Role of Family Size and Composition in Fertility Desire, Contraceptive Adoption, and Method Choice in South Asia

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ABSTRACT

Studies have found that gender preference has significant implications for desired family size, fertility decisions, and contraceptive adoption. This paper adds to the existing literature by examining the influence of family size and composition on reproductive behavior in three South Asian countries – Nepal, India, and Bangladesh – that are known for strong son preference. Using data from recent Demographic and Health Surveys, we analyze if the choice of contraceptive method adopted (modern versus traditional; temporary versus permanent) and desire for another child differ by parity and sex composition of surviving children. In addition for India, we pool four northern states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and four southern states (Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu) in order to capture the north-south variation within the country. We also compare West Bengal and Bangladesh to study how cultural similarities in these regions influence son preference and its effects on fertility desires and contraceptive adoption. The study confirms the presence and strength of son preference in all three countries. The analyses reveal that son preference is more prominent in Nepal and India than in Bangladesh. Within India, it is stronger in the North compared to South India and West Bengal. There is a desire for at least a daughter especially in Bangladesh after a son. There is a clear shift towards permanent methods with increase in number of sons and we do not find any systematic pattern in the use of traditional methods by parity or sex composition of children. Based on the multivariate nature of the analysis we can conclude that these preferences are embedded in the cultural and traditional beliefs of these countries and tackling this issue is not simple. It would require alteration of social norms and attitudes of the people and improving status of women within the household.

INTRODUCTION

Many countries in eastern and southern Asia demonstrate strong cultural preference for sons (Arnold et al.1998; Clark 2000). Numerous social and economic factors in these countries make sons more valuable than daughters. Sons are more prized than daughters for their financial and labor contributions to the family, for supporting their parents, and in perpetuation of the family name (Arnold 2001). In some countries, especially in South Asia, sons also bring wealth into the family through dowry (Das Gupta et al. 2002) and are solely entitled to perform certain religious ceremonies. At the same time, some studies have shown that many parents in this region also prefer to have at least one daughter (Arnold 2001).

Several studies from Bangladesh, India, Nepal, Pakistan, and Sri Lanka have confirmed widespread presence of son preference in South Asia and its impact on reproductive attitudes and discrimination against girls (Stash 1996; Arnold 2001). Son preference often translates into prejudice against the girl child in nutrition, schooling (Burgess and Zhuang 2002[1]; Kingdon 2002), and health care (Pande 2003; Timæus et al. 1998; Behrman 1998), which can adversely affect their health and well-being and may even lead to higher female mortality (Das Gupta et al. 2002; Arnold et al. 1998; Pelletier 1998; Choe et al. 1998; Kishor 1995). It is important to recognize, however, that there are considerable regional differences in the extent of son preference within South Asia. For example, son preference is much stronger in northern and central uplands of India than in the south (Bhat and Zavier 2003; Bose and Trent 2005).

Desire for sons and a certain sex composition can also lead to selective stopping behavior, female feticide, and in extreme cases even female infanticide (Arnold et al. 2002; Sudha and Rajan 1999). Any decline in fertility without changes in attitudes regarding son preference could be at the cost of increased use of sex-selective abortions or female infanticide (Yount et al. 2000; Arnold 2001; Bairagi 2001; Leone et al. 2003; Bhat and Zavier 2003). Recent studies in India have linked son preference to high male/female sex ratios at birth, which indicate sex-selective abortion and may be responsible for rising population sex ratios (Retherford and Roy 2003; Arnold et al. 2002; Das Gupta and Bhat 1997; Visaria and Visaria 1995).

The effects of son preference on sex selective fertility behavior and sex ratios tend to intensify as fertility levels decline (Bhat and Zavier 2003), and this has been observed in low fertility societies including China, Taiwan, and South Korea (Poston Jr 2002; Chowdhury and Bairagi 1990). However, Larsen et al. (1998) found that son preference only slows fertility decline in Korea. They found that modernization on the other hand tends to reduce fertility and individuals may be practicing sex-selective behavior which could explain the low fertility levels despite presence of son preference. Family planning policies do not explicitly discourage son preference. Even successful programs like in

[1] Burgess and Zhuang (2002) test for gender bias in intra-household allocation in Sichuan (poor) and Jiangsu (rich) province of China. They find that poorer households have stronger health expenditure bias against girls and pro-boy bias in educational spending in both provinces.

