



The gendered impact of trade liberalization on informal employment in Pakistan: A sectoral perspective

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Abstract

This study examines the impact of trade liberalization on gendered informal employment using micro-level data from the manufacturing sector of Pakistan. Using the two-stage least-squares estimation (TSLS) technique the valuable impact of trade openness on informal employment of gender is investigated. We find positive liaison between trade liberalization and informal employment in Pakistan. The results show that trade liberalization boost gender parity in informal employment. These findings are robust and insensitive to the insertion of other control variables. Therefore, government should promote trade policies to achieve gender parity in employment.

Keywords: *Informal employment, Trade Liberalization, Manufacturing Industry, Gendered impact, Informality.*

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1. INTRODUCTION

Global integration has a dual impact on workers in both developed and developing nations, namely directly and indirectly (Chen, Ul-Haq, Visas, & Cheema, 2019). In the 1970s, some developing nations implemented trade reforms and shifted from import substitution strategies to an export-oriented approach. Pakistan also implemented trade liberalisation policies, specifically in 1988 (Umer, 2014; Wu et al., 2019). The effects of trade liberalisation have several aspects such as poverty, child labor, female participation, especially in emerging economies. Another crucial feature of free trade is the impact of trade liberalisation (hereinafter referred to as TL) on the informal sector. According to research conducted by Attanasio, Goldberg, and Pavcnik (2004), and Stallings and Peres (2010), trade openness policies are believed to redistribute formal employment to informal employment. The informal sector refers to a component of the economy that operates without government restrictions, lacks proper working conditions and fair salaries, lacks job protection, and does not have access to social benefits (Khan & Ashraf, 2012). Typically, this refers to small businesses with less than 10 employees and temporary job arrangements. It is estimated that around fifty-five to sixty percent of the global workforce is engaged in informal employment (Williams, 2014). The proportion of employment in the informal sector in Pakistan has experienced significant growth in recent decades, similar to other developing nations. This indicates that the informal sector has a considerable impact on global employment rates (Khan & Ashraf, 2012; Wu et al., 2019).

Employment distribution in the informal sector is not free from gender disparities¹. Trade openness policies can have a significant impact on gender. The significance of this component of gender equality has increased with the implementation of the Millennium Development Goals (Ul-Haq, Nazeer, & Rahim, 2022). Gender equality is a crucial aspect of human rights and serves as a fundamental basis for global progress. Consequently, addressing gender wage gaps is of utmost significance for the economic advancement of developing nations (Cheema, Saleem, Haq, and Shehzadi, 2022). Understanding the potential effects of trade openness policies on labour market outcomes is crucial in today's globally integrated society (Pieters, 2018). The influence of TL on gender is prejudiced (WATCH, 2011; Ventura-Dias, 2010). The impact of trade policy on women and men varies due to their distinct social and economic responsibilities. As a result of these disparities, males and females are unable to equally capitalise on the advantages brought about by trade liberalisation (WATCH, 2011; Ventura-Dias, 2010). The impact of trade liberalisation on the labour market may vary based on the economy's structure and trade dynamics, particularly in terms of gender. Research suggests that women's employment is likely to be more positively affected by openness in sectors where women are more prevalent, such as export sectors. This effect may be more for women than for males, according to studies by Standing (1999), Berik (2000), and Caspersz (2001).

The decrease in tariffs on imports that need a lot of labour has had a greater negative impact on the employment of women compared to males in countries with less competitive manufacturing sectors, such as African nations (Adhikari & Yamamoto, 2007; Kucera & Roncolato, 2011). Informal traders and workers, particularly women, commonly experience abuse, harassment, excessive taxes, unfavourable working conditions, inadequate communication, and restricted access to finance. These factors contribute to the differential impact of trade on women and men (Chant & Pedwell, 2008).

The majority of studies in this field have examined the impact of trade openness on the employment in the informal sector (Attanasio, Goldberg, and Pavcnik 2004; Wu et al, 2019; Khan and Ashraf, 2012; Bosch, Goni & Maloney, 2007), economic development (La Porta & Shleifer, 2014; Papyrakis, Covarrubias, & Verschoor 2012), and wages (El-Ghamrawy, 2014; O. Attanasio, Goldberg, & Pavcnik, 2005; Aleman-Castilla, 2006). The research conducted by Saqfalhait, Spetan, Awad-Warrad, and Alomari (2023) examines the influence of trade openness on the empowerment of women through the variables of trade openness (OPN) and tariffs. These studies did not exclusively examine the impact of trade on gender employment. Hence, there is a limited quantity of work that specifically examines the impact of trade liberalisation on employment from the gender perspective (Wamboye & Seguino 2015; Ben Yahmed & Bombarda, 2018).

