



WPS No. EC-25-76

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Female Entrepreneurship and Global Value Chains: An Assessment for South Asian Manufacturing Firms

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INDIAN INSTITUTE OF FOREIGN TRADE



WPS No. EC-25-76

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Printed and published by

Indian Institute of Foreign Trade

Delhi Centre: IIFT Bhawan, B-21, Qutab Institutional Area, New Delhi – 110016

Kolkata Centre: 1583 Madurdaha, Chowbagha Road, Ward No 108, Borough XII, Kolkata 700107

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Female Entrepreneurship and Global Value Chains: An Assessment for South Asian Manufacturing Firms

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Abstract

This study draws interlinkages between Global Value Chain (GVC) integration and female labour outcomes. According to neo-classical theory, as markets grow more competitive through international trade, employers are financially motivated to reduce discrimination since it can hinder their ability to compete effectively in the global market. The findings of this study are consistent with neo-classical theories, results of data from a World Bank Enterprise Survey (WBES) for South Asian nations exhibit that trade through backward GVC participation enhances the proportion of firms hiring female owners, and forward GVC participation is directly associated with the female workforce. Results also highlight that innovation is associated with de-feminization of labour.

JEL CODES

J16, F1, J22

Keywords

Global Value Chains (GVC), Female labour force participation (FLFPR), World Bank Enterprise Survey (WBES)

1. Introduction

The Global Value Chain (GVC), as a process of production fragmentation, demonstrates how corporations intentionally divide their production activities over different geographical regions to maximize efficiency, lower costs, and increase competition. This method has important consequences for global trade, economic development, and labor markets, in addition to reshaping the way products are created and supplied.

Forward linkages are the connections that emerge when a company or country sells its products to the following stages in the manufacturing process or to end users. This refers to the movement of commodities and services from one step of the value chain to the next.

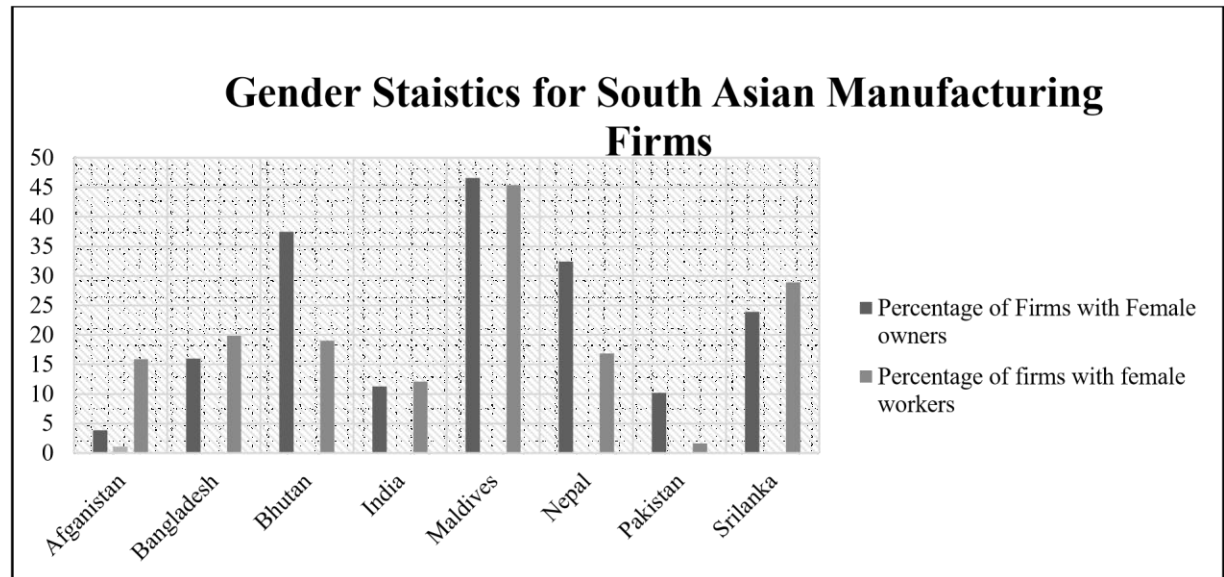
Backward linkages are the connections that arise when a company or country obtains inputs from prior stages in the manufacturing process. This refers to the flow of goods and services from suppliers to the firm.