Vietnam have not been able to reduce gender discrimination and weaken the patriarchal structure of the family (Belanger 2002).

Success and effectiveness of family planning and reproductive health programs may be limited if families continue to have additional children till they have desired number of sons. Case and Deaton (2002) show that household size of girls aged 0-14 in India is 0.16 persons larger on average than households with boys aged 0-14, indicating that girls tend to live in larger households. They find that southern states (Tamil Nadu, Kerala, and Karnataka) have smaller differences in household size than other states (Gujrat, Haryana, Himachal Pradesh, Madhya Pradesh, Maharastra, Orrisa, Punjab, Rajastan and West Bengal). Generally high infant and child mortality rates in South Asia coupled with strong preference for sons are believed to be responsible for a low use of contraception and high fertility rates (Stash 2001; Clark 2000). However the evidence of son preference on contraceptive adoption and fertility is not conclusive. On one hand, several studies have found that gender preference has significant implications for desired family size, fertility decisions, and contraceptive adoption (Bhat and Zavier 2003; Khan and Khanum 2000). Bhat and Zavier (2003) find a positive relation between ideal family size and sex preference. Khan and Khanum (2000) find that in Bangladesh preference for a male child discourages women in lower parities to use contraception, which in turn acts as a barrier to reducing fertility. On the other hand, Bairagi (2001) in a study of data from the Matlab Demographic Surveillance System in Bangladesh did not find son preference to be a constraint on contraceptive use. Also, Leone et al. (2003) found that in Nepal son preference has only a moderate effect on contraceptive use and fertility. They estimated that there would be only eight percent increase in contraceptive use and only six percent increase in fertility in the absence of son preference. Haughton and Haughton (1995) also found evidence of son preference having modest affect on contraceptive use with only a minor effect on fertility in Vietnam.

Given this perspective, we examine how family size and composition affect reproductive behavior in three South Asian countries – Nepal, India, and Bangladesh – that are known for strong son preference. Couples can manipulate family size and composition using range of contraceptive methods. Using data from recent Demographic and Health Surveys, we analyze if the choice of contraceptive method adopted (modern versus traditional; temporary versus permanent) and desire for another child differ by parity and sex composition of surviving children. In addition for India, we pool four northern states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and four southern states (Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu) in order to capture the north-south variation within the country. We also compare West Bengal and Bangladesh to study how cultural similarities in these regions influence son preference and its effects on fertility desires and contraceptive adoption.

DATA AND METHODS

The data are from the 2001 Nepal Demographic and Health Survey, the 1998-99 India National Family Health Survey, and the 2004 Bangladesh Demographic and Health Survey. These surveys collected data from nationally-representative samples of

households, covering 8,602, 92,486, and 10,500 households respectively in Nepal, India, and Bangladesh. Analysis here is based on currently married, non-pregnant women age 15-49 interviewed in the sampled households in each country. Details on the survey procedures and sampling design are provided in individual survey reports (MOH, New ERA, and ORC Macro 2002; IIPS and ORC Macro 2000; NIPORT, Mitra and Associates, and ORC Macro 2005).

