

Fertility Behaviour of Women and Their Household Characteristics: A Case Study of Punjab, Pakistan

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ABSTRACT The total fertility rate in Pakistan is as high as 5.4, that is result of low contraceptive prevalence rate of only 28 percent. By using probit model on primary data taken from a sample of 1000 women (15-49 years) from two districts of Punjab (Pakistan), i.e. Bahawalpur and Lahore, we have analyzed the factors related to household characteristics which are responsible for low contraceptive prevalence among married women. The husband education, income of the husband, husband's age at marriage, number of living children, number of sons, household income, and urbanity of the household are major determinants of contraceptive prevalence among women. While son preference and number of living daughters in the household deter the contraceptive use. In the short-term implementation of minimum marriage age act and the stress on rural areas may be effective to increase the contraceptive use. For the long-term, provision of education and employment along with awareness about gender equity need policy attention.

1. INTRODCUTON

Low contraceptive use is the result of interaction among a complex set of demand and supply aspects of family planning. It is still unclear which aspects are comparatively more important. On supply side, easy access to service outlets is strongly related to contraceptive use (see, Mahmood and Ali 1997; Agha 2000). The family planning service delivery remained short of the target and the married women are at risk of unintended pregnancies. In Pakistan, 31.7 % of the demand for contraceptive remained unmet, which is the highest in South Asia followed by Nepal at 27.8 %, India at 15.8 % and Bangladesh at 15.3 %. Contraceptive choice is central element of quality of care in provision of family services and an important dimension of women's reproductive right. Broadening the choice of contraceptive method increases overall contraceptive prevalence. In addition, method mix is a key determinant

of the fertility impact of contraceptive practice. The use of more effective methods even by a smaller proportion of eligible women can produce a greater decline in fertility than use of less effective methods by a larger proportion of women. Critics of the supply-oriented family program are of the opinion that in Pakistan almost all approaches are supply-oriented and simply handing out contraceptive does not necessarily guarantee the practice of family planning.

On the demand side, the most commonly cited factors obstructing the use of contraceptive among women are the husband's disapproval, lack of communication about family planning among wife, husband and mother-in-law, woman's immobility and lack of exposure to family planning messages from health-care workers (Fikree et al. 2001), female autonomy, son preference, knowledge of source of family planning, unequal balance of power in gender relations, fear of side effects, and the socio-cultural and religious taboos about birth control (Sathar and Kazi 1997; Fikree et al. 2001) though Khan (1997) has found that religion has little effect on contraceptive use in Bangladesh. Demand-oriented programs are largely ignored in Pakistan and population programs are largely focused on females.

A number of international and national studies based on micro/macro data are available mainly dealing with determinants, differentials and

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regional variations. Zafar et al. (1995) made a comparative study of contraceptive user and non-user women to investigate reproductive behaviour. By using primary data from Lahore and Faisalabad districts of Pakistan, they analyzed the impact of social, cultural and attitudinal variables, such as beliefs and values about family life, religiosity and fatalism on fertility decision-making process. The preference for smaller families was found associated with modern attitudes towards family and religious values. Family income and husband's occupation has offered no explanation of reproductive behaviour. As concerned the models Mahmood and Ringheim (1997) have examined the effect of socio-cultural and supply factors on contraceptive use through logistic regression by using Pakistan Demographic and Health Surveys of 1990-91. In addition to finding a positive relationship of woman's age, number of living children, education, and place of residence with contraceptive use, they have theorized five factors potentially affecting fertility, i.e. communication between husband and wife, religious beliefs, female autonomy, son preference and variables of supply of family planning services. Ali et al. (2004) have also used multiple logistic regression on primary data from district Naushahro Feroze (Pakistan) to determine the factors of contraceptive use. The factors included in the model were husband's willingness that woman can go alone to a health-care provider, woman's employment status, and husband's education. Fikree et al. (2001) have made univariate and multivariate regression analysis of the influencing factors of contraceptive use in urban women of squatter settlements of Karachi. They determined the association between contraceptive use and several variables, including social and demographic characteristics; religious beliefs; communication about family planning among the family members (wife, husband and mother); woman's mobility and decision-making capability; acceptance of information about family planning in the mass media; and exposure to family planning messages from health-care workers. Ali and White (2005) have determined the prevalence and socio-demographic factors associated with family planning practices in District Khairpur (Pakistan) using cross-sectional primary data. They have examined the effect on contraceptive use by variables like woman's literacy, woman's age, number of children, exposure to family messages

