

Determinants of Female Labour Force Participation Rate in Pakistan

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Abstract

Low levels of female participation in Pakistan have been widely debated among academics and policymakers. Using a formal mathematical investigation through the shift-share analysis and empirical investigation through a multiple regression analysis, the study finds out that overall labour force participation rate declined for men and risen up for females between 2002-2015 in Pakistan but the increase in women inclusion is substantially lower in urban than rural areas. Additionally, the increase in the supply of highly educated females does not upshot participation towards the upper end of the labour market. Major determinants identified by the empirical analysis that affect female inclusion in workforce rate include real per capita GDP, poverty level, the unemployment rate of females, fertility rate and female literacy rate. Thus, inclusion of females in the workforce is imperative as it not only fuels the socio-economic development but also initiates progress nationally.

Keywords: Labour Force Participation Rate, Women, Pakistan

Introduction

“Placing resources into the hands of females, while encouraging gender parity in the family unit and public arena, brings improvement. Extending females’ chances in public works and other progressive areas accelerate development, moderating the impacts of the present financial crisis. Additional schooling of one year for girls can expand wages by 10-20%. Proof demonstrates assets in hands of women support family unit spending in territories which advantage their kids.”ⁱ

Women embrace the key to a vibrant economy. Today, they are confronted with gender discrimination of over 26 percentage points.ⁱⁱ Their rate of inclusion in the workforce remains far below those of men predominantly in Southern Asia, Northern Africa, and the Arab States. In these regions, the gender gap is nearly double in size from the world

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average and stands at over 50 percentage points. World Bank (WB) presented that the percentage of women in the workforce is highest in Nepal (51.7%) while it is noticed the lowest in Yemen (8.1%). In other developing Muslim countries, Turkey, Saudia Arabia, Libya, Oman, Iran, Egypt, Jordan, Afghanistan, Bhutan, Bangladesh, and Bahrain showed 31.7%, 16.4%, 24.5%, 13.6%, 17.7%, 23.1%, 17.5%, 16.8%, 39.9%, 28.5%, and 21.0% of female in the total workforce respectively.ⁱⁱⁱ

It is undeniable that women involvement in the workforce is low in Pakistan as less importance has been given to the development of female human capital (Faridi *et al*, 2010). Ironically, women constitute less than two-fourth of the total workforce (Pakistan Economic Survey (PES), 2014-15). The Labour Force Survey (LFS) (2014-15) unearthed the truth that Pakistan is far behind the countries with similar income levels with only 24.1% input of female in the conventional labour force while 32.58% contribution of female in the augmented workforce. Their economic efforts remain unobservable because a major chunk of females is working in informal or unregistered sectors of the labour market. Thus, it becomes imperative to find out what factors contribute to this low level of female inclusion in the workforce in Pakistan.

Review of Literature

The literature on factors affecting female employment is quite rich in Pakistani and International context. Numerous studies have identified a number of reasons why females want to join the workforce and what factors stop them to work.

The work-leisure theory developed by Mincer (1962) brought about a great concern to the economic analysis of female inclusion in the workforce during the 20th Century. He finds out the link between waged hours and female inclusion in the workforce of wedded women in the US using moment-of-time analysis. He found an inverse relationship between family income and the number of children. However, his study suggested that education, work familiarity, and work tenancy have a positive relationship with female inclusion in the workforce.

Goldin (1994) studied that in families where women were expected to work as a secondary earner, most of them worked as secretaries, teachers, nurses and librarians during the period of the 1950s and 1970s. Resultantly, there was an upsurge in women inclusion in the workforce during the mid-70s, especially of educated women. Further to this, there was a substantial economic growth between 1970 to 1990

whereby the female inclusion in the workforce went up by 40% to about 75% on average.

