Labor Force Participation and Fertility Behavior: Gender Focused Study of South Asian Countries

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Abstract: The present study aims to analyze the impact of male and female labor force participation and resultant impact on fertility rate. Three South Asian countries including Pakistan, India and Bangladesh have been selected for conducting the present study focused on year 1984 to 2013. Secondary data analysis was done and regression analysis was run for estimation of the impact of variables on fertility rate. Fixed Effect Model was also applied to draw results. The major finding of the study shows that female labor force participation has negative impact on fertility rate as compared to Male Labor Force Participation. It is suggested that female labor force participation should be encouraged in order to control fertility rate which ultimately decreases population growth in result.

Keywords: Labor Force, Participation, Fertility, Behavior, Gender, South Asia, Pakistan

INTRODUCTION
United Nations (UN) observed 11 July as World Population Day for emphasizing on the danger of rapid population growth which have negative impact on the growth and development of the countries. It is also producing negative consequences of early child marriages in third world countries, high risks of HIV propagation, poor socioeconomic conditions, and ultimately less likely to have congruence between population and countries’ resources and impeding the socioeconomic development of the countries (UN, 2010). Rapid population growth is causing divergent problems to countries specific includes; disaster effects on environment, GDP, GNP, per capita income, inflation, unemployment as well as multiple social problems (Eswaran, 2004). While controlled population growth in developed countries have less these problems as compared to developing countries of the world. It is linked with fertility rate towards high population growth (Jacobsen, 1996).

Female labor force participation in labor market is the control variable among different variables and strategies to control fertility rate which is considered to have less chances of kids and the mechanism to control population growth. It also has positive significant effects on economic growth, development and socio-economic conditions of households (Woytek et al., 2013). A negative relationship between female labor force participation and fertility behavior (Lehrer and Nerlove, 1986) has also been observed (Lovin and Tickamyer, 1978) and the same situation is in USSR (Berliner, 1983)

Pakistan, India, and Bangladesh are those South Asian countries which are in the second phase of development; it marks with still high birth rate, decreasing death rates, because of improvement in health conditions ultimately ending in the net increase of population (The Threat of Population Growth, pg. 58). This second phase of development is named as Demographic Transition by Thompson (1929) and Notestein (1945). (Younger, 2006)

OBJECTIVES
- To analyze the impact of female labor force participation (LFPF) on fertility rate (FR) of women.
To estimate the relationship between male and female labor force participation with fertility rate.

THEORETICAL FRAMEWORK
Gary Becker (1965) developed the concept of New Home Economics of which Time Allocation Theory is centerpiece. It is analysis of the marriage, divorce, fertility, etc. He argued that household decisions are made in the framework of marginal cost and marginal benefit framework by the partners in marital relations.
He argues that as women enter in labor force the opportunity cost for rearing children increases. Additionally increased rate of education raises the wish to educate their children. These both act together to lower fertility rates.

MATERIALS & METHODS
Panel study is conducted on three selected countries of South Asia includes; Pakistan, India, and Bangladesh as all these three countries are in same phase of demographic transition. One of the important aspects of this study is to know the nature of the impact caused by female labor force participation on fertility rate. Here, the hypothesis is that female labor force participation has a negative impact on total fertility rate. This study estimates the unit contribution of both male and female labor force participation in changing fertility rate using regression equation modeling.
Following model will be followed.

\[
FR = \alpha + \alpha_1 LFPF + \alpha_2 LFPM + \mu
\]

Here, FR refers to Fertility rate, LFPF is Labor Force Participation Female, and LFPM is Labor Force Participation Male. Data for Fertility rate, labor force participation for male and female has been collected from World Bank for the period of 1984 to 2013. Analysis was done in Eviews 6 software to draw results and conclusion.

RESULTS
Table No 1 Distribution of Gender wise labor force participation and fertility rate

<table>
<thead>
<tr>
<th></th>
<th>FR</th>
<th>LFPF</th>
<th>LFPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.873600</td>
<td>86.80723</td>
<td>37.82073</td>
</tr>
<tr>
<td>Median</td>
<td>3.638000</td>
<td>86.80000</td>
<td>36.56641</td>
</tr>
<tr>
<td>Maximum</td>
<td>6.436000</td>
<td>90.10000</td>
<td>62.90000</td>
</tr>
<tr>
<td>Minimum</td>
<td>2.208000</td>
<td>83.40000</td>
<td>12.90000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.171357</td>
<td>1.608009</td>
<td>17.72867</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.630845</td>
<td>0.369400</td>
<td>0.108270</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.437833</td>
<td>3.040616</td>
<td>1.598337</td>
</tr>
<tr>
<td>Observations</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>


Table no 1 depicts the distribution of labor force participation with reference to male and female along with the fertility rates. The table also has the values of mean, median, minimum, maximum values of 90 observations collected for Pakistan, India and Bangladesh.
Figure No 1 Graphical Representation of Labor Force Participation and Fertility Rate


Figure no 1 shows the normality of data for running regression analysis. In order to run modeling mean residual was checked and it was found that all these have average mean as zero. (Figure no 2)

Figure No 2 Graphical Representation of Mean Residuals

Table No 2: Structure Equation Modelling Predicting Fertility Rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-62.24859</td>
<td>3.917076</td>
<td>-15.89160</td>
<td>0.0000</td>
</tr>
<tr>
<td>LFPF</td>
<td>-0.151404</td>
<td>0.014477</td>
<td>-10.45860</td>
<td>0.0000</td>
</tr>
<tr>
<td>LFPM</td>
<td>0.827678</td>
<td>0.047105</td>
<td>17.57102</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Adjusted R-squared | 0.854200
Prob(F-statistic)   | 0.000000