It's crucial to view global value chains (GVCs) through a gender perspective to foster equal advantages for women and men as GVCs integrate and advance. examining trade specifically through GVC and gender interaction in South Asia is vital for fostering economic autonomy, addressing gender inequalities, promoting inclusive growth, and achieving sustainable growth and development. knowing these dynamics can lead to more effective policies that benefit both women and the broader economy.

In this study, we assess the effect of value chain participation on gender-based outcomes for manufacturing firms in South Asia that span from the period 2000 to 2019. We use fractional regression technique for the repeated cross-section data of World Bank Enterprise Surveys manufacturing industries. Various dimensions of the business environment have been considered to gauge their impact on female participation in the workforce. Our piece of study contributes to the limited literature on the effect of value chain integration on the female workforce, especially for South Asian countries, which is highly linked with socio-economic consequences. The findings of our study contribute to novel interconnections between gender and GVC linkages.

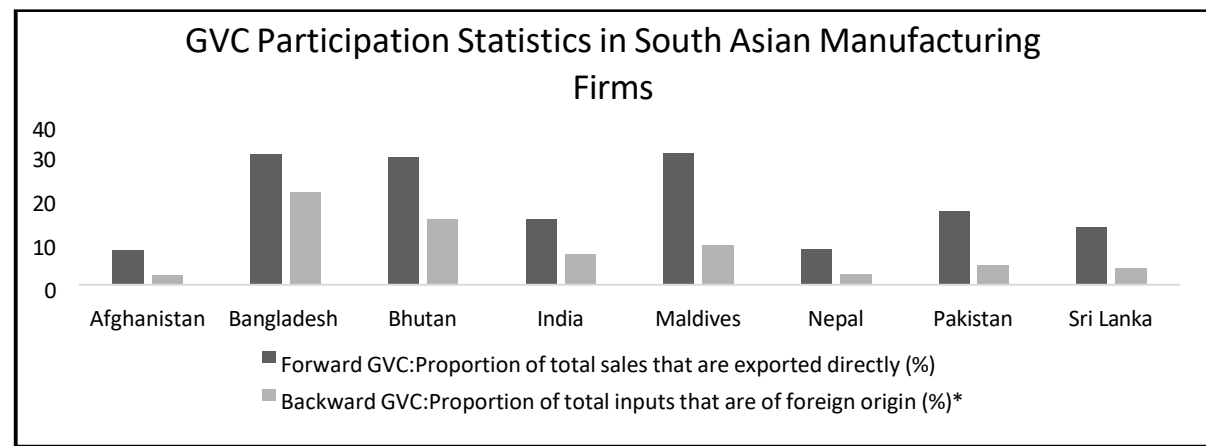
This study evaluates the impact of forward and backward GVC on women's participation in the workforce. We also assess various obstacles, and hurdles faced by women workforce affecting their economic and social position that is further aggravating gender inequities in South Asian nations. Scholars have studied the impact of macroeconomic policies on gender and commerce since the early 1980s (Çağatay and Elson, 2000), revealing gender-specific effects. Trade policy talks are increasingly focusing on gender mainstreaming, with calls for real actions.

Figure 2.1. Gender Statistics



Source: Authors Calculations based on WBES Data (2019)

Figure 2.2 GVC Participation Statistics



Source: Authors Calculations based on WBES Data (2019)

2. Review of Literature

In his foundational work, Becker (1957) argued that employers that discriminate against a specific group will be disadvantaged and eventually driven out of business due to competition. Black and Brainerd (2004) found that in the US, industries with increased competitiveness due to trade liberalization had lower gender wage gaps.



In traditional Heckscher-Ohlin models, cross-country disparities in capital-labor ratios, together with variances in cross-sector intensities, produce patterns of comparative advantage and trade motivations. For a capital-rich economy, trade raises the price of goods produced in the female-intensive industry. This price increase, in turn, causes the capital-rich economy to concentrate on the female-intensive sector, resulting in the following two economic pressures. First, it increases factor incentives, particularly female pay. However, because male salaries are affected proportionally, the gender wage gap and hence female labor force participation stay unchanged. Second, the price increase boosts production in this area, causing a flow of factors to the expanding industry. Given the lower capital intensity in the male-intensive sector, the factor reallocation includes more labor than capital, diluting the capital intensity in the female-intensive sector. Given the relatively strong reciprocity between capital and female labor, dispersion of capital reduces women's marginal productivity more than men's. As a result, the gender wage gap grows, and female labor force participation declines.

