Ind. J. of Landscape Systems and Ecological Studies **44** (1) June - 2021, 57- 70 **ISSN 0971-4170**

Cost of Child Birth and its Role on Fertility Decision among the Urban Poor of Kolkata

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Abstract : *Factors controlling fertility decisions has always remained an area of interest for the demographers. In this study, role of one of the economic factors, i.e., cost of child birth on fertility decision has been studied for urban poor women living in the city of Kolkata. How much cost they had to bear for seeking maternal health care during the antenatal, delivery and post natal phases of a child birth and impact of these costs on couples decision on number of children ever born and timing of the birth have been observed. The bivariate association between cost of child birth with the first and second birth intervals showed that the decision on timing of first birth was being governed by social factors. However the situation totally changed in case of the second child birth, the role of cost became the most important factor in deciding to have a second child and timing of the second birth. Multivariate analyses also showed that the costs of maternal health care had a significant relationship on decision of having second or higher order births rather than the social factors. Findings from In-depth interviews confirmed the significant role of cost of child birth on fertility decisions.*

Key words: *Child birth, Maternal health care cost, Fertility, Family Planning*

Introduction

India is entering the late transitional phase of Demographic Transition with a declining population growth rate. Reduction in growth rate of population is result of already low death rate and lowering birth rate since 2001 (Kulkarni, 2014). With a total fertility rate of 2.4 it has reduced its population growth rate from 24.9% in 1971 to 17.6% in 2011. However due to the demographic momentum, i.e., the tendency for a population to continue growing after a fertility decline because of their young age structure, the country is supposed to become the most populous country in the World on the year 2022 (Pandey et. al., 2015). For speeding up the fertility decline in India, it is need of the hour, to focus demographic studies on the pockets of population with higher growth rate and analyse the responsible factors in detail. At micro level, a couple's fertility decision making process needs to be studied in-depth: how many children they are going to have and what are the determinants of their desired family size (Thompson, 2001).

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Determinants of fertility have constantly remained an area of interest for the demographers. Some demographers have put emphasis on social factors, while economists such as Libenstein (1957), Gary S. Becker (1960) and Easterlin (1969, 1973) provided important theories on association between economic factors and fertility choices. Some recent studies also confirmed the role of anticipated cost of raising children on restricting the number of children (Kim et. Al., 2017; Pradhan and Sekhar, 2012).

In India, out-of-pocket spending on maternal health care imposes a significant financial burden on households (Arif et al., 2006). Studies have found that cost of maternal health care controls maternal health care utilization (Borghi et al, 2012; Leone, James and Padmadas, 2012). The role of cost becomes even more prominent in case of resource constrained population groups. Urban poor household are no exception in such impoverishments. Utilization of maternal health care is much worse among urban poor than the urban non-poor households (Gupta et al, 2009; Prakash & Kumar, 2013). Significance of health care seeking costs not only decides the service seeking behaviour of urban poor but it also has potentiality to influence a couples'decision on number and spacing of children. However, there is a dearth of literature on the impact of maternal health care cost on the number of children ever born to a couple. In this study the main objective was to find out the role of maternal health care expenditure on the decision of child birth for the urban poor women living in slums of Indian cities.

Data and Methodology

In this study, data were collected through structured interview schedule and by conducting in-depth interviews. Women living in slums of Kolkata with children aged one year or less were interviewed for the study.

a. Quantitative Study

Data was collected by the researcher through structured interview schedule. Total number of interviewee was 413. Information on demographic and socio-economic background characteristics, maternal health care utilization and related costs were collected.

b. Qualitative Study

In-depth interviews were carried out with about 100 women from the study. The effect of possible expenditure associated with child birth on decision regarding number and spacing of children. It was also taken into consideration whether this effect changes with the birth order of the child.

c. Methods

Univariate analyses have been carried out in order to study the%age distribution of the independent as well as the dependent variables included in the study. For variables such as socio-economic and demographic characteristics,%age

distributions have been shown and for cost and some other continuous variables 'statistical mean' has been represented.

