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IMPACT OF GLOBALIZATION ON GENDER INEQUALITY IN LABOUR MARKET OF PAKISTAN

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Abstract. This study investigates the impact of Foreign Direct Investment (*FDI*) and Trade Openness (*TO*) on gender-based Labour Force Participation Rate Difference (*LFPRD*) and Wage Ratio (*WR*) in Pakistan. Using time series data (1982-2012), OLS and ARDL approach to cointegration are applied. The results indicate that *FDI* positively affects *LFPRD* and *WR* whereas openness is found negatively affecting *LFPRD*. To make certain the validity of results, all standard diagnostic tests related to error term, coefficients and model specification are applied. Further, results of the study are supported by recent empirical evidence. The main policy implication based on results of the study is that *TO* should be enhanced to decrease *LFPRD* in Pakistan, and *FDI* in non-services sector should be encouraged to enhance *FLFP*.

Keywords: Globalization, Foreign direct investment, Labour force participation rate, Auto-regressive distributed lag model

JEL classification: F62, J71

I. INTRODUCTION

Gender equality from the economic perspective means equal job opportunities for males and females, equal wages for both genders specifically for

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those having same level of education and skills, easier access to credit and equal access to inputs. Females are a major source of new labour and can increase growth by reducing the impact of shrinking labour force in aging economies (IMF Staff Discussion Note, 2013). Although several efforts have been made to promote gender equality in the labour market, yet average Female Labour Force Participation Rate (*FLFPR*) remained low (40%) across the world.[1] Further, gendered base labour force participation gap is severe in South Asia with low *FLFPR* (31.8%) in comparison to male LFPR (81.3%) (ILO, 2013).

Since 1980s, globalization has decreased transportation costs, increased transmission of knowledge, elevated trade, and promoted *FDI* inflows and technology transfer. Globalization is one of the important macroeconomic indicators, which has created tremendous impact on gendered labour market indicators in developing nations. According to *World Development Report* (2012), globalization has increased relative *FLFP* and wage level.

TABLE 1

Gender-Based Comparison of Labour Market in Pakistan

Indicators	Both	Males	Females
Labour Force Participation Rates (%)	32.9	49.3	15.6
Unemployed Labour Force	3.73	2.49	1.24
Unemployment Rate (%)	6.2	5.4	9.0
Underemployment (worked less than 35 hours a week) Rate (%)	1.6	1.2	3.1
Mean hours worked	46.4	50.1	33.3
Average Monthly Wages of Employees	12118	12804	7869
Literacy Rate	59.8	71.1	48.1
Degree and above Education	4.7	5.6	3.8
Matric and above Education	21.2	25.6	16.7

Source: LFS, *Labour Force Survey of Pakistan*, 2012-13.

[1]*World Development Report* (2011).

IMF has emphasized on reduction in gender-based LFPD and gendered wage differential in new global economic agenda (Lagarde, 2013). Previously, gender equality was incorporated as one of the MDGs. However, Pakistan is lagging far behind the set of targets related to gender equality goal. Average monthly female wage rate (Rs. 7,869) is 61.4% of average monthly male wage rate in Pakistan. *FLFPR* (15.6%) in Pakistan as compared with male *LFPR* (49.3%) is less than one third (*see* Table 1). Sectoral *FLFPR* in manufacturing sector (10.9%), construction (0.2%), wholesale and retail trade (1.6%) are far less than female participation rates (75.4%) in agriculture sector (LFS, 2012-13).

On the basis of standard trade theory of Heckscher-Ohlin, it has been expected that openness of an economy would increase the relative returns of those factors of production which are abundant in the economy. Hence, in developing nations like Pakistan, labour especially unskilled labour is abundant as compared to capital. With the increase in demand of unskilled labour for specializing in labour intensive exports will increase demand and wages of these workers relative to skilled labour. This effect narrows the gender gap in wages and labour force participation in developing countries, as women are mostly engaged in low paid jobs with fewer skills relative to males. Moreover, regarding to Factor Price Equalization the real wages in developing countries rise in response to fall in the real wages of developed nations.