To explain the growth in female employment in Mexico, Juhn et al. (2014) contend that trade liberalization encourages some firms to export and adopt contemporary technologies, promoting higher female employment. Autor et al. (2012) evaluate the influence of increased Chinese import competition on labour market outcomes in the United States from 1990 to 2007. Results from S Philip, and H Zoabi, (2014) the authors demonstrate that both male and female employment and income declined, but the effects were more pronounced for women. Several research have established the positive association between export orientation and female employment intensity in manufacturing, which has become a stylized fact in the development economics literature, (Özler, 2007; S e g u i n o ,2000). During the 1980s and 1990s, structural adjustment programs led to increased job and income insecurity for workers but also increased employment in export sectors. Job losses of men in import-substituting industries susceptible to increased import competition likely boosted the feminization trend because it pushed more females into the workforce.

According to Carr et al. (2000) and Barrientos (2007), women labour in lower levels of global supply chains, providing a flexible workforce that can bear the risks of shifting global orders,



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dropping unit prices, and lead times. Home-based labour might produce a vulnerable



workforce in nations where women face physical immobility due to gender conventions, hindering their ability to improve their employment conditions. These conditions lead to lower unit labour costs for women workers.

Furthermore, Saxton et al. (2004) show that women face limited access to technology and training. Even though women account for 80% of agriculture and food production in Africa, they only receive 10% of small loans. Men commonly work unpaid on family plots and in cash-crop production, often managed by male family members. According to Baden (1998), in such instances, employees often lack control over their work.

Although trade expansion has improved employment opportunities for women in EPZ (export processing zones) factories, export sectors tend to offer lower-wage occupations compared to domestic production. Wage trajectories vary by country and sector dynamism. Workers in EPZs facing intense competition from fast-growing countries (e.g., Mauritius and Mexico vs. China) may experience wage erosion, while wage growth is rapid in expanding export sectors/EPZs, such as China, where average wage growth has been faster than the global average (ILO, 2010).

Research conducted by Purna and Veeramani C (Banerjee et al., 2015) employs an unbalanced panel dataset spanning from 1998 to 2008 and covering 125 manufacturing industries. This study scrutinizes the effects of trade barriers on female employment. According to research, higher import tax rates are unfavorable for women's employment. This supports the idea that businesses frequently turn to replace male staff with female ones in order to reduce costs when they are subject to international competition. Additionally, as trade advances cause a redistribution of resources in favor of sectors that require less trained labor, an advantage that India has, the demand for female workers rises. On the other hand, a greater reliance on modern technology and capital-intensive industry tends to tilt the workforce's gender balance against women. In India's integrated manufacturing sector, despite technical advancements, the rise of female employment is still constrained because there is not enough resource redistribution to offset the adverse consequences.

The evaluation of women's capacities to gain from participation in value chains has thus received significant attention in the literature on value chain development, particularly through addressing the gender distribution of labor between and within different value chains

(Stoian et al., 2018), identifying enabling conditions for more equitable participation and benefit sharing (Terrillon, 2010; Rubin, Manfre, & Barrett, 2010), and examining the obstacles and possibilities related to various value chain upgrading procedures (Ingram et al. 2016, Coles & Mitchell, 2011).

Hence the evidence of the impact of trade on gender outcomes is mixed, fragmented nature of manufacturing has increased job prospects for women in some nations, on contrary the inability to cope with technology and expertise has caused fall in supply of women workers as they are concentrated majorly in the lower segments of value chains.

3. Data Description

Firm-based variables aggregated at the country level have been taken from the World Bank Enterprise Survey (WBES) from 2000 to 2018. Variables in WBES are given for various categories like gender, finance, infrastructure, workforce, performance, and technology. Each category is explained in the table given below:

Table 2.1. Variable Description

Variable Name	Description
Gender, GEN	Percent of firms with female participation in ownership, Percent of firms with female participation as workers
GVC participation, GVC	Forward GVC: Percent of firms exporting sales directly or indirectly Backward GVC: Percent of firms using material inputs and/or supplies of foreign origin*
Characteristics	FC1: Age of the establishment , FC2: Proportion of firms with private domestic ownership