We categorize women by their number and sex composition of living children at the time of the survey, as follows: parity 1 (0 sons, 1 son), parity 2 (0 sons, 1 son, 2 sons), parity 3 (0 sons, 1 son, 2 sons, 3 sons), and parity 4+ (0 son, 1 son, 2 sons, 3 or more sons). This is the primary predictor variable in our analysis. Women in parity 0 are excluded.
All three surveys asked currently married, non-pregnant women about their desire for a (another) child and current contraceptive usage. The surveys included information about whether women used a modern (IUD, the pill, injectables, implants, norplant, diaphragm, condom, foam/jelly, male sterilization, female sterilization) or a traditional method (periodic abstinence, rhythm/safe period, folk method, withdrawal)[2], and whether they used a temporary (IUD, the pill, injectables, implants, norplant, diaphragm, condom, foam/jelly, periodic abstinence, rhythm/safe period, folk method, withdrawal) or a permanent method (male sterilization, female sterilization) of contraception. The idea being, that parents who have not yet had desired number of sons are less likely to use contraceptives. We use four outcome variables: 1. Desire for another child (0= do not desire; 1= desire); 2. Current contraceptive use (0= not using; 1= using); 3. Current use of a modern or traditional method (0=not using; 1=using a modern method; 2=using a traditional method); and 4. Among modern method users, current use of a temporary or permanent method (0=not using; 1=using a temporary method; 2=using a permanent method).

The study uses both descriptive and multivariate statistical methods. We first present levels of fertility desire, current contraceptive use, use of modern or traditional method, and use of temporary or permanent method by number and sex composition of living children for each country, and regions within India. Using binary and multinomial logistic regression, we then estimate unadjusted and adjusted odds ratios for effects of number and sex composition of children on each of the four outcome variables by parity. In the absence of sex selective abortions, sex composition at any given parity is biologically determined. Therefore, the effect of sex composition should not be confounded with the effects of other factors such as education, wealth, and media exposure that are known to influence contraceptive adoption and method choice. However, given that sex selective abortion is prevalent in these countries and to the extent this practice is associated with socioeconomic factors, we need to control for these factors in the multivariate models. Therefore, the adjusted models control for mother's

[2] In India, modern method includes the pill, IUD, condom, male sterilization and female sterilization and traditional methods include rhythm/safe period and withdrawal. Modern methods in Bangladesh include the pill, IUD, norplant, injectables, condom, male sterilization and female sterilization and traditional methods include periodic abstinence, withdrawal and others. The pill, IUD, injectables, implants, condom, and foam/jelly are the modern methods and withdrawal and folk method are the traditional methods used in Nepal.

educational level (no education, primary, secondary or more), current work status (working, not working), media exposure to family planning messages (exposed[3], not exposed), residence (urban, rural), wealth quintiles, and participation in household decision-making[4].

Logistic regression is estimated for the binary variables, one for each parity. Multinomial logit models are used to compare those using modern and traditional methods with those not using any method. Similarly, those using temporary and permanent methods are compared to those not using any contraceptive methods employing multinomial logit models. We estimate separate models for parity 1, parity 2, parity 3, and parity 4+ for each of the dependent variables. In addition for India, we pool four northern states (Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh) and four southern states (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and include separate analysis for West Bengal. Analysis uses sampling weights and accounts for clustering in the survey design.

RESULTS

The data includes 6821, 71096 and 8864 currently married non-pregnant women between ages 15 to 49 from Nepal, India and Bangladesh respectively. Within India, the analysis includes 23162, 12513 and 3536 currently married non-pregnant women between ages 15 to 49 from North India, South India and West Bengal respectively. We first show the sample distribution of the main predictor variable and the control variables across all countries and regions (Table 1). Table 2-5 presents the percent distribution of the 4 outcome variables by parity and sex composition. Odds ratio for the logit models and relative risk ratio results of the multinomial logit models are discussed for all three countries and regions (Table 6-9). We discuss only the adjusted results for the multinomial logit models. Effects of control variables are not shown.

Table 1 presents the sample distribution of the independent variables used in the analysis for all countries and regions. At parity 1, there are more women with a son than no sons except in Nepal and South India. We find that the combination of one girl and one boy is most common at parity 2. At parity 3, two sons and one daughter is more common than any other combination for all three countries. Parity 4+ also indicates that having two or more sons is more common than having two or more daughters.

Large proportions of the respondents in the data have low educational levels. Close to three-quarters of women in Nepal and little more than half of the women in India have no education. Within India, north is worst off with 70 percent of the women illiterate. Respondents in South India, West Bengal and Bangladesh are similar with slightly over 40 percent of the women without any education. Nepal (12 percent) and North India (18 percent) have least number of women with secondary or higher level of education.

