4.36	2.16	2.30	2.27	-0.02	0.08
Insulated wire and cable	0.69	1.43	0.74	2.27	1.99	-0.28	1.30
Other electrical equipment	2.94	9.22	6.28	14.57	8.59	-5.98	5.65
Electronic valves and tubes	13.90	16.73	2.83	15.73	13.34	-2.39	-0.56
Television and radio transmitters	7.38	10.69	3.31	11.10	6.74	-4.36	-0.64
Television and radio receivers	0.00	23.20	23.20	11.29	5.69	-5.59	5.69
Optical and Photographic equipments	6.65	11.44	4.79	18.00	13.12	-4.88	6.47
Motor vehicles	0.91	1.00	0.09	0.56	0.35	-0.21	-0.56
Parts and accessories	0.91	2.54	1.62	2.45	2.17	-0.28	1.26
Jewellery, sports, music	10.60	15.52	4.92	14.68	13.09	-1.59	2.49

Source: Same as table 3.2

It is to be noted that the majority of industries in the organized sector decreased their shares of female employment from 1999-00 onwards. These industries

showed an increase in their female intensities in the first decade of liberalization and thereafter decreased. Manufacture of glass and glass products were marked by a drastic decline in their female employment. The female presence in the wearing apparel manufacture had increased in the first decade following liberalization and thereafter it showed a decline. Manufacture of machinery and equipment had a slight decrease in their female intensities. Manufacture of radio, television and communication equipment and apparatus are showing a decline. Manufacture of motor vehicles, trailers and semi trailers under the 2 digit category and all their sub sectors show a decline in their female intensities of employment. The female presence in jewellery, sports, music and other chemical products are also getting reduced after they had a surge till 1999-2000.

It is to be noted that some industries showed a decline in their female shares after 2004-05. The manufacture of textiles showed a continuous increase in the sub sector spinning, weaving and finishing of textiles while that of knitted and crocheted fabrics and other textiles decreased after 2004-05. Other food products, tanning and dressing of leather, non-metallic mineral products, manufacture of luggage, handbags etc follows the same pattern with a decline from 2004-05.

4. Continuous decline across years

Table 3.5: Industries in which female share of employment decreased (3 digit)

Industries	1995-96	2000-01	% change	2004-05	2007-08	% change	overall % change
Tobacco Products	26.93	21.24	-5.69	24.60	13.69	-10.91	-13.24
Man-made fibres	1.78	0.24	-1.54	2.92	0.44	-2.47	-1.34
Glass products	7.43	5.21	-2.22	2.55	1.81	-0.74	-5.62
Coach work and trailers	0.91	0.00	-0.91	0.31	0.04	-0.26	-0.87
Ships and boats	0.12	0.04	-0.08	0.14	0.10	-0.04	-0.01
Transport equipment	3.89	1.38	-2.51	1.55	0.75	-0.81	-3.14

Source: Same as Table 3.2

One of the major female dominated sectors was that of tobacco manufacturing. There has been a considerable decrease in the women employed in this sector after 2005. Manufacture of other transport equipments are also on the decline. All the sub sectors in this sector, like manufacture of ships and boats, railways, tramways, aircraft and space craft and other transport equipments are also showing a decrease in the shares of the female employment.

To conclude, we find that the third and the fourth categories showed a decline in their female shares of employment. It is interesting to note that the majority of the industries in these categories come under the technology intensive sectors. There have been evidences that with the introduction of new technologies, skill upgrading of export producers and reorganization of production, female employment would be reversely affected (Joekes, 1995). To be globally competitive, industries need to upgrade their production processes and technology and the above analysis finds that female employment decreases with this shift. We now need to look into the trends in the unorganized sector to obtain a compact picture of the female employment in the manufacturing sector.

3.2.2 Unorganized manufacturing

The examination of the trends and patterns in the female employment in the unorganized sector is very important to have a compact understanding of the female employment scenario in the Indian manufacturing sector as the organized industries employ only 8 percent of the work force. The remaining 92 percent of the workers are engaged in the unorganized sector (Sakthivel et al, 2006).

There is a growing casualisation of the workforce which is linked with the quickened pace of liberalization in the 1990's. A growing literature seeks to demonstrate the links between specific policies of liberalization, such as deregulation of the labour market, export promotion and trade liberalization, with the processes of casualisation, informalisation and feminisation of the labour force (Pais, 2002). Among the female workers, Pais (2002) finds that those employed in the rubber and plastic manufactures and manufacture of food products had large and increasing incidence of casualisation. He also identifies several other industries like manufacture of leather goods, electrical machinery, metal products, non-metallic mineral products and wood products which have small but increasing casualisation. Uma and Rani (2004) observes that initial reform policies had affected the unorganized sector employment growth negatively, but then the promotional policies for the small scale sectors surged the growth.

We now analyze the intensities of female employment in the unorganized sector in rural and urban India for the manufacturing industries. The rural urban divide is very prominent in India. Female employment patterns tend to change across rural and urban industries, as do their wages.

Table 3.6: Share of female employment in two digit manufacturing industries (Rural female)

Industry	1994-95	2000-01	2004-05	Over all % change
Food	32.10	29	30.6	-1.5
Tobacco	60.72	67.3	76	15.28
Textile	50.10	49.48	55.8	5.7
Garment	56.56	35.24	46.5	-10.06
Leather	14.83	8.84	9.8	-5.03
Wood	38.50	37.18	39.3	0.8
Paper	57.70	53.12	82.2	24.5
Printing	13.86	14.77	15.7	1.84
Petroleum	16.69	11.94	12.2	-4.49
Chemical	81.47	45.64	72.4	-9.07
Rubber	32.07	31.72	36	3.93
Non- Metallic	35.79	34.71	29.4	-6.39
Metals	10.10	5.34	6.4	-3.7
Metal Pro	12.88	12.89	8.4	-4.48
Machinery	3.99	6.8	6.3	2.31
Computing	0.00	0	0	0
Electrical Machinery	19.15	20.34	11	-8.15
Radio, TV	3.86	38.45	16.3	12.44
Medical instruments	9.36	0.35	0.2	-9.16
Motor vehicle	5.23	1.88	0.8	-4.43
Transport	4.95	8.35	14.2	9.25
Furniture	2.74	25.56	16	13.26

Source: Various rounds of NSSO

We observe different trends in the female shares of employment in the rural India (Table 3.6). There was a constant decrease in the female employment shares in the non metallic mineral products, fabricated metal products, medical, precision and optical instruments, watches and clocks and motor vehicles. An increasing trend was observed in the manufacture of other transport equipments, plastic and rubber products and printing and publishing. Manufacture of paper and paper products and textiles showed a phenomenal increase in their female shares from 1999-00.

All the industries showed an increase in the rural female shares of employment from 1999-00 except that of non metallic mineral products, fabricated metal products, machinery and equipment, electrical machinery, radio, television and

communication equipments, medical, precision and optical instruments, motor vehicles and semi trailers and furniture. It is interesting to note that all the industries which showed a decrease in their shares after 1999-00 were the technologically intensive sectors.

Table 3.7: Share of female employment in two digit manufacturing industries (Urban female)

Industries	1994-95	2000-01	2004-05	Overall % change
Food	17.05	22.06	24.3	7.25
Tobacco	70.33	77.48	74.7	4.37
Textile	31.52	32.73	34.8	3.28
Garment	11.32	26.86	36.1	24.78
Leather	7.25	11.18	11.3	4.05
Wood	23.59	14.85	18.7	-4.89
Paper	32.20	34.25	41.6	9.4
Printing	9.95	8.27	13.7	3.75
Petroleum	15.79	7.51	5.4	-10.39
Chemical	57.55	60.64	63.7	6.15
Rubber	12.51	17.37	18.6	6.09
Non- Metallic	28.48	31.68	24	-4.48
Metals	6.32	2.95	5.5	-0.82
Metal Pro	3.01	4.08	3.9	0.89
Machinery	3.92	3.86	3.9	-0.02
Computing	22.37	13.79	10.5	-11.87
Electrical Machinery	8.18	15.75	8.9	0.72
Radio, TV	3.49	14.04	8.1	4.61
Medical instruments	25.91	8.52	9	-16.91
Motor vehicle	5.58	2.69	5.3	-0.28
Transport	9.06	1.43	3.2	-5.86
Furniture	1.38	15.29	13.5	12.12

Source: Various rounds of NSSO

We now examine the share of female employment in the urban manufacturing industries (Table 3.7). A constant decline was observed in the female employment shares in the manufacture of coke, refined petroleum products and nuclear fuel industries. Manufacture of other transport equipments also followed the same pattern. There was an abnormal decrease of women in the manufacturing of medical, precision and optical instruments, watches and clocks from 25% to 9%in 2004-05. Manufacture of office accounting and printing machinery also had a declining share of female employment. Manufacture of furniture and that of jewellery, sports goods etc had a surge in their share of female employment from 1.38% to 15.29% but declined thereafter.

On the other hand, manufacture of food and food products, textiles, wearing apparel, paper and paper products, chemicals and chemical products, plastic and rubber products constantly increased their female shares in the employment. The levels of female employment also increased. The industries which showed a decline in their shares after 1999-00 were manufacture of jewellery, radio television and communication equipments, electrical machinery, office accounting and computing machinery, fabricated metal products, non-metallic mineral products and coke and nuclear fuels.

Looking closely into the rural and urban female shares of employment gives us a hint that the technologically intensive industries reduced their female shares after 1999-00, while the pattern was reverse for low technology industries. For giving us more insight into the underlying factors that determine the employment of women, we classify them on the basis of R&D intensity (OECD classification) as high and medium technology (technology intensive industries) and low technology industries. The next section precisely looks into the female shares of employment based on this classification.

Table 3.8: Share of Female Employment in Low Technology Industries in the Unorganized Sector

Industries	1994-95	2000-01	2004-05	Over all % change
Food products	24.6	27.3	29.3	4.7
Tobacco	65.5	69.3	75.7	10.2
Textiles	40.8	43.2	47.3	6.5
Garment	33.9	31.1	41.6	7.7
Leather	11.0	10.4	11.0	0.0
Wood products	31.0	34.0	36.6	5.6
Paper products	45.0	38.8	62.9	17.9
Printing	11.9	9.0	14.0	2.1

Source: Various rounds of NSSO

From Table 3.8 we interestingly observe that the female shares of employment have increased in all the low technology sectors. The increase has been both in the shares and in the levels of employment. The manufacture of textiles, paper and paper products has registered quite high growth in their respective shares of female employment.

On the contrary, all the industries in the technology intensive sector in general show a decrease in their female employment shares (see Table 3.9). Manufacture

of fabricated metal products and other chemical products have a continuous decline. Manufacture of non metallic mineral products, electrical machinery and apparatus, machinery and equipment and manufacture of radio, television and communication equipment decreased after an initial increase in the female shares of employment.

Table 3.9: Share of female employment in Medium and High Technology Industries in the unorganized sector

Industries	1994-95	2000-01	2004-05	Overall % change
Petroleum	16.2	10.5	11.0	-5.2
Rubber	22.3	21.3	24.0	1.7
Non-metallic	32.1	34.2	28.6	-4.1
Basic metals	8.2	3.7	5.7	-2.5
Fabricated metal products	7.9	7.8	5.8	-2.1
Electrical machinery	13.7	16.7	9.6	-4.1
Motor vehicles	5.4	2.6	2.9	-2.5
Machinery and equipment	4.0	4.8	4.5	0.5*
Chemical products	18.35	15.00	13.1	-5.25
Computing machinery	11.2	10.0	10.4	-0.8
Radio, TV	3.7	16.0	10.8	7.1*
Medical instruments	17.6	6.9	7	-10.6

Source: Various rounds of NSSO

* Manufacture of machinery and equipment and radio, television and communication equipment decreased after 2000-01

We conclude the discussion on the trends and patterns in the female shares of employment in the organized and the unorganized industries by drawing attention to a problem. The data shows an increase in the level (See Appendix 3.2) and share of female workers in the low technology export industries, and parallely there is an unprecedented decline in the exports of this very same set of industries. This raises the issue of the uncertainty of employment in these segments. We now move into the structural and institutional features behind the employment of women.