Jalal-ud-Din and Khan (2008) carried out the study on Mardan district in 2006 with the purpose of studying the constraints that females face in this area. For this purpose, 100 respondents were randomly selected from two villages. The findings based on primary data showed that females' socio-economic status in those villages is very low due to poor literacy rate, bad economic condition, lack of awareness about their rights, lack of educational facilities and skills and insecure environment for them to work. Compared to this, men have more power in making decisions in their lives.

Using co-integration test and ARDL boundary test approach, Dogan and Akyuz (2017) found an inverted 'U' relationship between per capital growth and female inclusion in the workforce in Turkey. The error correction coefficient came out to be negative and statistically significant in the context of data for the quarter years of 2000Q1-2013Q4.

Rami (2018) found 27% female inclusion and 79.9% male inclusion in the Indian workforce. Results of the correlation analysis for the period 1990-2016 revealed that gross domestic product, per capita income, purchasing power parity, school enrolment at the tertiary level are important factors influencing female inclusion in the workforce in India. A comprehensive approach for wider participation of women is required with major focus on holistic development of women.

Research Methodology

Objective

It is imperative to determine the extent to which the change in female inclusion in the workforce is due to the following:

- Changes in the population distribution of females by age, education, etc., towards those categories of females who are more inclined to chip in the workforce.
- With given population distribution, finding out major determinants that cause a change in the rate of inclusion of females in the workforce in Pakistan.

Sampling Design

For the mathematical analysis, data is extracted from the LFS carried out by the Pakistan Bureau of Statistics (PBS) over period 2002-2015.

During the period of analysis, the female inclusion in the workforce has improved from 14.44% in 2001-02 to 24.1% in 2014-15. For empirical analysis, data is collected from the PES, PBS, Database of Human Development Reports, Annual Reports of Social Policy and Development Centre, and World development Indicators over the period 1980-2015. The ordinary least square (OLS) regression technique will be used to measure the functional form using *E-Views* 10.0.

Mathematical Analysis

In order to conduct formal mathematical analysis, the methodology used will be the application of the *shift-share approach* which is a standard model for regional analysis to determine how much growth can be accredited to national economic growth trends and unique regional growth factors.

Mathematically;

$$\begin{aligned} \Delta \text{ in } \mathbf{FLFPR}_j &= \mathbf{FLFPR}_{jL_1} - \mathbf{FLFPR}_{jL_0} \\ &= \Delta \text{ in } \mathbf{FLFPR}_{j,NS} + \Delta \text{ in } \mathbf{FLFPR}_{j,RS} \\ &\quad \text{National Share (NS)} \\ \Delta \text{ in } \mathbf{FLFPR}_{NS} &= \text{Total } \mathbf{FLFPR}_{jL_0} \\ &\quad * \left(\frac{\text{Total national } \mathbf{FLFPR}_{L_1} - \text{Total national } \mathbf{FLFPR}_{L_0}}{\text{Total national } \mathbf{FLFPR}_{L_1}} \right) \\ &\quad \text{Characteristic Share (CS)} \\ \Delta \text{ in } \mathbf{FLFPR}_{CS} &= \mathbf{FLFPR}_{jL_0} * \left[\left(\frac{\mathbf{LFRP}_{jL_1} - \mathbf{LFRP}_{jL_0}}{\mathbf{LFRP}_{jL_0}} \right) - \left(\frac{\text{Total national } \mathbf{FLFPR}_{L_1} - \text{Total n}}{\text{Total national } \mathbf{FLFP}} \right) \right] \\ &\quad \text{Regional Share (RS)} \\ \Delta \text{ in } \mathbf{FLFPR}_{RS} &= \mathbf{FLFPR}_{jL_0} * \left[\left(\frac{\mathbf{FLFPR}_{j,RS L_1} - \mathbf{FLFPR}_{j,RS L_0}}{\mathbf{FLFPR}_{j,RS L_0}} \right) - \left(\frac{\mathbf{LFRP}_{jL_1} - \mathbf{LFRP}_{jL_0}}{\mathbf{LFRP}_{jL_0}} \right) \right] \end{aligned}$$