Bivariate association has been observed between the socio economic variables and maternal health care seeking behaviour and also with cost of maternal health service. Compare Means method was used to calculate the average costs for every category of each of the predictor variables. Associations between nominal variables were examined with the help of cross tabulation table and Chi-square test has been used to draw conclusions about the population from the sample data.

Binary logistic regression analysis has been used in order to measure the net effect of the costs on number of children ever born.

d. The Study Area

Kolkata is India's third largest metropolitan city and second in terms of the proportion of slum population (Chandramouli, 2011). Studies have found that urban poor households face the most economic problems in accessing healthcare and they either become economically overburdened or forgone care or compromise with the quality of care (Bonu et.al, 2009; Worrall et. al., 2011). A household survey was conducted in Kolkata city between February and May, 2013. Standard multi-indicator cluster sampling method was applied to select four clusters of wards on the basis of proportion of slum population and geographical distribution. From this ward clusters slums were selected randomly. After the four slums were selected, birth records were collected from the concerned ward health office of women who gave birth in the previous one year. Among them a 413 women were interviewed. About 100 women selected through random sampling from the study and they were revisited in order to carry out in-depth interviews.

Findings

Socio-Economic and Demographic Characteristics of the Study Population

Table1 represents the descriptive statistics regarding socio-economic background of the surveyed population. It can be seen from the table Scheduled Caste (SC) and Scheduled Tribe (ST) women comprised of 33.4% of the total, 9.4% of them were OBC and rest of them were from other caste groups. In this study 63% of the surveyed women were living in joint families. The average household size was five. In majority of the families, husband and other family members took animportant role in the decision making on health care of these women. Only 37.5% women were involved in the decision making process. Average age of these women was 24 years. However the age range varied from 17 years to 40 years. Literacy rate was quite high at 82.3%. But only 74% of them had attended formal schooling and very few of them completed school education. Mean years of schooling was seven years. Average number of children was also two and it ranged from one to

six. Proportion of women who had more than one parity was 41.4%. About 6% of them had a history of pregnancy wastage. Average age of the youngest child was 6 months. Sex ratio among these surveyed infants was balanced as 49.9% were boys and 51.1% were girls. Average age of the second last child was 4 years, which showed a healthy birth interval between the last two children.

Table 1 : Social and demographic characteristics of the study population

Variable	%
Social Groups	
Scheduled Caste/Tribe	33.4
OBC	9.4
Others	57.1
Type of family	
Nuclear family	36.8
Joint family	63.2
Mean Household size	5
Involvement in decisions making for women on health care	37.5
Average age of woman (years)	24
Number of pregnancies	2
Literacy rate	82.3
Mean year of schooling	7
Number of children	2
Women with more than one parity	41.4
Age of youngest child (month)	6
Gender of youngest child	
Boy	49.9
Girl	50.1
Age of second last child (year)	4

Table 2 shows the economic characteristics of the study population. Only 15.3% of the women did any work to earn money in last one year. On an average each household had two earning members and the average monthly household income was ` 3658. But, as the household size was quite high in most of these households, average per capita monthly income was as meagre as ` 733, which reflects the economic hardship faced by these families.

The survey also revealed that 62% of the households faced serious financial difficulties in the past twelve months. Most of the families (60.8%) sought help from relatives, neighbours and friends. About 17% of them took loans from the commercial money lenders during the past twelve months.

Table 2 : Educational and economic characteristics of the study population

Variable	%/Average
Women who worked to earn money in last 12 months	15.3
Household income per month (`)	3,658
Per capita monthly income of the family (`)	733
Experienced financial difficulties in past 12 month	61.7
Received help in difficulty from:	
Family members/ relatives/friends/ neighbours	60.8
Credit cooperative/ Banks	19.2
Money lender	16.5
Other	3.5

Family Planning

Birth planning is very important for would-be parents. Planning on aspects such as place of delivery, mode of transport, source of money to support the cost of child birth should be done well in advance. In this study it was found that 73% of the parents did some kind of birth planning (Table 3). Almost all of them decided the place of delivery before (97.4%). But only 21% of them arranged for the money to bear the cost of delivery and only 8.7% arranged any mode of transportation to the place of delivery.