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[3] Media exposure includes hearing or seeing family planning messages in one of the following mediums: radio, television or newspaper.

[4] Household decisions regarding respondents' own health care, large household purchases and visit to family or relatives are included to create the household decision making variable.

There are more rural than urban respondents and in each survey at least 70 percent of the data are from rural areas. In Nepal only 10 percent of the women belong to urban areas. We find a high proportion of women to be working in Nepal (84 percent). Little more than a fifth of the women in Bangladesh and close to two-fifth of the women in India have paid work. Within India, we observe variation with close to 50 percent of the women in South and a quarter of women in West Bengal working. About two-fifth of the households in all the countries live in the lowest quintile. There are regional variations within India with 26 percent, 12 percent and 28 percent living in the poorest conditions in North India, South India and West Bengal respectively.

At least two-fifth of the respondents in all countries have seen family planning messages in radio, television or newspaper. About 60 percent of the women in Nepal have been exposed to family planning messages in some form or the other and exposure is least in Bangladesh (42 percent). According to our data, around a quarter of the women in Nepal and Bangladesh are involved in household decision making. This proportion is highest in India (one-third) with South India having highest proportions participating in household decision making than the other regions.

<Table 1 here>

Fertility Desires

At parity 1 in every country, at least four-fifth of the women with no sons wants to have another child. However, there are regional variations within India with 92 percent of the women in North India, 72 percent in the south and only 59 percent in West Bengal say they wish for another child when they have no son. In every country and every region within India, women are more likely to desire another child if the only living child is a girl. By the second parity, a clear pattern of son preference emerges where woman without a son is more likely to wish for another child. This desire declines with increasing number of sons in the family. In South India and Bangladesh the desire for another child is slightly greater when women have two sons than when they have one son and one daughter indicating preference for at least one girl child. We find that desire increases from 9 percent to 11 percent and from 23 to 32 percent in South India and Bangladesh respectively.

For women with three children, the desire for another child is highest when they have three daughters and the decrease is rapid up to two sons after which it goes up and in Bangladesh this increase is the highest with the desire going up by 11 percent when women have all three sons. Compared to other parities, fewer women at parity 4 or higher wish to have another child. This ranges from 60 percent in Northern India to as low as 10 percent in Southern India. Nevertheless women with no sons are more likely to wish for another child than others. These results demonstrate presence of son preference and desire to have at least one daughter in all three countries. Within India, desire for another child is strongest in Northern India across all parity and composition.

<Table 2 here>

Contraceptive use

Table 3 presents current contraceptive use rates by parity and sex composition of living children. Overall, contraceptive use is lowest in Nepal (44 percent) and highest in Bangladesh (65 percent). Within India, West Bengal (75 percent) has the highest rate followed by South India (68 percent). In each of the three countries and at each parity, women with no sons are least likely to use a family planning method. This suggests that individuals aspire for at least one son. The table indicates that in Northern India women are not satisfied with one son. Interestingly, at each parity a high proportion of women report using contraception even when they have no sons, particularly so in Bangladesh and West Bengal where about one-half of women with no sons report using contraception at each parity.

At parity 1 and 2, as number of sons in the family increase contraceptive use increases except in Bangladesh. At parity 2 in Bangladesh, contraceptive use falls slightly from 71 among those who have one son to 68 percent among those who have two sons. At parity three, the association between family composition and contraceptive method adoption is stronger in Nepal and India with the use increasing rapidly till they have two sons, but in Bangladesh this association is weaker and not observed beyond having one son. There is a slight decline in contraceptive use across all countries and regions among women in third and fourth parity if they do not have any daughters. In Nepal and India, contraceptive use rates are lower compared to Bangladesh when women have no sons across all parities, but as the number of sons increase this difference narrows.