A few studies have been conducted for Pakistan to check the relationship between globalization and labour market indicators. Nevertheless, no previous study has estimated effect of both *FDI* and *TO* on gender equality indicators (*LFPRD* and *WR*) in Pakistan. So, the present study intends to fulfill the gap in the existing literature by empirically examining the impact of globalization (*TO* and *FDI*) on gender equality in labour market for Pakistan.

II. LITERATURE REVIEW

Cross country literature documents conflicting empirical evidence regarding the impact of globalization on gendered labour markets of developed and developing countries. Oostendrop (2004) found the significant effect of globalization for developed nations but no effect for developing nations. Contrarily, Tejani and Milberg (2010) have found positive effects on relative *FLFP* in developing/middle-income nations while negative effects on relative *FLFP* in developed/high-income nations. Further, Cooray *et al.*

(2012) have found that *FDI* and trade both negatively affect *FLFP* in developing nations and positively in developed nations. Rasekhi and Hosseinmardi (2012) conclude that globalization has reduced gap in gender wages for developing countries.

The impact of globalization on gendered labour market indicators has been empirically investigated for single countries including Japan, Indonesia, India, and Pakistan. Kucera (1998) found that foreign trade expansion adversely affected female employment in manufacturing sector in Japan whereas situation is opposite for Germany. Seigmann (2007) has assessed the impact of *FDI* on gendered labour market in rural Indonesia by using the combination of quantitative and qualitative types of data. Results provide the evidence for the existence of positive association between foreign ownership with relative high female employment among female workers in agriculture sector. Braunstein and Brenner (2007) have found that *FDI* has increased the wages of males and females for both years but gains for females in 1995 were larger than in 2005. So it is concluded that *FDI* will reduce gender wage gaps if *FDI* is coming for female-dominating industries. Manda (2002) concludes that globalization has worsened the condition of labour market in Kenya in terms of widening the gendered wage gap. Menon and Rodgers (2009) checked how increased competitiveness through trade liberalization had changed female status in labour market of India. They have found trade liberalization causes rise in gender-based wage gap in manufacturing sector of India.

Only few studies have been conducted for Pakistan assessing the impact of globalization on gender equality in the labour market. Hyder and Behrman (2012) have investigated whether *TO* affects gender differences in LFP in different occupational categories in Pakistan using census data. The study finds that trade decreases LFP gap between male and female workers in all occupations. Siddique (2009) investigated the gender dimensions of the impact of trade liberalization in Pakistan using computable general equilibrium model. The model distinguishes females from males in all four skill categories and state that revenue-neutral trade liberalization in Pakistan has increased employment of females in unskilled jobs and increased their real wages greater than males in all categories of labour. Contrarily, Mujahid (2013) finds negative correlation between global indicators (trade openness and *FDI*) and female labour force participation rates. Trade openness and *FDI* are inversely related with female labour supply. The impact of trade openness on female labour supply is negative that may be due to high demand for skilled labour which is captured by skilled labour force.

III. METHODOLOGY AND RESULTS

To test the hypothesis that globalization affects *LFPRD* and *WR*, this study followed augmented model originally developed by Seigmann (2007) and Mujahid (2013) for developing countries:

Model 1

$$LFPRD = f(TO, FDI, PCI, TFR)$$
$$(+/-)\ (+/-)\ (-)\ (+)$$

The variables incorporated in Model 1 are: Gender-based difference in labour force participation (*LFPRD*) as a dependent variable whereas independent variables are Trade Openness (*TO*), Foreign Direct Investment (*FDI*), Per Capita Income (*PCI*), and Total Fertility Rate (*TFR*). The signs in the parenthesis reflect the direction of relationship between *LFPRD* and independent variables based on the existing literature. The linkages of explanatory variables selected in Model 1 with dependent variable are explained below in the light of existing empirical studies for different countries.