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Performance, PERF	PERF1: Capacity utilization (%), PERF2: Percent of firms buying fixed assets
Innovation Technology, INN	Percent of firms whose new product/service is also new to the main market, introduced a process innovation, spent on their R & D
Infrastructure, INF	INF1:Percent of firms experiencing electrical outages, INF2:Percent of firms with water insufficiencies
Finance, FIN	FIN 1: Percent of firms with a bank loan/line of credit,
	FIN2: Percent of firms using banks to finance working Capital
Workforce , WFC	Percent of firms identifying an inadequately educated workforce as a major constraint
	Proportion of permanent workers (out of all workers)

2.2. ESTIMATION METHOD

As the outcome variable for our study is in terms of proportion of firms with female ownership and workers hence, the variable's empirical values can never be below zero or above one. Thereby conventional linear regression techniques can't be used. Also, the effect of explanatory variables on outcome variable may not be linear. Therefore, Logistic and Probit fractional regression techniques have been used to study whether GVC Participation by firms has led to the defeminization of laborers or not?

The model given by Papke and Wooldridge (1996) has the following structure:

$E(Y | X) = F(\beta X_i)$ where $F(\cdot)$ denotes the link function satisfying $0 \leq F(\cdot) \leq 1$ and X_i represent a set of regressors. The link function ensures that the predicted values of Y lie in the interval $(0,1)$. It can be written as follows (Wooldridge, 2009), These models are fitted by likelihood functions, $L()$. $F(\cdot) = \exp(\cdot) / [1 + \exp(\cdot)]$

$$L() = \pi f(\theta, x_i)$$

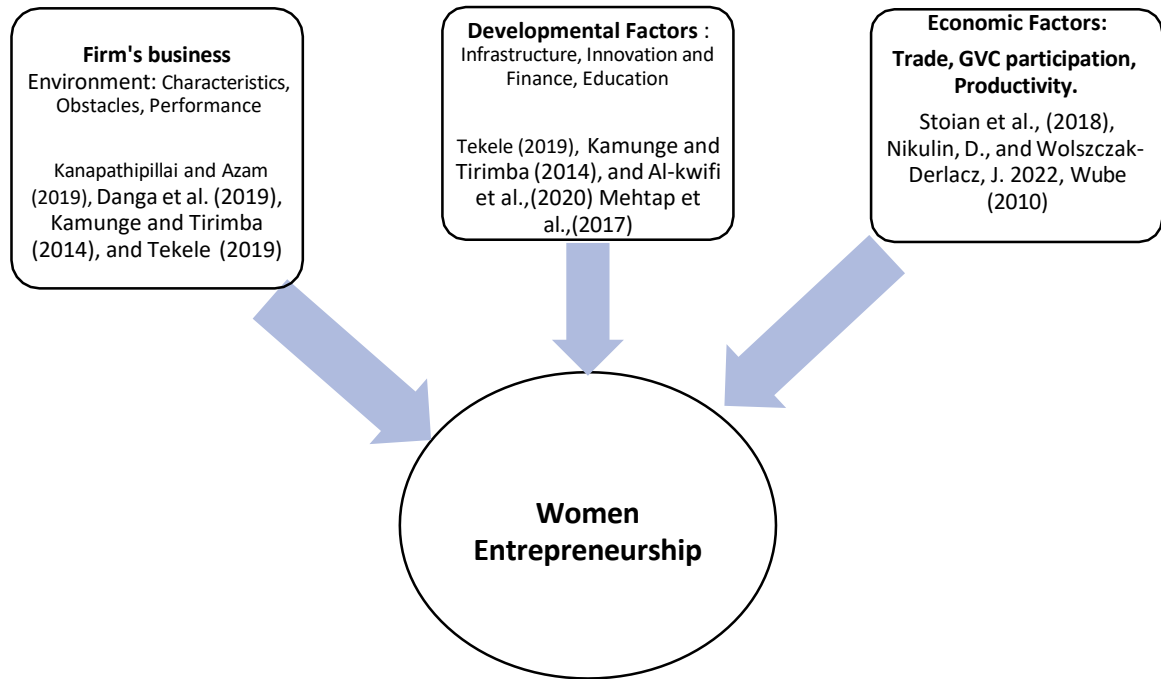
Our data constitutes of various business-related measures from WBES which are: biggest obstacles, performance of the firm, firm's characteristics, finance, trade, innovation, and technology and infrastructure. The use of fractional logit and probit models is because both dependent and independent variables are in proportion.