For 45.5% of the births, majority proportion of the maternal health care expenditure was borne by the maternal grandparents. The in-depth interview revealed that it customary for many of the households to bear the cost of the first childbirth of the daughter. Parents of the father spent the majority amount of the total cost in 22.5% of the birth. Only 32% parents themselves spent majority of the expenditure. The About half of the families found it difficult to arrange money for availing maternal health care and 41.2% of them had to borrow money for meeting the cost of services. Among these families, about half of them got money from their relatives, friends and neighbours. For 34% of the families, main source of borrowing were money lenders. But the in-depth interviews revealed that not only money lenders but sometimes even the friends or relatives took interest on lending the money.

Table 3 : Birth Preparedness, source of money for child birth among study population

Variable	%
Planning before child birth	73.6
Planned for:	
Place of delivery	97.4
Cost of the service	21.1
Transport	8.7
Source of funding of the maternal health care expenditure:	
Maternal Grandparents of the baby	45.5
Paternal Grandparents of the baby	22.5
Parents	32.0
Borrowed money to incur the expenditure	41.2
Source of borrowed money	
Family members/ relatives/friend/neighbour	48.8
Money lender	34.1
Employer	17.1

Cost of Child Birth

In this study, costs of maternal health care seeking have been classified in to three categories: the direct cost, indirect cost and opportunity cost. Direct cost has been calculated by adding user fees given to the doctor or to the facility for seeking maternal care (Puri et.al, 2004). It also includes the costs of using operation theatre in case of caesarean deliveries and costs of medicines and diagnostics, purchased from the facility or from some other place. Indirect cost includes components such as transportation cost for the woman and for the accompanying persons while visiting the health facility to seek ANC and PNC and also the transport cost during the time of delivery. Indirect cost also includes the informal payments or 'bakhsish' made by the family to the health facility staff (Sharma et.al., 2005) and the cost of additional food items that a woman consumed during her pregnancy. Opportunity cost or the time cost, as referred in many studies (Chawla and Ellis, 2000), includes the amount of wage loss either by the woman herself or by her husband and other family member in order to seek maternal health care. It also includes the fees paid to a person who looked after the children or did household chores for the women during her visits to seek maternal health care from health facilities.

The average cost of child birth for the study population was found out to be ` 4405, which included direct, indirect and opportunity costs. The cost of seeking antenatal care for these women was ` 1207. Total amount of cost during delivery was 3157. Average cost of seeking postnatal care was ` 352. Cost of delivery varied according to the type of place of delivery and type of delivery. The amount of cost was lowest in government hospitals (` 3887) and was highest in private facilities (8058) because of their high service charges. For normal deliveries amount of direct cost (` 2725) was much lower than that for C-Section and forceps deliveries (` 8973) due to much higher institutional fees for C-Section and forceps deliveries.

Table 4 : Maternal health Care Costs incurred by the study population

Variable	Cost (`)
Cost of receiving antenatal Care	1207
Cost of delivery care	3157
Cost of receiving Postnatal care	352
Place of delivery	
Government	3887
Non-government	8058
Home	1977
Type of delivery	
Normal	2725
Forceps & C-Section	8973
Total Cost	**4405**

Comparative Role of Cost of Maternal Health Care and Other Social Factors in First and Second Birth Interval for Women

The main research question of the study was the role of cost of maternal health care seeking on the decision of childbirth. Therefore, it becomes important to find out if there is any association between the cost and the timing of childbirth for these women. Does the cost have any association with the first two birth intervals i.e. the time between marriage to first birth and from first to second birth or are the social factors more important in deciding the birth intervals? Many studies have found that determinants vary from one birth interval to another (Ramesh P, 2013; Singh et.al, 2012). Thus, association has been studied separately for the first and second birth intervals.

