

Female Labor Force Participation in Pakistan and Central Asian States: A Comparative Analysis

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ABSTRACT

The study's goal is to evaluate female labour force participation and unemployment in several central Asian nations including Tajikistan, Azerbaijan, Turkmenistan, Afghanistan, Georgia, Kazakhstan, and the Russian Federation with Pakistan. In addition, look at the involvement of women in the labour force in Pakistan from 2000 to 2017. Secondary data was gathered from several issues of the Pakistan Economic Survey, the World Bank, and the International Labour Organization (ILO). The estimate method utilized in this research was Two-Stage Least Square (2SLS). For this kind of event, 2SLS is an acceptable estimate method. According to the descriptive findings, Afghanistan has the lowest female involvement rate, followed by Pakistan. In Azerbaijan and Tajikistan, female unemployment is very prevalent. According to Pakistani empirical findings, female participation rate and female salaries have a positive and substantial relationship, while female unemployment rate and actual male ages have an inverse relationship. Female unemployment and interest rates, on the other hand, have a negative and substantial effect on female earnings. It was shown that female earnings in democratic governments exhibit a positive and substantial trend, implying that wages are rising under democratic regimes.

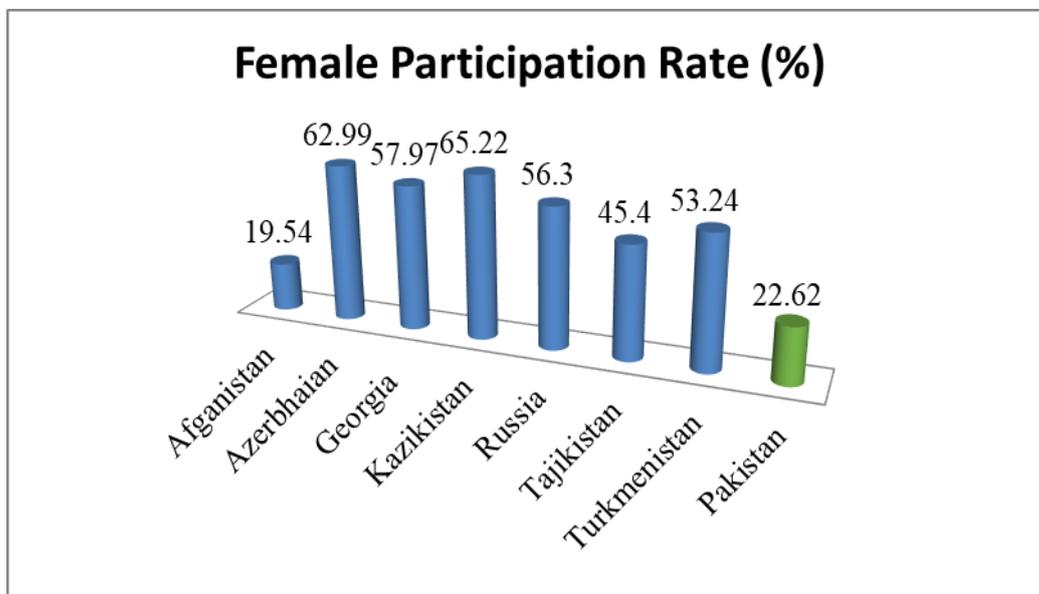
Keywords: Female participation, two stage least square, democratic government.

INTRODUCTION

A plethora of literature work has been produced during the past two decades on the theoretical and empirical modelling of female labour supply decisions. These models have a significant impact on fiscal policy, such as aggregate income tax policy and the supply of fundamental economic and social welfare policy. Analysis of historical changes in labour supply should also aid in preparing for future changes in participation that may be possible.

Female labour force supply is a determining factor in women's empowerment. Female empowerment is critical to boosting the supply of female labour in the market. It fosters a culture of reducing gender disparity in society, which aids in the attainment of a good standard of living for the whole family (Riaz and Zahid, 2018; Asif et al., 2017; Schultz 2002). Any government's ultimate aim is to offer equal opportunity to all citizens, regardless of gender. As a result, the political and social environment has a direct impact on female labour supply (Zafar et al., 2021; Qadir and Afzal, 2019).

