

Socio-Economic Factors and Fertility of Rural Women: A Study in Upper Assam

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ABSTRACT To study the effect of some socioeconomic factors on the number of living children, a random sample from rural areas of upper Assam were collected from eight villages of two Primary Health Centres. 150 mothers between 20 to 50 year age were interviewed to collect socioeconomic and demographic information. Total seven variables were included for analysis to determine its effect on number of living children of mother's. Correlation among variables shows that number of children was significantly correlated with mother's age (0.418), mother's education (-0.478), father's education (-0.376), father's occupation (-0.340) and mother's occupation (-0.231). Step wise regression analysis of data indicates that mother's age, her education and father's and mother's occupation are significantly affecting the number of living children. It is interesting to note that mother's education makes the largest contribution to the fertility followed by her age where as father's education plays lesser role than his occupation.

INTRODUCTION

Continuous increase in population of developing countries has become a global problem of the world. Despite of several control measures for family planning and various forms of public campaign for awareness of people, the population of our country is increasing and reached at a stage of causing enormous problems to environment and peace in public life. Further, it is also evident from the 1991 census report (Bose, 1991), the rate of population growth in rural sector is comparatively higher than the urban. So the contribution of rural population is considerably high as it shares 75 per cent of total population of India.

In Assam, 90 per cent of population lives in rural area and their tradition, cultural practices

and social beliefs are different from other part of our country. The health care facilities to the rural people are being provided through Primary Health Centres which is also catering services to rural women for family planning and other facilities to control the fertility.

Several studies were carried out to know the fertility determinants across the world by various scientists (Bulatao, 1983; Rodriguez et al., 1991; Sohail, 1981). The aim of this study is to identify the socioeconomic factors influencing the fertility of rural women.

MATERIALS AND METHODS

Study Area

The study was carried out in rural areas of upper Assam. The people of this region are mainly engaged in Agriculture, Tea industries and Forestry. Total eight villages were selected randomly from two PHC areas, one from Dibrugarh and another one from Tinsukia district of upper Assam. Survey was carried out by using systematic sampling method to select the houses in the village.

Study Population

Total population of the selected villages was 7583 as per 1991 census and 20 per cent of houses were covered in the survey. All the selected households were indigenous origin and follow Hindu religion. 150 mothers in the age group 20 to 50 years who have at least one living children were interviewed to collect the socioeconomic and demographic information in a designed questionnaire. The survey was carried out from January to July, 1996 and mother's who had no children or over aged (above 50 years) were not included in the study.

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Data Analysis

Number of living children (Y) was taken as dependent variable and mother's age (X1), difference between father's and mother's age (X2) measured in years were considered as explanatory variables. Mother's education (X3), father's education (X4) were also included where the level of education completed was assigned a numeric values arbitrarily like Illiterate (0), Lower Primary (1), Middle Pass (2), Secondary/High School Pass (3) and Degree Pass or equivalent (4). Occupation of father's (X5) was classified as (0) Casual agricultural worker (not a regular employee), (1) farmer (having own land or hire land for agriculture), (2) business or self employed and (3) Service (regular employment). Mother's occupation (X6) was classified as (0) housewife (working inside the home), (3) outside the home (*i.e.* in service) arbitrarily.

Analysis was carried out by using step wise regression analysis method. The categories of education and occupation for both mother's and father's were made on the assumption that nature of occupation and education of parents may have influence on number of children. Family income was not included due to poor response.

RESULTS

Descriptive statistics like mean, standard deviation and frequency distribution etc. of all seven variables are presented in table 1 in order to express the variability. The average number of living children was 4.03 with s.d. 1.73. Accordingly, mother's age varies from 20 to 50 years with average age 36.5 and s.d. 7.94 years. Instead of father's age, difference between father's and mother's age was taken as one of the explanatory variables. Average difference of age was 5.47 with s.d. 2.54 years. Educational variation of father and mother were showing sex bias. Average score of mother's education was significantly lower than the father's education. Mother's working in the home (house wife) were 133 and engaged in service outside the house were 17 only.

Table 2 presents the correlation matrix (7x7) of all seven variables included in this study. Number of living children was significantly cor-

Table 1 : Descriptive statistics of all the variables

Variables	Descriptive statistics		
	Mean	S.D.	Range
Number of living Children (Y1)	4.03	1.73	1 - 9
Mother's age (X1)	36.53	7.94	20 - 50
Age Group	Frequency (X1)		
≤ 30	43		
31 - 40	65		
above 40	42		
Difference. of parents (X2) age	5.47	2.54	0 - 12
Education	Mother's frequency (X3)		Father's frequency (X4)
Illiterate (0)	56		8
Lower primary (1)	61		72
Middle pass (2)	25		35
Secondary / H.S.pass (3)	6		30
Degree passor equivalent (4)	2		5
Occupation	Father's Frequency (X5)		Mother's frequency (X6)
Casual workers (0)	14		House wife (0) 133
Agriculture (1)	81		Service (3)
Business (2)	25		(Working outside) 17
Service (3)	30		

related with mother's age (0.418), mother's education (-0.475), father's education (-0.376), father's occupation (-0.340) and mother's occupation (-0.231). Among the explanatory variables, mother's education was having strong correlation with father's education (0.729) and occupation (0.495). Correlation of mother's age with difference of parents age and mother's education were significant but very low. Though, all the explanatory variables were independent in nature, but some of the variables were strongly correlated. Therefore, the choice of step wise regression analysis was more appropriate to assess the direct effect of each explanatory variable.