It can be seen from table 5 that for first birth interval, cost showed no significant relationship, whereas social factors like caste and family type show

significant association with first birth interval. However, as regards second birth interval, the situation was reversed. For the second birth interval cost becomes significant and caste and family type don't show any significant association.

Table 5 : Association between costs and social factors with first and second birth interval

Variable	First Birth Interval (months)		Second Birth Interval (months)	
Total cost				
High	36	0.303	59	0.000
Medium	30		44	
Low	26		37	
Type of family		0.053		0.292
Nuclear	39		43	
Joint	32		48	
Social Groups		0.003		0.747
Scheduled Caste/tribe	27		47	
Others	37		45	
Age groups		0.000		0.001
15-14	26		36	
24-45	51		51	
Educational level		0.177		0.005
No education	40		48	
Less than eight years	32		37	
Eight years and more	33		54	
Involvement of women in decision making on health care		0.106		0.807
Yes	30		45	
No	36		46	
All	**34**		**46**	

Education also showed significant association only with second birth interval, while age, as expected, showed significant association with both first and second intervals.

So from the findings it can be said that the role of cost becomes an important factor only in the case of second birth interval. The decision on first birth was being governed mainly by social factors rather than the economic factors.

Findings from in-depth interviews also support the above conclusions. When the couple who had their first child inquired about the reasons for not planning their first child some more years after marriage, many views was expressed:

One woman, aged 21 years, mother of single child said: "*My mother-in-law instructed to try a child soon after marriage. She told that arrangement of money will be done, people can always take economic help from their relatives, friends etc."*

Another woman of 20 years with a child reported that "*The relationship between me and my husband became stronger only after having the child. Now we have so many things to talk about*"

Another woman, aged 23 years and a mother of two children, mentioned that *"Only after delivering my first child I started to take part in decision making in my husband's family and my opinions were taken seriously by my in-laws".*

Regarding the timing of second childbirth many of them preferred a birth interval of minimum two to three years. Cost of maternal health care became a significant factor in determining the birth interval coupled with the factor of replenishment of physical exhaustion after one childbirth. The effect of cost on the birth interval became even stronger for women who had a C-section delivery along with the physical exhaustion factor. The role of repaying the loans taken and the occurrence of opportunity costs were also important in governing second birth interval. One working woman mentioned: *"I had enough loss of wage during my first child birth. I cannot bear the same amount of wage loss again and especially now as I have a child to support."*

So the role of cost in decision regarding childbirth becomes significant only after the first childbirth. For these women decision on first childbirth was governed by social factors only, while for second and higher birth orders the role of cost becomes significant.

Role of Economic Factors on Fertility Choices

Determinants of family size or the number of children a family has is an area of interest for the scholars. Famous economists such as Libenstein (1957), Gary S. Becker (1988) and Easterlin (1969, 1973) provided important theories on association between economic factors and fertility choices. Among economic factors, cost of a child mostly includes the expenditure on child rearing. However the role of cost of child birth on fertility decision was not much considered. A major research question of this study is the role of cost on fertility choice.

The first binary logistic regression contains the effect of total cost on fertility choice of the couples included in the study after controlling other important social variables. Table 6 gives odds-ratios of binary logistic regression of probability of having more than one child. It can be seen from the table that cost of seeking maternal health care has significant effect on probability of having more than one child. Those who incurred low cost in maternal health care were 86% more likely to have more than one child than those who incurred a high expenditure (O.R.: 1.859).