3.3 Structural and Institutional Features

This is a preliminary effort to understand the quality of employment and gender discrimination in the manufacturing industries. Traditionally, female employment dominates in the low technology industries owing to social and cultural norms. Many observers argue that women are less able to compete with men in labor, capital and product markets because they have relatively lower

levels of education, skill or have less market know-how or are likely to own less property. The other side of the argument is that social and cultural norms assign the responsibility for social reproduction to women and do not encourage investment in their education and training. Interestingly, although females continue to be predominantly in agriculture, the share of female employment in manufacturing has increased over these years denoting the incorporation of female labour in manufacturing value chains (Srivastava, 2012).

3.3.1 Occupational Segregation

Trade liberalization does not yield gender neutral results as we have explained earlier. It becomes quite important to observe the gender segregation across occupations in the liberalized era. Gender segregation is the unbalanced distribution of men and women across occupations inconsistent with their overall shares of employment (Bakshi, 2011). Female labor gets concentrated in the labor intensive sectors as women accept work at lower wages than men and in poor working environment. The production niche is a low technology, labour intensive one involving the standardized production of garments, footwear and other appliances. Women's wage levels are lower than those of men employed in comparable occupations and hence they represent the lowest cost in production process (Kaur, 2004).

This results in the gender employment segregation, which subjects women to inferior employment positions than those held by men (Bacchus, 2005). When comparing occupations, "nearly two-thirds of women in manufacturing are categorized as laborers, operators and production workers while only a few can be found in the administrative and managerial positions predominantly held by men" (Tzannatos, 1998).

Ankher (1998) finds evidence that the occupational segregation by sex is relatively low in the Asian and Pacific regions. But he points out that vertical segregation exists within occupations, referred to as echelon segregation whereby women and men in the same occupation hold different jobs in terms of pay, grade authority and career possibilities. Women are also employed more in production in these countries, especially those who have embraced export

oriented industrialization. But the jobs are lower paying and hence the entry into the production occupations does not translate into an improvement in the female-male pay ratios.

To describe the data we focus on the gender gap in employment by computing a dissimilarity index for three digit manufacturing industries in the organized sector. The dissimilarity index is a measurement of the overall difference between two percentage distributions. It is calculated by adding together the differences between the numbers in each pair of corresponding values and halving the total. The result shows the proportion of cases that would need to be reallocated in order to make the two distributions the same. Dissimilarity indices are often used in studies of occupational, or racial, segregation, or to summarize the difference between pairs of marginal distributions; for example, to compare class of origin and destination for internal migration, or to investigate differences between nations, sexes, and so on. The dissimilarity index is defined as follows

$$DI = \tfrac{1}{2} \sum |f_i - m_i| * 100,$$

where f_i is the ratio of females in the three digit industry i to total female employment in manufacturing. m_i is defined similarly for males. A value of zero for this index indicates no segregation and a value of 1 indicates complete segregation across industries. We show the dissimilarity index in the Indian organized manufacturing industries at 3 digit level across years in the table below.

Table 3.10: Dissimilarity index in India across years

Year	Gender Disaggregation Index
1999-00	0.498
2000-01	0.509
2001-02	0.508
2002-03	0.473
2003-04	0.487
2004-05	0.485
2005-06	0.465
2006-07	0.457
2007-08	0.442

Source: Computed using ASI data (3 digit industries)

Occupational segregation by sex has fallen in many countries across the world. We observe the same pattern in the Indian manufacturing industries. In India, the

dissimilarity index decreases from 0.509 in 2000 to 0.442 in 2007-08showing that occupational segregation of males and females is decreasing in the manufacturing industries (See Table 3.10). It is to be noted here that the data represents only the organized manufacturing industries. There is continuing gender segregation in the unorganized manufacturing industries (Bakshi, 2011). Even when the number of women employed increases, the quality of the employment may not improve at all.

Bakshi (2011) also finds that international trade and investment decreases gender segregation by drawing more women into traditionally male dominated sectors manufacturing sectors. As competition increases women workers are employed as they form a cheap source of labour. This has to be read together with the fall in the organized sector employment in India and the increased informalisation of labor (Kaur, 2004).

3.3.2 Wage Disparities

There exists significant difference between men's and women's jobs across sectors, industries, occupations and types of jobs. Women's jobs do pay less then men's job even after accounting for differences in worker and job characteristics (Blau and Khan, 2000). Wage in female dominated sectors are lower than that of male dominated sectors owing to their different care responsibilities. Research shows that women's job pay less than male job owing to skill related characteristics and tastes. Female owned firms tend to operate in restricted number of sectors and low value added and low growth potential segments. Women are more likely to choose jobs that allow them to adjust their working hours and to enter and exit the labor market at lower costs.

We hence proceed to examine the wages of the male and female industrial workers in low technology and technology intensive sectors. Table 3.11 shows the wage of the industrial workers across educational classes. Table 3.11 indicates that the wages of the workers are far low in the low technology industries. Further there exist wide disparities in the wages of the female workers and the male workers both in the rural and urban India. This suggests that although women are employed in production activities, this does not get translated into an

improvement in their pay ratios. While low technology industries are dominated by female workers, we conclude that the wages they receive is low when compared to their male counterparts in the same industries. And this phenomenon remains true across educational classes.

Table 3.11: Wages of Male and Female Workers according to Industry Classification and Education Levels

		1999-2000				
	Codes	**illiterate**	**literate & up to middle**	**secondary & higher secondary**	**graduate & above**	**all persons**
rural male	15-27	75.27	75.82	100.87	167.12	87.86
	23-37	92.57	76.22	114.87	195.52	99.68
rural female	15-27	30.31	36.13	42.43	--	34.44
	23-37	45.39	44.26	121.32	146.97	49.96
urban male	15-27	75.1	87.14	111.37	206.37	103
	23-37	78.98	100.1	183.62	263.46	168.47
urban female	15-27	35.8	44.17	61.41	236.91	54.89
	23-37	72.69	67.56	122.92	213.38	124.99
			2004-05			
rural male	15-27	58.36	74.41	103.4	160.67	90.6
	23-37	75.63	84.51	109.43	534.81	146.72
rural female	15-27	26.53	36.26	47.26	89.21	38.24
	23-37	38.4	58.54	62.12	219.58	57.95
urban male	15-27	79.41	88.45	122.1	218.85	113.22
	23-37	106.7	108.62	176.79	362.06	189.41
urban female	15-27	34.23	53.25	70.71	235.1	65.58
	23-37	54.81	45.81	113.24	219.39	102.16

Source: National Sample Survey Organization, Employment - Unemployment Survey 1999-2000 and 2004-05

Note: 15-27 are low technology industries, 28-37 are technology intensive industries

3.4 Determinants of the Female Intensity of Employment

The course of industrialization had taken over a different direction with the new international division of labor. Evidences indicate that in the manufacturing sector of middle and higher income economies, women are concentrated in industries that have begun to upgrade, shed their workforce and relocate to lower wage countries (Ankher, 1998). When earlier evidences point out a raise in the female intensity in the manufacturing sector, it was mainly due to the expansion in the labour intensive export sectors. The rapid growth of the East Asian newly industrializing economies in the 1970s and 1980s and of China, India, Vietnam, Indonesia, Central America and other emerging economies in the

1990s and 2000s was to a significant extent based on the expansion of their labour intensive exports.

Incorporated in global value chains, there has been evidences that defeminization has happened in the South-east Asian countries. If keenly observed, we find that East Asia has by far the most complex export structure among developing regions, contributing to the high technology boom in South-South trade. This reflects the trend towards task based production. Latin America's export structure remains fairly complex, but it has not increased significantly in complexity from the 2000's. South Asia's very high share of manufactured exports consists primarily of low technology manufactures (United Nations Industrial Development Organization, 2009). We also observe ongoing feminization in the Latin American countries. Reading the two together, there would be some reason to believe that changes in the export structure have a direct effect on the female employment. We hence proceed to look for the determinants of the female intensity of employment in the next section.

We run a regression to identify the determinants of the female intensity of employment at the three digit manufacturing industries. We confine the regression to only the organized industries. Unorganized sector data is obtained from quinquennial NSSO rounds while the export data is obtained in financial years. It is difficult to use a panel data analysis in this case. The choice of empirical specification is based on the earlier literature. Existing studies on female employment in developing country manufacturing sector suggests that women tend to be employed in low-skill, lower paying jobs, low capital intensity, small scale plants and women tend to be concentrated in export oriented sectors (Ozler, 2000). Pradhan (2006) identifies that exports, mechanization of production, age of the firms and size has an impact on female employment in the Indian context. Our analysis draws from the study of Ozler (2000) on plant level data on the Turkish manufacturing sector.

All the variables are constructed form the Annual Survey of Industries Database excluding Export Intensity and Manufacturing Value Added, which are obtained from the COMTRADE and World Bank Indicators of the World Bank

respectively. The data is from 1999-00 to 2007-08 coinciding with the second phase of globalization where we observe a structural change in the export pattern (Refer Figure 3.1 on the Composition of Exports). The other specificities of the data used for the model are explained with the construction of variables.

3.4.1 Construction of Variables

FIE: FIE is the dependent variable which is the female intensity of employment described as the female share of total workers.

EXPINT: All the existing literature describes export intensity as an important determinant of the female employment. It is measured as the ratio of exports to domestic production. There has been significant increase in the women's industrial employment as export oriented industrialization has spread its bases from the newly industrialized countries to other economies (Ozler, 2000). This spread has not been universal or its effects similar. Women's share of employment is concentrated across the world in certain specific industries. This phenomenon is complex to explain as it involves cultural and social reasons coupled with economic factors. In their pursuit of global competitiveness employers in a wide range of key export industries favor the kinds of employment relations associated rightly or wrongly with women. Studies also indicate that with the change in the export structure from labor intensive exports to highly technology intensive sectors, the East Asian economies observed a defeminisation in their labor force.

SIZE: The number of employees in a sector is used to capture the industry size. Women are much likely to be employed in smaller firms than men. So we expect that size has a negative effect on the female intensity of employment.

WAGEPW: We include wages as the existing literature indicates women are employed in low-paying jobs. Their chances of getting employed confines to low paying jobs because of economic, social and cultural reasons which we have explained earlier. Hence we expect wages to have a negative influence on the dependent variable.

SKILL: Share of skilled workers is used to capture the attribute that women tend to be employed in low skilled jobs. Even in the same industry, women tend to be employed in lower tasks, while men are employed in the technical and managerial posts.

MVA: Manufacturing Value Added in GDP is a variable that captures the level of industrialization in an economy. The ratio of manufactured exports to GDP of an economy may increase, but the manufacturing value added in GDP may decrease. This is not a sign of successful industrialization. Female employment will have a negative effect as the Manufacturing Value added in the GDP increases, leading to an increase in the industrialization.

CI: CI is the variable used to capture the capital intensity in the industries. Women are traditionally employed in low capital intense industries. Hence as capital intensity increases, it affects the employment of women adversely.

Thus the specification used in the study is as follows:

$$FIE_{it} = \alpha + \beta_1 EXPINT_{it} + \beta_2 SIZE_{it} + \beta_3 WAGEPW_{it} + \beta_4 SKILL_{it} + \beta_5 MVA_{it} + \beta_6 CI_{it} + \mu_{it}$$

Having explained the variables we proceed to the estimation. The present study uses the panel data regression analysis. To know whether to use fixed effect model (FEM) or random effect model (REM), Hausman Specification test is conducted. The test yields statistically significant result ($\chi 2=11.28$) which indicates that fixed effect model is consistent.

3.4.2 Results and Discussion

Before discussing the results, we present the summary statistics of the variables below.

Table 3.12: Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
FIE	11.131	12.185	0	61.50441
EXPINT	0.22	0.317	0.0005	2.48433
SIZE	162577.8	226243.8	509	1137749
WAGEPW	64358.9	37623.55	14355.04	270095.1
SKILL	0.1588	0.3305	0	4.780601
MVA	15.333	0.4179	15	16
CI	10.62071	19.48428	0.3013	157.8191

The model is first estimated for all the industry groups and then for low technology and technology intensive industries. After estimating the determinants of female employment for all the industries in the manufacturing sector, we classify the industries as low technology industries and high technology industries and proceed to estimate the model accordingly. We expect this would give us more insights into the determinants of female intensity of employment. We present the results below.