The overall participation rate in a base year is L_0 and in the terminal year it is L_1

$$L_1 - L_0 = NS_i + CS_{ij} + RS_i$$

Where;

$FLFPR$	=	Female Labour Force Participation Rate
$Terminal Year$	=	2015
L_1	=	2015
$Base Year = L_0$	=	2002
$L_1 - L_0$	=	Change in female inclusion in workforce rate in terminal and base year
NS_i	=	Impact of changes in female inclusion in workforce rates due to national growth trends
CS_{ij}	=	Impact of changes in female inclusion in workforce rates due to the characteristics of females
RS_i	=	Impact of changes in female inclusion in workforce rates due to regional growth trends
L_{ij}	=	Female inclusion in workforce rate in the year i with j^{th} characteristic
l_{ij}	=	Regional female inclusion in workforce rate in the year i with j^{th} characteristic

Following characteristics (j) of females will be included in the analysis

- i. Age distribution for above 10 years females
- ii. Rural-urban distribution for above 10 years females
- iii. Education level for above 10 years females

Empirical Analysis

The objective of this analysis is to find out the determinants of female inclusion in the workforce rate at macro-level and complement the findings of the mathematical analysis. Following Ehsan (2015), the

functional form of macro determinants of female inclusion in the workforce rate is:

$$FLFPR = f(\text{fertility}, \text{fliteracy}, \text{funemployment}, \text{poverty}, \text{GDP per capita})$$

Where;

<i>flfpr</i>	female inclusion in workforce rate in percentage
<i>ffertility</i>	female fertility rate in percentage
<i>fliteracy</i>	female literacy rate in percentage
<i>funemployment</i>	female unemployment rate in percentage
<i>Poverty</i>	poverty rate in Pakistan in percentage
<i>GDPpercapita</i>	gross domestic product per capita in Pakistan in percentage

In a patriarchal society like Pakistan, the upsurge in children per women reduces women inclusion in the workforce (Khan, 2009). The study expects the inverse relationship between female fertility rate (%) and female inclusion in workforce rate. Literature suggests female inclusion in workforce rate increases along with an increase in the education level of females (Faridi *et al.*, 2010). Here too, a positive relationship between the two variables is expected. Numerous studies have suggested that an increase in the female inclusion in workforce rate can bring significant effect on economic development. Since females spend money on family, a higher percentage of women participating in the workforce can become an important element in reducing poverty (Heintz, 2006). The study expects a negative relationship between women poverty rate and female inclusion in workforce rate. In another study, the U-shaped relationship between per capita GDP and women inclusion in workforce rate is established (Dogan *et al.*, 2017). Therefore, this study expects the inverse relationship between per capita GDP and female inclusion in workforce rate in Pakistan.

Hypotheses

The study will look into the following hypothesis that will be explained

on the basis of the determinants responsible for a change in the female inclusion in the workforce rate.

H1: *Why has an overall rate of female inclusion in the workforce declined for men and risen up for females in Pakistan between 2002-2015?*

H2: *Why is the rate of female inclusion in the workforce substantially lower in urban than rural areas of Pakistan?*

H3: *Does the increase in the supply of highly educated females (with college and university degrees) upshot female participation towards the upper end of the labour market?*

Analysis

Mathematical Analysis

Table-3: Change in Female Labour Force Participation Rate Through Shift-Share Analysis

CHARACTERISTICS NO. 1: AGE DISTRIBUTION FOR ABOVE 10 YEARS FEMALES											
10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 and above
1.43	4.23	9.8	10.67	11.58	9.53	9.5	11.88	10.6	12.79	6.42	-2.9
CHARACTERISTICS NO. 2: EDUCATION LEVEL FOR ABOVE 10 YEARS FEMALES											
ILLITERATE						LITERATE					
13.73						2.61					
PRE-MATRIC			MATRIC			INTER			DEGREE & POST GRADUATE		
2.79			-3.47			-5.53			7.66		
CHARACTERISTICS NO. 3: RURAL-URBAN DISTRIBUTION FOR ABOVE 10 YEARS FEMALES											
RURAL						URBAN					
12.04						0.06					

Source: *Estimated by the Author*

Results of the mathematical examination are presented in table 4 while calculations of change in rates of female inclusion in the workforce in all characteristics are presented in Annexure. It reveals very interesting

insights about the changes in female inclusion in workforce rate from 2002-2015 in Pakistan.