on TV and husband's approval. Dwivedi and Sundram (2000) have used two level logistic regression for India including some different variable of *pucca* (brick and mortar) houses as residence of household, survival of last child, availability of all-weather road to household, and religion. Maitra and Pal (2004) have examined the birth spacing and child survival for Indian and Pakistani Punjab using National Family Health Survey 1992 data from the Indian province of Punjab and Pakistan Integrated Household Survey 1991 data from the Pakistani Punjab province. They have explored significant differences between Indian and Pakistani households. Part of difference in behaviour is explained by difference in female literacy, which in turn highlights the difference in religion and state policies in these two neighbouring states. More interestingly, the comparative study of Indian and Pakistani Punjab provided an opportunity to examine the effects of religion and state policy on child survival. The other explanatory variables to see the birth space in the study were child characteristics (gender, birth-order), parental characteristics (age and education), household characteristics (assets, income, and headship of household), community characteristics (religion), and infrastructure variables (household access to drinking water, modern toilet and drainage).

We are going to do an empirical analysis of demand-side determinants of current contraceptive prevalence among married women using the non-linear maximum likelihood probability (Probit) function. The study is based on primary data comprising the household level variables. We have excluded the issueless married women from the survey to make the results unbiased assuming that they do not need contraceptive. Though, there is possibility that newly-wed women are using contraceptive to delay the first birth but it is very rare in Pakistani society. We have focused on all the women regardless of the number of children they bear, not on specific group of married women like women having one living child, two living children or three living children as a number of studies (see for instance, Dwivedi and Sundram 2000) have analyzed all women as well as women having at least one child) have done. The reason is that the gender of the first child also affects the contraceptive use and some women may prefer to have only one child though the ideal number of children in Pakistani households is two.

2. METHODOLOGY

Data is collected with the specific purpose of investigating the probability of current contraceptive use by married women. About 1000 married women who were not currently pregnant between the ages of 15-49 (The age group of 15-49 years is taken by following the Pakistan Fertility and Family Planning Surveys, although some girls are married before 15 years of age) were interviewed from each rural and urban areas of Bahawalpur and Lahore districts of Punjab (Pakistan). Though some studies have focused on a shorter age group of, for instance, Zafar et al. (1995) have analyzed the 25-45 years age group of women. The divorced, separated and widows were excluded. The villages and towns were selected purposely by keeping in mind the range of income, employment, and educational level of the community. The questionnaire was comprised of household's socio-economic information.

The study estimated the regression model in which current contraceptive use by woman (CCUW) is a function of explanatory variables related with household characteristics. The estimation includes those predictor variables which are known to have substantial effects on contraceptive use. The dependent variable can take only two binary values: 1 if a woman uses contraceptive and 0 if she does not. The paper estimates non-linear maximum likelihood function for the normal probability (probit) model.

There may be a number of socio-economic and demographic factors influencing currently married women to decide whether to use contraceptive or not. The exogenous factors included in the present study are: education level of husband (HEDU) as a continuous variable, literacy status of husband (HLIT) as a binary variable (the official definition of a literate individual in Pakistan is "one who can read a newspaper and write a simple letter". The literacy so defined cannot be accepted as "functional literacy". So we defined the adult literacy or husband's literacy status as educational endowment of the individual who has completed at least five years of formal education), income of husband (HY), husband's approval for contraceptive use (HAPV), husband's age at marriage (HAGEM); number of living children in the household (NCH), number of living sons in the household (NSON), number of living daughters in the household (NDAU), gender of oldest child (GOCH), ratio of