Under the null hypothesis, increased industry competitiveness from GVC participation places pressure on firms to reduce costly discrimination against women. The key challenge in testing this hypothesis is to isolate the impact of increased trade via GVC from other contemporaneous events that are unrelated to participation in international markets. To do so, the analysis controls for differences in nations' demographics

The baseline regression equation is the

$$GEN = f(GVC, FC, OBS, PERF, INN, INF, FIN, WFC)$$

Figure 2.3. Conceptual Framework :Factors contributing towards Women Entrepreneurship



2.3. DEPENDENT VARIABLE

Our main dependent variable is the percentage of firms with females ownership (GEN1) and female workers (GEN2) out of all permanent fulltime workers employed at the firm at the end of the last fiscal year (from the date of the ES) that are females. In our baseline sample, the mean value of the GEN1 variable is 25 percent and the standard deviation equals 16% and mean value for GEN2 is 21% and standard deviation of 14%.

2.4. MAIN EXPLANATORY VARIABLE

It is the measure of GVC participation; which is of two types backward GVC participation: represents firm as a buyer (Percent of firms using material inputs and/or supplies of foreign origin*) with mean value 5.7 and standard deviation 6.98 and Forward participation represents firm as a seller (Percent of firms exporting sales directly or indirectly with mean value 12 and standard deviation 10.5 for our sample of south Asian firms.

2.5. BASELINE CONTROLS

We have taken control under various dimensions like the firm's performance, characteristics, infrastructure, innovation ,finance. For instance , innovation and technology dimension , this indicators includes proportion of firms with their own website , spend on R & D, introduced a process innovation.

Rationale for selection of various baseline controls

Firms that do well are more likely to expand, opening up additional job chances. This can lead to more jobs for women, particularly in industries where they are already represented.

Women-owned businesses may prioritize gender parity in hiring and promotion procedures, resulting in better outcomes for female employees.

Larger firms may have more resources to implement gender-sensitive policies, such as parental leave and flexible working arrangements, which can positively impact gender outcomes.

Adequate infrastructure, such as transportation and childcare facilities, can significantly impact women's ability to participate in the workforce. Poor infrastructure can create barriers that disproportionately affect women, such as long commutes or lack of safe transportation.

Access to technology and the internet can empower women by providing them with information, training, and opportunities for remote work, thus improving their economic participation.

Firms that prioritize innovation may create new products or services that cater to women's needs, leading to increased market opportunities for female entrepreneurs and employees.

Women entrepreneurs often face challenges in accessing finance. Firms that provide equitable access to funding can empower women to start and grow their businesses, leading to better gender outcomes.

Each dimension is associated with indicators as described in the above table of variable descriptions.

2.6 Results and Discussion

Fractional Logistic Models is viewed as an appealing examination since; it doesn't accept normality, linearity, or homoscedasticity and suits our data. Our results also show that the



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the proportion of firms engaged in backward GVC participation is positively related to the proportion of firms with female owners that is for 1 % change in backward GVC

participation, the firms with female owners change by 0.05 and 0.03 for logit and probit models respectively. This effect denotes elasticity (proportionate change in the component of gender to the proportionate change in the indicator of backward value chain linkage). One plausible explanation is that as vertical concentration increases, female owners of businesses are more eager to import inputs and components through backward linkages because doing so would have a greater impact on the performance of their organization by increasing the standard, diversity, and magnitude of additional commodities produced. Neoclassical theory holds that if discrimination is expensive, then a rise in industry competition brought on by global commerce reduces the motivation for employers to discriminate against women. In consolidated industries where employers can utilize excess earnings to cover the costs of discrimination, this effect ought to be more pronounced hurdles in accessing finance, land, and infrastructural bottlenecks reduce the proportion of firms with female owners. On the contrary access to line of credit and capital increases the proportion of firms with female owners. Other firm-based characteristics like age of firms is directly associated with firms with female owners. The older the firm, the greater is the proportion of firms with female owners. Also, the greater is the extent of innovation by firms, the lower is the proportion of firms with female owner participation. Admittance to outsider innovation with advances in automation connected with exchange exercises has moved the interest for work from those with less skills to those with more skilled, leaning towards men. With the implementation of Automation techniques in European countries, although men and men both have a greater likelihood of substitution in institutional settings that promote gender equality, the gender disparity in this risk shifts in favor of women, who face a far lower risk than males. Gender equality in institutional settings helps to close the gender gap that women generally experience in society. (Filippi, E., Bannò, M., & Trento, S. 2023) According to a study, women are less likely than men to profit from ICT usage (Mottin-Sylla, 2005). The availability and use of ICT can improve the well-being of women. However, a lot of other factors also affect usage and access, especially in developing and underdeveloped countries.