Substantial literature exists on the impact of *TO* on *LFPRD* but there is contradiction in findings. There are few studies showing positive relationship between *TO* and *LFPRD* (Cooray *et al.*, 2012; Menon *et al.*, 2009; Berik *et al.*, 2003). However, plenty of work finds negative relationship between *TO* and *LFPRD*. Gender inequality is highly affected by exports rather than imports because export-oriented firms absorb relatively higher ratio of females as compared to males. Specifically, when exporters have to compete in international markets it will be costly to discriminate (Gaddis and Pieters, 2012; Siddique, 2009).

FDI may affect *LFPRD* in both ways. *FDI* in export oriented firms increase demand for labour. Thus, producers find it less costly to hire female employees as they are low wage earners. This would lead to reducing *LFPRD* (Seguino, 2000). Technology based *FDI* in services sector may benefit male computer and soft engineers as compared to females as they are more educated and skilled as a result it widens *LFPRD* (Oostendrop, 2009).

There exists negative relationship between *LFPRD* and *TFR*. Results of existing studies show that an additional child reduces the probability of females to work (Chun and Oh, 2002). Similarly, Per Capita Income (*PCI*) negatively affects *LFPRD* assuming that substitution effect is higher than income effect.

Model 2

$$WR = f(TO1, FDIGDP, GPCI)$$
$$(+/-) \quad (+/-) \quad (-)$$

The variables incorporated in Model 2 are: Male to female wage ratios (*WR*) as a dependent variable and independent variables include Trade Openness measured as ratio of trade to *GDP* (*TO*1), *FDI* as ratio of *GDP* (*FDIGDP*), and Growth in Per Capita Income (*GPCI*). The linkage of explanatory variables selected in Model 2 with dependent variable are explained below in the light of existing empirical studies for different countries.

Literature shows the evidence for both negative and positive relationship between *WR* and *TO*1. The negative relationship between *TO*1 and *WR* posits that increased trading activity can marginalize females into lower paid jobs, at the same time, increase the demand for female labour and thus their earnings. On the other hand, when international trade is based on skills and technological upgrading are complements, technological change is skill-biased and male workers are considered more skilled relative to females. Thus widening of gender wage gap occurs with hiring of skilled male workers (Yahmed, 2013).

Technology intensive *FDI* may increase the returns of educated and skilled female workers which reduce gender wage gap (World Investment Report, 1999).

Time series data from 1982-2012 were used from electronic and published sources of *International Labour Organization* (ILO), *World Development Indicators* (WDI) and *Pakistan Bureau of Statistic* (PBS).

TABLE 2

Augmented Dickey Fuller Test for Model 1 (*LFPRD*)

Variable	At level		At first difference	
	Intercept	Trend and Intercept	Intercept	Trend and Intercept
	Test Statistics		Test Statistics	
LFPRD	1.3123 (0)	–1.390 (0)	–5.1856 (0)***	–4.3381 (1)***
TO	–1.9248 (0)	–1.6209 (0)	–7.3347 (0)***	–7.9843 (0)***
FDI	–2.7614 (1)	–6.0630 (6)***	—	—
PCI	2.7764 (0)	0.0333 (0)	–4.0217 (0)***	–5.3645 (0)***
TFR	–0.4661 (1)	–2.3776 (0)	–3.0779 (0)***	–2.7995 (0)

Note: The asterisks *** show that probability is less than 0.01.

The results of ADF test for Model 1 (*LFPRD*) shown in Table 2 represent that dependent variable *LFPRD* is integrated of order I(1) and all independent variables are I(1) except *FDI* which is I(0). This fulfills prerequisite for applying ARDL approach that all variables should be mix of I(0) and I(1), dependent variable must be I(1) and no variable should be I(2).