Table 1: Definitions of independent and explanatory variables used in Probit model

Variables	Definitions
<i>Dependent Variable</i>	
CCUW	Current contraceptive use by woman (1 if the woman uses contraceptive, 0 otherwise)
<i>Independent Variables</i>	
HEDU	Education of husband in completed years
HLIT	Literacy status of the husband (1 if the husband is literate, 0 otherwise)
HY	Income of husband per month in Rupees (1000s)
HAPV	Husband approval for contraceptive use (1 if husband approves, 0 otherwise)
HAGEM	Husband's age at marriage in completed years
NCH	Number of living children of woman
NSON	Number of living sons of woman
NDAU	Number of living daughters of woman
GOCH	Gender of the oldest child (1 if the child is son, 0 otherwise)
RSD	Ratio of the sons to daughters
HHY	Household income per month in Rupees (1000s)
LOC	Locality of the household (1 if the household is urban, 0 otherwise)

sons to daughter (RSD), total income of the household (HHY) and locality of household—whether the household is rural or urban (LOC). The set of explanatory variables included in the analysis are selected after a preliminary analysis of several related covariates. The definition of variables is given in table 1.

3. RESULTS AND DISCUSSION

The objective of the study was to analyze the demand side determining factors (at the household level) of contraceptive use by married women in Pakistan. The summary statistics and results of the probit estimation, i.e. probability derivative of contraceptive use by married women (15-49 years) are shown in table 2.

Husband's Education and Income Level: In Pakistani society, husbands are major decision makers in households regarding family planning. Mahmood and Ringheim (1997) evidenced that husband's desire for children is more important in declining the likelihood of contraceptive use, and altering the reproductive behaviour of the couple. We have found that educational level of husband as a continuous variable has shown no significant effect on contraceptive use by his wife. However wife of a literate husband is 13 % more likely to use contraceptive (see also Ali et al. 2004; Koc 2000 for Turkey; Dwivedi and Sundarm 2000 for India). The results have further shown that

Table 2: Results of Probit model for contraceptive use by married women (15-49 Years)

Variables	Mean	Standard deviation	Probability derivative and t-statistics
Constant			0.2208 (0.4292)
CCUW	0.5400	0.5034	
HEDU	5.9875	3.5069	0.3731 (0.0366)
HLIT	0.3984	0.6127	0.1754 (1.3496)**
HY	5.0649	4.3574	0.0013 (1.3665)**
HAPV	0.8993	0.5784	0.4382 (3.6771)*
HAGEM	28.3841	5.4954	0.0085 (1.7054)*
NCHILD	3.3682	1.6637	0.0613 (1.6729)*
NSON	1.7021	1.0352	0.0399 (1.4521)**
NDAU	1.6632	1.1863	0.2137 (0.6471)
GOCH	0.5437	0.5288	0.1765 (1.9362)*
RSD	6.4120	6.3429	0.0263 (1.6311)**
HHY	0.5064	0.5382	0.1148 (1.6566)*
LOC	0.7261	0.6015	0.2094 (2.8745)**
Log of Likelihood Function			-2629.53
Number of Observations			993
R-Squared			0.5873
Percent Correct Prediction			0.7059

* Indicates significant at 5 percent level and ** indicates significant at 10 percent level.

probability for contraceptive use by a woman is positively associated with the income of the husband. The results support the notion that literate and high-income husband has lower number of children.

Husband's Approval for Contraceptive Use:

In the societies like Pakistan where males are the decision-maker in families, they also make decisions relating to having or not having a child. In such settings the role of healthy husband-wife communication inducing fertility becomes unavoidable. Many women who are favourably inclined to practice family planning did not practice it because of not receiving enough encouragement from their spouses. A large number of unwanted (by the women) pregnancies are particularly the outcome of the inability of the women to take approval from husbands. Our probit estimation has shown that the contraceptive use by a woman may be increased by 38% by husband's approval. From the policy point of view, government's education and motivation campaigns may be devised to focus on husbands to persuade them to change their attitudes about family planning. The healthy husband-wife communications on family planning leads to certain policy modifications for family planning programs and mass media coverage to improve family planning acceptance.