Step wise regression analysis was carried out with the choice of F value 3 to enter or remove a variable and tolerance 0.001. The order of merit in which variables were identified and included in the regression model was 1st X3, 2nd X1, 3rd X6 and 4th X5. Variables X2 and X4 were not included, as calculated F value was very low which shows that there were no direct effect of these two variables on Y. The value of R-square was 0.363 and multiple R was 0.602 (Table 3).

Table 2 : Correlation Matrix of seven variables included for analysis

Y	X1	X2	X3	X4	X5	X6	
Y	1.000						
X1	0.418*	1.000					
X2	0.094	0.289*	1.000				
X3	-0.475*	-0.251*	-0.023	1.000			
X4	-0.376*	-0.156	0.026	0.729*	1.000		
X5	-0.340*	-0.055	0.074	0.495*	0.445*	1.000	
X6	-0.231*	-0.158	-0.172*	0.121	0.005	0.011	1.000

* Significant at 5% level

Y = Number of living children of mother
 X1 = Mother's age
 X2 = Difference of father's and mother's age
 X3 = Mother's education
 X4 = Father's education
 X5 = Occupation of father
 X6 = Occupation of mother

When Standardized residuals were plotted against the fitted values, total 12 standardized residuals fell outside +2 and -2. These outliers were deleted and the analysis was repeated again. There was some improvement in the value of R-square (0.393) and multiple R (0.627) but there was no change in selection of variables. The final form of regression model was highly significant and given below.

$$\text{Est.}(Y) = 2.4252 + 0.0602 X1 - 0.4549 X3 - 0.2159 X5 - 0.259 X6$$

The regression equation presents unique information that mother's education is the most important factor influencing on fertility, fol-

lowed by mother's age and occupation than also father's occupation. The effect of mother's education on number of children has been worked out by keeping the effect of other variables fixed at average. By improving the education level of mother's, fertility was found decreasing *i.e.* expected number of children of mother's with education Illiterate (4.19), Lower primary (3.73), Middle pass (3.28), Secondary pass (2.82) and highly educated Degree pass (2.37), respectively.

DISCUSSION

Mean and standard deviation of all the variables included in the study express the variability in the sample. Out of six explanatory variables, five variables (X1, X3, X4, X5, X6) showed the direct significant correlation with the dependent variable (Y). Though the explanatory variables are independent in nature, but some of the explanatory variables are correlated with each other. Correlation among explanatory variables may not be necessarily due to actual dependency.

Step wise regression analysis shows that mother's education (X3), age (X1) and occupation (X6) have significant effect on number of living children (Y) or fertility. Except the father's occupation (X5), father's education (X4) and difference of parents age (X2) have no

Table 3 : Step wise regression analysis of six explanatory variables (X1 X6) with dependent variable (Y)

Order in which variables entered	Regression coefficient	Standard error	Variables not included	F to enter
X3	-	0.5567	**	0.0149
X2	0.054			
X1	0.0672 **	0.1515	X4	0.616
X5	- 0.3340 *	0.1443	S.E. (Y) = 1.3982	
X6	- 0.2610 *	0.1220	R-square = 0.3627	
Constant	2.666		Multiple R = 0.6023	
N	150			
Analysis after removing the outliers				
X3	- 0.4549 **	0.1221	X2	0.333
X1	0.0602 **	0.0122	X4	0.158
X6	- 0.2590 **	0.0984	S.E. (Y) = 1.0963	
X5	- 0.2159 *	0.1167	R-square = 0.3925	
Constant	2.4252		Multiple R = 0.6265	
N	138			

** Significant at 1% level

* Significant at 5% level

effect on fertility. Though, the expected decrease in fertility by improving the mother's education level under average situation is around 11 per cent, but this needs further examination with larger sample size to prove its validity. However, high influence of mother's education on fertility is possible as reported in other studies (Caldwell,1979; Bulatao, 1983; Buvinic et al.,1992). Attempt to estimate the quantitative effect of mother's education on fertility is a tough task because level of education can not be transformed accurately in quantitative terms as per its actual effect on fertility. Normally, quantitative codes are used for level of education to study the effect, but educational effect may not be linear.

Results of analysis clearly emphasizes that mother's characteristics plays important role to reduce the fertility. Among all the variables, mother's education and occupation are directly influencing the fertility which may be indirectly related with knowledge, attitude and practice of fertility control measures and child mortality (Caldwell,1979). Mother's occupation outside the home provides exposer as well as interaction to acquire knowledge and develop self confidence among women to take decision

(Buvinic,1992). Though, it is a tough task to change the social concept of male dominant society, but it is essential to allow the women to grow equally like man which possibly can answer many population related problems.

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