Table 3.13: Determinants of Female Intensity of Employment

Dependant Variable: Female Intensity of Employment			
Fixed Effect Model			
Variables	**All Industries**	**Low Technology Industries**	**Medium and High Technology Industries**
EXPINT	0.2128 (0.23)	12.416*** (3.21)	-0.646 (-0.51)
SIZE	-5.53E-06** (-2.39)	-3.74e-06 (-1.22)	-6.59e-06 (-1.47)
WAGEPW	-0.000063*** (-3.83)	-0.00012*** (-2.72)	-0.0000451** (-2.66)
SKILL	0.333 (0.63)	0.6302 (0.55)	-0.22226 (-0.30)
MVA	0.9017* (1.69)	1.45586* (1.73)	1.00243** (2.27)
CI	-0.0395 (-0.95)	0.029 (0.50)	-0.30095*** (-4.43)
Constant	2.57877*** (0.34)	-0.40 (5.047)	0.5314 (0.08)
R square	0.12	0.442	0.45
No: of observations	468	216	252
No: of industries	55	27	28

Source: ASI and WITS database

Note: Figures in the parenthesis are t-values

*** 1% level of significance, ** 5% level of significance, * 10% level of significance

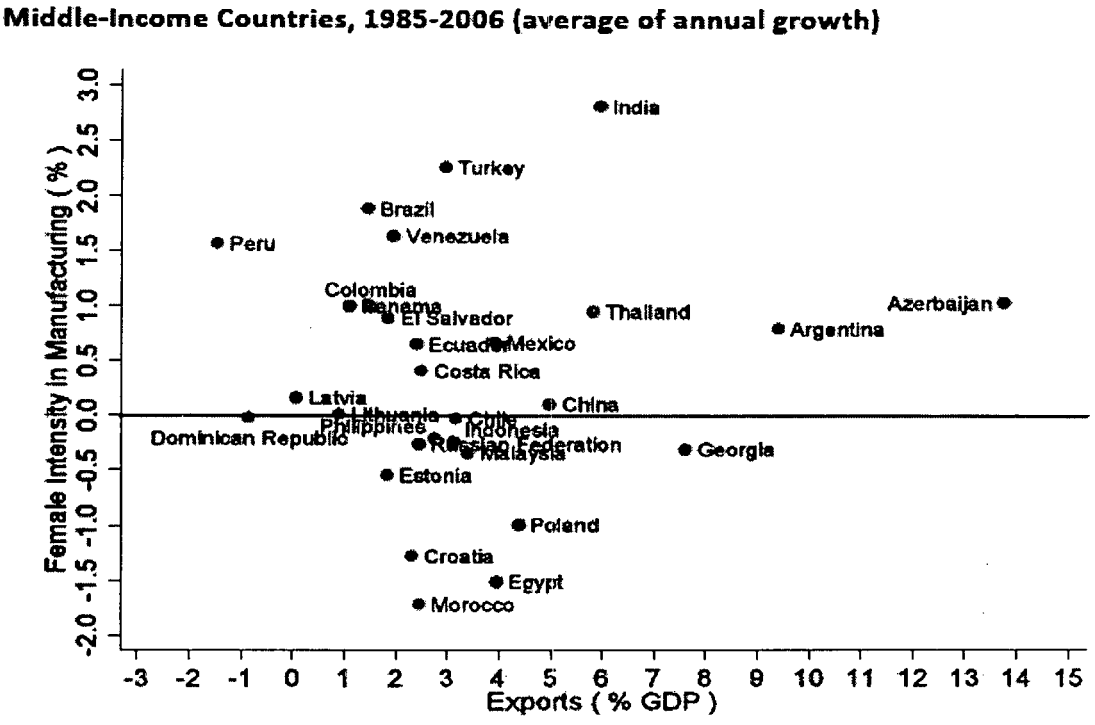
We first discuss the determinants of female employment in the all industry group. Export intensity has a positive effect on the female employment but is not significant. As we had expected, the size of the industry is highly significant and has a negative effect on the dependent variable. Wage per worker is also highly significant with a negative sign. Manufacturing value added has a positive effect on the female employment and is significant contrary to what we observe in literature. But, the share of manufacturing value added in GDP in India is

decreasing over the years (we explain this in detail in the next chapter). This explains the positive sign, and hence indicates that the increase in female employment has very much to do with the level of industrialization of the economy in the Indian scenario. Both capital intensity and skilled share of the workforce were not significant variables. While the former had a negative effect on the female employment, the latter showed a positive sign. Female share of employment is higher in plants which had higher skilled work composition than those where worker composition was less skilled. Female share is also found to decrease in plants with higher capital intensity.

We have very interesting observations from the estimation results of low technology and high technology industries. Export intensity, a key determinant of the female intensity of employment has positive and high significance on the former but interestingly, it has no significance on the latter. We recall that export intensity had no significant effect on the women's employment in the earlier regression. Also in the high technology industries, export intensity has a negative effect on female employment which strengthens our earlier observations that female employment suffers a set back with a shift in the export structure to high and medium tech exports.

The wages of the workers are highly significant in both the set of industries and have a negative effect on female employment. Capital intensity has a significant and negative effect on the dependent variable in the high technology industries while in the low technology industries its effect is insignificant. The manufacturing value added per worker is significant in both the group of industries with a positive sign contrary to our expectations. Size of the industry which was highly significant in the earlier estimation now is insignificant for high and low technology industries, as is the skilled share of workers. But the skilled share of workers is negatively influencing the female employment in the technology intensive sectors.

Figure 3.2: Female Intensity in Manufacturing Employment and Exports



Source: Tejani and Milberg, 2010

The authors observe that most countries experienced an export growth of 2-5% per annum. But the patterns of female intensity of manufacturing were different in different countries. While India, Brazil, Turkey and Venezuela were rapidly feminizing, Morocco, Egypt, Poland, Croatia were clearly defeminizing. The above explanations clearly indicate that export orientation is not an adequate factor in explaining the trends in female employment. We need to look into other factors for a possible explanation. The evidences from the literature so far indicate that export orientation is an important determinant of female employment. But this by itself seems incapable of explaining the existing trends. Feminization and defeminization has much to do with the type of the manufacturing growth that different countries experience as Tejani &Milberg (2010) points out. It becomes necessary to look behind the export growth performance and at underlying changes in industrial structures and labor market institutions. Variety and flexibility is the name of the game in competitive production today (Kaplinsky and Farooki, 2010). Mass production, which was

the order of the day a few decades back, gave way to custom made products. This demanded higher levels of quality and product differentiation. All these factors have to be considered if we need to detect the underlying currents in the female employment structure.

However none of the existing indicators captures upgrading within the activities. The intensity of industrialization can be captured by indicators such as the share of manufacturing value added in GDP (as a percentage) and the share of medium and high technology exports in total exports. The former captures the role of manufacturing in the economy and the latter is a measure of the technological complexity of manufacturing. While the above mentioned indicators capture shifts across activities, upgrading is an important 'missing element'. Feminization of the labor force might prove temporary and can even be reversed as production moves up the skill ladder at later stages of export promotion (Cagatay, 2005). Thus examining the hypothesis that technological upgrading would lead to defeminisation cannot be addressed by the earlier exercises. We need to depend on other tools in order to explain this multi dimensional phenomenon.

3.5 Conclusion

The literature has explained the increase in the female share of employment linking it to export orientedness. We found that export intensity increases female employment in low technology industries. But in the technology intensive export intensity has no influence on women's labor. Our own analysis shows that export orientedness by itself cannot capture the underlying threads in the changing patterns of female employment. It also goes along with that of existing studies that the so-called "high-road" of industrialization would thus be associated with defeminization while the "low road" associated with continued heavy reliance on low paid women (Tejani and Milberg, 2010). The next chapter specifically looks into this missing element. In order to capture the upgrading within activities we rely on the global value chain analysis.

Appendix 3.1

Concordance table for NIC87 to NIC98 classification

NIC- 1998	NIC-1987	NIC- 1998	NIC-1987
1511	200	2430	306
1512	203	2511	310
1513	202	2519	312
1514	210+211+212	2520	313
1520	201	2610	321
1531	204	2691	322+323
1532	218	2692+2693	320
1533	217	2694	324
1541	205	2695	327
1542	206+207	2696	326
1543	209	2699	325+329
1544+1549	213+214+215+219	2710	330+331+332
1551	220+223	2720	333+334+335+336+338+339
1552	221	2731+2732	337
1553	222	2811	340
1554	216+224	2812	341
1600	225+226+227+228+229	2813+2911	352 (add in 281)
1711	231+232+233+234+235+240+ 241+242+244+245+ 247+250+251+252+ 253+254+255+256	2891	344
1712	236+243+246+248+257+258+259	2892	345
1721	267+268	2893	343+346
1722	263+264	2899	349
1723	261	2912+2913+ 2914+2915	356+391 (add 354 here)
1729	262+269	2919+2923+ 2927+2929	354+359+393+397+399
1730	260	2921	350+390
1810	265+266+292+964	2922	357+392
1820	294+295+296	2924	351
1911	290	2925+2926	353
1912	293+299	2930	355+364+388 (add 364 in 293)
1920	291+311	3000	358+367
2010	270	3110+3120	360+395 (360- put it in 311)
2021	271	3130	361
2022	272	3140	362
2023	273	3150	363
2029	274+275+279	3190	369
2101	280	3210	368
2102	281	3220	365+396 (Put 365 in 322)
2109	282+283	3230	366
2211+2219	285	3311+3312+ 3313	380
2212	284	3320	381
2213	Not defined separately in NIC-87	3330	382
2221	286+289	3410+3420+3430	373+374 (Put in 3410)
2222	287+288	3511+3512	370
2230	Not defined separately in NIC-87	3520	371+372

Concordance table for NIC87 to NIC98 classification

NIC- 1998	NIC-1987	NIC- 1998	NIC-1987
2310	318+319	3530	377
2320	314+315+316	3591	375
2330	317	3592	376
2411	300	3599	378+379
2412+2421	301 (add in 2412)	3610	276+277+342
2413	302	3691	383+384
2422	303	3692	386
2423	304	3693	385
2424	305	3694+3699	387+389
2429	208+307+308+309		

Appendix 3.2

Levels of Female workers

Industrial Codes	1994-95	2000-01	2004-05
15	18684	1867866	1859319
16	23620	2362298	3178265
17	26720	2670322	3000003
18	14215	1422203	2050797
19	415	41506	52096
20	17756	1775378	1485631
21	978	97737	222791
22	434	43689	57512
23	23	2332	2431
24	2988	298715	602208
25	711	71014	66552
26	10439	1043203	668124
27	49	4891	6435
28	1242	123692	96175
29	235	23616	26113
30	1417	138	1050
31	423	42418	25833
32	66	6592	2548
33	22	2251	2492
34	28	2787	2668
35	18	1853	4972
36	5822	583109	418363

Source: Various rounds of NSSO.

Chapter 4

The Global Production System and the Sustainability of Feminization: A Value Chain Analysis

Changes in the global economy have led to changes in the location of production. This happened as an important consequence of the growth of trade in manufacturing. The shifts in production are from the developed to the developing economies and this process is accelerating. The pace of global integration has been clearly led by the manufacturing sector. Production gravitates towards regions with cheap labour cost, low transportation costs and is subjected to economies of scale and agglomeration. This has a direct impact on the female workforce, which is often associated with lower cost and flexibility. The low female wages and the flexible contracts for women's work substantially lowered unit labor costs, thereby spurring exports and investment (Seguino 1997, 2000 as cited in Ghosh, 2009).

The flexible production regime opens up greater opportunities for women workforce. The nature of the global production system and the push for industrial diversity particularly to move up towards the higher value added production brings into question the sustainability of feminization. The trend towards feminization of employment in Asian countries resulted from employers need for cheaper and more flexible sources of labor and was associated with the moves toward casualisation of labor (Ghosh, 2009). Over time the production costs rise as women resort to collective bargaining. The loss of jobs in the labor intensive sectors is related to the high degree of unionization and politicization (Chhachhi, 1999). The companies relocate in search of cheaper labor or prefer new entrants, both of which bring in the question of sustainability of women's work.

Governments have recognized that industrial diversity matters for development as it enables them to take advantage of the export opportunities as they emerge. Production is becoming less vertically integrated. Structural changes are redefining industrial development. "The growing significance of industrial

clusters, the rapid increase in the proportion of manufacturing output that is traded internationally, the explosive growth of task based manufacturing, the rise of China and India, and their consequences for the location of manufacturing and for commodity markets are changing the opportunities for industrialization-opening some avenues and closing off others" (United Nations Industrial Development Organization, 2009). It is important to understand the nature of the global production systems that shape the insertion of the third world countries like India into the international economy (Ramaswamy, 1999).

