

INCOME DIFFERENTIAL AND FERTILITY IN WESTERN TERAI OF NEPAL

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Abstract

In this article attempt is made to find out the effect of income on fertility in western terai of Nepal Respondent are divided into four groups according to their income which are; NRs 0-4000, NRs 4001-6000, NRs 6001-8000 and more than NRs 8000. The lowest income groups are NRs 0-4000 and highest income group is above NRs 8000 per month. This income group divided keeping in view the prevalent income level of the respondents. The monthly income of 99 couples is NRs 4000. There are 242 couples in the income group NRs 4001-8000 and only 92 couples are in the income group NRs 8000 and above. The mean number of children born for the four groups is 3.16, 3.00, 2.76 and 2.51 respectively. Similarly, the number of children surviving in each category is 300, 623, 180 and 219 and their mean is 3.03, 2.86, 2.69 and 2.38 respectively from the first to last group. It implies that lower income level people have high birth rate and high income level people have lower birth rate.

Keywords: *Income Differential, Fertility, Dummy Variable, Regression, Child Surviving.*

Background to the Study

Income is one of the most important variables determining fertility behavior of couples. It is the income that determines the couple's economic status. Economic status strengthens couples in almost all respects. It has its innumerable effects in individuals' life. There exists an inverse relationship between income and fertility. Couples, who have higher earnings or income level, have fewer children. Income broadens their view and makes them farsighted. As a result, they think deeply about their family size. People with high income level remain busy in increasing their income and think little about fertility behavior. Thus, it helps them to decrease the fertility. It is really an important determinant of fertility because the increase in the level of income affects the level of education, level of employment and motivates to have small family where they can share familial happiness and pleasure.

Fertility pattern are heterogeneous; they vary from district to district. It is difficult to find out a unanimous fertility pattern for Nepal as a whole due to differences in terms of region, environment, culture and socio-economic settings. Thus empirical studies are a must for different regions and sub regions to account for fertility differentials. The socio-economic and political scenario of the nation is continuously changing. In such a situation, if a number of micro studies exist they would be fruitful in exploring new facts for policy issues. This micro level study will provide a vast scope for a detailed study and research for other regions. It is extremely difficult or quite impossible to pluck the fruit of the rapid advancement and innovations made in the field of science and technology, industrial development and international relations unless the over population growth is controlled. Population control is undoubtedly of vital importance for accelerating the modernization process. A micro study about population growth helps to formulating a suitable policy that can be useful to solve the problems caused by overpopulation.

In fact, the population of western terai of Nepal is increasing rapidly. The prevalent beliefs, ignorance, illiteracy, lack of awareness about population growth, superstition, religious beliefs, etc. are the major facts for the increment in fertility. It is one of the backward regions of the country. The major objective of this study is to analyze the impact of income on fertility behavior in the western terai of Nepal.

Objective of the Study

To examine the impact of income differential on fertility in Western terai of Nepal.

Literature Review

Source of income determinants directly or indirectly the fertility behavior to a great extent. Various National and International studies show that income and fertility are inversely related to each other. The Malthusian 'Law of Nature' interprets overpopulation as a surplus of consumer without money, irrespective of the dominant economic system, which defines overpopulation as something absolute and caused by a population growing too fast. In addition, individuals differentiated by income, wealth, occupation and education criteria are also related to each other within a system of groups and categories. The Marxist 'Law of Capitalism' saw overpopulation as a surplus of capacity to work, i.e., unemployed labour force, which defines overpopulation as a relative phenomenon caused by the mechanism inherent in the capitalist system. The population environment nexus is fairly well documented in Nepal. Blaiki, 2002, Fricke, 1989, Macfarlane, 1976,

Messerschmitt, 1976, Seddon, 2002, have developed the theory of Himalayan resource degradation that links high fertility. Seddon observed "Thus, population growth, agrarian change and the evolution of the Nepalese tributary state are intimately interrelated; population growth cannot be regarded simply as an independent variable, it took place under specific economic and political conditions; at the same time, however, it was to have profound social and economic consequences" (Seddon, 2002). The National Sample Survey of India has revealed that there was a regular decrease in fertility rate among the classes with increasing income (National Sample Survey of India, 1960-61). Srinivasan's study reflects that fertility of women belonging to low economic status was higher than the women belonging to higher economics status in all age groups (Srinivasan, 1967). These findings are also supported by the observations made by Gulati. In his study, income effect is found to be negative on all age fertility (Gulati, 1988).