Husband's Age at Marriage: Our research shows that probability to use contraceptive by a

woman is positively related to the age of the husband at marriage. One year delay in the age of the man at marriage may increase the contraceptive use by 0.85 percent. As a policy matter the implementation of law of marriage age may help in enhancing contraceptive use.

Number of Living Children: A woman gains respect when she is married and has children, thereby improving her bargaining position in the household. The offspring guarantees a woman status and respect. Hence, we may expect a woman to continue child-bearing activities throughout her reproductive years. On the other hand, a high cost of child-raising play an important role to decide for number of children. The prevalence of contraceptive may be related to the number of children. Ali et al. (2004) have found that women who had 3 or more children were more likely to use any modern contraceptive methods as compared to those who had 2 or less children. Ali and White (2005) concluded that mothers having more than four living children were associated with frequent use of family planning methods (see also Lasee and McCormich 1996). We have found that higher number of living children increases the probability of contraceptive use (see also Lasee and McCormich 1996; Dwivedi and Sundram 2000 for India; Hakim 2000). One new child in the household may increase the use of contraceptive by almost 7 percent. The possible explanation may be that as the number of children increases, the law of diminishing returns applies and the socio-cultural status of woman decreases.

Number of Living Sons: For South Asia, a number of studies have revealed that son preference accounts for the persistence of the desire for more births. Women with three or more surviving children still desire for more births in the hope of having a son (Mahmood 1996 for Pakistan). When couples have had one or more sons they are more likely to accept contraception. Having sons not only motivates parents to accept contraception but also reinforces its continuation (Rajaretnam and Deshpande 1994 for India). Moreover, couples with sons have longer birth intervals and fewer subsequent births. We have found that the presence of more number of living sons in the household increases the probability of contraceptive use (see also Hakim 2000; Dwivedi and Sundram 2000 for India). Sons are preferred due to socio-cultural reasons. In Pakistan they are likely to support their parents

in old age, whereas daughters in a patrilineal system marry early and move to their husbands' homes. Son preferences among families may be for family continuity (see also Bairagi 2001 for Bangladesh) and the persistence of dowry system.

Number of Living Daughters: The notion of son preference is complementary to the concept of daughter aversion. As son brings benefits to his parents, daughter imposes costs, consequently, complementing a desire to have son is a desire not to have daughter. The desire for son tends to increase family size while the fear of daughter limits it. The presence of only daughters in the household makes the mothers insecure against divorce and polygamy in the context of socio-cultural norms in Pakistan. Our results have revealed that number of daughters in the household negatively impacts the contraceptive use. For Pakistani society where fertility transition is going on, the aversion of daughters is emerging as a constraint for family planning. It appears that further increase in the CPR may become difficult unless there is a decline in the desire for aversion of daughters. It is important that family planning policies of propagating two-child family should across the board, emphasizing on child parity and women status. For the purpose the religious leaders may be involved as conceptually Islam gives the respect to daughters.

Gender of Oldest Child of Mother: The gender of the oldest /first child of the couple after marriage may impact the contraceptive use by mothers. If the first child is son, the family's desire to have a son would be fulfilled and the family will delay the second birth to give more care to the child. On the other hand, if the first child is daughter, the demand for son will be urged and the family will not delay the second birth. We have found that a woman having son as oldest child is more likely to use contraceptive as compared to a woman who has girl as oldest child. It explained the gender bias as the factor of low contraceptive prevalence.