During 2008-15 in Pakistan, the crowding out of male employees (69.5% in 2008 to 67.8% in 2015) from labour market was evident while their female counterparts replace them in employment opportunities (19.6% in 2008 to 22% in 2015).^{iv} In 2008, Pakistan faced the gravest poverty crisis in its history. The impact of food inflation on poverty showed total people below the poverty line in Pakistan increased from 45.5 million in 2004-05 to 56.6 million in 2007-08 forcing women to jump into the workforce.^v Female participation was more pronounced than male participation in the rural economic activity thus causing an unequalizing impact in the labour market. Also, results of the shift-share analysis for characteristic 3 confirms that the change in female inclusion in workforce rate for above 10 years females over 2002-2015 of 12.04% in rural sector trailed the 8.79% growth of female inclusion in workforce nationally by 3.25%.

Although recent data from the LFS shows a higher percentage of educated females in the urban areas of Pakistan, underemployment is on a rise among females (36%) than males (64%) in urban areas.^{vi} Discrimination is also evident in terms of major differences between the augmented participation rate (32.58%) and the conventional participation rate (24.1%).^{vii} Apart from the above mentioned cultural inhibitions, plausible factors responsible for discrimination include the higher percentage of men (11.28%) than females (0.27%) in high skilled occupations out of total employment and low paid engagement in same occupations.

Economic opportunities and employment prospects depend greatly on educational achievement and cultivated skills. Illiteracy muffles the participation of females into the workforce thus contributes directly to their insecurities as depicted from a higher changer in female inclusion in workforce rate among illiterate females (13.73%) than literate females (2.61%) (Table 4). If the level of education is increasing, i.e. a higher percentage of educated females in the population above 10 years of age, regardless of other influences, the overall participation rate is expected to rise as highly educated females (39.9%) are more inclined to work. Results of Table 4 also confirm it as a change of female inclusion in the workforce in the workforce is greatly pronounced with females having a degree and postgraduate education (7.66%). Thus, attainment of higher education changes the underline composition of

females towards that level of education where female participation is higher.

Empirical Analysis

All variables in the model are significant and have a relationship with the dependent variable in accordance with the economic theory. Overall, the regression results show that it is a good fit to the data. This can testify from the value of adjusted R-square which is 98.9 per cent and from the value of F-statistics which is 452.37 far greater than 2. Further, there exists no serial correlation in regression as the value of the Durbin Watson statistics is close to 2.