In the first step of applying ARDL model, calculated F-test statistics is compared with tabulated F-values provided by Pesaran *et al.* (2001). Therefore, the first model (*LFPRD*) is estimated by selecting lag order 3 based on AIC and HQ criteria applied on VAR.

$$\begin{aligned}\Delta LFPRD = {} & \gamma_0 + \gamma_{1t}\sum_{i=1}^{3}\Delta LFPRD_{t-i} + \gamma_{2t}\sum_{i=0}^{3}\Delta FDI_{t-i} + \gamma_{3t}\sum_{i=0}^{3}\Delta PCI_{t-i} \\ & + \gamma_{4t}\sum_{i=0}^{3}\Delta TFR_{t-i} + \gamma_{5t}\sum_{i=0}^{3}\Delta TO_{t-i} + \gamma_6 LFPRD_{t-1} + \gamma_7 FDI_{t-1} \\ & + \gamma_8 TFR_{t-1} + \gamma_9 PCI_{t-1} + \gamma_{10} TO_{t-1} + \gamma_{11} DUM1995 + \varepsilon_t\end{aligned}$$

Null hypothesis:

H_0: $\gamma_6 = \gamma_7 = \gamma_8 = \gamma_9 = \gamma_{10} = 0$ (No cointegration)

H_1: $\gamma_6 \neq \gamma_7 \neq \gamma_8 \neq \gamma_9 \neq \gamma_{10} \neq 0$ (Existence of long-run relationship)

TABLE 3

ARDL Bounds Testing Analysis

Model Estimated (*LFPRD*)		
F-Statistics	5.5108**	
Selected Lag Length (Criteria)	03 (AIC)	
	Critical values from Pesaran *et al.* (2001), Table CV (v)	
Critical bound values	Lower	Upper
1%	5.17	6.36
5%	4.01	5.07
10%	3.47	4.45

The calculated *F-statistic* for Model 1 is **5.5108** which is greater than upper critical bound at 5 percent level of significance thus showing the

existence of cointegration between *LFPRD* and explanatory variables. The results of the long-run coefficients for Model 1 are given in Table 4.

TABLE 4

Long-Run Analysis (Model 1)

Variable	Dependent Variable: *LFPRD*		
	Coefficient	T-statistic	Prob
Constant	101.08***	5.371	0.0000
LFPRD(–1)	0.2329	1.439	0.1663
LFPRD(–2)	–0.0635	–0.398	0.6947
LFPRD(–3)	–0.5519***	–3.434	0.0028
FDI	0.3609***	2.009	0.0589
PCI	–0.0075***	–3.184	0.0049
PCI(–2)	–0.0091***	–4.250	0.0004
TFR	1.4479***	4.225	0.0005
TO	–0.2392***	–3.158	0.0052
*DUM*1995	2.1018***	4.028	0.0007
R^2	0.9922		
ADJ R^2	0.9886		
F-statistic	271.39		
Prob. (F-statistic)	0.0000		
S.E. of Regression	0.4618		
Prob. J-B Test	0.979		
Prob. ARCH Test	0.3975		

Note: The asterisks ***denote the significance at 1% level of significance.

After applying Ordinary Least Square (OLS), the coefficient of *TO* is found negative. The coefficient of *TO* shows that 1% rise in *TO* (export to *GDP* ratio) leads to 0.23% decline in *LFPRD*. Results indicate the openness reduce gender inequality in terms of LFPR. Gender inequality is highly

affected by exports rather than imports because export-oriented firms absorb relatively higher ratio of females as compared to males. Specifically, when exporters have to compete in international markets it will be costly to discriminate.