In this context, the contention that there has been feminisation of labour needs to be re-examined. One hypothesis is that there is a decline in the employment of women due to changing characteristics of export firms such as greater capital intensity and technological sophistication. The others indicate a basic preponderance of women at the end of production chain with the help of spread of global conveyor belt across different countries and growth of outsourcing. In this context a detailed examination of global commodity chains is necessary to probe the feminisation question. Industrial upgrading in the commodity chains could have a depressing effect on female employment, as upgrading is associated with high skill and technological capability in which women lag behind.

These upgradation strategies have negatively affected women in the developing countries. When export orientation of assembly components gave way to value added products, it negatively affected women in the export processing zones and industries. Japan was the first to experience defeminisation of the workforce, as it was the first to upgrade its industries in Asia (World Bank, 2012). This was followed by Republic of Korea, Hong Kong, Malaysia and in some industries in Latin America (Wood and Meyer, 2001; Mitter, 2000). In China, with industrial upgradation in the electronic industries, the female migrant laborers were left behind when assembly line activities were replaced by value added products (Luthje, 2004).

In this chapter we look into the global value chain framework to answer our question as of how upgrading affects female labor force. Feminization of the labor force might prove temporary and could be reversed as production moves

up the skill ladder at later stages of export- promotion. We look into the cases of the apparel industry, a prototype for export oriented industrialization and the footwear industry, an example of the buyer-driven value chain, to demonstrate some of the processes unfolding in the value chains. The majority of the workers in these industries are women.

This chapter is organized as follows. The first section unveils the global value chain framework in detail. The second section traces the movement up the value chain through upgradation strategies. Here we examine the value addition in the Indian manufacturing sector industries to identify its industrial maturity with the help of Manufacturing Value Added (MVA) in GDP and the share of high tech exports in manufactured exports. The third and fourth sections are case studies from the apparel and the footwear sectors, examining the process of upgradation in the value chains and analyzing the effects of upgradation on female employment. Material was collected about these cases through field visits to two foot wear factories in Kozhikode, Kerala and telephonic interviews with the managers of two garment companies in Bangalore. We sum up the discussion in the last section.

4.1 Global Value Chain Framework

This chapter draws upon the theory of the global commodity chains. A global commodity chain is a network that links the labour, production, and distribution processes that result in one commodity or product according to Carr & Chen (2001). Such networks or chains link individual workers and enterprises, often operating under both formal and informal arrangements, spread across several countries to one another within the world economy. These commodity chains can be local, national, regional or global, but with increased globalization, they are becoming increasing global and more difficult to map. Two kinds of global value chains have been identified, depending on the nature of the product and the production process: buyer-driven chains in which retailers govern production; and producer-driven chains[1] in which large manufacturers govern the process.

[1] For detailed discussions on producer-driven and buyer-led commodity chains refer Gereffi (1999), Palit (2008), and Barrientos (2007).

Producer driven chains are found in knowledge and technology intensive industries while buyer driven chains are typical to labor intensive industries. Powerful buyers or producers determine every link in the chain - from production of inputs to the sale of final products - which can reach all over the world (Gereffi, 1994). The main segments of a commodity chain can be thus outlined as raw material supply, production, exporting and marketing. A crucial feature of this commodity chain is that each of the segments encompasses a variety of differences in terms of the geographical locus of operations, the forms of the labor force, the technology used and the scale and type of the production unit.

The scenario has changed dramatically around the world due to international trade. Developing countries, once mostly providers of raw materials and new markets for Western manufactures, instead became manufacturing production nodes within what today are known as 'global commodity chains' (Gereffi and Korzeniewicz, 1994). These are networks of production processes resulting in a specific finished commodity which cut across different countries or regions of the world. International trade has allowed nations to specialize between industry and other sectors, between different branches of manufacturing and increasingly even between different stages of production within a single industry. The relatively new aspect that makes globalization different, from earlier stages in the international division of labor, is the ability of producers to slice up the value chain. That is, breaking up of the production process into many geographically separated steps (Krugman et al, 1995). In the global manufacturing system of today, production of a single good commonly spans several countries, with each nation performing tasks in which each has a cost advantage. This is true for traditional manufactures, such as foot wear and garments as well as for modern products like automobiles and computers (Gereffi, 1989).

Global value chain is a framework to understand how the world really works. Its core is a nexus of interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed (Coe, Dicken and Hess, 2008). Hence the approach is rooted in the real world of

production and exchange. They are used for the simple reason that they help focus attention on the right questions and provide practical answers to them. Value chain analysis is well suited to understanding how poor people in rural areas of developing countries can engage, or improve their terms of engagement with, domestic, regional or international trade. Even if the initial focus of a value chain development exercise is a single producer group or firm, the same logic can be applied to a cluster of firms, a region or a whole country (Mitchell et al, 2009).

Value chain analysis is particularly useful for new producers - including poor producers and poor countries - who are trying to enter global markets in a manner which would provide for sustainable income growth. It is also useful as an analytical tool in understanding the policy environment which provides for the efficient allocation of resources within the domestic economy, notwithstanding its primary use thus far as an analytic tool for understanding the way in which firms and countries participate in the global economy (Morris and Kaplinsky, 2000). They identify three important reasons as to why value chain analysis is important in today's globalised world. With the growing division of labour and the global dispersion of the production of components, systemic competitiveness has become increasingly important; efficiency in production is only a necessary condition for successfully penetrating global markets and entry into global markets which allows for sustained income growth - that is, making the best of globalization - requires an understanding of dynamic factors within the whole value chain. To understand and analyze the implications of this globalization of production for specific countries, like India, it is useful to utilize the concept of commodity chains.

Along the years we observe a transformation of value chains from producer-driven to buyer-led ones (Barrientos, 2007). One of the important highlights of value chains is their ability to upgrade. This is a movement up the chain from mere assembling activities into that of value-added activities which include product designing and branding. This movement can be captured only through the value chain analysis as we had described earlier. We examine this process in detail in the next section.

4.2 Upgrading in the Global Value Chains

The East Asian Newly Industrialized Countries (NIC) are generally taken as the archetype for industrial upgrading among developing countries (Gereffi, 2002). This was a rapid transformation from the assembly to full package production. Industrial upgrading is enhanced as countries move along this trajectory. From the assembling activities East Asian countries became full package suppliers (supplying products according to the design specified by the buyer). This is called the Original Equipment Manufacture (OEM). Designing and distributing its own branded products is the high end of the apparel value chain which the NIC's are now pioneering and is called the Original Brand Manufacture (OBM). The key to success in East Asia's buyer-driven chains was to move from the mere assembly of imported inputs (traditionally associated with export processing zones) to a more domestically integrated and higher value-added form of exporting known alternatively as full-package supply (Gereffi, 2002). A 'traditional' upgrading sequence had thus emerged for these countries; that of process upgrading moving into product upgrading and on into functional and inter-chain upgrading.

Functional upgrading refers to changing the mix of functions performed by actors in the value chain - increasing (upgrading) or reducing (downgrading) the number of activities performed by individuals and firms. Process upgrading involves improving value chain efficiency by increasing output volumes or reducing costs for a unit of output. Product upgrading has become increasingly important as the richer economies have become more quality conscious and as standards have risen. Process and product upgrading are closely related because improving product quality often involves improvements to the production process. Inter-chain upgrading is the use of skills and experience developed in one value chain to productively engage with another - usually more profitable - value chain.

Comparative advantage in the developing world is changing from the traditional base of primary resources and cheap unskilled labor to manufactured products and services incorporating higher skills and technological inputs (Lall, 2000).

Spreading of the production systems opens up advantages for the developing countries to integrate into the global economy. This is done through upgrading the production activities and industrial capabilities and moving up the value chain. The above option has to be exercised if countries are not to fall into "low roads" where competition is met by lowering wages and disregarding labor and environmental standards.

South East Asian countries successfully followed in the foot steps of East Asian economies when there was relocation in the labor intensive operations from the 'Newly Industrialized Countries' during the 1980's[2]. This movement has now spread to China and other South Asian countries. This is referred to as the 'triangle manufacturing' in which the NIC's offshore their orders from the over-seas buyer into low wage countries. These countries in turn export it to the over-seas buyer and the triangle becomes complete (Gereffi, 1999).

If the industries can enhance the value content of their activities and move up the value chains, there are often better prospects for the economy. This depends on their ability to move up, that is to learn, upgrade and acquire new sources of comparative advantage (Palit, 2008). The extent to which local firms can upgrade depends on the strategies of the global buyers, policies of the home country and also on the intrinsic characters of each firm. Gereffi (1999) gives the simplest neoclassical explanation for this. The most labor-intensive segments of the apparel commodity chain will be located in countries with the lowest wages. Both push and pull factors influence relocation decisions. The push factors in developed countries include relatively high labor costs, unionization, and strict environmental standards, especially for textile firms. The pull factors in many developing nations include substantial reserves of low-wage labor, weak or nonexistent unions, lax environmental standards, bureaucratic coordination, financial incentives, infrastructure, and political stability. Balakrishnan and Sayeed (2002) argued that though the pull factors exist, it is the push factors that dominate in developing countries.

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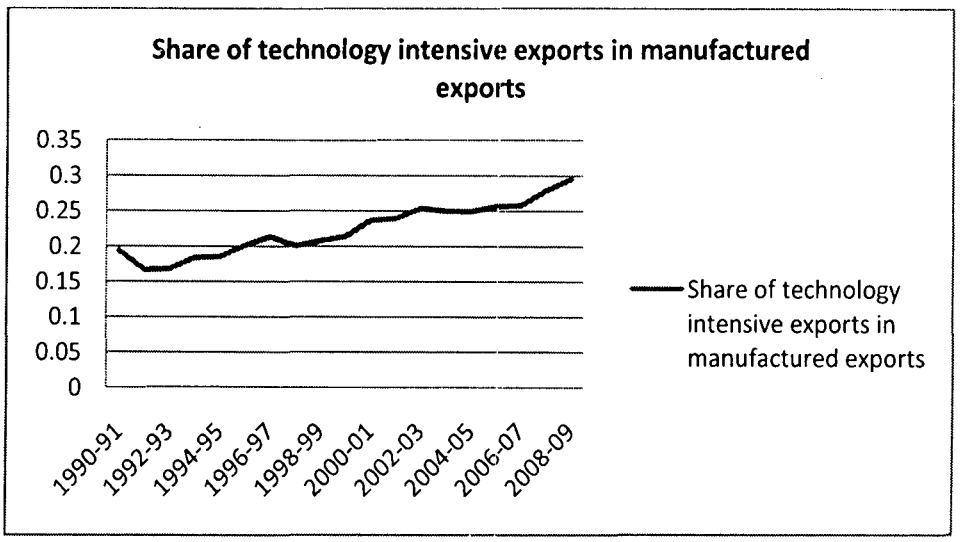
[2] For detailed discussions refer Tejani and Milberg (2010)

Inorder to examine the impact of upgrading on women workers we proceed in the following manner. First we analyze the value addition in the Indian manufacturing industries and the possibilities of upgrading them to draw a general picture. Second we provide case studies of two manufacturing industries for capturing the upgrading within the industries and then observe the impact of upgrading on female employment.

The maturity or sophistication of a country's industrial structure may be measured by the complexity of the products it exports. We examine the share of high and medium technology exports to comment on India's industrial maturity. We find that the share of high and medium technology exports is showing an increasing trend.

Figure 4.1: Share of Medium and High technology Exports in Total Exports

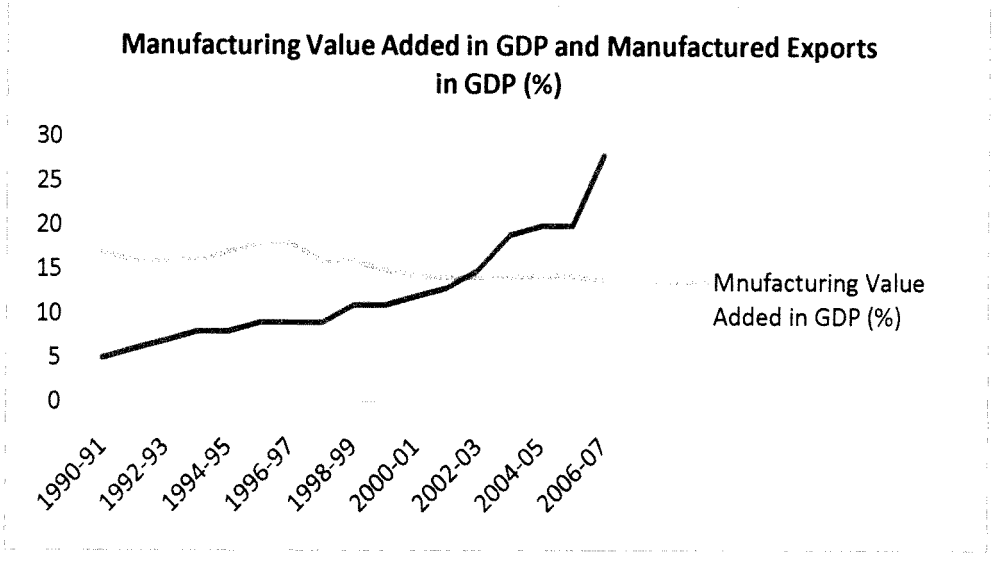


Source: Data from WITS

The manufacturing sector experiences growth with upgradation from the low value added to high value added segments. This gets reflected in the economy. The sign of successful industrialization is an increase in the share of manufacturing value added in GDP. Even when the manufactured exports increase, if their share in the manufacturing value added is decreasing, it means that the manufacturing sector is losing out in the process. This is because the value added by the manufactured exports in GDP is low. We hence proceed to examine the share of manufacturing value added in GDP and the share of manufactured exports in GDP.

