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# Female Labor Force Participation In Nepal

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## INTRODUCTION

Ever since the seminal work by Mincer (1962), there have been a large number of studies done on female labour force participation. Almost all the studies have emphasized the positive effect of female wage rate and negative effect of non-labor income on female labor force participation. Some studies have gone further even in arguing that even if the market wage rate exceeds the reservation wage, the wage below which there is no intension to supply the labour, women may not enter the labor force because of fixed cost, taxes and transaction costs such as search costs and fixed hiring costs in taking a job ( Long and Jones, 1980: 1-6, Hausman, 1980: 161-94 Heckman and Willis, 1977: 27-28). O'Brien and Hawley (1986: 267-78) have emphasized the role played by borrowing constraint on female participation. Almost all of these studies are done in the context of developed economics, particularly with U.S. data. These studies, thus, cannot be replicated for least developed economics like Nepal where reliable data on wages and non-labor income are not available. So alternative specification needs to be practiced to deal with such a situation.

This paper makes a modest attempt to estimate female labor force participation for Nepal using 1981 Census data which does not provide the information regarding wages, unemployment and non-labor income. The methodology is based on the work done by Kottis (1990: 117-32) for Greece.

## WOMEN IN NEPAL

Nepal, one of the least developed countries, presents the glaring disparities between men and women in every sphere of life. According to 1981 census, only 11.5 percent of females were literate whereas the male literacy was 35 percent. Similarly, the expectation data provides another example of such disparity. In 1981, the labor force participation of females aged 10 years and over was 46.7 as opposed to 84.7 percent for men. However, this disparity has been dwindling overtime. During the inter-censal period 1971-81, female participation increased by about 32 percent whereas the male participation increased by only 1 percent. But even now this increase can not be taken as satisfactory because of the overall low participation rate for women. The lower

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participation rate for female can be attributed to the Nepalese social structure in which women are supposed to work within household because of the prevailing social and cultural factors. The low level of educational attainment provides another reason for such situation.

## EMPIRICAL MODEL

Following Kottis, the female labor force participation is assumed to be the function of both the labor market condition variables and women's personal and family characteristics variables. The general form is given below.

FLFP = f (PFU, PMU, PUA, RPG, PF10WH, PFP10, PCB10, PF10NS, MLFP, PLEA)

where, $f_3, f_4, f_5, f_9$ and $f_{10} > 0$ and $f_1, f_2, f_6, f_7$ and $f_8 < 0$

Here,

| | |
|---|---|
| FLFP: | Female labor force participation rate, |
| PFU: | percentage female unemployed, |
| PMU: | percentage male unemployed, |
| PUA: | Percentage of population in urban areas, |
| RPG: | rate of population growth during inter-censal period, |
| PF10Wh: | percentage of female aged 10 and over without husband, |
| PFP10: | percentage of female in the population aged 10 and over, |
| PCB10: | percentage of children below age 10 in population, |
| PF10NS: | percentage of female aged 10 and over having no schooling, |
| MLFP: | male labor force participation rate, and |
| PLEA: | percentage of labor force employed in agriculture. |

In this specification PFU has been hypothesized to exert negative influence on women's participation because presence of unemployment discourages them to enter the labor market and incur the search cost and other numerous expenses. The presence of unemployed males deters the entry of females into the labor force due to employer's prejudice and discrimination against women. PUA has been included to capture job accessibility because women are reluctant to travel a long distance to work because of their involvement in child care and household chores. RPG is a proxy for migration flows among different areas. Married women with husband are less inclined to work than those without husband and unmarried. So in order to capture this effect PF10WH has been also included in the mode. PFP10 has been included to capture the size effect. PF10NS and PCB10 are supposed to capture the effect of schooling and children on womens' labor market participation. MLFP has been included in order to capture the effect of any regional peculiarities concerning labor force participation beyond the effects of the specific factors used in the equation (Kottis, 1990: 128). Finally, PLEA has been included to capture the employment opportunities of women because in Nepal most of the women work in the agricultural sector than in manufacturing and services.