An inverse relationship between economics status and fertility was also observed by Registrar General (Registrar General of India, 1972). However, Driver holds a different view. He found in his Nagpur study the absence and any direct or indirect association between fertility and income (Driver, 1960). Similarly, Singh in his study observed that family income did not show any correlation with the number of births (Singh, 1989). Another study by Keshrwani reveals that there is no direct relationship between income and fertility (Keshrwani, 1989). Kaufma in his study, "A study of Rural China" find that rising income probably promotes higher fertility in the rural areas, at least in the short run where couples are fined for unplanned births. Hence, the richer parents are paying the fines (Kaufma, 1989). Prabhu has found income as variable to be highly controversial. The null hypothesis that there is no correlation between income and fertility is accepted (Prabhu, 1974).

The findings of the aforementioned research work clearly indicate that there is no definite relationship between income/economic status and fertility, though some studies confirmed the inverse relationship between the two. Other suggest that in certain cases, level of income tends to discourage fertility at an early state and in others at a later stage. This suggests that a minimum economic prosperity may be essential for fertility decline. Thus, the empirical findings are not so conclusive; still it may be reasonable to hypothesis the inverse relationship between income and fertility.

Study Area

The study area, western terai lies in the southern part of the Western Development Region. It consists of three districts which are Nawalparasi, Rupandehi and Kapilvastu. These districts are located in the terai region. In the study area, the population of males is 8, 86,905 and that of females is 8, 86,360, which is 7.57 per cent of the total population of the country. The average household size is 6.06. The total area of western terai is 5,260 sq. kms and population density is 333 sq. km as shown in below table No. 1;

Table No. 1:
Number of Households, Average Household Size, Sex,
Area and Population Density of the Study area

District	Total	Male	Female	Percent	Average Annual Growth Rate	Number of Household	Average Household size	Area in Sq km	Popu. Density
Nawalparasi	562870	278257	284613	2.43	2.55	98340	5.72	2162	260
Rupandehi	708419	360773	347646	3.06	3.05	117856	6.01	1360	521
Kapilvastu	481976	234101	234101	2.08	2.6	72932	6.66	1738	277
Western terai	1753265	886360	886360	7.57	2.76	289128	6.06	5260	333
Nepal	23151423	11587502	11587502	100	2.25	4253220	5.44	147181	157

Source: Population Monograph of Nepal, Volume 1, 2003, pp. 46-57.

Features of the sample

The sample size of the study is 500 households which is taken from three districts and their different constituencies. The sample has been studied with respect to their socio-economic and demographic characteristics like habitat (urban-rural), caste, religion, income, occupation and education. Among them, 442 were from rural and 58 from urban area. The number of children born and surviving, their mean values in different areas, are given in the following table No. 2:

Table No. 2:
Habitat (Rural/Urban) and Number of Children

Urban/Rural	Mean	Number of couples	Number of children born	Number of surviving	Mean
Rural	2.95	442	1303	1245	2.82
Urban	2.62	58	152	147	2.53
Total	2.91	500	2355	1392	2.78

Source: Estimated by Authors on the Basis of Data Collected.

It is evident from the sample data collected that 442 couples from rural areas has given birth to 1303 children in all with an average of 2.95 children per couple. The children surviving in this group are 1245 with an average of 2.82 children per couple. Similarly, 58 couples from urban area have given birth to 152 children with an average of 2.62 children per couple. The children surviving in this area are 147 with an average of 2.53 children per couple.

To find out the effect of occupation, respondent in three category's on the basis of husband's occupation, the three categories are- Agricultural, Labour, Clerk and Professionals. Out of 486 husbands, 304 are in agriculture category, 130 are laborers' category and 52 are clerk and professionals. Out of 500 couples, 14 husbands are dead. In our sample a large number of couples, (304) are dependent on agriculture. Their mean is 3.00 but the number of children surviving is 2.91, which the highest in comparison to other occupations. There are 130 couples in labour category and 52 are clerks and professionals. The number of children they

born is 378 and 125 and their mean fertility is 2.91 and 2.40 respectively. The surviving number of children is 352 and 116 respectively and their mean is 2.71 and 2.23. Clerk and Professionals have the lowest mean number of children surviving.