This study aimed to address the existing knowledge vacuum by investigating the gender-specific effects of trade liberalisation on informal employment in Pakistan's manufacturing sector. The analysis utilised micro-level data from Pakistan spanning the years 1995 to 2005. Furthermore, this study utilized the method of using the reduction in import tariffs as a proxy to assess trade openness, which is seen a more accurate assessment in the context of Pakistan. The use of import tariffs as a proxy is preferable due to its direct assessment of trade limitations and emphasis on policy. This approach is popular because it benefits from the availability of data (Ul-Haq, Nazeer & Khanum, 2021; David 2007; Jameel 2022;). The labour market laws are crucial elements in trade policy that determine job opportunities. Fortunately, there have been no recent changes in labour market regulations throughout our study period that may have influenced the level of labour market rigidity or flexibility (Wu et al., 2019). Pakistan offers a noteworthy chance to analyse the impact of trade liberalisation on gender in the absence of labour reforms. Therefore, it may be deduced that the outcomes are specifically related to trade policy.

This study is structured as follows. Section 2 provides an overview of the theoretical foundation of the investigation, whereas section 3 presents the empirical analysis. The findings derived from the use of empirical methods and the examination of the robustness of the results are presented in Section 4. Section 5 provides policy suggestions and serves as the conclusion of the research.

2. Theoretical Framework

According to trade theory, the integration of product markets might potentially alter the local labour market by affecting the pricing of products. Consequently, fluctuations in the pricing of products have been extensively employed to assess the potential impacts of trade liberalisation on the job markets (Leamer and Levinsohn, 1995). According to the Heckscher-Ohlin-Samuelson hypothesis, when trade barriers are reduced, it has an impact on the labour market of all nations, especially developing countries. This decrease in trade barriers favours the plentiful factors of production in a country, and in the case of developing countries, it benefits the country's comparative advantage in less trained workforce.

Therefore, transitioning the economy from tariff barriers to trade openness should result in increased production and employment in areas that require less trained personnel. According to Robbins and Gindling (1999), the increasing demand for less skilled workers in comparison to competent workers leads to higher compensation for less skilled jobs compared to skilled ones.

The Heckscher-Ohlin (H-O) theory, together with its enlarged model, the Stolper-Samuelson (SS) theorem, is utilised to a certain extent to establish a theoretical foundation in empirical analysis. According to the Heckscher-Ohlin theorem, economies should specialise in manufacturing goods that need a large amount of the inputs of production that they have in plenty. According to this idea, developing nations would produce goods that need a lot of manual labour since they have a relative advantage in employing unskilled workers (Fatema, Li, and Islam, 2017).

The Stolper-Samuelson hypothesis posits that those who possess abundant factors of production benefit from increased trade openness. Thus, workers in economies with a surplus of labour benefit from the advantage of unrestricted international trade. Within emerging economies, a substantial portion of the unskilled labour force consists of women. In nations where there is an abundance of labour, it would be advantageous for these female workers to receive more benefits compared to their male counterparts. This would help to narrow the gap between female and male workers. Moreover, increasing women's engagement will enhance their income level, leading to improved expenditure on education and health. Consequently, it can be argued that trade openness may contribute to the enhancement of women's health and education (Fatema et al., 2017).

TL↑ (import tariff ↓) → price of intermediate goods ↓ → price decrease induces producers to increase exports → output ↑ → dd for unskilled labour↑ → female labour participation ↑ female employment↑ → female Income↑ → GD↓ (Ul-Haq, Nazeer, & Rahim, 2022)

TL↑ (tariffs on import ↓) → price of imported goods↓ → real income↑ → household GDP per capita ↑ → better economic circumstances → female health and education ↑ → GD↓ (Fatema et al,2017)

TL↑ (tariffs on import ↓) → imported goods price ↓ → parental real earnings ↑ → basic needs will be satisfied → poverty likelihoods ↓ → female education ↑ → GD↓ (Ul-Haq, Nazeer, and Khanum 2021).

In theory, the connection between gender inequality and trade openness is uncertain, hence empirical investigation is necessary to explain this association.