Table-4: Regression Results

Dependent Variable: FLFPR

Method: Least Squares

Date: 01/13/19 Time: 17:24

Sample: 1980 2015

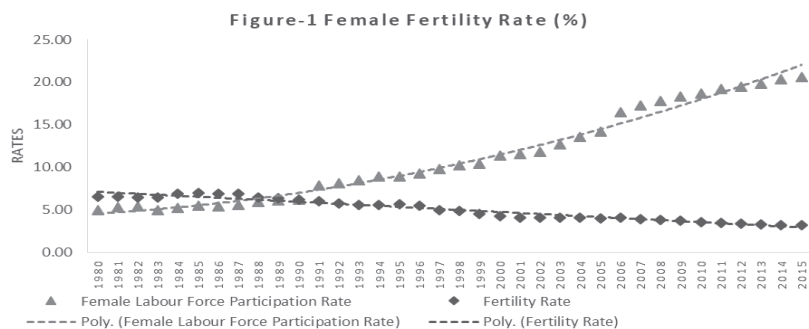
Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.73642	1.308060	19.67527	0.0000
FFERTILITY	-2.615038	0.169143	-15.46052	0.0000
FUNEMPLOYMENT	-0.070241	0.041261	-1.702351	0.0994
FLITERACY	0.995202	0.093284	10.66847	0.0000
POVERTY	-0.113867	0.024507	-4.646251	0.0001
GDPPERCAPITA	-0.129733	0.063117	-2.055428	0.0489
DF	-1.178350	0.313227	-3.761973	0.0008
R-squared	0.989429	Mean dependent var		11.39167
Adjusted R-squared	0.987241	S.D. dependent var		5.617746
S.E. of regression	0.634549	Akaike info criterion		2.100860
Sum squared resid	11.67691	Schwarz criterion		2.408767
Log-likelihood	-30.81548	Hannan-Quinn criter.		2.208328
F-statistic	452.3719	Durbin-Watson stat		1.726306
Prob(F-statistic)	0.000000			

Source: *Estimated by the Author*

Fertility rate comes out to be significant and has a negative sign. Results show that a per cent rise in female fertility rate, female inclusion in workforce rate decreases by 2.6 per cent keeping all other variables as constant. As seen from the graph below, the female inclusion in

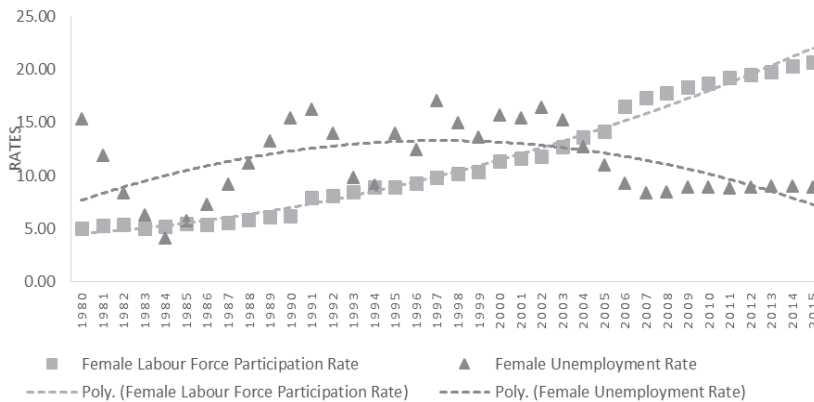
workforce rate is increasing with a reduction in the fertility rate of women in Pakistan for the period 1980-2015. The literature presents various studies that show similar effects of exogenous shocks to fertility on female labour supply. Goldin and Katz (2002) also showed evidence of subsequent changes in labour markets and career investments that were linked to women's control over their own fertility.



Source: PES (Various Issues), LFS (Various Issues).

The unemployment rate comes out to be significant and has the expected negative sign. The outcome of the table shows that a per cent increase in the female unemployment rate, female inclusion in workforce rate decreases by 0.07 per cent keeping all other variables as constant. As seen from the graph below, the female inclusion in workforce rate is increasing with a decrease in the women unemployment rate in Pakistan for the period 1980-2015. This means that a decrease in unemployed females in the workforce cause other women to come into the workforce with an idea to get access to opportunities. For the last five years, the country stood at second last spot on the Global Gender Gap Index 2017.^{viii} The noticeable gender gap in unemployment rate persists in Pakistan. Overall, it is 5% for men while 9% for women. In the case of urban areas, the unemployment rate for men is 6% while that for women is 20%.^{ix} Resultantly, employed women in Pakistan, adhering to societal standards, are mainly concentrated in the agricultural sector (72.7%) while only 14.3% reside in industry and 13% in the services sector respectively (PES, 2014-15). This reduces their participation in the formal sector as women are restricted to the agricultural sector.