By putting the values of coefficients from the above table our regression equation model is;

$$FR = -62.24859 -0.151404 \text{ LFPF} + 0.827678 \text{ LFPM}$$

The Prob. values for all these variables are 0.000 which shows that these variables are highly significant. And these are important regressors for Fertility Rate. This shows that fertility rate is affected by labor force participation male positively while labor force participation rate female affected negatively for three countries Pakistan, India and Bangladesh for the years 1984 to 2013. This equation shows that one unit increase in labor force participation male causes 0.827678 unit increase in fertility rate and one unit increase in female labor force participation can cause 0.151404 unit decrease in fertility rate.
The value of Adjusted R Square shows that the model is explaining 85.42 % of the variation in the fertility behavior with these two variables. The value of Prob (F- Statistics) is 0.000000 which is showing the model is significant overall. The value of Durbin Watson is not into desired range showing that data has the problem of autocorrelation which can be neglected in the panel studies.

DISCUSSION & CONCLUSION
Controlled population growth is very important for countries’ rapid development. High growth rate can hinder the countries’ development. High population growth causes depletion in the resources of the country which otherwise help in achieving countries’ development goals. It is very important for countries to strike a balance between its population and resources. For a smooth development pace a controlled population growth is highly desirable. UN also emphasize on declining population growth for accelerating the pace of achieving MDGs. (UN, 2010). As fertility is a logical point of concern for population growth. Efforts are being made to decline fertility rate for controlling population growth. There are many determinants of fertility includes social, economic, and biological determinants which affect fertility behavior. (Zebalous, 1994)

LFPF is a very important determinant of Fertility rate which has higher chances to reduce fertility. It is a continuous process where females get involve in labor market and started earning, in that situation, rearing a child, getting pregnant costs a lot to both woman as well as jointly for a dual earning couple. The relative increase for wage rate of women increases their participation in labor market also, ultimately declining fertility rate (GALOR & WEIL, 1996). The relationship among divorce rate, female labor force participation, economic development, and fertility rate and income inequality has been studied in which fertility rate and female labor force participation shows a negative relationship (Semyonov, 1980). A negative relationship between Fertility and Female Labor Force Participation has been found in Korea as well. (Chung & Lee, 2008)

Gary Becker gave the time allocation theory in which he discussed about the concept of marginal utility and marginal cost. He pointed out that rearing children can cause an increase in the overall cost for the couples. As it’s not only about the child rearing costs in terms of food, clothing, and other life necessities rather this also comes in terms of the cost which couples have to pay while being staying at home and not going for work in dual earning families by the female partners. In that case females also have to abandon from work which can cause low earnings of the family (Becker, 1965). It has also been pointed out by the Gary Becker that doing work at home is remained unpaid for females. And getting pregnant, producing a kid, and nurturing the new born gives nothing to females in reward. Their marginal utility as compare to marginal cost for all this drill is very low.

While entering the labor force by females reduce chances of their pregnancy. Same inverse relationship between the female labor force participation and fertility rate for 28 OECD countries has been found because of the strain of performing the roles of both mother and employee. (Vinod & Smyth, 2010)

It controls the rapid and uncontrolled population growth in the above said manner. In the present study an effort has been made to evaluate this relationship in Selected South Asian Countries includes Pakistan, India, and Bangladesh. Data for FR, LFPM, and LFPF has been retrieved from World Bank Data Sources. Results show a positive impact of LFPM on FR while a significant negative impact of LFPF on FR which is of our concern in this study. Results are being supported by the earlier studies of the same field. It has been concluded that all these countries are following the same said relationship of FR and LFPM. There is a negative relationship between LFPF and FR in these three countries.

It concludes that population growth in these developing countries is controlled by encouraging females’ involvement in the labor force. These three countries are highly populated countries of South Asia and have a problem of rapid and uncontrolled population growth. Many programs have been developed in these countries for controlling population growth. But because of some persistent factors the dream of a controlled population growth has not come true.

Present study’s findings are also in congruence with the studies conducted by Lovin and Tickamyer (1978), Lehrer and Nerlove (1986), Berliner (1983), Vinod and Smyth (2010), and Semyonov (1980) which is a very strong indicator of the strength of the present research’s findings.
Next to this for increasing female labor force participation they must be equipped with the essential capacities like education, increased opportunities for females, structural changes, some cultural triggers would have to be made for increasing their participation in labor force market. (Rounaq, 1975) Policies should be made for encouraging women to participate more in labor market by equipping them with necessary tools like education, skills and by providing some structural adjustments in the societal fabric which can encourage them to take part more in labor force ultimately decreasing their fertility rate.

Encouraging females to take part in labor force have a lot of advantages for the countries. It is not only decrease the fertility rate as proven by multiple studies but also raises females’ social status. (Chaudhary, 1978). Reduction in fertility allows women to get education and then get engage in labor force for getting a high socioeconomic status. They would prefer to use contraceptive measures for reducing fertility. Ultimately it paves the way to women autonomy and high social position.

Present study concludes that LFPF has a negative impact on Fertility rate in India, Pakistan and Bangladesh. Females should be encouraged to take part more in labor market, this will ultimately decline fertility rate in these countries.

The present study recommended that;
- Women should be encouraged to take part in labor force.
- Necessary steps should be taken for equipping them with the required skills like education, vocational training etc. to work in labor market.
- Stereotypical attitude towards LFPF should be removed by introducing new cultural ideas and ideals.

REFERENCE