3. DATA AND BACKGROUND

3.1 Pakistan's trade policy

Pakistan's trade policy underwent a substantial transformation between 1988 and 2005. Pakistan introduced significant liberalisation measures in its trade environment during Zia's era. However, the most noteworthy trade policy reforms occurred in 1988 with the implementation of the Structural Adjustment Program (SAP). The tariff rates exhibit a gradual and varied decline over time and across different sectors (Wu et al., 2019).

The reduction in tariffs benefits various sectors, especially the manufacturing sector, by providing greater opportunities to import from highly protected industries such as wood products (with a tariff reduction of 106%), apparel and textiles (with a tariff reduction of 96%), and handicrafts and other manufacturing industries (with a tariff reduction of 94%). These reductions bring the average tariff levels for these industries down accordingly. The argument posits that Pakistan prioritised the safeguarding of sectors that need lower levels of expertise and rely heavily on manual labour. This scenario is analogous to that of nations such as Brazil and Colombia (Attanasio et al, 2004). It has been shown that the fall in the tariff during 1988-2005 is roughly from 63% to 13% on average across all sectors and for manufacturing sector this drop in tariff is roughly from 64% to 14%. This indicates that Pakistan successfully implemented the tariff decrease within the expected timeframe, demonstrating its commitment to the negotiations with the World Trade Organisation (WTO) to achieve reduced tariff rates. Pakistan's economy underwent a phased opening, starting with the reduction of tariff blocks, followed by the lowering of tariff rates, and ultimately the removal of non-tariff barriers as part of its trade strategy. The most significant modifications in tariff reduction occurred between 1992 and 1999 across several industries throughout the observed sample period. Moreover, the significant reduction in average tariffs across several sectors has altered the protective framework of Pakistan's economy (Wu et al., 2019).

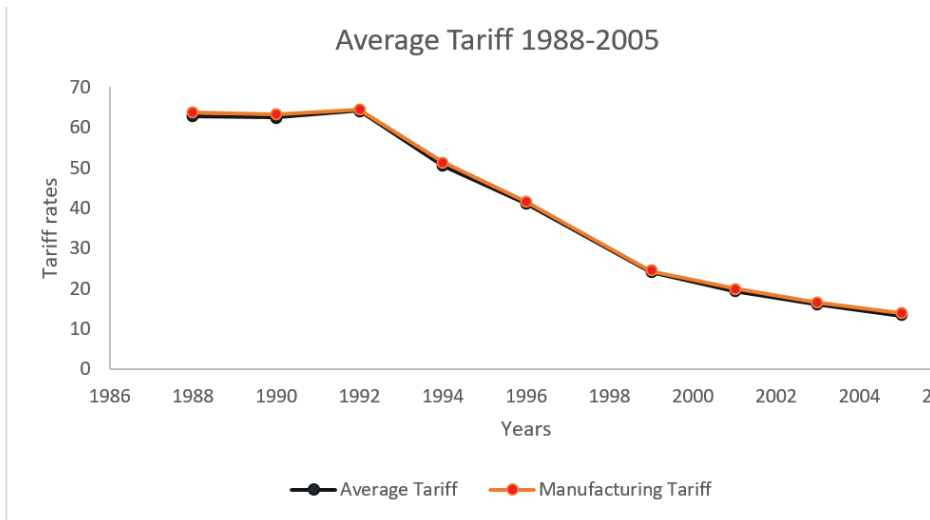


Figure 1 Tariffs Over 1988-2005

Source: Tariffs Over 1988-2005 data is taken from Ul-haq (2016).

The discrepancies in the rate of protection from 1988 to 2005 are illustrated in Fig 1. Throughout the course of trade reforms, the average tariff rate showed a substantial decrease. From 1990 to 1999, the average tariff rate decreased from 62% to 25%. By 2005, these protection rates had decreased to 13%.

3.2 Survey of National Household

This study establishes a connection between the information on trade disclosure and the information on the labour force. This analysis utilises the labour force data collected from the Pakistan Bureau of Statistics (PBS) for the years 1996, 1999, 2001, 2003, and 2005. The primary reason for selecting this time span is that it accurately depicted the implementation of complete trade liberalisation in Pakistan. The principal data sources utilised in this study are the Labour Force Survey (LFS), Census of Manufacturing Industries (CMI), and Pakistan customs tariffs (PCT) data. The data obtained from the Labour Force Survey is cross-sectional, meaning that it provides a representative snapshot of the whole nation. The import tariff data is sourced from the studies conducted by Ul-Haq (2016) and Wu et al. (2019).