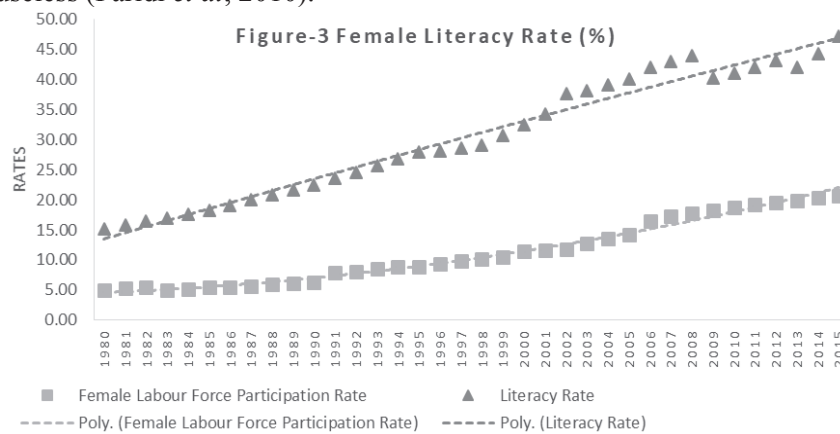
Figure-2 Female Unemployment Rate (%)



Source: PES (Various Issues), LFS (Various Issues).

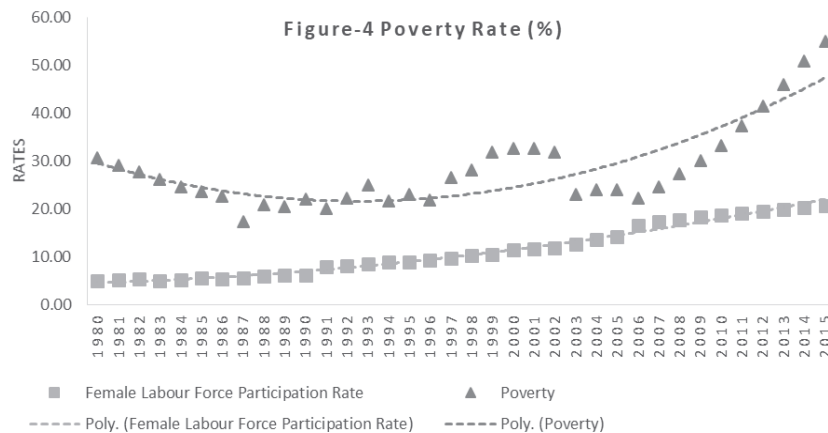
Literacy rate comes out to be significant and has the expected positive sign. Results show that a one per cent increase in female literateness, female inclusion in workforce rate increases by 0.99 per cent keeping all other variables as constant. As seen from the graph below, the female inclusion in workforce rate is increasing with an upsurge in women literacy rate in Pakistan for the period 1980-2015. Although the regression results are accurate yet, the impact of the literacy rate of the female inclusion in the workforce rate is not very significant in the case of Pakistan. One reason is the belief that the main purpose of women is to look out her children and home thus rendering education of women useless (Faridi *et al*, 2010).

Figure-3 Female Literacy Rate (%)



Source: PES (Various Issues), LFS (Various Issues).