<Table 3 here>

Table 4 categorizes contraceptive use by modern and traditional methods. Modern methods are much more common than traditional methods in each country except in West Bengal. In West Bengal close to a fifth of the women use traditional methods and usage goes down with increasing parity. We do not find any systematic pattern in the usage of traditional methods by parity or sex composition of children. For all India and Nepal, the proportion using modern methods increase with number of sons in parity 1 and 2. In Nepal, at parity 1, 17 percent use modern methods when they have a daughter versus 21 percent using modern methods when they have one son. Usage increases from 18 to 39 to 57 percent at parity 2 when number of male child in the family increases from zero to one to two. Similarly in all India, at parity 1, modern use increases from 17 when women have only daughter to 19 percent when they have only son. At parity 2, modern contraceptive use is highest when families have two sons. In Bangladesh, the patterns are not as obvious. For example in parity 2, half of the women with no son, 62 percent with one son and one daughter but only 58 percent with two sons and no daughter use modern method. There is fall in contraceptive adoption at parity 2 when individuals do not have a daughter in Bangladesh. At higher parity, there is increased usage among those who have sons compared to those who have none. The usage plateaus or even falls after two sons in Nepal and India and after one son in Bangladesh. Regions within India follow patterns similar to all India with South India and West Bengal having higher usage of modern methods than North India.

<Table 4 here>

Table 5 looks at these differentials by family size and sex composition separately for temporary and permanent methods. Data show that permanent methods are more popular in India and Nepal. For these countries the table shows a clear shift towards permanent methods with increase in number of sons. That is, with increase in parity and number of sons more couples adopt permanent methods. For example in Nepal at parity three, only 5 percent of women use a permanent method when they have no sons, compared with 23 percent when they have one son, 52 percent when they have two sons and 57 percent when they have three sons. As expected, the ratio of permanent to temporary methods goes up with increasing number of sons at each parity. In Bangladesh, temporary methods are more prevalent than permanent methods across all parities. Since temporary methods enable couples to preserve their ability to have another son, we find that those who have fewer sons or no sons use temporary methods.

We also find that there are major differentials in contraceptive use rates by urban/rural residence, education, living standard, media exposure, and other factors. By parity and sex composition these differentials tend to be narrower in urban, more educated, wealthier, and more media exposed women.

<Table 5 here>

Multivariate Analysis

The multivariate analysis reiterates our bivariate results. Table 6 and 7 present odds ratio for desire to have another child and contraceptive use. Table 8 and 9 present relative risk ratios for the multinomial logit models. Consistently across all models, the relationship between parity and the dependent variables is not affected by the inclusion of control variables. It can be deduced that these control variables capture practices such as sex selective abortions that are prevalent in these societies which only strengthen the relationship between reproductive behavior and parity and sex composition.

Fertility Desires

Table 6 presents the effect of family composition on desire to have another child. We find that results from adjusted and unadjusted models are similar. Across all parities, compared to those having only daughters, desire to have additional child goes down with the increase in number of sons in the family. This implies that women are not satisfied just having daughters. At parity 1, compared to those with a daughter, women with one son are less likely to desire for another child. The odds ratios are well below 1 and significant for all countries and region except South India.

Although desire goes down with additional sons in Bangladesh and South India at second parity, we also find that the desire to have another child is higher when women have two sons than when they have a son and a daughter. This implies that they are not satisfied

with just sons. At parity 2 in West Bengal, the desire for another child is as strong when individuals have a combination of a son and a daughter or just two sons. In Nepal, India and North India women's wish to have another child progressively goes down as number of sons increase. At parity two, in West Bengal the combination of a son and daughter or two sons do not seem to affect desire for additional child differently. It is 85 percent less in either case. Those with three children in Bangladesh, with the combination of two sons and a daughter are 93 percent less likely to desire where as those with only sons are 73 percent less likely to desire for another child. There is a 20 point difference. We find smaller differences in South India (13) and West Bengal (10).