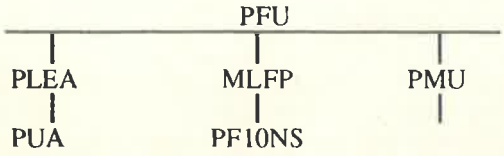
Data for the estimation are taken from 1981 Census and the areas of observation are 75 administrative districts of the country. Since the census does not provide unemployment data, they have been estimated using simple arithmetic calculation. For the purpose of this study it is the ratio of persons seeking job to economically active population.

The ordinary least square technique is used to estimate the model.

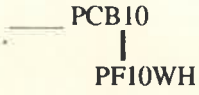
## EMPIRICAL RESULTS

The estimation of FLFP with all the variables included at a time could not be done because of the multicollinearity problem. The severity of this problem can be seen by the following two correlation trees between variables where the line connecting them depicts the existence of correlation.

1.




2.




Here PFU is correlated with PLEA. MLFP and PMU. The correlation coefficients being -0.61, -0.6 and 0.8 respectively. PLEA is correlated with PUA (-0.65) and PUA is correlated with PF10NS (0.52). The correlation coefficient between PF10NS and MLFP is -0.5 and between MLFP and PMU is -0.58. Similarly, the correlation coefficients between RPG and PCB10 and PF10WH and PCB10 are 0.51 and -0.52 respectively. This severity of multicollinearity problem forced to split the estimation procedure where only a subset of variables were included in the estimating equation. The estimated results are presented in tables 1, 2 and 3.

The results presented in table 1 show the significant negative effect generated by own unemployment rate in female labor force participation rate. But the positive coefficient for PF10NS and negative coefficients for PUA and RPG are contrary to the expectation. However these coefficients are not significantly different from zero. The positivity of PF10NS can be justified by considering the fact that about 96 percent of total female labor force is employed in agricultural activity. Kottis has argued that such a result supports the hypothesis that the effect of education on women's labor force participation rate depends on the stage of development of the country. During the first stage of development the effect is negative and becomes positive only after a certain level of development is achieved.

Nepal is predominantly a rural country where only about 6.2 percent of total population live in urban areas, defined to be an area having 10,000 or more population. During 1981 census there were only 23 such areas. The unemployment rate is usually higher in urban areas in comparison to rural areas. This is because the outmigrants from rural areas continue to pour into urban areas which inflates the existing large pool of labor force in urban areas (Central Bureau of Statistics, p. 197). The negative coefficient of RPG may be the outcome of following two factors,

1. Higher population growth by increasing the number of small children in the family restricts the FLFP. This fact is demonstrated by the significant negative effect of PCB10, which has been regressed separately from RPG because of high degree of correlation between them.
2. If RPG is thought to be an approximation of migration flows among areas, the negative coefficient indicates the lack of selectivity of migration. This can be justified will in Nepalese context because most people move from rural to urban areas having no extra qualification and, thus, are unable to find the job in urban sector and remain unemployed.

Results presented in table 2 clearly show the negative effect of male unemployment rate on female participation rate. Percentage employed in agriculture has significant positive coefficient in all the estimated equation, which reflect the importance of this sector in providing economic opportunities to females.

In table 3, we see the positive coefficient of MLFP, as was expected. The coefficient of PUA and RPG are still negative. Likewise, the positive coefficient of PF10NS is also unaltered.

## CONCLUSION

This study is a preliminary attempt to estimate FLFP using census data which does not provide data on wages, unemployment and income. The empirical results of this study are quite in conformity with those fund in other studies. Female's and male's unemployment rates were found to exert significant discouraging effect on female participation rate. This result shows the dominance of discouraged worker effect, i.e. the negative effect of unemployment on labor force participation, for females. The study found positive effect of no-schooling on female's participation rate. Percentage of population in urban areas and rate of population growth were found to affect the participation rate negatively. But contrary to the expectation, the relative supply of women had significant positive effect on female's participation rate. Kottis has provided a convincing rationale for this phenomenon in the context of Greece economy,

"It may be that the larger supply of women in an area attracted more women's jobs and encouraged their participation rates or the larger availability of suitable jobs attracted more women. Also, it may be that the greater relative number of women in an area generated an overall encouraging effect on their willingness to join the labor force". (p. 127)

Encouraging though may be the results, the study suffers from some econometric problems. The prominent problem may be outlined as specification error because the study excludes the relevant variables such as wages for males and females and the non-labor income. Likewise, the study also suffers from the selectivity bias. However, these results may be taken as the starting research agenda for future works.