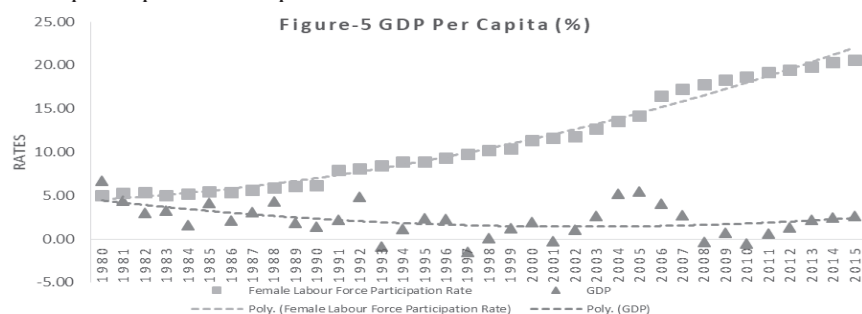
Poverty comes out to be significant and has the expected negative sign. Results show that a one per cent increase in poverty level, female inclusion in workforce rate decreases by 0.11 per cent keeping all other variables as constant. The 'inside/outside' dichotomy in Pakistan as proposed by UNDP (2017), restrict women to the inside space of house further embodies in the tradition of veiling.^x As a result, they are forced to become unregulated domestic workers and compensated poorly after working in hazardous circumstances without proper social or legal protections. Also, seen from the graph below, the female inclusion in workforce rate is increasing with a reduction in the poverty rate of women in Pakistan for the period 1980-1998. From there on, the fluctuating trend in poverty rates resulted in an increase in female inclusion in the workforce rate. Surprisingly, after 2008, an increase in the female inclusion in workforce rate is seen with rising poverty rates in Pakistan. This is consistent with the findings of Hussain (2007) who pointed out that the global financial crisis of 2008 manifested unemployment and joblessness and agitated economic growth so did the inclusiveness.



Source: PES (Various Issues), LFS (Various Issues).

GDP per capita comes out to be significant and has the expected negative sign. Results show that a one per cent increase in GDP, female inclusion in workforce rate decreases by 0.12 per cent keeping all other variables as constant. A report by the IMF postulated that an increase in the country's GDP per capita generates a positive signal towards the inclusion of labour into job markets. Applying this to Pakistan, a major

chunk of the overall workforce comprises of the male. With an increase in their per capita GDP, men are expected to spend more and positively affect the standard of living of their families. In such a case, women are not expected to work outside their homes rather demanded to take care of the wellbeing of their families. As a result, female inclusion in the workforce decreases. As seen from the graph below, the female inclusion in workforce rate is increasing with a declining fluctuating trend in the GDP per capita for the period 1980-2015.



Source: PES (Various Issues), LFS (Various Issues).

Df is the dummy variable included for the year 1989 and 1990. It is countering for the structural changes taken place in the two above mentioned years. One was the ratification of Convention on the Elimination of all forms of Discrimination against Women (CEDAW) in 1989 (Patel, 2010) while other accounted for the repealment of discriminatory law, Hudood Ordinance in 1990 (Jahangir and Jillani, 1990).

Conclusion

Using shift-share analysis, the study concluded that the overall labour force participation rate declined for men and risen up for females during 2002-2015. However, female inclusion in the workforce rate is substantially lower in urban than in rural areas of Pakistan. Additionally, the increase in the supply of highly educated females does not upshot female participation towards the upper end of the labour market. Major macro determinants that affect female inclusion in workforce rate include real per capita GDP, poverty, female unemployment rate, fertility rate and women literacy rate. If the position of women determines the civility of a society, it is the empowerment of women that manifests the economic fate of a nation. If women inclusion in mainstream sectors remains unchecked; the repercussions can be catastrophic. Thus, if

Pakistan is to emerge as a moderate and stable polity, the present government should take some practical steps to ensure women inclusion in the workforce based on the following policy recommendations.

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End Notes

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- ⁱ United Nations: MDG Report 2015
- ⁱⁱ World Employment Social Outlook, Trends 2018, ILO
- ⁱⁱⁱ Pakistan Bureau of Statistics (PBS)
- ^{iv} Pakistan Labour Force Survey (2014-15)
- ^v The Nation, May 07, 2008
- ^{vi} Pakistan Labour Force Survey (2014-15)
- ^{vii} Pakistan Labour Force Survey (2014-15)
- ^{viii} Daily Times, November 02, 2017
- ^{ix} The Express Tribune, March 10, 2018
- ^x Pakistan National Human Development Report, 2017