<Table 6 here>

Contraceptive use

The effect of family composition on contraceptive usage is presented in table 7. The results from unadjusted and adjusted models are alike and we find positive and significant association between contraceptive use and family composition. Models indicate that those with sons are more likely to use contraceptives compared to those with no son. This is observed across all parities. Greater usage of contraception is evident among all parities in Bangladesh with additional sons expect in parity 4 or more where women having three or more sons does not significantly increase her contraception usage when compared to those with all daughters. This relationship is not significant in West Bengal and South India at parity 1. Effect of family composition does not affect contraceptive usage in West Bengal in parity 1, 2 and 4+. Results point towards stronger preference for sons in Nepal and Northern India than in Bangaldesh.

<Table 7 here>

Modern and traditional methods

Multinomial logit models were estimated to compare modern and traditional users with non-users. Modern methods show a more systematic pattern of sex preference in Nepal. Table 8 indicates that in India both methods are used more as number of sons in the household increase with a slight fall after having second son. As seen earlier modern methods are more popular in Bangladesh and this is also exhibited by the multivariate analysis. Within India, we find the modern methods clearly demonstrating son preference. We do find that at all India level, usage of traditional methods increases with number of sons an individual has but it is not reflected at a disaggregated level in North India, South India and West Bengal. Modern methods are more common except in West Bengal where we found traditional methods to be as popular. Even there we do not find women adopting traditional methods with additional sons and increase in number of children they have.

<Table 8 here>

Permanent and temporary methods

Contraceptive use is further classified into permanent and temporary methods. Multinomial logit models were estimated to study the impact of parity and family composition on contraceptive use. The three alternative outcomes are no contraceptive usage, permanent method and temporary method. Table 9 reports the relative risk ratios. Couples are likely to adopt permanent methods when they have achieved their desired number of children and sons. In general, permanent methods are more prevalent in Nepal and India. Table 9 shows that in Nepal, India and Bangladesh women with sons are more likely to use contraceptive methods. There are some differences when we look at the parity level results. At parity 2 in Nepal both methods show an increase in contraceptive usage with additional sons. The relationship is stronger for permanent methods than temporary methods indicating individuals with two sons are more likely to adopt permanent methods than those with one daughter and one son. This is not observed as clearly in India. Couples switch to more permanent methods as they are close to their ideal number of children or sons. At the all India level at parity 2 adoption of permanent solutions to contraception increases three times with one son and four times with two sons if compared to having just daughters.

We observe that Bangladesh is a bit different. Women with one son are fifty percent more likely to use temporary methods and those with two sons are only forty percent more likely. Similar trend is observed with permanent methods as well. This indicates that individuals are not entirely satisfied with just sons. They aspire for at least one daughter. At higher parities use of permanent methods rises rapidly till families have two sons then there is stagnation or even a slight fall. Still contraceptive usage is higher for those with sons than with just daughters. Temporary methods do not show a pattern in these three countries at higher parities except that use is more with sons than without. Within India, north shows clear evidence of greater impact of son preference on both kinds of contraceptive use. At parity 2 and 3 in the south and West Bengal results are significant only for permanent methods which confirm that son preference exits even in these regions.

<Table 9 here>

CONCLUSION

Studies have found son preference to have significant impact on contraceptive use and fertility outcomes. Depending on the sex of the previous children, couples may alter their fertility desires and employ different stopping methods. Previous research has also shows son preference to affect nutritional, educational, and mortality outcomes among children. The current study attempts to understand the effect of son preference on fertility desires and contraceptive method choice and examine if couples adopt different family planning techniques to manipulate family size and composition. This research includes the latest DHS data available for Nepal, India and Bangladesh to study the impact of son preference on reproductive behaviors including desire to have another child and contraceptive use. Although weaker than what was found in earlier studies, we find that

even after controlling for socio-economic factors there exists strong son preference in these three countries. Our analysis shows that parity and family composition affect fertility behavior. Women with more sons are more likely to use contraception and have lower desire to have another child than those who have daughters. Also, the effect of sex composition on contraceptive use and fertility desires is not diluted by education, employment status, wealth status, media exposure, and household decision making of the women, which indirectly control for sex-selective behavior. Based on the multivariate nature of the analysis we can conclude that these preferences are embedded in the cultural and traditional beliefs of these countries.