TABLE 5

Short-Run Analysis-Error Correction Model (Model 1)

Variable	Dependent Variable: *DLFPRD*		
	Coefficient	t-statistic	Prob
Constant	–0.3333	–0.849	0.4083
DLFPRD(–1)	0.0962	0.463	0.6496
DLFPRD(–2)	0.0014	0.008	0.9936
DLFPRD(–3)	0.2253	1.161	0.2625
DFDI	0.1672	0.555	0.5861
DPCI	–0.0050	–1.442	0.1684
DTFR	1.6342	0.664	0.5160
DTO	–0.0317	–0.183	0.8563
DTO(–1)	0.0755	0.509	0.6172
DTO(–2)	0.1608	1.1627	0.2620
*DUM*1995	2.5011***	3.2261	0.0053
ECM(–1)	–0.9707	–2.0309	0.0592
R^2	0.5812		
ADJ R^2	0.2934		
F-statistic	2.019		
Prob. (F-statistic)	0.0977		
S.E. of Regression	0.6987		
Prob. J-B Test	0.793		
Prob. ARCH Test	0.4873		

Similar results are found by Siddique (2009), Gaddis and Pieters (2012) and Ahmad (2007). The coefficient of *FDI* is found positive and shows that 1% increase in *FDI* leads to 0.36% increase in *LFPRD*. These results are similar to the findings of Oostendrop (2009), he stated that technology based *FDI* in services sector might benefit male computer and software engineers

as compared to females as they are more educated and skilled, therefore, as a result it widens gendered labour force participation gap. The positive coefficient of *TFR* indicates that by increasing *TFR* by one child per women increases *LFPRD* by 1.45 percentage point. Similar results are found by Chun and Oh (2002) which show that an additional child reduces the probability of females to participate in the labour market hence widens the gendered base labour for participation gap. The coefficient of *PCI* is found negative (–0.0075) and significantly affecting *LFPRD*. Results are consistent with Ahmad and Hyder (2006) which confirms that an increase in *PCI* plays an important role in reducing gender inequality.

In the next step, Error Correction Model (ECM) has been estimated as follows:

$$DLFPRD = \gamma_0 + \gamma_{1i}\sum_{i=1}^{3} DLFPRD_{t-i} + \gamma_{2i}\sum_{i=0}^{3} DFDI_{t-i} + \gamma_{3i}\sum_{i=0}^{3} DPCI_{t-i} + \gamma_{4i}\sum_{i=0}^{3} DTFR_{t-i} + \gamma_{5i}\sum_{i=0}^{3} DTO_{t-i} + \gamma_6 DUM1995 + \gamma_7 ECM_{t-1} + \varepsilon_t$$

The coefficient of ECM_{t-1} is negative and significant suggesting convergence to equilibrium. The coefficient (–0.9707) implies that deviation from the long-term equilibrium is corrected by 97.07% over one year.

TABLE 6

Augmented Dickey Fuller Test for Model 2(*WR*)

Variable	At level	
	Intercept	Trend and Intercept
	Test Statistics (Prob)	
WR	–5.076 (0)***	–4.375 (1)***
FDIGDP	–2.7614 (1)	–6.0630 (6)***
GPCI	–4.822 (0)***	–5.684 (0)***
*TO*1	–2.876 (0)**	–2.823 (0)

For Model 2 Table 7 shows that all variables are stationary at level including dependent variables. As all the variables are I(0), thus fulfilling the prerequisite for applying OLS technique.

TABLE 7

Ordinary Least Results (Model 2)

Variable	Dependent Variable: *WR*		
	Coefficient	T-statistic	Prob
Constant	70.349***	2.989	0.0064
WR(–1)	0.5826***	8.819	0.0000
FDIGDP	3.6274***	2.008	0.0560
GPCI	0.3504***	1.975	0.0598
*TO*1	–0.2845	–0.469	0.6432
*DUM*2001	28.318***	3.792	0.0009
*DUM*2008	–27.232***	–3.264	0.0033
R^2	0.8284		
ADJ R^2	0.7855		
F-statistic	19.3121		
Prob. (F-statistic)	0.000000		
S.E. of Regression	6.9088		
Prob. J-B Test	0.8235		
Prob. Serial Correlation LM test	0.1894		
Prob. ARCH Test	0.5757		
Prob. Ramsey Test	0.2359		