This study utilised the following variables: LGDP that represents the logarithm of Gross Domestic Product, LGFCF that represents the logarithm of Gross Fixed Capital Formation which refers to the net change in fixed assets acquired by resident producers after accounting for disposals, GDE that refers to Gender Disparity in Education, which refers to gender discrimination in the educational system that affects both men and women during and after their educational journey. The gender parity index may be calculated by dividing the average number of years of schooling for females by the average number of years of schooling for males. The sex ratio, represented as F-M, is the proportion of females to males in a population. And finally, RLWW-GD (real log weekly wages) to measure the gender wage gap. The gender wage gap is determined by dividing the log weekly earnings of females by

the log weekly wages of males.

3.3 Methodology

This study seeks to examine the impact of trade liberalisation on informal employment in the manufacturing sector, specifically focussing on gender differences. The analysis is conducted utilising micro-level datasets. The study employs a two-stage estimating procedure often utilised in the labour economics literature to estimate empirical wage premiums (Goldberg, p.k. and N. Pavnick 2003; Castilla, 2006; Wu et al., 2019). This study utilises data from the LFS (Labour Force Survey), CMI (Census of Manufacturing Industries), and PCT (Pakistan customs tariffs) for analysis. The initial stage entails the estimate of the likelihood of employment in the informal sector.

$$E_{ijt} = \alpha H_{ijt} + \beta I_{ijt} + \gamma (I_{ijt} \times G_{ijt}) + \varepsilon_{ijt} \quad (1)$$

This study utilises regression analysis to calculate the effect of informal employment. The variable E_{ijt} represents the dummy variable for informal employment of a worker i , in industry j and at time t , with a value of 1 indicating that the worker belongs to the informal sector of the economy, and 0 otherwise. The variable H_{ijt} , represents the vector of individual characteristics such as education level, sex, experience, age, age squared, marital status, geographic position, position in the household (whether the individual is the head of the household or not), and occupational dummies, for individual i , in industry j , and at time t . On the other hand, I_{ijt} represents a set of dummy variables indicating the industry affiliation. The coefficient β accounts for the disparity in employment in the informal sector that is solely attributed to the employee's sector affiliation and cannot be attributed to their particular attributes. The computed disparities in industry informality are measured as departures from the employment-weighted average disparities in informality (β). The normalised industry informality difference may be seen as the proportionate change in the likelihood of a worker being in informal work in a certain sector, compared to the typical individual with similar characteristics across all sectors. The normalised differences in informality and their precise standard errors for differences in informality across industries are measured using Restricted Least Squares (RLS) as introduced by Haisken-DeNew and Schmidt in 1997. We independently conduct first-step regression models for each year in our dataset. The gender employment gap (G_{ijt}) refers to the difference between the employment-to-population rate of women and men in a nation for a certain worker at a given period (denoted as I and t , respectively). ε_{ijt} determined the error term.

The second phase of the model is given in the following manner.

$$\gamma_{jt} = TR_{jt}\beta_T + D_{ijt}\beta_D + u_{jt} \quad (2)$$

γ_{jt} represents the within-industry gendered formal-informal pay differentials, which measure the salary disparities between gendered formal and informal employment based on industry affiliation. $TR_{jt}\beta_T$ represents the vector features of an industry that are relevant to trade. The main variable included in TR_{jt} is the Tariff. The D_{ijt} vector comprises a collection of industry and time indicators. The dependent variable

in the second-step regression is determined using the coefficient of the interaction of gendered employment gap and industry dummy variable obtained from the first-step regression. As a result, it is estimated with some degree of imprecision. The second step model incorporates more noise, resulting in increased variability in its estimate. The expected divergence of noise in the gendered informality differentials is based on the variance of the calculated coefficient in the initial step. To estimate the second level, we used Weighted Least Square (WLS) with weights equal to the inverse variance of the gendered informality differentials obtained from the first stage. This strategy assigns higher weights to sectors with a low variation in the wage premium sector, and vice versa (Wu et al., 2019). Estimating the presence of heteroscedasticity and serial correlation in the error term is crucial. This is done by calculating robust standard errors, which are grouped by industry.