The manufacturing value added in GDP by the manufacturing sector decreases across years while the percentage of manufactured exports increases (Figure 4.2). This implies that the growth of the manufacturing sector has remained sluggish over the years. Although we see an increase in the share of technology intensive sectors, the value added in the GDP has declined over the years. Indian economy still has to go a long way to upgrade itself from low value added to high value manufacturing.

Figure 4.2: Share of Manufacturing Value added in GDP and Share of Manufactured Exports in GDP



Source: World Development Indicators, World Bank

We also look into the Index of Industrial Production (IIP) of the industries to complete the picture of Industrial sector. IIP denotes the total production activity that takes place in the country during a particular period as compared to a reference period. It helps us to understand the general level of industrial activity in the economy. IIP conveys the status of production in the industrial sector in a given period of time, in comparison with a fixed reference point. The IIP figures are generally seen as an important but short-term indicator of whether industrial activity in a country has risen or dipped, till more detailed studies or surveys are available. We hence look into the Index of Industrial Production of the two digit industries in Table 4.1 to understand the dynamics of the industrial activity in India.

Table 4.1: Index of Industrial Production

Industries	2000	2003	2004	2005	2006	2007	2008
Food	100	123	127	135	147	161	162
Tobacco	100	66	73	101	114	116	116
Textile	100	104	114	123	136	143	144
Garment	100	93	96	72	85	100	118
Leather	100	98	105	101	101	112	104
Wood	100	76	72	68	87	123	111
Paper	100	127	141	139	152	156	159
Printing	100	113	124	123	130	136	141
Petroleum	100	115	132	143	158	175	183
Chemical	100	149	144	157	180	199	189
Rubber	100	110	112	124	140	148	150
Non- Metallic	100	124	131	152	186	209	217
Metals	100	93	96	95	106	99	96
Metal Pro	100	112	126	140	161	176	191
Machinery	100	217	276	291	290	338	240
Computing	100	157	198	221	263	307	353
Electrical Machinery	100	68	84	104	110	96	106
Radio, TV	100	122	134	168	182	226	229
Medical instruments	100	151	160	170	197	218	218
Motor vehicle	100	138	142	167	191	187	195

Source: International Yearbook of Industrial Statistics, UNIDO (Various years)

We see an increase in the industrial activities in all the industries compared to the base year 2000. While the labor intensive low technology industries are relatively sluggish in their growth, the high technology industries register high levels of industrial activity especially manufacture of electrical machinery, manufacture of accounting and computing machinery, medical precision, optical instruments, watches and clocks. Wearing apparel, textiles, wood and wood products have increased but marginally. Fabricated metal products have infact shown a negative industrial activity.

This broad picture of the industrial sector suggests that, the manufacturing value added in GDP has remained stagnant over the years. Manufacturing has remained sluggish although the high and medium tech exports are rising. As we had discussed in the earlier chapter we need to examine the upgradation in the industries. The shift in the value chains can only be captured through more detailed analysis. In this chapter, we focus on the apparel chains and leather and footwear industry in order to further describe the situation. The selection of apparel commodity chains is justified on multiple grounds in the literature (Gereffi, 1999). It is one of the oldest and largest export industries and is the

starter industry for export oriented industrialization in many countries. Apparel industry has a buyer-driven commodity chain and is associated with industrial upgrading. Foot wear industry is also a typical example for buyer-driven commodity chain as its operations are labor intensive and the value added rests upon designing and marketing. Majority of the employees in these sectors are women. Thus these two industries are useful for our purpose - to understand the scope for female employment in the context of movement up the value chain.

For a critical understanding of the value chains and upgrading conducted field work in two firms in the footwear sectors and interviewed managers in two major firms in the garment sectors. We substantiate secondary data analysis with our own observations during field visit and with the information from the interviews with the employees and managers of the firms.

4.3 Textile and Clothing Industry

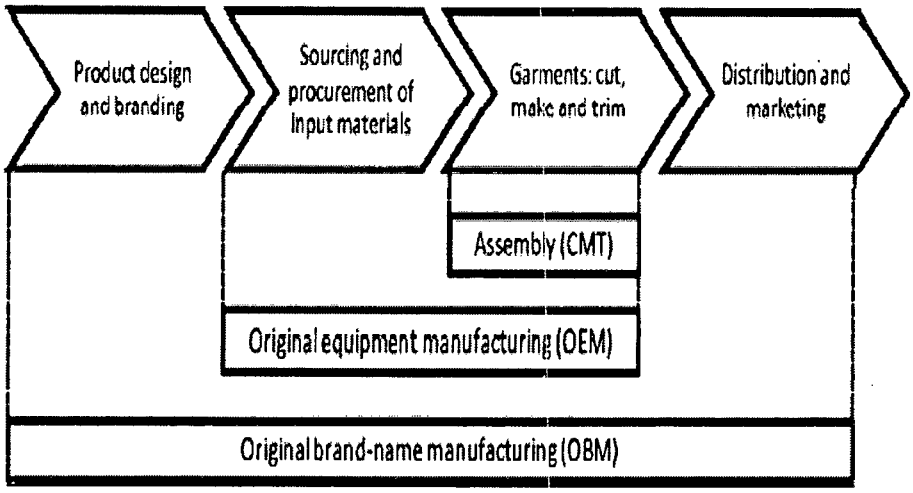
The textiles and clothing industry occupies a very important place in the Indian economy (Bedi, 2009). Apart from providing one of the basic necessities of life, the textiles industry also plays a pivotal role through its contribution to industrial output, employment generation, and the export earnings of the country. Currently, it contributes about 14 percent to industrial production, 4 percent to the GDP, and 17 percent to the country's export earnings (Government of India, 2009-10). It provides direct employment to over 35 million people, which includes a substantial number of women. The Textiles sector is the second largest provider of employment after agriculture. In fact it is the largest source of industrial employment in India.

The textiles and clothing sector is an extremely important source of employment for women in developing countries. It is also a sector in which developing countries have a clear comparative advantage and potential to benefit from growing trade. The Indian apparel industry had comparative advantages in lower labour costs, production differentiation and specialization, flexible manufacturing, and marketing.

Global trade in textiles and apparels has grown multi folds during the past decades. Two trends in the apparel global value chains are worth noting. There have been sequential relocations of apparel production from the USA and Western Europe to Japan, the Asian newly industrialized economies and then to developing nations in South East and Southern Asia, including China and India. Each new tier of entrants had significantly lower wage rates than its predecessor (Kilduff and Chi, 2006). Second, there has been a trend among apparel suppliers in developing countries to upgrade from providing basic assembly to offering more flexible and efficient services, such as full-package production and lean or agile manufacturing (Gereffi, 2001). The globalization of apparel production was driven by many factors but especially by two, i.e. labor costs and quota system that were put in place by the Multi -fibre arrangement in 1974 which recently phased out. The enormous differential in labor costs of apparel production between countries has played a significant role in driving the global apparel production system. The labor intensity of this industry has been the main factor leading to the relocation of the labor intensive segments of the apparel value chain to countries offering a large supply of low cost female labor. The development progress of the apparel industry in India has been much slower compared to the Asian competitors either be it in value addition or low wages.

Countries in their initial stages of integration into the global chains start from the assembling process. These are the labor intensive functions of low knowledge intensity. They play no role in the product design, sourcing decisions, distribution arrangements and marketing. Then there occurs a transformation into Original Equipment Manufacturing (OEM) and to Original Brand Manufacturing (OBM). We use the following figure to depict the production-distribution flow and the functional processes in the global garment value chains.

Figure 4.3: Production-distribution flow and the functional processes in garment Global Value Chains



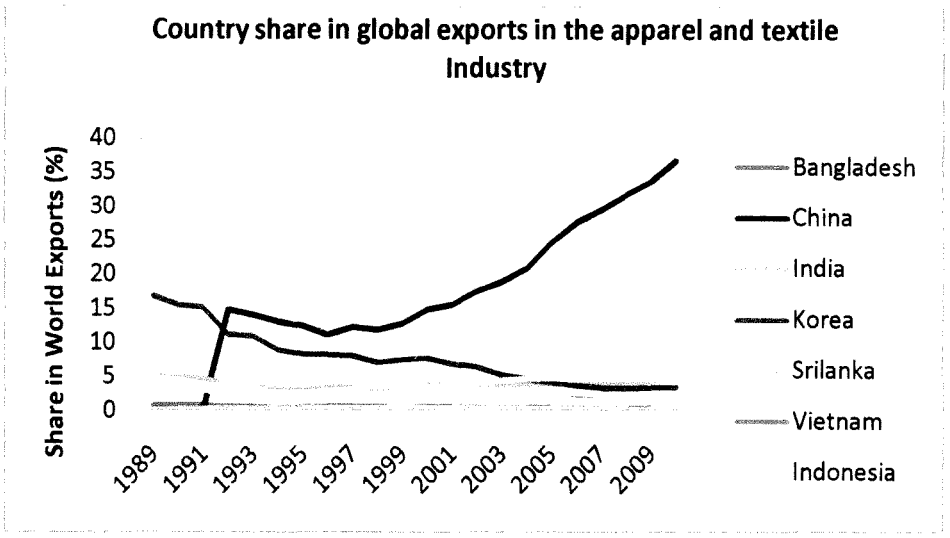
Source: Goto, 2011

Throughout the late 1960s, 1970s and early 1980s, the Indian government implemented a variety of regulatory mechanisms to focus the industry on the domestic market and control the size, location, scale, growth and expansion of apparel firms. Based on the country's small scale unit (SSI) policy, the apparel sector in India has been dominated by small establishments. The small units had lower production costs, used low levels of technology, and produced mostly low value added goods which were not competitive globally. The results of these policies were severe: highly fragmented industry structure, inadequate technology adoption, inability to employ economies of scale principle and slow international integration. However, with the government's deregulation of the apparel industry since 1985, these drawbacks have been increasingly addressed and the industry has seen a fast growth along with impressive export expansions (Tewari, 2008).

The phasing out of MFA is considered to have a significant impact on the textile and garment industries in India. It raises opportunities as well as potential threats. The dismantling of quotas opens up doors for vast opportunities for the Indian textile industry. The expansion of these labour intensive sectors will also have positive effects on the employment scenarios. But the Asian economies are

involved in tough competition with each other to increase exports, which exerts pressure on wages, terms of employment, technology and form of production in the apparel and textile sectors (Atthil, 2007). Hence there is a fear of loss of assured markets with the dismantling of quotas. We plot the country share in global exports in the textile industry with the help of Figure 4.4.

Figure 4.4: Share of major Asian countries in global exports in the apparel and textile industry



Source: Data from WITS

The exports of China have grown manifold from 1999-00 onwards while that of Korea has decreased. The shares of other major players in the textile manufacturing in the South and South East Asia have remained almost stagnant through the years.

We examine the Foreign Direct Investment and the Foreign Technology Cases approved by the Government of India in textiles in the table 4.2 as the role of FDI in the upgradation of technology, skills and managerial capabilities is well accepted (Government of India, 2010-11). The data shows a drastic decline in the number of FDI cases and that of technical cases approved by the Government of India from 2000-01. Hence the amount of FDI has also decreased over the years. This leads us to the fact that there exists a crisis in one of the most export oriented sectors in the Indian economy, a situation to be quite worried about. We now also look into the percentage of value added in manufacturing by textiles and clothing in the Indian economy.