The results obtained from OLS are presented in Table 7, where dependent variable is *WR* (ratio of male wages to female wages) to measure gendered base wage gap. The coefficient of *FDIGDP* (3.62) is significant and positive showing that 1 percentage point increase in *FDI* as percentage of *GDP* leads to 3.6 percentage points increase in *WR*. If a country receives *FDI* in its export oriented firms, with the expansion of these firms exporters find it profitable to hire female workers as compared to male, so, relative demand of female workers increases as a result their supply also increases which lowers their bargaining power due to increased competition leading to

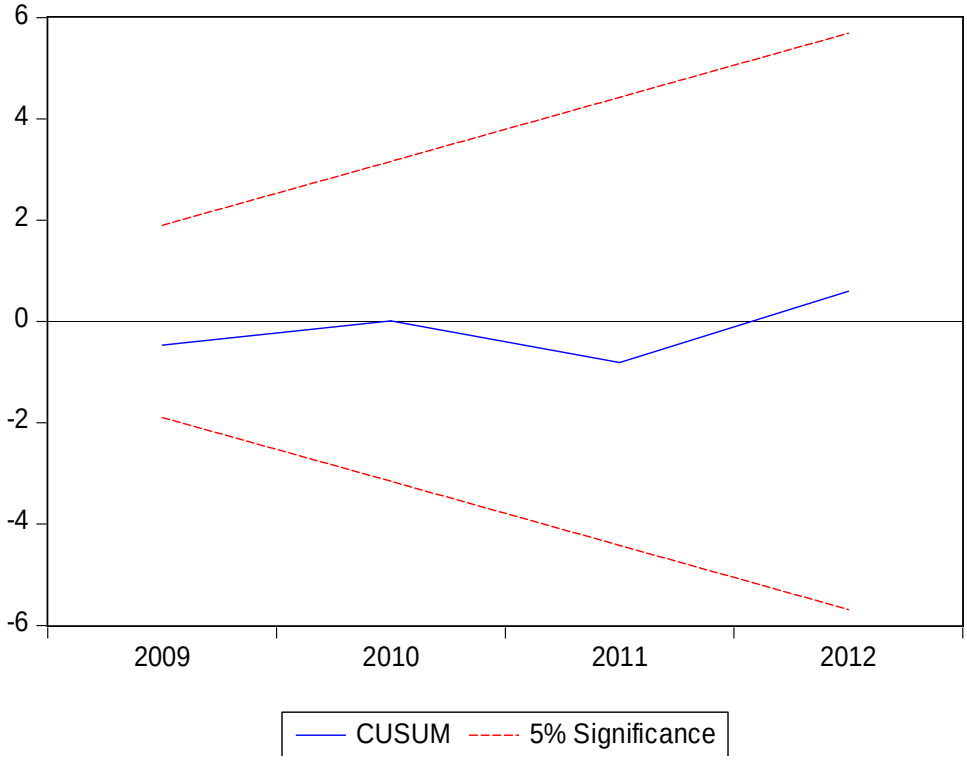
increase in wage gap (Seguino, 2000). In case of Pakistan, since last two decades almost 70 percent *FDI* came in services sector (Hafeez *et al.*, 2010) and comparatively there is large number of skilled males in contrast to females so, gendered base wage gap widens with the advent of time.