Table 2.2. Fractional Regression Results with Firms with the female owner as the outcome variable

Model	Fractional Logistic Regression		Fractional Probit Regression	
	Marginal Effects (dy/dx)		Marginal Effects (dy/dx)	
Dependent variable Firms with female Owners	Log pseudolikelihood = -57		Log pseudolikelihood =-67	
Explanatory Variables ↓				

Backward GVC	0.0536* (0.03)			0.031* (0.05)
Forward GVC		-0.0061 (0.95)	-0.0023 (0.85)	
OBS1 Access to land	-0.0746* (0.00)	-0.021 (0.07)	-0.054* (0.03)	-0.011* (0.00)
OBS2 Access to finance	-0.091* (0.048)	0.082* (0.03)	-0.003 (0.34)	-0.040* (0.00)
INF1 Electrical outages	-0.1012* (0.00)	-0.092 (0.00)	-0.092* (0.00)	-0.074** (0.10)
INF2 water insufficiencies	-0.01 (0.26)	-0.04 (0.43)	-0.06 (0.35)	-0.10 (0.32)
FIN1	0.136* (0.00)	0.0152* (0.00)	0.16* (0.00)	0.1357* (0.00)

FIN2	0.15 (0.08)	0.048* (0.03)	0.01 (0.54)	0.071* (0.03)
PERF1	0.149* (0.00)	0.184* (0.00)	0.17* (0.00)	0.092* (0.025)
PERF2	0.01 (0.76)	0.062** (0.10)	0.084 (0.86)	0.01 (0.67)
FC1 Age	0.13* (0.01)	0.106* (0.02)	0.06** (0.10)	0.20 (0.45)
FC2 domestic Ownership Private	0.20 (0.45)	0.158 (0.34)	0.15 (0.33)	0.37 (0.24)
INN Innovation	-0.059 (0.06)	-0.086* (0.00)	-0.042* (0.00)	-0.06 (0.05)
Workforce, WFC	0.020 (0.36)	0.04 (0.76)	0.02 (0.67)	0.056 (0.36)

Source: Authors' Calculations

Note: : * denotes significance at 5 % level of significance.

Table 2.3. Fractional Regression Results with Firms with female workers as outcome variable

Model	Fractional Logistic Regression Marginal Effects (dy/dx)	Fractional Probit Regression Marginal Effects (dy/dx)

Dependent variable Firms with female Workers	Log pseudolikelihood = -72	Log pseudolikelihood = -49	Log pseudolikelihood = - 67	Log pseudolikelihood = - 46
Explanatory Variables ↓				
Backward GVC		0.034 (0.30)	0.017 (0.58)	
Forward GVC	0.020* (0.05)			0.018* (0.04)
OBS1 Access to land	-0.032 (0.784)	-0.25 (0.645)	-0.145 (0.00)	-.104* (0.001)
OBS2 Access to finance	-0.099* (0.00)	-0.150* (0.00)	-0.054 (0.10)	-0.051* (0.03)

INF1 eletrica l	-0.182* (0.00)	-0.239* (0.00)	-0.260* (0.00)	-0.178* (0.00)
INF2 water insufficiencies	-0.123 (0.84)	-0.023 (0.65)	0.011 (0.45)	-.0245 (0.16)
FIN1	0.235* (0.02)	0.193* (0.00)	0.179* (0.00)	0.308* (0.002)
FIN2	0.091* (0.05)	0.147* (0.00)	0.125* (0.00)	0.100* (0.05)
PERF1	0.255* (0.01)	0.372* (0.00)	0.305 (0.001)	0.253* (0.008)
PERF2	0.171* (0.03)	0.234* (0.00)	0.214 (0.008)	0.181* (0.017)