Methodology

This study primarily based on primary data collected by means of schedules. The schedule divides into three parts. In the first part, general information about households was taken. It consists of nine questions with two tables, which were related to family information including household income. In the second part, information about married females aged between fifteen to fort nine years are included, and it consists of twenty two questions and one table which are related to the fertility behavior. In the third part, questions were related to the family planning practices. It consists of twenty six questions. But here one can only consider finding out the relationship between income and fertility. For this purpose, a dummy variable regression and ANOVA technique's used.

Analysis of Data

Considering these different findings and conclusion of the effect of income along with different variables, we may assume that there exists inverse relationship between fertility and income level of couples. In order to analyze the effect of income on fertility in this study, couples' income level and their mean fertility are presented below.

Table No. 3 shows that the mean fertility tends to decrease with an increase in the level of income. It further reveals that 99 couples whose incomes in up to NRs. 4000 per month have their mean fertility 3.16. Similarly, among 500 respondents, 242 couples' income is up to NRs. 4001-6000 and their mean fertility is 3.00. In the same way, 67 couples' income in up to NRs. 6001-8000 and their mean fertility is 2.76 and 92 couples' income is above NRs. 8000 and their mean fertility is 2.51. It is clearly proved that the higher income level, the lower is the mean fertility.

Table No. 3: Income Level and Fertility

Income Group	N	Mean	Std. Deviation	Std. Error	95 percent confidence interval for Mean	
					Lower Bound	Upper Bound
Up to 4000	99	3.16	1.398	0.140	2.88	3.44
4001-6000	242	3.00	1.262	0.081	2.84	3.16
6001-8000	67	2.76	1.280	0.156	2.45	3.07
Above 8000	92	2.51	1.000	0.104	2.30	2.72
Total	500	2.91	1.265	0.057	2.80	3.02

Source: Estimated

Table No. 3.1:
Anova

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.368	3	8.123	5.201	0.002
Within Groups	774.582	496	1.562		
Total	798.950	499			

Source: Estimated

In the table n. 3, 95 per cent confidence interval has been constructed to test the mean fertility. All mean values are significant as they lie within the confidence interval. Similarly, ANOVA table (table no. 3.1) shows that the effect of income on fertility is significant at less than 1 per cent level. So, one can conclude that income is a significant determinant of the fertility of couples.

Fertility changes with different income levels. To evaluate the overall relationship between fertility and income level, the following regression equation is formulated and estimated:

$$Y = + {}_1D_1 + {}_2D_2 + {}_3D_3 + u$$

Where,

Y = Children Ever Born (CEB)

= constant intercept parameter

= constant for independent variables coefficient of income level

u = Error term or disturbance term

D1 = 1, if income is between NRs. 4001 to NRs. 6000

= 0, otherwise

D2 = 1, if income is between NRs. 6001 to NRs. 8000

= 0, otherwise

D3 = 1, if income is above NRs. 8000

= 0, otherwise

$$Y = 3.162 - 0.162D_1 + 0.400D_2 - 0.651D_3$$

$$Se = (0.126) \quad (0.149) \quad (0.198) \quad (0.181)$$

$$t = (25.173)^* \quad (-1.084) \quad (-2.025)^{**} \quad (-3.596)^*$$

$$R^2 = 0.030$$

$$F = 5.201$$

The coefficients attached to the dummy variables are known as differential (intercept) coefficients because they tell by how much the value of the intercept differs from the intercept coefficient of the bench mark category. The effect of the highest income group is quite vital in the study area. The coefficients of the two different groups (D₃ and D₂) are found significant. However, the coefficient of D₁ is not significant. In the income group D₁, the number of respondents is much larger than the number of respondents in other categories of income. It seems that his category is not significant due to large sample size of this income category. The equation further shows that the fertility is smaller by 0.651 of the respondents

Conclusion

Regarding the effect of income on fertility it has been confirmed on the basis of our sample data that the mean fertility decreases with an increase in the level of income. Thus, an inverse relationship between the income level and fertility exists. It is obvious from the data that the lower the level of income of the respondents, the higher is their fertility and vice versa. Income is one of the most important variables which affect fertility behavior. The couples having high income level give to fewer children than the couples having low income level. Although, Income has play an important role to determine fertility behavior of a couple but some others important variables like habitat, education, employment, age of marriage, desired to have children etc., also play a vital role to determined fertility behavior. To check and balance on population, government must be introduced income generation programme and strengthen existing programme also apart from this government must be ensure up to twelve standard education for all especially for girl child. Girl child education play double role. On the one hand it ensures the employability of women and other hand it increase marriage age also.

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