The results of binary logistic regression show that cost of maternal health care

Table 6 : Odds ratios from Binary logistic regressions on effect of Cost on number of Children

Variable	More than one children	
	Exp (B)	Sig.
Total Cost		
High	1.000	.106
Medium	1.355	.275
Low	1.859	.034
Type of family		
Nuclear	1.000	
Joint	.612	.032
Social Groups		
Scheduled Caste/tribe	1.000	
Others	.758	.243
Age groups		
15-14	1.000	
24-45	3.915	.000
Educational level		
No education	1.000	
Less than eight years	.583	.128
Eight years and more	.612	.059
Involvement of women in decision making on health care		.091
Yes	1.000	
No	.715	.541

influences the probability of having two or more children. The association of costs and social factors with first and second birth intervals in bivariate section of data analyses also showed that costs became significant only in case of second birth interval.

On the contrary, the first birth interval showed significant associations with only the social factors. Findings from in-depth interviews also support this result. Women mentioned about the high cost of child birth and cost of raising the children.

A woman, aged 21 years, mother of a single child said: *"Going to a big hospital did not only increase my service seeking costs but the total transport cost also gone quite up. We had to pay for the ambulance by which I was sent there and for the taxi by which I came back. Transport cost for my husband and other family members, who went regularly to the hospital, were also quite high. In addition, my husband couldn't earn as he went to the facility for 4-5 days.Now we can't even think about having another child. As it will take 2-3 years to repay loans that we have taken to meet these expenditures."*

Mother of a single child, mentioned: *"We will have one child only. If we can raise him well and give him good education he will become equals to ten children."*

The women who mentioned about having single child were mostly those who had some years of education. Some of them also mentioned that though their in-laws prefer two children they will be happy with one.

When women with two children were asked about their decision on having the third child, most of them mentioned about the high cost child birth along with the cost of raising children. In-depth interviews also reveal that many of the women who had more than two children were less likely to avail ANC and chose government facility for child birth. When asked about this a woman with three children, answered, *"As we are poor people having more children adds to the cost of ANC, PNC or a good place of delivery. We cannot afford these services."* In order to have more children people were adjusting their maternal health care service utilization so that the total cost remains as low as possible.

The overall effect of cost of maternal health care on number of children changes with the parity of the women: almost no effect for first child, for second child onwards the cost of maternal health care seeking showed significant effect on decision of having children. The effect was more prominent for women with relatively higher educational level.

Conclusion

The main finding of the study was the changing role of economic and social factors according to the parity of the women in determining the number and timing of the births. Deciding to have a child is the first stage in maternal health care

seeking behaviour. The bivariate association of the cost of child birth with the first and second birth intervals showed that the decision on timing of first birth was being governed by social factors such as family type and caste. Findings from in-depth interviews also reflected the important role of social factors such as presence of in-laws, specially the mother-in-law in deciding the timing of birth of the first child. The insignificant role of cost of child birth on first birth interval can also be explained by the fact that major portion of the child-birth expenditure was borne by the parents of the women in about half of the cases. This was found as a well prevalent custom in the study population especially for the first birth of a woman. This along with the incidence of borrowing can be responsible in reducing the importance of cost as a determinant of first birth interval. However more studies should look into this research area more elaborately.

The situation totally changed in case of birth of the second child, where the role of cost of child birth became the most important factor in deciding whether to have a second child and also determining the timing of the second birth. Multivariate analyses showed that the costs of maternal health care has a significant relationship on decision of having second or higher order births rather than the social factors. Findings from the in-depth interviews also supported this finding. Along with the direct cost of child birth, role of opportunity cost was also found to be significant in the decision making regarding having more than one child.

It is important to note the role of maternal health care costs on fertility decisions in these urban poor families. The newly married couples living in the urban slums should be given proper counselling by the household health workers for restricting their family size. Along with that they should be encouraged to do proper financial planning before starting family. These will reduce their financial burden in attaining proper maternal health care and will contribute to further decline in fertility. Altogether these will lead to betterment of maternal and child health conditions especially among the resource restrained population groups such as urban poors living in developing countries.

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