Ratio of Sons to Daughters: The demand for contraception is hypothesized to depend on composition of sons and daughters. In developing countries and Latin America, there is a preference for balanced number of sons and daughters in the household and very little preference for sons. In South Asia, East Asia, North Africa, and some parts of Middle East, son preference is strong and pervasive. Several investigations have

argued that preference of male children sustains high fertility and it is a potential obstacle in fertility decline. Malhi and Jerath (1997 for Bangladesh) estimated that if son preference is completely eliminated, contraceptive acceptance would increase by approximately 4 % as a whole. One method of investigating the impact of sex preference on fertility behaviour is to examine the sex composition of children in the household. If son preference is important then, women with more sons to daughters would be more likely to be currently using some method of contraception. To analyze the sons or daughters preference we have included the ratio of the sons to daughters as an explanatory variable in the probit model. The probit estimation shows that the variable has positive impact on contraceptive use, i.e. probability of contraceptive use would be higher for a woman who has more sons than daughters (see also Koc 2000 for Turkey). It contradicts the result of (Bairagi 2001 for Bangladesh) where sex preference has shown no strong effect on contraceptive use. It revealed the fact that there exists a preference for sons in Pakistani community and it makes a hurdle in fertility decline.

Household Income: The economically better-off households generally prefer small families and hence have lower fertility. We have included the household income as an explanatory variable to see whether lower-income restricts the contraceptive use in the society where economic conditions are deteriorating due to inflation and income disparity and private sector is becoming larger supplier of contraceptives with higher prices. Our results have shown that the use of contraceptive increases as household income increases. It suggested that lower-income is a deterrent to modern contraceptive use as married women from poor households are less likely to use contraceptive possibly due to unaffordable cost of contraception. The other possible explanation may be that women from higher household income participate in household decision-making, enjoy physical mobility outside the home and have awareness which results into high contraceptive use.

Locality of the Household: Urban women have better access than rural ones to contraception, information about contraception, and health-care providers in case they face a problem in using contraception. Mishra et al. (1999 for India) reported that in rural areas, to have an additional child is one of the main reasons not to

use contraceptive. It is consistent with a desire for larger family and higher fertility. Want to replace the dead child with a new child is more prevalent in rural as compared to urban areas, that is consistent with higher child mortality and fertility in rural areas. Abbasi-Shavazi and McDonald (2005) argued that urbanization is an important reason for lower fertility in Iran. Our results have revealed that urban woman is 20 % more likely to use contraceptive than rural one (see also Hakim 2000; Fikree et al. 2001). The possible explanation may be that majority of the women in rural areas are illiterate and unaware of the female health and socio-cultural values are strict (See, Agha 2000). There is limited supply of publicly provided contraception, or limited knowledge of contraception and/or prejudice against using modern contraception for rural population. Rural women contribute to household production but their work is not recognized by families (Sathar and Kazi 2000). So status of the women remains low, which keeps the decision making authority of women low in their households. The exposure to electronic mass media is also low for rural women which affect their contraceptive behaviour (Mishra et al. 1999). On the other hand all the better facilities for family planning services exist in urban areas. The easy access to modern health-care and hospital facilities in urban or semi-urban areas results into a greater use of contraception in these areas.

4. CONCLUSION AND RECOMMENDATIONS

It is concluded that majority of the factors discussed in the study are intertwined and mutually reinforcing, which have contributed to low contraceptive use. For example, the adult education from the variable of husband's education, his approval for contraceptive and his age at marriage is interrelated with son preference, male-biased composition of children, poverty and household income. These variables reinforce each other's impact. A substantial increase in contraceptive use resulting in decline in fertility and ultimately population growth could occur if these factors are managed. The provision of education to adults and their gainful employment raise the household income are the most important factors requiring attention.

The households are highly biased towards sons due to socio-economic factors specifically

the support in old-age. The provision of social safety nets and surety of care in old age along with awareness about disadvantages of large families may increase contraceptive use and decrease fertility. The legal measure in the form of increase in the marriage age for males and its implementation may be supportive for the purpose to lower fertility.

The supply of female health and family planning facilities in rural areas may increase contraception by women. The awareness about the women rights and equal social status may also help a lot. Contraceptive prevalence in women is inversely related to household income. If the aim of family programs is to reach low-income people, the supply of contraceptive should be free or at a nominal cost as low as possible.

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