Gender preference has a clear impact on reproductive attitudes and behavior in South Asia. The study reveals that son preference is more prominent in Nepal and India than in Bangladesh and this pattern emerges at the first parity. Within India, gender preference has the least effect on fertility desires and contraceptive use in South India. Across all parities and countries, women with no sons are more likely to desire another child and less likely to use contraception. However it is also important to note that there is a preference for daughters especially in Bangladesh after one son. Earlier study by Chowdhury and Bairagi (1990) suggested that there was desire for at least one daughter in Bangladesh but not before having two sons. Between modern and traditional methods we observe a clearer pattern of son preference among modern contraceptive users. This may be because modern methods are more common than traditional methods. In general, there is a greater reliance on permanent methods as families get closer to their desired family size and desired number of sons. This is more so in Nepal and India than in Bangladesh. In India and Nepal the emphasis of the family planning programs for many years has been on permanent methods.

The current study has several limitations. First, the study is based on single cross-section data which do not determine causality but only enable us to look at the associations between the independent and the dependent variables. Second, there is no data available on sex-selective abortions or feticide to establish if individuals indeed use these technological advances and other methods. We try to capture the use of modern technology on sex selection by including control variables, but only to the extent the socio-economic factors can be are associated with these sex-selective techniques. We can only speculate that there could be intensification of gender preferences due to the presence of these factors in these countries which are experiencing fall in fertility. Finally, desire for another child variable should be treated with caution. Response to this question may not be reliable and affected by women's experiences which could lead to biases. The difficulty here is that this variable only shows the intentions and there is no guarantee that it will change or did change fertility behavior.

Impact of son preference has been found to be weak at higher fertility levels and it may not necessarily disrupt fertility decline (Yount et al. 2000). However, as countries demonstrating strong son preference transition to replacement level fertility the effect of gender preference on desire for another child and contraceptive use may become pronounced, then eventually affect the sex ratio of children at different parity. Sex ratio may be further skewed in the presence of sex pre-selection techniques. In such a scenario,

focus of family planning programs to increase contraceptive prevalence and continuation rates may only result in limited success. It is true that desire for a son is embedded within the cultural fabric of the South Asian society and tackling this issue is not simple. It would require alteration of social norms and attitudes of the people and improving status of women with particular emphasis on higher education (Pande and Astone 2007). Policymakers must include mechanisms to make daughters valuable and remove gender differences within their household through their family planning and various social upliftment programs. That is sincere effort has to be made to improve the status of women in order to counteract the impact of son preference on reproductive behavior. In the context of son preference, India is diverse and hence policies should be differentiated according to regions or even states.

REFERENCES

Arnold, F., M.K. Choe, and T.K. Roy. 1998. Son Preference, the Family Building Process and Child Mortality in India. Population Studies, Vol. 52: 301-315.

Arnold, F. 2001. Son Preference in South Asia. In *Fertility Transition in South Asia.* Edited by Zeba Ayesha Sathar and James F. Phillips. Oxford University Press.

Bairagi, R. 2001. Effects of Sex Preference on Contraceptive Use, Abortion and Fertility in Matlab, Bangladesh. International Family Planning Perspectives, Vol. 27(3): 137-143.

Behrman, J. R. 1998. "Intra-household allocation of resources: Is there a gender bias?" in Too Young to Die: Genes or Gender?, pp. 223–242. New York: Population Division, United Nations.

Belanger, D. 2002. Son Preference in a Rural Village in North Vietnam. Studies in Family Planning, Vol. 33(4): 321-334.

Bose, Sunita and Katherine Trent. 2006. "Socio-demographic determinants of abortion in India: a North–South comparison" Journal of biosocial science, Vol. 38(02):261-282.

Burgess, R. and Juzhong Zhuang. 2002. Modernization and Son Preference in People's Republic of China. ERD Working Paper Series No. 20. Economic and Research Department. Asian Development Bank.