Table 4.2: Foreign Direct Investment and Foreign Technology Cases approved by the Government of India in Textiles

Year (Jan-Dec)	Total Number of Cases	No. of FDI approved	No. of Technical cases approved	Amount of FDI approved (Rs)
1991 (Aug-Dec)	11	4	7	0.141
1992	42	29	13	0.963
1993	62	41	21	0.788
1994	81	63	18	3.432
1995	94	78	16	4.002
1996	74	65	9	3.854
1997	111	96	15	5.953
1998	69	54	15	2.474
1999	77	67	10	3.222
2000	58	47	11	2.321
2001	36	22	14	0.291
2002	34	28	6	0.657
2003	47	36	11	0.379
2004	23	20	3	1.098
2005	10	9	1	2.972
2006	7	7	0	0.647
2007	1	1	0	0.005
2008	4	4	0	0.209
2009	2	2	0	0.284
2010	2	2	0	0.228
2011	2	2	0	0.191
Grand Total	847	677	170	34.11

Source: Department of Industrial Policy & Promotion, Ministry of Commerce and Industry, Govt. of India

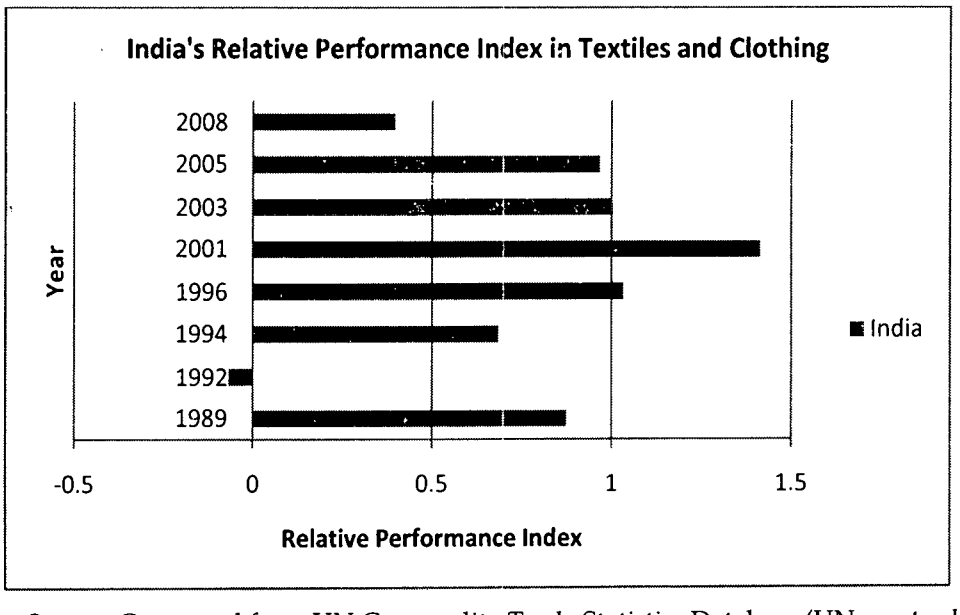
The Figure 4.5 indicates that the percentage of manufacturing value added by textiles and clothing is clearly on the down trend from the initial years of globalization to its second decade. The decrease was as high as from 15 percent to 8 percent. This is nothing but a discouraging picture of the Indian economy for its prominent share on employment, value added and foreign exchange earnings depend on the textile and apparel industry.

Figure 4.5: Textile and Clothing (% of Value added in Manufacturing) in India

Source: World Development Indicators, World Bank, Various Years

We now analyze the performance of India with the help of the Relative Performance Index. We have constructed a relative performance index (RPI), based on Goto (2011) which compares a country's annual growth rate with that of the world growth rate (country growth rate/world growth rate) (see Figure 4.6). If the index is greater than one, then it is attracting more orders relative to others.

Figure 4.6: Relative Performance Index of India



Source: Computed from UN Commodity Trade Statistics Database (UN comtrade)

The relative performance indicator of India compared with the world is depicted in Figure 4.6. After the initial years of liberalization, we observe that India's performance was on an increasing trajectory. The relative performance indicator of India was greater than one in 2001 denoting that India's performance was better than that of the world. But the downtrend began shortly afterwards. The performance indicator decreased in the second decade of globalization. Even after the much awaited phase out of MFA, the indicator showed no signs of improvement.

We also give the relative performance indicators of some of the other prominent South Asian and South East Asian competitors in the textile and garment industry to get a comparative perspective. The textile and apparel industry has undergone several migrations (Gereffi, 2002). The first one was from North America and Western Europe to Japan in the 1950's and 1960's. Secondly it was from Japan to the NIE's in 1970's and 1980's. Recently there has been a third migration to a number of developing countries from the South and South East Asia. Each new tier of entrants into the production hierarchy had significantly lower wages than their predecessors.

We here summarize what emerges from the Asian picture (Table 4.3). Bangladesh along with Vietnam has performed quite well in the last two decades when compared to the world's relative performance indicator. These two countries have managed to attract more orders than others. The performance of India was rather poor (Figure 4.6) in the corresponding years. The government of India had devised various strategies to overcome the sluggishness in the textile and clothing markets which are discussed in the next section.

Table 4.3 Relative Performance Indices of select Countries

Year	Bangladesh	China	Korea	Srilanka	Vietnam	Indonesia	Philippines	Thailand	Turkey	World
1989	1.86	na	0.38	na	na	3.32	Na	1.06	0.55	1.00
1992	1.21	0.39	0.76	1.81	na	-0.50	Na	0.44	0.08	1.00
1994	1.75	0.72	0.55	3.88	na	0.29	Na	0.92	0.97	1.00
1996	4.37	3.19	0.45	-2.29	na	-4.85	3.29	1.16	3.60	1.00
2001	2.09	3.61	-0.34	1.17	5.74	-2.50	1.13	-0.06	2.76	1.00
2003	2.77	1.94	-0.02	-0.40	0.39	0.40	0.17	1.47	1.44	1.00
2005	4.33	2.28	-0.37	1.27	4.54	0.75	2.31	0.49	0.52	1.00
2008	na	0.63	0.74	-0.56	6.79	0.45	0.74	0.56	1.08	1.00

Source: Computed from UN Commodity Trade Statistics Database (UN comtrade)

Note: na - not available

Upgradation Strategies

Global export manufacturing is switching from labour-intensive, female-dominated manufacturing to highly-skilled production and services. Export manufacturing competitiveness is increasingly defined by skill, advanced technology, and high quality output (Lall, 2000). The developing countries utilize new strategies to "climb the ladder of industrial complexity" (Gereffi, 2002). These include government policies and organizational initiatives to increase productivity, new relations with foreign and local capital and participation in regional economic blocs (Gereffi, 2002). India has also followed the above strategies in devising its goals of upgradation.

In case studies in the apparel sector in the Caribbean basin, female employees lost their jobs as changes were happening quickly and they were not well equipped to face the changing demands (Jayasinghe, 2001). Women were employed to provide low cost labor and performed simple tasks. They experienced difficulty in meeting the increasing skill requirements and the rapid changes in the world markets. We also note that women workers were negatively affected in Japan and the NIE's and China when the countries switched to value-added goods (World Bank, 2012).

India is the second largest growing economy among the emerging nations. The opportunities are immense in an economy with a growing middle class who possess disposable incomes and increased standard of living. This should in turn materialize in the form of growing trade and foreign investments. India's exports of textiles and apparel compete mainly on price which is not sustainable in the long run (Bedi, 2009).

The government of India has promoted a number of export promotion policies for the Textile sector to enhance the productivity and competitiveness of the textile and apparel industry. These measures include plans to (1) gradually remove industry structural anomalies, (2) enhance the level of technology, (3) improve the quality and productivity of cotton, (4) reduce textile tariffs, (5) eliminate market access barriers, and (6) provide incentives to potential investors

and exporters to promote trade and investment in the industry. (Refer Appendix 4.1 for Government of India's policies in detail).

The more important among them were the Technology Upgradation Fund Scheme (TUFS) was introduced on April 1, 1999. The scheme aimed at modernization of the textile sector through technology upgradation, cost effectiveness, quality production, efficiency and global competitiveness. Technical textiles are the new entrants in the textile industry which contributes to high value addition. India lags much behind its competitors in the production of technical textiles. The global textile industry is fast trying to move towards high value added products (Hirway, 2006). In recent years, a trend towards consolidation and integration with the value chain upstream along with modernization in segments like garments has been witnessed. Textiles are being restructured with a view of attaining global competitiveness. De-reservation of garment sector, introduction of TUFS, lowering of customs duties and MFA (Multifibre Arrangement) phase out are the major policy changes responsible for bringing these changes in the environment.

Our analysis of the female shares of employment in the textiles and apparel manufacture showed that female participation increased in spinning, weaving and finishing of textiles, there is a decrease in the manufacture of other textiles and manufacture of knitted and crocheted fabrics and articles in the organized sector. The manufacture of wearing apparel showed a decrease in female share of employment after 2000-01. The unorganized sector shows an increase in the female shares of employment for both textiles and wearing apparel, where the quality of the employment is very poor.

It is clear that the better performers in the textile industry are those who have moved up to value added activities. When the low skill, low wage activities give way to high value added and technologically intensive, there are chances of withdrawal of the women workforce who were employed in the lower wage sector. Hence the same globalization which benefitted them in the first half may take a reversal in the second half. Thus the hypothesis is that women's share in the high value added segments are fast decreasing as they are perceived not to

possess the essential skills. We hence proceed to the case studies of two established textile giants in the country who have clearly made their mark in the branded clothing. This would help us to understand how changes in reorganization of production and value added production affects the women workforce in these industries.

4.3.1 Bombay Rayon Fashion Limited (BRFL)

BRFL is a vertically integrated textile company which manufactures a wide range of garments and fabrics. Presently they are the largest shirt manufacturers in India. With fabric manufacturing facilities of 100 million meters per annum, garment manufacturing facilities of 60 million pieces per annum, being expanded to 90 million pieces per annum and a strong employee base of around 38,000; BRFL is today one of the most sought after brands in the Indian as well as International fashion markets (www.bombayrayo.com).

With its modest beginnings in 1985 in assembly line activities, BRFL now caters to various international brands like C&K, Liz Claiborne, Wrangler, Guess and Kiabi, Tom Tailor, DKNY, Next and Burton's etc making it an Original Equipment Manufacturer. (See Appendix 4.2 for the milestones achieved by BRFL). The group claims that they are able to attract such well known names in fashion garments based on the group's ability to offer fabric collections based on seasonal fashion trends and color choices, expertise in design of fabrics as specified by the customers, garment designs and samples meeting the stringent quality required by discerning customers in Europe and USA. The branded marketers are in turn instrumental for the companies in providing knowledge that helps them in upgrading their position in the apparel chain.

The company has 4 garment manufacturing units in Bengalooru with 2,600 stitching machines and 4 fabric weaving looms and machines in Nhavi Mumbai, Silvassa, Peenya and Bhiwandi and has a total of 186 machines. The company is also about to set up integrated facilities of yarn dyeing, weaving, processing and garmenting with an investment of Rs 247 crore at the Apparel Park in Bengalooru. The production at the Park will include manufacturing of 4,000 kg of yarn dyeing, weaving 104 looms, processing of 93,999 metres and manufacturing

48,000 pieces of garments every day (http://apparelresources.com/new/next.asp?cod=F&msg=8592).

Female employees constitute more than ninety percent of the work force in the manufacturing of textiles and garments in the Bombay Rayons Fashion Limited. The machine operators are predominantly males. The manager claims that even with the new machinery involved garments and textile industry remains a highly labor intensive sector. There are different types of machinery used in the garment manufacturing process such as cloth finishing machine, knitting machines, sewing machines etc. Some are used to knit and weave; sew or cut patterns and cloth; some press or steam. The stitching and pressing jobs are undertaken by women, but the operation of the larger machinery remains in the hands of male workers.