Female involvement rate has a significant impact on economic growth and has pulled down a country's economic progress. In less developed nations, such as Pakistan and its neighbouring countries, such as Afghanistan, Kazakhstan, Tajikistan, Azerbaijan, Georgia, Russian Federation, and Turkmenistan, a lack of female involvement in day-to-day business is a significant issue. Figure 1.1 compares female involvement rates in Central Asian countries to those in Pakistan. Because of cultural and historical differences, it was discovered that female involvement rates are more than twice in most Central Asian nations when compared to Pakistan. However, when comparing Afghanistan to Pakistan and its own Central Asian neighbours, the picture is almost identical. In Afghanistan, 19.54 percent of the total female labour force participates in economic activities, whereas in Pakistan, 22.62 percent of the female labour force participates in day-to-day business.



Source: World Bank, 2018.

Figure 1.1: Comparison of female participation rate between central Asian countries and Pakistan.

Table 1
Participation and Unemployment rate of female of Asian countries

Country	Female Participation Rate (%)	Unemployment Rate of Female (%)
Pakistan	22.62	4.08
Afghanistan	19.53	12.42
Azerbaijan	62.99	5.4
Georgia	57.97	9.27
Kazakhstan	65.22	5.97
Russia	56.3	4.9
Tajikistan	45.4	10.98
Turkmenistan	53.24	3.58

Source: World Bank, 2018.

Similarly, examining various employment statistics across Asian nations reveals erratic outcomes. Table 1 shows that among selected Asian nations, Kazakhstan (65.22 percent) has the highest female involvement rate, followed by Azerbaijan (62.99 percent). Afghanistan has the lowest female involvement percentage (19.53%), followed by Pakistan with a female participation rate of 22.62 percent in the area. Afghanistan, on the other hand, has the highest female unemployment rate (12.42%), followed by Tajikistan with 10.98% female unemployment. In addition, Turkmenistan and Pakistan had the lowest female unemployment rates among the nations studied, with 3.58 and 4.08 percent, respectively.

Female involvement in any economic activity is determined by the interplay of two forces: female labour demand and female labour supply. There has been a lot of interest in the determinants of female participation in the labour market over the years, with a wide range of research attempting to estimate a labour supply and demand function. Afridi et al. (2021), Asim et al. (2021), Elahi et al. (2021), Qaiser et al. (2021), Rafique et al. (2020), Qadir and Afzal (2019), Flores and Kalwij (2018), Majbouri (2018), Wyrwich (2017), Donni (2007), Euwals (2001), Sanford and Dalton (2017), Flores and Kalwij (2018), Majbouri (2019), Maj (1977). They all utilized information from a broad household survey.

Regardless of the problem that has been addressed in developing a time-series model for female labour force participation, numerous efforts have been made, particularly by Blundell et al. (2005), Chevalier and Viitanen (2001), and Corry and Roberts (1974), who use yearly data to investigate male labour supply in the post-war era. Longitudinal studies of individual and family behaviour across time were utilized by Farmelo et al. (1983) and Fair (1971).

Single equation economic models with one variable that is dependent on one or more explanatory factors are found in the literature empirical study on female labour force participation. As a result, the predictor variable participation in the female labour force is presented as a function of explanatory factors such as earnings, unemployment, and so on. Such models demonstrate a one-way cause-and-effect connection.

This may not be the case; in such empirical study, the most important thing is to distinguish supply responses from demand side effects, and to integrate both sides of the market into a coherent structural system. As a result, in certain cases, the variables created a two-way flow of effect on one another. Thus, female labour force participation is influenced by wages, which are influenced by inflation, unemployment, interest rates, the state's political status, and other economic factors.

Thus, the present pattern of economic recession in the nation, according to Nielsen Global Survey of Consumer Confidence and Spending Intentions (2017), indicates main worry about job security and family welfare and happiness (Rafique et al., 2019). The observed patterns of unemployment, high interest rates, high inflation, and labour supply, which reveal complex interconnections and adjustment would, in principle, work via movement in the real wage, which would help to bring the market back to equilibrium. In reality, the labour market in Central Asia, particularly in Pakistan, cannot be assumed to be in a constant state of equilibrium. Because of the interconnectedness of economic factors, modelling such behavioural systems becomes challenging.

The data collected from Pakistan for the period 2000 to 2017 is used to build an annual time series model for female labour force participation and wage rates in Pakistan (both years are inclusive).