4. RESULTS AND DISCUSSION

The estimations indicate that informal sector employment predominantly consists of women and young employees. The majority of married workers, and those who are the heads of their families and have higher levels of education tend to work less hours in the informal sector. In addition, the study examines the geographical features and occupations that may impact the decision to work. For example, certain professions are considered suitable for women's employment, and certain regions are relatively more generous for women. In the second stage estimates, this study links differences in gendered informality to trade reforms, specifically the rate of protection, as shown in equation 2. By analysing the characteristics of individuals in the first stage, the study aims to eliminate potential biases in the relationship between gendered informality and emerging tariffs, which may arise from variations in individual arrangements across different subdivisions.

For instance, if there are more unqualified workers in certain segments, there is a higher risk of accidents and inexperienced employees are more likely to work in the informal sector. Relying solely on sectoral data may lead to a false positive correlation between trade liberalisation and the level of gendered informality. According to this study, the analysis focusses on the characteristics of workers in the initial phase, specifically the control structure of the sector during each period. It is important to note that the composition of the workforce does not directly influence the outcomes of the second phase. In addition, the second stage regression incorporates sector-fixed and time-fixed effects.

Table 1 displays the findings for informality and gender. Coefficients and their corresponding p-values for all the explanatory variables are shown in this table. Column 1 presents the results of a regression analysis where the coefficient of gender is estimated in relation to protection rates, without considering industry or time variables. The positive coefficient of this column indicates that a fall in tariffs leads to a reduction in the discrepancy in gender employment.

A reduction of 1 percentage point in the rates of protection is directly linked to a fall of 0.1 percentage point (equivalent to 0.001 percent) in the likelihood of gender imbalance. Trade liberalisation leads to a growth in informal employment, with a

higher likelihood of women, illiterate individuals, and those with lower skills being employed in this sector. Additionally, people in the informal segment may also be working alone (Wu et al., 2019).

The second column presents the assessments of the regression analysis of variations in informality, using weighted least squares with time effects but without industry effects. The second-level regression utilised weighted least squares (WLS) and incorporated the inverse of the variance of the informality difference. This approach assigns greater weight to smaller values, resulting in a more accurate estimation. A reduction of 1 percentage point in protection rates is directly linked to a 0.3 percentage point (i.e., 0.03 percent) rise in the probability of informality. The findings from Wu et al. (2019) and Attanasio et al. (2004) provide trustworthy evidence for Colombia. However, the results of Aleman-Castilla's (2006) research for Mexico are different. Column 3 displays the regression estimates of the disparities in sector informality on the rate of protection, taking into account the impacts of time indicators, industry indicators. The number of observations is forty-five in all models.

Table 1: Gendered Impact of Trade Liberalization on Informal Employment

	(1)	(2)	(3)
Tariffs	0.00134***	-0.0320***	0.0234***
	(0.000116)	(0.000534)	(0.00171)
Industry Indicators	No	No	Yes
Time indicators	No	Yes	Yes
N	45	45	45

Note: All models' dependent variable is gendered employment (GEM). Standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. N is 45 in all models.

This study primarily examines the manufacturing sector and presents the corresponding findings in Table 2 and 3. In order to assess the robustness of the research, additional variables relevant to trade were included. The study utilised both, time indicators and industry indicators in these tables. The use of supplementary variables in the regression model lacks support from any trade theory. This study confirmed many models using various control variables.

Table 2 displays the coefficient of each explanatory variable together with its corresponding p-values. The additional explanatory factors have no effect on the magnitude and statistical significance of the protection rate coefficient. The coefficient for the protection rate is positive and statistically significant, suggesting a positive relationship between gender inequality and the protection rate.

A reduction of 1 percentage point in the rates of protection is directly linked to a drop

of 0.2 percentage points (i.e., 0.02 percent) in the likelihood of gender imbalance within a certain industry. The regression findings utilised industry indicators and time indicators in all the columns as indicated.

The implementation of trade liberalisation policies in Pakistan led to significant fluctuations in the currency rate. These fluctuations may impact the level of employment in both the tradable and non-tradable industries. Consequently, to assess the robustness of the results against currency rate variations, this study conducts a regression analysis incorporating delayed imports and exports, export orientation, import penetration ratio, and their interaction terms with the exchange rate.

This demonstrates that these links have no impact on the magnitude and importance of the coefficients related to tariffs. $Lx^{*}neer$ displays the Nominal Effective Exchange Rate (NEER) and $Lm^{*}neer$ shows the lagged imports on the NEER. This table 2 employed industry indicators and time indicators for all columns, each with varying amounts of observations. The study's findings are strong and remain unaffected by the inclusion of many additional factors.