FC1 Age	-0.023 (0.245)	0.005 (0.56)	0.982 (0.00)	0.134 (0.11)
FC2 Private domestic Ownership	0.745 (0.665)	0.783 (0.10)	0.056 (0.253)	0.992 (0.135)
INN Innovation	-0.089* (0.05)	-0.332* (0.03)	-0.341* (0.05)	-0.092 (0.003)
Workforce , WFC	0.076* (0.02)	0.101* (0.00)	-0.052* (0.00)	-0.051 (0.103)

Source: Authors' Calculations

*Note: : * denotes significance at 5 % level of significance .*

Women worker participation is directly influenced by Forward participation as women workers were preferred by employers in exporting activities specially in garment ,beverages and food processing manufacturing activities in Asia. As 1 % change in forward GVC participation leads to 0.02 and 0.18 increase in firms with female workers for logit and probit models respectively. Exportation in manufacturing is directly increasing the proportion of female workers hired by firms, this can be attributed to the fact that women were typically willing to accept less favorable working and wage condition in the lower value added tasks. As a result, women workers received lower reservation pay than their male counterparts, were more willing to put up with unpleasant, frequently hazardous, and long work hours in the workplace, were less likely to form unions or engage in other forms of collective bargaining to improve working conditions, and did not demand permanent contracts. As a result, it was simpler to hire and dismiss them at whim and in response to changes in the external demand environment. Additionally, life cycle changes like marriage and parenthood could be exploited as proximate reasons to end employment. For instance : study of export processing zone in Sri Lanka ensures stable employment to female workers , however it comes with some subjugation and adversities (Hancock, P. 2006). Nazneen, S., Hossain, N., & Chopra, D. (2019) writes in this issue that the presence of women working in the nation's leading apparel business has served as a visible indicator of



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shifts in gender norms. The foreign notion that Bangladesh women have been empowered

through widespread employment in GVC has been extended as a result, as has the sense of economic agency among women.

2.7. Conclusion and Policy Implications

Our study examines the impact of GVC participation on measures for female labor force participation for South Asian firms aggregated at the country level. It is based on WBES for manufacturing industry. The data that we use is in proportional form, thereby fractional regression techniques have been used. Our results display novelty in the context that backward GVC participation is directly related to the proportion of firms with female owners and forward GVC participation is directly related to the proportion of firms with female workers. This exhibits that importation activity by South Asian manufacturing firms increases the proportion of firms with owners and exportation activities via forward linkages enhance the proportion of firms with female workers. Although participation in manufacturing value chains is subject to certain gender-specific barriers in these South Asian countries which are job discrimination based on gender; insufficient pay; uncertain employment (temporary and informal); limited access to maternity benefits and child care; insufficient educational opportunities and skill development; long working hours combined with significant caregiving responsibilities; bias and instances of sexual harassment .

Women face additional challenges when operating as business owners, including: owning real estate and land; securing finances and loans; obtaining contracts with multinational corporations and governmental agencies; tackling problems such as inefficiency and corruption during customs authorization and meeting strict quality standards required by international customers.

The following elements are involved in a gender perspective analysis of GVCs: (i) Defining the GVC sectors, positions, and stages in which women and men are functioning, as well as the disparities in their job conditions and rewards; (i) Identifying gender-specific barriers that reduce the benefits women receive from GVC integration and growth, which may then undermine supply responsiveness, export successes, and overall economic progress; (ii) Identifying policy measures that can remove these gender-related barriers, with the goal of achieving equitable benefits for both women and men through GVC integration and advancement .One step is expansion of ICT related jobs for women so that manufacturing



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trade processes are effectively managed. In many regions, the gender gap is far more pronounced; in Bangladesh, Pakistan, and India, for instance, males are twice as likely as



women to own or utilise the technology. (The World Bank, 2018b). Women have a bigger role in policymaking as there exists female organizations like the Self-Employed Women's Association (SEWA) in India (Staritz & Reis, 2013). Additionally, support should be provided for female entrepreneurs' participation in trade shows, exhibitions and as well as exposure tours. Increased trade and commercial accessibility as well as other professional networking opportunities should be made available to women entrepreneurs. Women's participation into these organizations may be made easier by altering membership norms and inclusion requirements (Asia Foundation, 2017). It is crucial to give specific support to women's clubs, associations, or networks that bring together female entrepreneurs in addition to supporting women's participation in mixed associations .