The Market Demand, the Market Supply, and the Price of Labour

According to theory, a firm's labour demand curve is a function of real wages and (fixed) capital stock, whereas an individual's labour supply curve is a function of the real pay. The sum of all companies' demand curves is the market demand curve. The market demand for labour function will be influenced by the same factors as the demand functions of individual firms (Addison and Sicbert, 1979). Thus the market demand function can be written as follows:

$$N^D = f(W/P, \underline{K}) \dots (1)$$

Where N^D represents the total market demand for labour, \underline{K} the capital stock of all firms W/P is the real wages.

Likewise, the market supply of labour curve is obtained through aggregate of all the individual worker's supply curves. The stock supply function will be contingent only on the same variables as the individual supply function. Thus the market supply function is as follows:

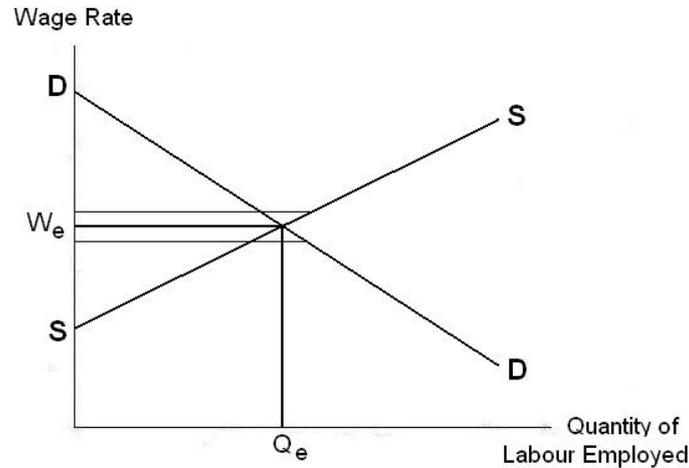
$$N^S = f(W/P) \dots (2)$$

Where N^S is the total labour supply in the market.

The third elementary equation of the macroeconomic model is that of the equilibrium condition:

$$N^D = N^S \dots \dots \dots (3)$$

Figure 1. The Labour Market



Source: Author’s Calculations

The amount of labour demanded must equal the quantity of labour supplied when the market is in equilibrium. This only happens at the real wage (W/P_e) or W_e in terms of supply and demand curves in Figure-1. The amount of labour required equals the quantity of labour provided at this point, and both are equal to the equilibrium level of employment Q_e or (N^*).

There would be an excess supply of labour if the real wage exceeded (W/P_e). On the other hand, there would be a surplus demand for labour if the actual pay was less than (W/P_e). Because labour demand and supply are intertwined, the stochastic explanatory variables are expected to be associated with relevant stochastic disturbances, making the traditional OLS technique ineffective for determining the parameters of the two equations.

METHODOLOGY

To determine the inter-relationship between female labour force participation and pay rates in Pakistan from 2000 to 2017, subject to the equilibrium of labour demand and supply. For our predictor and explanatory variables, we used data from several issues of the Pakistan Economic Survey issued by the Pakistan Bureau of Statistics (PBS), the World Bank, and the International Labour Organization (ILO).

To investigate the phenomena, we utilized two phases of least squares. Because basic OLS method is ineffective for estimating the female labour demand and supply equation. As a result, our two-stage least-square models are as follows:

$$FPR = f(FW, RWM, UERF) \dots\dots\dots (a)$$

$$FW = f(FPR, IR, D, UERF) \dots\dots\dots (b)$$

To rewrite equation (a) and (b) in linear form

$$FPR = \alpha_0 + \alpha_1FW + \alpha_2RWM + \alpha_3UERF + u_i$$

$$FW = \alpha_0 + \alpha_1FPR + \alpha_2IR + \alpha_3D + \alpha_4UERF + u_j$$

Where

FPR = Female Participation rate for “t” time period

FW= Female Wages for “t” time period

RWM= Real Wages of Male for “t” time period

UNERF = Unemployment Rate of Female for “t” time period

IR = stands for interest rate for “t” time period

D = Dummy variable used for political variable, 1 for dictatorship and '0' otherwise.

Where *FPR* and *FW* are jointly dependent, or endogenous, variables and *RWM*, *UNERF*, *IR* are exogenous variables and where u_i and u_j are the stochastic disturbance terms, the variables *FPR* and *FW* are both stochastic. While, log method used to transform variables into unit less.