Table 2: Gendered Impact of Trade Liberalization on Informal Employment (Robustness Check-I)

	(1)	(2)	(3)	(4)	(5)
Tariffs	0.0234*** (0.00171)	0.118*** (0.00643)	0.123*** (0.00741)	0.0414*** (0.00195)	0.0551*** (0.00846)
Lagged ex- port		4.67e-09*** (1.53e-10)	4.26e-09*** (3.44e-10)		3.07e-09*** (4.31e-10)
Lagged im- port		-1.79e-09*** (3.79e-10)	-1.35e-09 (1.13e-09)		8.48e-09*** (1.29e-09)
$Lx^{*}neer$			0 (0)		-0 (0)
$Lm^{*}neer$			-0		-2.36e-10***
Log GDP				-0.670*** (0.0268)	-0.754*** (0.0465)
Log GFCF				0.0687*** (0.0219)	0.237*** (0.0342)
Industry In- dicators	Yes	Yes	Yes	Yes	Yes

Time indica- tors	Yes	Yes	Yes	Yes	Yes
N	45	36	36	45	36

Note: The dependent variable is GEM in all models. N is 45 in all models. Standard errors are in parentheses. * p<0.01, ** p<0.05, * p<0.1**

Table 3 includes some more variables in the same arrangement as the previous table.

Table 3: Gendered Impact of Trade Liberalization on Informal Employment (Robustness Check-II)

	(1)	(2)	(3)	(4)	(5)	(6)
Tariffs	0.0234***	0.0171***	0.00828***	0.00508*	0.0182***	0.0218***
	(0.00171)	(0.00173)	(0.00258)	(0.00260)	(0.00271)	(0.00275)
GDE		0.644***	0.597***	0.568***	0.331***	0.371***
		(0.0236)	(0.0257)	(0.0259)	(0.0293)	(0.0298)
F2m			-0.370***	-0.537***	-0.523***	-0.575***
			(0.0805)	(0.0826)	(0.0827)	(0.0830)
RLWW_GD				0.0766***	0.0366***	0.0456***
				(0.00850)	(0.00881)	(0.00889)
LGDP					-0.428***	-0.534***
					(0.0246)	(0.0285)
LGFCF						0.166***
						(0.0227)
Industry Indi- cators	Yes	Yes	Yes	Yes	Yes	Yes
Time Indicators	Yes	Yes	Yes	Yes	Yes	Yes
N	45	45	45	45	45	45

Note: It is important to note that the dependent variable across all models is GEM. Standard errors are presented in brackets. Statistical significance levels are indicated as follows: * p<0.01, ** p<0.05, * p<0.1. N equals 45 across all models.**

It can be argued that as the growth of the country increases then the level of gender employment also increases and the informal employment decreases, in the specific way 1 percentage increase in GDP decreases informal employment by 0.4 percent so this reveals a negative connection among employment of informal sector and GDP. This table 3 used industry indicators and time indicators in all columns.

Briefly, the present piece of research shows the significant link between openness to trade and the employment of gender in the informal sector. In other words, a reduction in tariffs positively related to gender disparity, meaning that a reduction in tariffs decreases the disparity in gender employment. The findings remain robust when including various trade-related variables across all specifications and evaluation methods (i.e., temporal effects and sectoral effects). Given that no new regulations were introduced in the labour market throughout the study's sample period, it may be concluded that these results represent the fundamental impact of trade openness on female employment in Pakistan's informal sector.

5. CONCLUSION

Pakistan used economic liberalisation measures to facilitate trade from 1988 to 2005. The level of protection declines significantly across many sectors as a result of the implementation of structural adjustment programs (SAPs) and the policies of the International Monetary Fund (IMF). The decrease in tariffs was both unforeseen and gradual, occurring gradually over time and across several industries. This research evaluated the effects of trade liberalisation on informal employment within the manufacturing sector, with particular emphasis on gender disparities. The investigation utilised micro-level datasets from Pakistan. The informal sector is defined as a segment of goods and services that functions without governmental regulation, demonstrates inadequate working conditions, provides poor wages, lacks employment safeguards, and does not give social benefits.

Typically, this primarily pertains to small enterprises with less than 10 employees and temporary employment. It is estimated that around fifty-five to sixty percent of all physical labour in the globe is conducted informally. The primary data sources utilised in this study are the Labour Force Survey (LFS), Census of Manufacturing Industries (CMI), and Pakistan customs tariffs (PCT) data. The data obtained from the Labour Force Survey is cross-sectional, meaning that it provides a representative snapshot of the whole nation. The information on import tariffs is derived from the studies conducted by Ul-Haq (2016) and Wu et al. (2019).