One of the most crucial responsibilities is to incorporate gender considerations into the formulation and implementation of trade policy. To do this, data that is both quantitative and qualitative must be gathered and analyzed., as well as to systematically evaluate how trade laws and processes affect both the employment and income of men and women, Asia Foundation (2017), ITC (2007), and WTO (2015). Value chain analyses, poverty and social effect evaluations, diagnostic trade integration studies, sector analyses, and export development analyses are a few of the instruments that can be used to gather gender-disaggregated data (GIZ, 2014). Some initiatives should be undertaken in South Asia to create capacity with international assistance and have as their main focuses on digital education, cyber security, the growth of the unorganized sector, and environmentally responsible business practices. Women-only start-up incubation centers and all-women industrial parks envision a stable and maintained ecosystem for women entrepreneurs in order to sustain greater effect at the grassroots level.

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Appendix

Stylized Facts, “Culture and Society’s role in shaping South Asia : Using Hofstede Dimensions”

Geert Hofstede created the Hofstede's Cultural Dimensions Theory, a framework for understanding how cultures differ between nations and how business is conducted in various cultural contexts. In other words, the structure is used to evaluate the characteristics of culture, distinguish between various national cultures, and assess the impact of each on a business environment.

Power distance

The degree to which the less powerful stakeholders of institutions and organizations within a nation assume and accept that power is allocated unequally is known as "power distance. Sri Lanka, India and Bangladesh has a high score on this dimension indicating that it values hierarchy and top-down organizational structures. The words and phrases "dependent on the boss or the power holder for direction" and "accepting of unequal rights between the power privileged" are good ways to describe the Indian mindset.

Masculinity

The society will be driven by competition, achievement, and success, with success being defined by the winner / best in field — a value system that begins in the classroom and extends throughout the life of an organization — if this dimension receives a high score (Masculine).

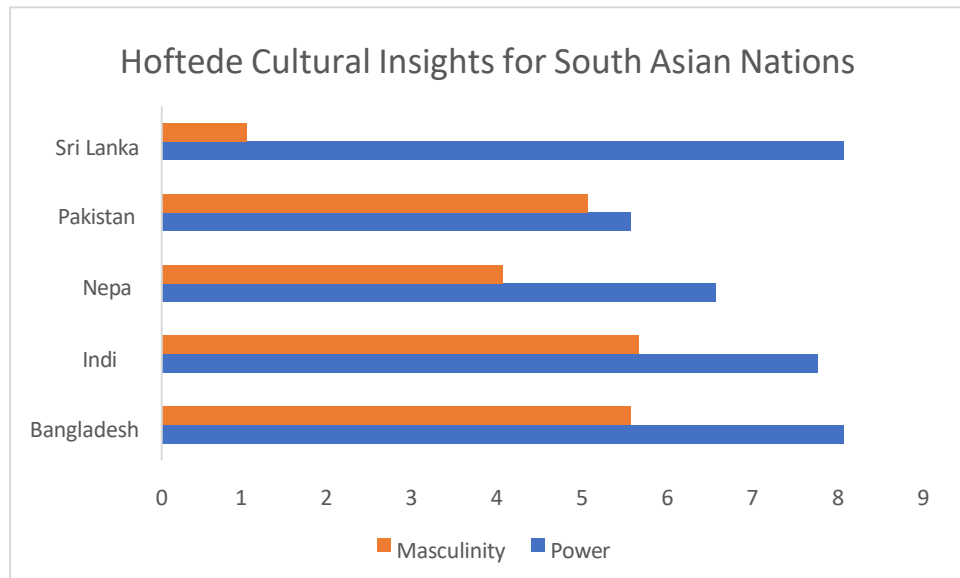
If the dimension has a low score (Feminine), then quality of life and compassion for others are the dominating social ideals. Living a high-quality life is a sign of success in a feminine society, and standing out from the crowd is not admired. The core problem here is whether people are motivated by a desire to excel (masculine) or a love of what they do (feminine). India, Bangladesh and Pakistan are more driven towards the masculine dimension and



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Nepal and Sri Lanka are closely are closely inclined towards the feminine dimension .

Figure : Cultural Insights for South Asian Nations



Source: Hofstede data

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