4.3.2 Madura Garments

Madura Fashion and Lifestyle is a leader in the branded garment segment in India. It has revolutionized the Indian apparel and lifestyle sector. It is defined by its brands Louis Philippe, Van Heusen, Allen Solly, Peter England and The Collective. Madura Fashion and Lifestyle is the garments business of Aditya Birla Nuvo Group. Louis Philippe was the first genuinely international garment label introduced in the Indian market in 1989. It has eight factories, a warehouse, over 120 exclusive franchisee showrooms, 15 agents, 22 distributors and 3,500 retail outlets spread across the country

They employ 10,000 people but began with a very modest group of 200-300 employees. It was a gradual transition from assembly line activities to original brand manufacturing. The machines that are used in the process are the cutting machines, sewing machines, fusing machines and spreading machines. The group bases its design on research and follows a scientific approach. The designers travel all around and in India and study international trends and collect data from stores. They contemporize the Indian outfits and refer to international fashion trends that work for Indian consumers. Also, the brands do the research on what the Indian consumers want according to Ajay Ramachandran, Brand Head of Van Heusen.

Discussions from the Apparel case studies

Here we discuss the effects of upgrading on female employment from the two above mentioned case studies. These are the apparel giants on the path of upgradation in the Indian market and hence it is informative to examine the effect of upgradation strategies on women employees.

Direct Employment and Subcontracting: more than 90 percent of the employees in the apparel firms were women. The managers of both the companies informed us that the employers had their own factories and did not resort to sub-contracting. However they could not provide us with exact figures of workers in the factories as they were spread over different states. This was contrary to what we found in the macro picture where female share in the textile and apparel sector increased in the unorganized sector. We also found that the women employed in the organized apparel industry declined from 2000-01.

Downsizing: The managers assured us that the high value added to the goods is no threat for the female employees even when they are not employed in operating machines. Thus it clearly gives the signal that women employed in the lower tasks fears no job loss even when upgrading takes place in the value chains. This goes along with the argument of Elson and Pearson (1981), who finds that the reason behind the high labor intensity in the developing countries is that the relocated tasks are assembly level activities which cannot be automated further. This was confirmed in our interviews with the managers. Women did the sewing and stitching jobs which could not be automated further. This substantiated the presence of majority of female workers in the textile and the garment industries, as lower costs would be the then priority.

Hierarchy of Work: While there appears no potential threat for women who engage in labour intensive activities at the lower end of the textile and apparel sector, the chances of them moving up the skill hierarchy were bleak as employers evinced a strong preference for men because they were able to maintain flexible working hours. This shows a clear gendered job hierarchy. One of the managers pointed out that they had no issues in employing women

workers in operating machines, but that they would prefer male employees in case of over time.

Flexibility: The major reason that the managers cite for the employment of the male workers is work flexibility. In those cases when the work load is more, overtime can be extended to the male employee and this can go up to 2 am. This flexibility will not be possible with the female employees as the maximum time the employers are willing to keep them is still 8 pm. The manager specifically mentioned during the interview that they did not consider female employees in operating machines as they could not stay overnight. It has been projected that the requirement of flexibility in working hours makes male employees preferable for employers (Chhachhi, 1999). Unni and Bali (2002), points out in their study of the garment workers in Ahmedabad, that men had a distinct advantage of doing overtime in case of need, while women could not do so. This becomes more pertinent as there is no longer a ban on night shift by women workers. The manager also mentioned that even when there are skilled women available for job, their preference would be for male workers as they could stay overnight in cases of excess demand.

4.4 Leather and Footwear Industry

Leather industry in India, occupies a place of prominence in the economy, due to its massive potential for employment, growth and exports. The sector is spread across the formal as well as informal sectors and produces a comprehensive range of products from raw hides to garments, shoes etc. The country is amongst the top ten export earners in the economy and employs 2.5 million people of whom 30% are women (Government of India, 2007-08). It is the tenth largest among the manufacturing sector industries in India.

Globally in the foot wear industry wage costs are lowest in Asian countries. India has specific advantages in low production costs and value additive designs which attract global buyers to India. Low production cost, abundant availability of raw material, ever-evolving retail ecosystem, buying patterns and a huge consumption market are certain basic features that set apart the Indian footwear market. They have identified India as their thrust market. The export of leather

and leather products from India has undergone a structural change during the last two decades. India was traditionally an exporter of raw hides and skins and semi-processed leather. However, in the last two decades the share of leather footwear, leather garments, leather goods, footwear components and several other articles of leather in the total exports has increased substantially as a result of the Government's policy to encourage exports of value added leather products (Government of India, 2010-11). See Appendix 4.3 for greater details on the Government of India's policies.

We take up two firms which were the pioneers in Poly Urethane Chappals (PU chappals)[3] and employ advanced technology in their manufacturing process to study the impact of technological advance on women employees. (See Appendix 4.4 for details on the manufacturing process of PU chappals).

4.4.1 Marquis shoes private limited

Marquis Shoes private limited is located in Kozhikode, Kerala. It is registered under the Companies Act, 1956 on July 1, 2004. The Marquis shoes specialize in the production of Poly Urethane chappals along with Hawai chappals. The Marquis Shoes private limited caters for the domestic, interstate and foreign markets (Dubai and Baharin). Marquis shoes private limited is well equipped to face the competition of the modern world. They have a research wing which continuously traces the market trends and adapts accordingly. The factory was completely mechanized.

There were about 50 workers at the time we visited the factory. It was surprising to find that there was not a female employee except one in the checking section. On inquiry about the absence of female employees in the company, it was noted that the entire machinery was operated by male employees. All the workers including the manager, the machine operators and the workers in the factory were men. The interviews with the employers revealed that the prime reason male workers were employed was that they could work overtime which they

[3] The emergence of PVC chappals in the market was a response to the needs of middle and low income markets. Their preference was low cost, durable, wear and tear resistant footwear which can be used in all climatic conditions.

believed would not be feasible for females. The regular work hours of the employees were from 8am in the morning to 6pm with breaks for lunch and tea. During peak season, this could be extended all the way to midnight. The employers found it beneficial to employ male workers who could cater to the changing needs. However the manager informed us that the stitching units, which sewed the upper soles of the foot wear, employed both men and women employees and they had a unit which had only women employees.

4.4.2 VKC Group of Companies

VKC group of companies are the leading footwear manufacture especially in southern region of India. The group established on (August, 17) 1984 with a nominal capital and few employees. The company had achieved a prominent position in the footwear market of India. The main markets, which are concentrated by the company, are Kerala, Tamilnadu and Karnataka with their headquarters in Calicut. The good quality and variety in models of VKC products helped the companies to face market competition. The company has been able to maintain the quality of the products by adopting foreign technologies. They also induct new people with technical, practical and commercial knowledge into the company to meet the challenges of global demand. Annual group turnover stands at Rs.600 million with more than 1000 employees are working in these units apart from the workers in the factories. The group is now looking for further avenues in the field of footwear to stretch their hands (See Appendix 4.4 for mile stones achieved by VKC group of companies which indicates their moving up the value chain).

The factories are located in Kerala, Andhra Pradesh and Tamil Nadu. The factories operating in Tamil Nadu, Karnataka and Andhra Pradesh come under Division 1 of the company and the factories working in Kerala mostly comes under Division 2. The factories employ both men and women workers apart from the management staff. The factories operate on a shift basis. The first shift starts from 8am to 8pm and the next shift from 8pm to 8am. The number of workers in the factory is about 5000 consisting of male and female, of which majority were male workers.

Discussions based on the foot wear case studies

Direct Employment and Sub-contracting: The employers in both the companies in the foot wear sector resorted to subcontracting apart from the direct employees. The factories were completely automated and consisted of only male workers and women limited to the checking and packing section. These were the direct employees. The upper of the chappals were stitched by sub-contracted laborers outside the factories. The employers informed us that they included both male and female workers and they had stitching units which had only female employees.

Downsizing: There was no downsizing of the workers in the foot wear sector. Infact, more workers were absorbed in the VKC footwear as it expanded.

Work Hierarchy: There existed a clear gender hierarchy of jobs. We found that only men workers were employed in the factories. The few women employed were in the checking and packing section. Women workers were employed in the stitching of the upper of the chappal, and these were sub-contracted work.

The skilled labor designated as the operation of the machines was handled by men. The manager and supervisors were all men. This clearly expressed the gendered nature of the work, which wouldn't expect a man to sit and pack (Jayasinghe, 2001). Increasing mechanization has replaced tasks which were previously performed by women. Even trimming machine was operated by a man and women performed works that had nothing to do with machines.

Most of the women employed in the factory were employed in the lower end jobs like checking, cutting and stitching. They are not employed in the mechanized section which is handled only by male workers. We further probed into the question as of why women employees were not found in the mechanized section. This again led us to employer's strong preference for male employees.

Flexibility: It was found that there was a strong preference for male workers as they could be employed in the night shift. While the lower end operations like checking and stiching took place only during the day hours, machines were

operated at day and during night. The male workforce catered to this needs of the employers. The typical work hours of women were from 8am to 5pm.

More importantly the changing labour environment in the state of location of the factory needs to be kept in mind while discussing this. Kerala is experiencing an influx of migrant workers. They settle in for lower wages and extended hours of work. Their working and boarding conditions are poor. Majority of the workers employed in the factory of our visit were migrant laborers.

4.5 Conclusion

The case studies in the Indian apparel and footwear firms present us with remarkable information. Women workers are preferred in the lower end tasks that cannot be automated further. We observe that these women have the minimal education and are paid very low wages (Refer Table 3.3). At present, workers employed in these sectors do not fear job loss even when upgradation takes place in the value chains. But lower wage costs in other countries are a potential threat to these women, as relocation happens in search of lowest costs. We also come across the problem of women getting stuck in the lower end jobs with no possibilities of them moving up. The automated sections are solely operated by men. This is due to the employer's strong preference of male workers for overnight works in operating machines when female workers can be employed at night. We conclude that the scope of women's employment remains contingent in the low tech industries. Our discussion on the determinants of the female employment in Chapter 3 substantiates this point. We found that women's employment is not responsive in the high and medium technology industries.

The Government of India, meeting a longstanding demand for gender parity in the workforce, has approved an amendment in The Factories Act 1948 to allow women employees to work in nightshifts by the Factories (amendment) bill introduced in 2005. The amendment suggests that nightshift for women shall be allowed only if the employer ensures safety, adequate safeguards in the factory as regards occupational safety and health, equal opportunity for women workers, adequate protection of their dignity, honor and transportation from the factory

premises to the nearest point of their residence are met (The Associated Chambers of Commerce and Industry of India). It becomes very much clear that the employers do not prefer to employ women during the night shifts through our case studies.

Flexibility is redefined here. The argument of 'flexibility' which gained work for women resulted in the loss of employment for them or even reduces the chances of getting employed. Women were the ideal workforce as they could be employed for lower wages and because they were docile in nature. With demands and times changing, the preference of the employers also changes. The flexibility is now in terms of working hours and the preference shifts. The skilled workforce is dominated by men and the operation of machines is handled by them and here they emerge as the preferred workforce. While mechanization remains a crucial factor behind many women losing jobs in the textile industry, we also find that work flexibility emerges as an important factor.

Appendix 4.1

Government of India's Policies for Textile and Apparel Industries

1. On April 1, 1999, the GOI implemented the Technology Upgradation Fund (TUF) to spur investment in new textile and apparel technologies. Under the 5-year $6 billion program, eligible firms can receive loans for upgrading their technology at interest rates that are 5 percentage points lower than the normal lending rates of specified financial institutions in India. According to GOI officials, this interest rate incentive is intended to bring the cost of capital in India closer to international costs. The scheme was intended to compensate for the global disadvantages faced by the Indian textiles and clothing industry in the field of power, transaction costs and additional costs borne by the industry due to poor infrastructure. The scheme was also intended to attain a higher level of infrastructure creation for modernization of textiles sector. The modified techno-financial parameters of the Scheme will infuse capital investment into the textiles sector, and help it capitalize on the vibrant and expanding global and domestic markets, through technology upgradation, cost effectiveness, quality production, efficiency and global competitiveness. It is estimated that this will ensure a growth rate of 16% in the sector. The modified structure of TUFS focuses on additional capacity building, better adoption of technology, and provides for a higher level of assistance to segments that have a larger potential for growth, like garmenting, technical textiles, and processing.

2. The GOI created a $16 million "cotton technology mission" to increase research on improving cotton productivity and quality.

3. To boost exports and encourage new industry investment, the GOI under the quota entitlement policy increased the share of quotas earmarked for units investing in new machinery and plants.

4. To promote modernization of Indian industry, the GOI set up the Export Promotion Capital Goods (EPCG) scheme, which permits a firm importing newer Second hand capital goods for production of articles for export to enter the capital goods at preferential tariffs, provided that the firm exports at least six

times the c.i.f. value of the imported capital goods within 6 years. Any textile firm planning to modernize its operations had to import at least $4.6millionworth of equipment to qualify for duty-free treatment under the EPCG scheme. In an effort to spur investment in the textile industry, on April 1, 1999, the GOI reduced the amount to $230,000 and eliminated preferential treatment for imports of secondhand equipment under the EPCG scheme.