This research employed import tariffs to assess the liberalisation of trade. This study employed a two-stage estimating technique often utilised in the field of labour economics to empirically estimate the wage premium. Based on the findings, the coefficient is positive, indicating that a fall in tariffs leads to a reduction in the gender employment gap. This study used regression analysis to evaluate the impact of protection rates on sector informality differentials. The analysis takes into account both the impacts of mean time indicators and industry indicators. Empirical evidence indicates that trade liberalisation have led to a reduction in gender employment gap in Pakistan.

These results are reliable and applicable throughout the manufacturing industry as well as all other industries. Due to the issue of data inaccessibility. This study examines the resilience of variables specifically within the manufacturing sector. The findings are applicable to several variables that are associated with trade. The incorporation of additional factors does not alter the relevance of trade liberalisation.

Generally, the labour market laws are regarded as the primary determinant of job status in comparison to trade policy. Fortunately, there have been no new regulations implemented in the labour market throughout the research period that might potentially alter the elasticity or inflexibility of the labour market in Pakistan. Pakistan is a significant instance that allows for an examination of the gender-specific effects of trade liberalisation on employment in the informal manufacturing sector of the country. Therefore, it may be concluded that these outcomes are the fundamental consequence of trade liberalisation on female labour participation in the informal economy of developing nations such as Pakistan.

The policy consequence derived from the findings is that implementing trade liberalisation policies in isolation is inadequate for achieving an optimal outcome. In order to fully capitalise on the advantages of trade liberalisation, it is necessary to implement an ideal blend of labour and trade reforms. In order to fully capitalise on the advantages of technological advancements, it is crucial to have a high degree of adaptability within the labour market. This perfect amalgamation will enhance production and safeguard workers from exploitation.

Women sometimes fail to fully benefit from globalisation as a result of their domestic obligations. To address this issue, the government might improve the working circumstances for women. In response to the heightened demand for skilled labour brought about by globalisation, the government is considering raising the education level to enhance the availability of trained workers. In poor nations such as Pakistan, a significant number of women lack qualifications and have limited access to education.

References

- Adhikari, R., & Yamamoto, Y. (2007). The textile and clothing Industry: Adjusting to the post-quota world. *Industrial Development for the 21st Century: sustainable development perspectives*, 183-234.
- Aleman-Castilla, B. (2006). The effect of trade liberalization on informality and wages: evidence from Mexico: Centre for Economic Performance, London School of Economics and Political
- Attanasio, Goldberg, P. K., & Pavcnik, N. (2004). Trade reforms and wage inequality in Colombia *Macroeconomic Policies and Poverty Reduction* (pp. 229-266): Routledge.
- Attanasio, O., Goldberg, P. K., & Pavcnik, N. (2005). Trade reforms and wage inequality in Colombia *Macroeconomic Policies and Poverty Reduction* (pp. 229-266): Routledge.
- Ben Yahmed, S., & Bombarda, P. (2018). Gender, informal employment and trade liberalization in Mexico. *The World Bank Economic Review*, 34(2), 259-283.
- Berik, G. (2000). Mature export-led growth and gender wage inequality in Taiwan. *Feminist Economics*, 6(3), 1-26.