**Table 1**
**Estimation with PFU**

| Variables | Equation | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| PFU | -12.886 | -12.741 | -13.723 | -13.554 |
| | (7.195) | (6.939) | (8.138) | (7.972) |
| PCB10 | | -2.309 | | -2.122 |
| | | (3.967) | | (3.661) |
| PF10NS | | | 1.343 | 2.108 |
| | | | (1.048) | (1.695) |
| PFP10 | 1.918 | 2.238 | 2.093 | 2.263 |
| | (2.513) | (2.893) | (2.941) | (3.204) |
| PUA | -0.104 | -0.039 | | |
| | (0.635) | (0.229) | | |
| PF10WH | 0.856 | | 0.791 | |
| | (4.350) | | (3.872) | |
| RPG | -0.262 | | -0.225 | |
| | (0.626) | | (0.539) | |
| Constant | -52.943 | 24.502 | -62.787 | 12.883 |
| Adjusted R2 | 0.544 | 0.520 | 0.549 | 0.537 |
| F | 18.678 | 21.046 | 19.003 | 22.598 |
| SEE | 12.264 | 12.586 | 12.203 | 12.340 |

figures in parentheses are t-values.
SEE stands for standard error of estimate

**Table 2**
**Estimation with PMU**

| Variables | Equation | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| PMU | -4.731 | -4.912 | -6.996 | -7.186 | -8.085 | -8.322 |
| | (3.495) | (3.705) | (4.395) | (5.055) | (5.649) | (5.923) |
| PCB10 | | -1.867 | | -2.456 | | -2.358 |
| | | (3.380) | | (3.791) | | (3.619) |
| PF10NS | 2.983 | 3.529 | | | 1.449 | 2.219 |
| | (2.293) | (2.909) | | | (0.960) | (1.560) |
| PFP10 | 0.499 | 0.674 | 1.525 | 1.930 | 2.008 | 2.276 |
| | (0.668) | (0.928) | (1.768) | (2.252) | (2.438) | (2.855) |
| PUA | | | -0.296 | -0.225 | | |
| | | | (1.645) | (1.251) | | |
| PF10WH | 0.559 | | 0.792 | | 0.707 | |
| | (2.772) | | (3.542) | | (2.979) | |
| RPG | -0.330 | | -0.515 | | -0.564 | |
| | (0.810) | | (1.082) | | (1.171) | |
| Adjusted R2 | 0.572 | 0.589 | 0.411 | 0.407 | 0.395 | 0.414 |
| F | 17.476 | 22.248 | 11.306 | 13.674 | 10.681 | 14.053 |
| SEE | 11.886 | 11.640 | 13.948 | 13.995 | 14.125 | 13.911 |

figures in parentheses are t-values.
SEE stands for standard error of estimate

**Table 3**
**Estimation with MLFP**

| Variables | Equation | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| PCB10 | | -2.458 | | -3.010 |
| | | (4.053) | | (4.269) |
| MLFP | 0.988 | 0.719 | 1.647 | 1.405 |
| | (4.784) | (2.282) | (4.838) | (4.046) |
| PLEA | 1.274 | 1.386 | | |
| | (4.784) | (5.135) | | |
| PFP10 | 0.968 | 0.983 | 2.218 | 2.478 |
| | (1.200) | (1.196) | (2.452) | (2.615) |
| PUA | | | -0.212 | -0.177 |
| | | | (1.136) | (0.897) |
| PF10WH | 0.943 | | 1.179 | |
| | (4.400) | | (4.957) | |
| RPG | -0.435 | | -0.498 | |
| | (1.039) | | (1.042) | |
| Adjusted R2 | 0.544 | 0.518 | 0.404 | 0.344 |
| F | 18.684 | 20.854 | 11.050 | 10.679 |
| SEE | 12.262 | 12.617 | 14.020 | 14.720 |

figures in parentheses are t-values.
SEE stands for standard error of estimate

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