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An Analysis of the Status of Two Child Policy in Bangladesh

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ABSTRACT

Bangladesh is an overpopulated country. To control excessive population growth, government of Bangladesh introduced the two child policy. The two-child policy is a government-imposed limit of two children allowed per family. But still many couples are having more than two children. In this paper, an analysis on the status of two child policy has been performed. It has been found that although majority of the families are satisfied with two children, there exist some families who desire more than two children. It has been found that region, place of residence, academic qualification, religion, sex of children of the respondent have significant effects on the fertility preference of women with two children.

INTRODUCTION

Bangladesh with a population of over 16 million people is the 8th most populous country in the world. For the past few decades, overpopulation has been a burden for Bangladesh. Overpopulation is the major cause of scarcity of natural resources such as land areas, water sources and forest areas in Bangladesh. To overcome the problem of overpopulation, Bangladesh government adopted the two child policy three decades ago. A two-child policy is a government-imposed limit of two children allowed per family. This policy was first introduced in China to control rapid population growth, and it proved to be successful in controlling overpopulation. Although the two child policy is heavily promoted in Bangladesh, there are still many couples who have more than two children resulting in overpopulation in Bangladesh. In this paper, we will analyze the status of the two child policy in Bangladesh and determine the factors affecting the birth of more than two children per couple.

A lot of studies have been conducted on the fertility of Bangladeshi women. Findings from those studies indicate women living in rural areas give birth to more than two children, and as a result, family size is larger in rural areas than urban areas [Khan *et al*, 1997]. Education plays a vital role on family size in Bangladesh. Studies revealed that educated mothers desire fewer children than uneducated mothers [Islam *et al*, 1993]. Men who are highly educated prefer to keep family size smaller than uneducated men. Financial status of a family also plays a crucial role on family size [Kamal 2012]. Normally families belonging to low income group have more children than middle class and rich families [Rahman *et al*]. Religion is a key factor in determining family size. Muslim families have more children than non-Muslim families. Employed women desire fewer children than non-employed women as they wish to concentrate more on career [Fukuda-Parr *et al.*, 2003]. Death of children is also a significant factor in determining fertility among married couple. Couple who has faced the loss of children are more inclined to have more than two children than couple who faced no such loss [Rabbi, 2014].

Although many studies have been conducted on family size of Bangladesh, none of them involves the determination of factors influencing the birth of more than two children per family. In this study, we tried to determine the factors that significantly influence a couple's decision to have another children despite already having two children. A binary logistic regression model has been adopted for this study.

MATERIALS AND METHODS

Source of the Data

The data for this study has been obtained from Bangladesh Demographic and Health Survey for the year 2014, which is the seventh nationally representative survey designed to provide information on basic national indicators of social progress. Detailed information about this survey can be found in BDHS report 2014.

Variables under Study

The dependent variable for this study is the fertility preference of mothers who have two children. It takes on the value 0 if a mother with two children desires no more children, and takes on the value 1 if a mother with two children desires another child.

A set of predictor variables has been selected from the BDHS data to estimate the statistical relationship between the fertility preference of mothers with two children and the predictor variables. The predictor variables include- Region, place of residence, religion financial status, academic qualifications, husband's academic qualifications, death of children, sex of the children of the respondent, and also the respondent's exposure to mass media.

Methodology

In this study, the dependent variable is a discrete variable. To model discrete data generalized linear model is used. The GLM generalizes linear regression by allowing the linear model to be related to the response variable via a link function and by allowing the magnitude of the variance of each measurement to be a function of its predicted value.

Logistic regression is used to model categorical data. Logistic regression was developed by statistician David Cox in 1958. The dependent variable under this study is a categorical variable. It can only take two values 0 and 1. Thus, it is a binary variable. Binary logistic regression model is used to model binary data. Logistic regression measures the relationship between the categorical dependent variable and one or more independent variables by estimating probabilities using a logistic function, which is the cumulative logistic distribution.

Logistic regression can be seen as a special case of the generalized linear model and thus analogous to linear regression. The model of logistic regression, however, is based on quite different assumptions (about the relationship between dependent and independent variables)

from those of linear regression. In particular, the key differences between these two models can be seen in the following two features of logistic regression. First, the conditional distribution is a Bernoulli distribution rather than a Gaussian distribution, because the dependent variable is binary. Second, the predicted values are probabilities and are therefore restricted to (0,1) through the logistic distribution function because logistic regression predicts the probability of particular outcomes.

The logistic regression model is written as:

$$\ln\left[\frac{E(Y|x)}{1-E(Y|x)}\right] = \ln\left[\frac{p}{1-p}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p$$

(1)

Here, Y is the dependent variable which follows Bernoulli distribution with probability p, $X_1, X_2, \ldots, X_p$ are the p predictor variables. α is the constant term and $\beta_1, \beta_2, \ldots, \beta_p$ are regression coefficients.

The term $\ln\left[\frac{p}{1-p}\right]$ is known as the logit or log odds.

The maximum likelihood estimates of α and β are given below:

$$\alpha = \ln[\text{Odds}], \beta = \ln[Odds\ Ratio]$$

(3)

RESULTS AND DISCUSSIONS:

From the data, we find the number of women who have two children is 2664(33.78%). Our study is based on those women among these 2664 women who have decided on their family size. We find among this 2664 women, 580 women desire to have another child and 1850 women are satisfied with two children.