- Bosch, M., Goni, E., & Maloney, W. F. (2007). The determinants of rising informality in Brazil: Evidence from gross worker flows. World Bank Policy Research Working Paper(4375).
- Caspersz, D. (2001). The Power to Choose: Bangladeshi Women and Labour Market Decisions in London and Dhaka by Naila Kabeer, London: Verso, 2000, 464 pp., isbn 1-85984-804-4. Relations Industrielles/Industrial Relations, 56(1), 217-219.
- Chant, S., & Pedwell, C. (2008). Women, gender and the informal economy: An assessment of ILO research and suggested ways forward.
- Chen, Z., Ul-Haq, J., Visas, H., & Cheema, A. R. (2019). Globalization and working environment nexus: Evidence from Pakistan. SAGE Open, 9(2), 2158244019852474.
- Cheema, A. R., Saleem, A., Haq, J. U., & Shehzadi, B. (2022). Estimating Gender Wage Gap and Its Decomposition in Pakistan. Journal of Quantitative Methods, 6(2).
- David, H. L. (2007). A guide to measures of trade openness and policy. Retrieved February, 22, 2013.
- El-Ghamrawy, T. (2014). The Impact of Trade Openness on Employment and Wages in Egypt's Manufacturing Sector. The Egyptian Center for Economic Studies, Working Paper(176).
- Fatema, F., Li, Z., & Islam, M. M. (2017). Trade liberalization and gender inequality in emerging economies-from the perspective of sustainable development goals. Asian Economic and Financial Review, 7(11), 1075-1092.
- Haisken-DeNew, J. P., & Schmidt, C. M. (1997). Interindustry and interregion differentials: Mechanics and interpretation. Review of economics and Statistics, 79(3), 516-521.
- Jameel, M. A. relationship between trade liberalization and skilled unskilled wage-gap nexus: evidence from Pakistan
- Khan, M., & Ashraf, A. (2012). Informal employment in Pakistan: the growing challenge for decent work. Elixir journal of Management, 42(1), 6433-6446.
- Kucera, D., & Roncolato, L. (2011). Trade liberalization, employment and inequality in India and South Africa. International Labour Review, 150(1-2), 1-41.
- La Porta, R., & Shleifer, A. (2014). Informality and development. Journal of economic perspectives, 28(3), 109-126.

- Leamer, E. E., & Levinsohn, J. (1995). International trade theory: the evidence. *Handbook of international economics*, 3, 1339-1394.
- Papyrakis, E., Covarrubias, A., & Verschoor, A. (2012). Gender and trade aspects of labour markets. *Journal of Development Studies*, 48(1), 81-98.
- Pieters, J. (2018). Trade liberalization and gender inequality. *IZA World of Labor*.
- Robbins, D., & Gindling, T. H. (1999). Trade liberalization and the relative wages for more-skilled workers in Costa Rica. *Review of Development Economics*, 3(2), 140-154.
- Saqfalthait, N., Spetan, K. A., Awad-Warrad, T., & Alomari, M. W. (2023). Trade liberalization and women empowerment in the Arab countries. *International Journal of Gender and Entrepreneurship*(ahead-of-print).
- Stallings, B., & Peres, W. (2010). Growth, employment, and equity: The impact of the economic reforms in Latin America and the Caribbean: Brookings Institution Press.
- Standing, G. (1999). Global feminization through flexible labor: A theme revisited. *World development*, 27(3), 583-602.
- Ul-Haq, J. (2016). Trade Liberalization, Wages and Work Environment Nexus: Evidences from Pakistan. Beijing: School of International Trade and Economics, University of International Business and Economics.
- Ul-Haq, Nazeer, N., & Khanum, S. (2021). Trade Liberalization and Child Labor: Empirical Evidence from Manufacturing Sector of Pakistan. In *Competitive Social Science Research Journal (CSSRJ)* (Vol. 2, Issue 4). www.cssrjournal.com
- Ul-Haq, J., Nazeer, N., & Rahim, N. (2022). Does Trade Liberalization Reduce Gender Wage Gap in the Manufacturing Sector of Pakistan? *Competitive Social Science Research Journal*, 3(1), 119-130.
- Wu, M., Ul-Haq, J., Zafar, N. uz, Sun, H., & Jiang, J. (2019). Trade liberalization and informality nexus: Evidence from Pakistan. *Journal of International Trade and Economic Development*, 28(6). <https://doi.org/10.1080/09638199.2019.1593489>
- Umer, F. (2014). Impact of trade openness on economic growth of Pakistan: An ARDL approach. *Journal of Business & Economic Policy*, 1(1), 2014.
- Ventura-Dias, V. (2010). Beyond Barriers: The Gender Implications of Trade Liberalization in Latin America.
- Wamboye, E. F., & Seguino, S. (2015). Gender effects of trade openness in sub-Saharan Africa. *Feminist Economics*, 21(3), 82-113.

- WATCH, W. (2011). Gender Equality & Trade Policy. Resource Paper: United Nations Inter-Agency Network on Women and Gender Equality.[Online
- Williams, C. C. (2014). Out of the shadows: a classification of economies by the size and character of their informal sector. *Work, employment and society*, 28(5), 735-753.
- Wu, M., Ul-Haq, J., Zafar, N. U., Sun, H., & Jiang, J. (2019). Trade liberalization and informality nexus: Evidence from Pakistan. *The Journal of International Trade & Economic Development*, 28(6), 732-754.