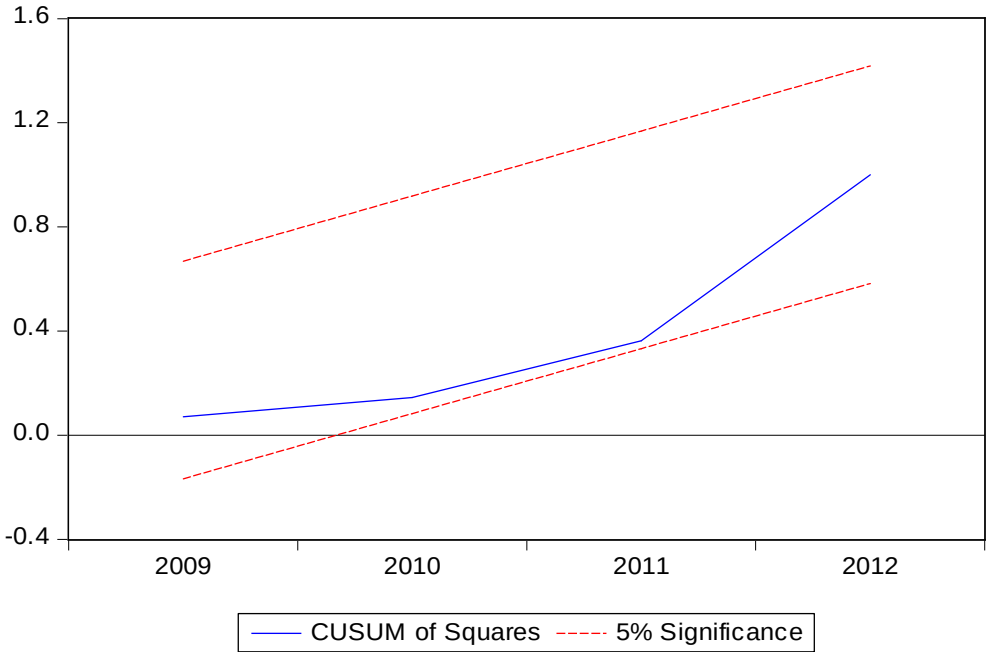
The coefficient of *TO*1 (exports plus imports to *GDP* ratio) is found negative (–0.28) but insignificant, indicating that increased trading activities in a country increase demand for females as a result improves their wages. Results confirm the findings of Yahmed (2013) and Potrafke and Ursprung (2011). Further, the coefficient of *GPCI* (growth in per capita income) is found positive and significant. It shows that 1% increase in *GPCI* leads to 0.35 percentage point increase in relative wages of males.

To check whether the OLS estimators have fulfilled the OLS assumptions, standard diagnostic tests are applied. J-B test statistics (0.388) has probability (0.82) greater than 0.05, so residuals are normally distributed. LM test is used to check autocorrelation, probability of LM test in our results is greater than 0.05 indicating no serial correlation.

FIGURE 1

CUSUM and CUSUMSQ Tests





Results of ARCH test also confirm the null hypothesis of non-existence of heteroskedasticity. Results of Ramsey Reset test also show that model is correctly specified. To check the stability of parameters CUSUM and CUMSUMSQ tests are used. Both tests confirm the stability of parameters in the model.

IV. CONCLUSION

This study has empirically investigated the relationship between globalization and gender-based labour market inequalities in Pakistan. For this purpose, the study has estimated two models separately for two indicators (*LFPRD* and *WR*) of gender-based labour market discrimination. The study has used time series annual data from 1982 to 2012 for testing models by applying suitable estimation techniques (OLS and ARDL approach). The selection of estimation techniques was based on stationarity tests. The results indicate that *FDI* positively affects *LFPRD* and *WR* whereas openness is found negatively affecting *LFPRD*. To make sure validity of empirical findings of the study, standard diagnostic test was applied on both estimated models. The major conclusion based on empirical findings of the study is that gendered labour force participation rate gap is significantly reduced by trade openness whereas *FDI* augments this gap in

Pakistan. The main policy implication based on results is *TO* should be enhanced to increase relative *FLFP* in Pakistan. Further, *FDI* in non-services sector should also be encouraged to enhance relative *FLFP* in Pakistan. In future, research on impact of globalization on gendered labour market indicators at sectoral level should be initiated to derive policy implications for inclusive and sustainable growth in Pakistan.

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