5. The National Textile Policy was adopted in 2000 to enhance the competitiveness of the Indian textile and apparel industry.

6. As per the 12th five year plan the Integrated Skill Development Scheme aims to train over 2,675, 000 people within the next five years. This would cover all the sub sectors of the textile sector.

7. It has also given approval for 40 new textile parks within 3 years.

8. In June, 2009 'National Fibre Policy' was formulated with a view to achieve a growth rate of 7 to 8% for the textiles industry.

9. The 'Scheme for Integrated Textile Parks (SITP)' is being implemented to facilitate setting up of textile units with appropriate support infrastructure..

10. Apparel Park for Exports Scheme (APES) was launched with the objective of imparting a focused thrust to set up apparel units of international standards and to give a fillip to exports. It is a centrally sponsored scheme.

11. Development of infrastructure facilities at pre-dominantly textile/apparel sector areas is one of the thrust areas of National Textile Policy-2000. For attaining this objective, the Textiles Centre Infrastructure Development Scheme (TCIDS) was launched for upgrading infrastructure facilities at important textile centers.

Appendix 4.2

The company has attained a lot of milestones which we produce below.

- 1986 Bombay Rayon Group was established by Mr. Janardhan Agarwal. 1990 First fabric manufacturing facility came into existence in Maharashtra. 1998 Bombay Rayon group commenced export of fabrics.
- 2001 Garment division was launched.
- 2005 Bombay Rayon Groups business was consolidated into BRFL. The company made a successful IPO and is listed on all the stock exchanges in India. BRFL also acquired DPJ Clothing U.K., supplying to high street retailers in U.K.
- 2005 BRFL set up 7 garment manufacturing facilities in Bangalore with 7000 machines.

2007 BRFL acquired "Leela Scottish Lace" one of the largest garment manufacturing units set up in India, making BRFL one of the largest apparel groups in India.

- 2007 BRFL also acquired "LNJ Apparel" a 1000 machine specialized bottoms plant.
- 2007 BRFL marked the commencement of the mega USD 250 million textiles and garment project under a special MOU signed with the government of Maharashtra.
- 2008 BRFL acquired the iconic brand "Guru".

Source: http://www.bombayrayon.com/source/whoweare.html

Appendix 4.3

Measures taken by the Central Government for the Development of the Leather Sector

1. Policy Support Measures: Leather industry was identified as a "Thrust Sector" having significant export growth prospects and employment generation. Accordingly, special focus initiatives have been announced in the National Foreign Trade Policy 2004-09.

2. The Indian Leather Development Programme was initiated in the 10th Five Year Plan with an outlay of 400 crores. It consisted of two sub schemes

- Integrated Development of Leather Sector (IDLS) was notified on 3rd November 2005 and 174 applications for technology up-gradation/modernization of leather units involving total investment of Rs. 169.85 crore and Government of India's assistance of Rs. 38.20 crore was approved during the 10th Plan period and
- Infrastructure Strengthening of Leather Sector (ISLS) which was to provide infrastructure facilities and capacity building in the Leather sector and 12 sub-programmes under it.

3. Human Resource Development targeting the non-traditional workforce in the villages. The scheme would lay stress on skill development and technical development especially in cutting and stitching.

4. In order to improve the competitiveness of manufacturing in India and to increase its share in the economy as a means to provide larger employment opportunities, the National Manufacturing Competitiveness Council (NMCC) has identified leather and leather goods as one of the sub sectors having high potential for growth and employment.

Appendix 4.4

VKC Group of Companies

1. In 1984 the founder of the group Mr. V.K.C. Mammed Koya started a Hawai Sheet manufacturing unit with his two brothers. In 1986 VKC group launched the first product with its own brand name in the market viz. VKC Hawai 2. First RPVC (Reprocesses Poly Vinyl Chloride) footwear manufacturing unit was initiated in the Malabar Area of Kerala. The success of the first unit and the RPVC unit gave a signal to the business community and the vast potential was seen by the various industrialists. This resulted in a rapid change in the footwear industry itself. Within a few years the number of Rubber and RPVC unit grew to be more than 80 in this area.

3. In 1994 the group ventured the first unit in Kerala to manufacture footwear from virgin PVC.

4. In 2001 the group started the first Air Injected PVC DIP footwear manufacturing unit in the South India. In 2003 the group ventured the first Injected EVA manufacturing unit in South -Central India. In 2006 the group started backward integration to produce EVA compound for Injection and started the first EVA compounding plant in the South -Central India.

5. In 2007, the group started manufacturing of PU DIP footwear. Now, VKC is the number one producer of PU chappals in South India. They use GUSBI, an Italian technology machine for manufacturing.

Chapter 5

Conclusion

The main principles of India's new economic policy of privatization and export oriented growth were monetary management, budget tightening, exchange rate adjustment, sectoral reforms in fiscal, financial and trade policy, reforms related to agricultural sector, changing industrial policy and public enterprise, public administration, and labor market reform (Balakrishnan, 2012). In the era of globalization, it is argued that trade openness encourages the increased employment of women, particularly in export-oriented activities.

New employment in manufacturing often consisted of labor intensive assembly line jobs, and the initial gains in manufacturing employment were greatest in countries with abundant unskilled labour and a comparative advantage in producing basic manufactures. The shift in geographic location of production promoted female labor force participation and 'feminization' of employment in manufacturing in developing countries, particularly in Asia and Central America. Also, there has been significant debate over the nature and quality of employment that women have had access to under a globalized production regime. In this context, chapter three probed the links between gender and trade through analyses of the trends and patterns of female employment in the organized and unorganized manufacturing sector and estimation of the determinants of female intensity of employment. Recent literature provides evidence that the scenario of feminization may be reversing (Wood and Meyer, 2001, Mitter, 2000, Luthje, 2004). The changing dynamics in the global value chains gives this phenomenon an added importance. Hence, we explored the global value chain framework to understand the likely impact of technological upgradation on the female employment. Thus, chapter four explores the question of the sustainability of feminization within a global production regime that relies on shifting of the locations of production.

Summary and Findings

We observe a structural transformation in the Indian export sector from 1999-00. Low technology exports were decreasing and high technology exports were on the rise. As this could have a direct impact on the female employment, as women's labor is often associated with low cost, low technology and labor intensive manufacturing, we examined the trends and patterns of female employment in the organized and unorganized manufacturing sector in India. Our analysis showed that the Indian scenario is consistent with the global picture of shrinking employment in the organized sector. The female intensities of employment in the organized manufacturing sector declined broadly in a majority of industries from 2000-01 onwards, with the exceptions of the low technology industries and electronic manufacturing. Interestingly, in a scenario of shrinking employment in the organized sector we found that occupational segregation was also decreasing. In the unorganized sector, the trends of female employment in the Indian manufacturing sector are consistent with that of the developing countries where, female share of employment increased in the resource based and low technology industries. However, even in the unorganized sector the female shares of employment decreased in the medium and high technology industries.

The changing export structure prompted us to probe the determinants of female intensity of employment as women's work was preferred in the export oriented sectors. We found that while at the aggregate level export intensity was not a significant factor in determining the female intensity of employment, in the low technology industries export intensity was highly significant. In the case of high technology industries, however, export intensity was not significant. As there are reasons to believe that upgradation in the value chains are an important cause for defeminisation, and no existing variable could capture this in our study, we opted for value chain analysis with brief analyses of select cases from specific industries.

We found that the Indian manufacturing industries are losing out in the competition. The Manufacturing Value Added in GDP in India was decreasing

over the years, implying that low value added goods are manufactured. This happened even when the share of high-tech exports in the manufactured exports was rising. This supports the finding of increases in female employment in the low technology industries both in organized and unorganized manufacturing sector in our third chapter.

The Government of India has initiated policies in favor of upgradation of the industries in the manufacturing sector. The basic purpose of these policies is to shift the economy towards higher value added activities (Ghosh, 2012). In the wake of government policies aiming at enhancing competitiveness in the manufacturing industries in India, to better understand their likely impact, we thought it useful to review the growth trajectories of other countries and their effects on female employment. Notably, industrial restructuring in Japan, Republic of Korea, Hong Kong and Latin American countries led to a decrease in the share of women in manufacturing employment (World Bank, 2012).

A global value chain analysis suggests that the apparel and the foot wear sectors are in the process of upgradation with the incentives from the government. The cases we explored showed that there were no women employees in the mechanized parts of the factory. This is largely consistent with other case studies of these sectors that show a concentration of women in less mechanized activities. In the literature, the concentration of women in low skilled jobs has been understood in terms of the relatively lower access that they have to formal education and skills training than men. However, it is important to note that in our cases, employers (manager) expressed a strong preference for male workers, irrespective of skill.

The apparel chains we chose were the market giants in the Indian apparel industry known to follow upgradation strategies. Though the footwear firms were smaller firms, they too clearly followed upgradation strategies. We learnt that there had been no downsizing of female employment in the apparel sector and that women were the preferred workforce for the low skilled activities. But the machine operations and skilled activities were exclusively for the male workforce. There was also a strong underlying reason for the strong preference of

employers for male workers. They were not willing to employ women on night shifts despite the fact that working night shifts by women is now legally permitted under the Factories Act. The women employees were restricted to the checking and packing sections, which was done during the day shifts.

Prospects of Female Employment

The changing character of capitalist production has lead to the flexibilization of work. Women, in order to accommodate their reproductive responsibilities, often accept less stable forms of work performed under poor conditions. We need to understand this in the context of the transitions in the global value chains. The Indian manufacturing sector still largely caters to the labor intensive and low value added sections of GVC's. With the deepening integration of the developing countries into global markets, firms in these countries face increasing competitive pressure. New, low-cost producers are entering global markets, intensifying competition in markets for labour-intensive manufactures. The literature on competitiveness suggests that the most rational response is to 'upgrade' - to make better products, make them more efficiently, or move into more skilled activities (Porter, 1990; Kaplinsky, 2000). The government of India now favors policies that promote modernization and value added goods that are competitive globally.

However, this poses an important question regarding the sustainability of women's employment. The female employment in the low technology industries is on rise in the organized and unorganized sectors. This is occurring alongside a transition from low technology exports to high technology exports. This has to be kept in mind when policies are formulated for increasing employment in a labor abundant country like India. The continuing modernization and upgrading of manufacturing industries is not matched by any long-term advances in the standard-of-living, the skill-base, or job expectations for large sections of women workers. Women are caught in the low skilled activities with employers preferring men for skilled activities like operating machines.

Search and training processes are necessary for these sections of people to acquire sector-specific skills and efficiently seek employment if they are to relocate in the case of trade induced structural changes. This could be very costly, particularly

for women, who may have limited access to time, credit or other assets to finance such a transition, and who may also be discouraged more directly from seeking employment. On the other hand, to compete successfully with other low labor cost countries, lowering of wages may be the only feasible solution. In this context, it would seem that both upgrading and cost cutting measures would have detrimental effects on female employment. The very act of upgrading necessarily downgrades those who fail to match the innovation.

There has been a diversification of the export product mix towards higher value added, more technologically demanding product categories coupled with the increasing capital intensity of production technologies. It appears that as jobs and wages improve in quality, women tend to be excluded from them. India is on the path of moving up in the value chains. In the absence of public policy to specifically address this situation, inequalities may be aggravated. Women for whom the existing constraints are most binding may be left behind. Strategic and policy interventions by unions will limit the tendency of social exclusion of women workers (Kumar, 2012). But women tend to be excluded from the labor force with increasing unionization and politicization (Chhachhi, 2012).

The "high road" is capital-intensive and reduces employment opportunities, particularly for unskilled, primarily female labour. On the other hand, failure to adopt this strategy may constrain the growth of exports which meet standards for products and services that are being increasingly demanded in advanced countries" (Barrientos et al, 2004). The present study draws attention to this emerging problem. We suggest that policies need to be formulated such that there is a two pronged effort: one to enhance skill and education of women to enable them to take advantage of the emerging opportunities in value added production and two, to ensure that jobs at the lower end are not lost in the immediate future, which would jeopardize the livelihoods of those who lack the qualifications to be able to take advantage of emerging opportunities in the skilled sectors. Only specific policy attention to this question would ensure women are not left behind.

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