RESULTS

As we know that Simple ordinary least square is inappropriate method to estimate supply and demand of labour force therefore, Two-Stage-Least-Square estimation is used to estimate female participation phenomenon. The followings are the results:

Table-2

TWO-STAGE-LEAST-SQUARE ESTIMATES FOR FEMALE PARTICIPATION

Dependent Variable is **FPR**

Variable	Coefficient	Standard Error	t-Statistic	Probability (P-Value)
UNERF	-3.415809	0.661953	-5.160200	0.0001
lnFW	13.71694	2.052340	6.683563	0.0000
lnRWM	-0.00097	0.000167	-5.794844	0.0000
C	-87.13329	17.27212	-5.055158	0.0002

$R^2 = 0.9804$

Adjusted $R^2 = 0.9762$

Prob. (F-Statistic) = 0.0000

Source: Author's Calculations

Table 2 shows that the female unemployment rate (UNERF) has a negative and substantial relationship with the Pakistani female participation rate (FPR). According to the UNERF coefficient, a one percent rise in female employment rates reduces female participation rates in Pakistan by 3.41 percent. Female wages (FW) are another significant element that affects female participation rate. According to the coefficient, a one percent rise in female wages would raise female participation rate by 13.71 percent in Pakistan's economy. Female participation rate is similarly inversely correlated with male earnings, indicating that a 1% rise in male real wages would immediately reduce female participation rate to less than 1% of the entire labor force in Pakistan.

Table-3
TWO STAGE LEAST SQUARE ESTIMATES FOR WAGES

Dependent Variable is **lnFW**

Variables	Coefficient	Standard Error	t-Statistic	Probability (P-Value)
FPR	0.145385	0.065237	2.228569	0.0441
UNERF	-0.123496	0.037698	3.275907	0.0060
IR	-0.166404	0.026030	6.392844	0.0000
D	-0.326964	0.154979	-2.10972	0.0548
C	7.066500	1.253518	5.637335	0.0001

$R^2 = 0.9029$

Adjusted $R^2 = 0.8730$

Prob. (F-Statistic) = 0.0001

Source: Author's Calculations

Table 3 shows that female salaries have a positive and substantial relationship with female participation rate (FPR). The coefficient shows that a 1% rise in female participation rate increases female earnings by 0.1453 percent in Pakistan's economy. There is a cause and effect relationship between female earnings and female participation rates. Female unemployment rate (UNERF) is another key element that influences female earnings; it has a negative and substantial relationship with female wages (FW) in Pakistan. According to the UNERF coefficient, a 1% increase in female employment would result in a 0.123 percent reduction in female earnings in Pakistan. Female wages are also adversely influenced by monetary policy interest rates, as a one percent rise in interest rates would lead female earnings to decrease by 0.16 percent of total female labor in Pakistan. Because individuals spend more money in banks than in other open economic activity as interest rates rise, female involvement and, as a result, female earnings fall. Dummy variables for political regime show that under a democratic political system, female earnings will rise, while in a dictatorial government, female wages would fall.

DISCUSSION AND CONCLUION

Tables 2 and 3 show that the findings are comparable to those stated in the theory. The discouraged worker impact is shown by a negative connection between female involvement and unemployment rate. Similarly, the connection between male real earnings and female participation is negative, implying that as male real wages increase, female involvement declines, demonstrating the discouraged worker phenomenon.

The existence of the discouraged worker effect demonstrates that as labor supply falls, unemployment rises. This impact is more significant in the near term, since wage rate changes are minor and the majority of the adjustment cost is borne by the supply side. This process is much more significant for females, whose unemployment rate fluctuates, making them insensitive to general external changes in demand and supply functions.

The discouraged worker impact, at least in the short term, serves as an essential mediating factor between supply and demand. The policy implications of this result are significant, implying that common arguments regarding the veracity of registered

unemployment data fall short of assessing the significance of unmeasured human resource waste.

Unemployment is just a partial indication since large segments of the labor force are discouraged from looking for job. The policy action will have the effect of attracting people back into the labor field by creating jobs to reduce unemployment. It's conceivable that, if the economy recovers, the equilibrating mechanism offered by the discouraged worker impact will work in the other direction. In this scenario, the increase in labor demand will generate its own supply of workers.

The idea of additive workers effect, also known as additive worker hypothesis, is based on female involvement, which indicates a favorable relationship with their own earnings. This implies that when women's earnings rise, their involvement rises as well. The addition of a dummy variable for political regime reveals a strong connection between female salaries and democratic regime, implying that female earnings have risen under democratic governments as opposed to dictatorships.

To summarize the entire topic, female labor force participation and female earnings in Pakistan's economy are mutually dependent.

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