Table 1: Fertility Preference of Mothers with Two Children by Different Socio Economic Factors

		Want No More Children	Want Another Children
Region	Dhaka	77.5% (327)	22.5% (95)
	Chittagong	63.3% (271)	36.7% (157)
	Barisal	76.2% (211)	23.8 (66)
	Khulna	83.9% (264)	16.2% (51)
	Rajshahi	87.4% (297)	12.7% (43)
	Rangpur	87% (274)	13.1% (41)
	Sylhet	61.9 (206)	38.2% (127)
Place of Residence	Rural	74% (1215)	26.1% (429)
	Urban	80.8% (635)	19.2% (151)
Financial Status	Poor	76% (696)	24% (220)
	Middle Class	74.4% (358)	25.6% (123)
	Rich	77.1 (796)	23% (237)
Academic Qualification of Respondent	No Education	74.4% (183)	25.6% (63)
	Primary/Secondary	75.3% (1435)	24.7% (471)
	Higher Education	83.5% (232)	16.6% (46)
Husband's Academic Qualifications	No Education	76% (265)	24.1% (84)
	Primary/Secondary	75% (1095)	25% (365)
	Higher Education	81.2% (323)	18.9% (75)
Religion	Islam	74.9% (1659)	89.7% (191)
	Others	25.2% (557)	23.9% (579)
Sex of Children	Two Sons	72.1% (458)	27.9% (177)
	Two Daughters	55.8% (317)	44.2% (251)
	One Son and One Daughter	87.6% (1075)	12.4% (152)
Death of Children	No Death	76.2% (1638)	76% (212)
	More Than One Death	23.9% (513)	24% (67)
Heard about Family Planning	No	75% (1430)	25.05% (478)
	Yes	80.4% (419)	19.6% (102)

The above table illustrates the fertility preference of mothers who have two children by different socio-economic factors. The table shows that the percentage of mothers wanting another children despite having two children is lower than the percentage of mothers with two children who don't desire any more children for all seven districts. Compared with rural mothers with two children, the proportion of urban mothers with two children wanting another child is lower. The desire for a third child is higher among poor mothers with two children than middle class and rich mothers with two children. The desire to have another child despite having two children is low for educated parents than uneducated parents. Compared with non-Muslim mothers, Muslim mothers want another child despite having two children. The percentage of women wanting another child despite having two children is much higher for women with two daughters than women with two sons and women with one son and one daughter. The likelihood of a woman who has two children wanting another children is lower for women who has family planning knowledge than those women who lack this knowledge.

Next, we fit a logistic regression model and determine the significant factors influencing the desire for more children among mothers with two children.

Table 2: Results from Logistic Regression Model

		Adjusted Odds Ratio
Region	Dhaka	
	Chittagong	1.6***
	Barisal	0.8
	Khulna	1.8***
	Rajshahi	0.3***
	Rangpur	0.4***
	Sylhet	1.90***
Place of Residence	Rural	
	Urban	0.7***
Financial Status	Poor	
	Middle Class	1.1
	Rich	1.0
Academic Qualification of Respondent	No Education	
	Primary/Secondary	0.9

	Higher Education	0.5*
Husband's Academic Qualifications	No Education	
	Primary/Secondary	1.0
	Higher Education	1.0
Religion	Islam	
	Others	0.3***
Sex of Children	Two Sons	
	Two Daughters	2.2***
	One Son and One Daughter	0.4***
Death of Children	No Death	
	More Than One Death	0.9
Heard about Family Planning	No	
	Yes	0.9
Constant Term		0.6***

Note: ***, **, * indicates p-value is less than 0.01, 0.05 and 0.10 respectively.

Among the seven districts, except Barisal, all other districts have been found to have significant effect on the fertility preference of mothers with two children. The odds of wanting another child despite having two children is significantly 30% lower for urban women compared with rural women. The odds for the desire of a third child is significantly 50% lower for highly educated mothers compared with uneducated mothers. The odds of wanting to have another child despite having two children is significantly 70% lower for women belonging to religion other than Islam. Sex of current children plays a significant role in the fertility preference of women with two children. The odds of wanting another child is significantly 2.2 times higher for mothers with two daughters compared with mothers with two sons. The odds of wanting another child is significantly 60% lower for mothers with one son and daughter compared with mothers with two sons. The constant term indicates, in the absence of all predictor variables the odds of wanting another children despite having two children is 0.6.

CONCLUSION

To control excessive growth of population, Bangladesh government undertook the two child policy almost three decades ago. From this study, we can say that this policy has been successful in controlling population growth in Bangladesh. Majority of women under this study desire no more than two children. But there are still some women who desire another child despite having two children. Region, place of residence, academic qualification, religion, sex of current children of the respondent have significant effect on a woman's fertility preference. From this study, we can say that compared with urban women, rural women desire more children. Highly educated women do not want to take a third child. They are satisfied with two children. Sex of the current children of a woman plays a significant role in determining whether the woman wants another child despite having two children. It can be seen that mothers who have two daughters want another children more than mothers who have two sons and mothers who have both son and daughter. It indicates that still, Bangladeshi families desires a male heir.

From this study, we can say that Bangladesh government needs to promote the two child policy more in rural areas since having more than two children is still very common in rural areas. To stop overpopulation government can promote girl's education nationwide. An uneducated mother is more conscious about family size than uneducated women. Since in Bangladesh, many families consider them incomplete if they do not have a male heir, government should take steps to convince families that a female child can be as beneficial to its parents as a male child.

The findings from the above study can be helpful for the family planning ministry of Bangladesh to implement new measures in controlling population.

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