Bhat, P. N. M. and A. J. Francis Zavier. 2003. Fertility Decline and Gender Bias in Northern India. Demography, Vol. 40(4): 637-657.

Case, A. and Angus Deaton. 2002. Consumption, Health, Gender, and Poverty. Research Program in Development Studies, Princeton University.

Choe, M. K., I. Diamond, F. A. Steele, and S. W. Kim. 1998. "Son preference, family building process and child mortality," in Too Young to Die: Genes or Gender?, pp. 208–222. New York: Population Division, United Nations.

Chowdhury, M.K. and R. Bairagi. 1990. Son Preference and Fertility in Bangladesh. Population and Development Review, Vol. 16(4):749-757.

Clark, S. 2000. Son Preference and Sex Composition of Children: Evidence from India. Demography, Vol. 37(1): 95-108.

Das Gupta, M., Jiang Zhenghua, Li Bohua, Xie Zhenming, Woojin Chung and Bae Hwa-Ok. 2002. Why is Son Preference so Persistent in East and South Asia? A Cross-Country Study of China, India, and the Republic of Korea. Policy research Working Paper 2942. The World Bank.

Haughton, J. and Dominique Haughton. 1995. Son preference in Vietnam. Studies in Family Planning, Vol. 26(6): 325–337.
International Institute for Population Sciences and ORC Macro. 2000. National Family Health Survey (NFHS-2), 1998-99: India. Mumbai: IIPS.

Kingdon, G. 2002. The Gender Gap in Educational Attainment in India: How Much Can be Explained? Journal of Development Studies, 39(2): 25-53.

Kishor, S. 1995. "Gender differentials in child mortality: A review of evidence," in M. Das Gupta, L. C. Chen, and T. N. Krishnan (eds.), Women's Health in India: Risk and Vulnerability. Bombay: Oxford University Press, pp. 19–54.

Larsen U., Woojin Chung and Monica Das Gupta. 1998. Fertility and Son Preference in Korea. Population Studies, Vol. 52(3): 317-325.

Leone, T., Z. Matthews and G. D. Zuanna. 2003. Impact and Determinants of Sex Preference in Nepal. International Family Planning Perspectives, Vol. 29(2): 69-75.

Khan, M. A. and P.A. Khanum. 2000. Influence of Son Preference on Contraceptive Use in Bangladesh. Asia-Pacific Population Journal 15(3): 43-56.

Marcoux, A. 2002. Sex Differentials in Undernutrition: A Look at Survey Evidence. Population and Development Review, Vol. 28(2): 275-284.

Ministry of Health [Nepal], New ERA, and ORC Macro. 2002. Nepal Demographic and Health Survey 2001. Calverton, Maryland, USA: Family Health Division, Ministry of Health; New ERA; and ORC Macro.

Mishra, V., T.K. Roy and R.D. Retherford. 2004. Sex differentials in childhood feeding, health care, and nutritional status in India. Population and Development Review, Vol. 31(2): 351-368.

National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ORC Macro. 2005. Bangladesh Demographic and Health Survey 2004. Dhaka, Bangladesh and Calverton, Maryland [USA]: National Institute of Population Research and Training, Mitra and Associates, and ORC Macro.

Pande, Rohini P. and Nan Marie Astone. 2007. "Explaining son preference in rural India: The independent role of structural versus individual factors," Population Research and Policy Review 26(3):1-29.

Pande, R. 2003. "Selective gender differences in childhood nutrition and immunization in rural India: The role of siblings," Demography 40(3): 395–418.

Pelletier, D. 1998. "Malnutrition, morbidity and child mortality in developing countries," in Too Young to Die: Genes or Gender?, pp. 109–132. New York: Population Division, United Nations.

Poston Jr, Dudley L. 2002. Son preference and Fertility in China. Journal of Biosocial Science, Vol. 34(3): 333-347.

Sharon Stash, S. 1996. Ideal-family-size and Sex-composition Preferences among Wives and Husbands in Nepal. Studies in Family Planning, Vol. 27(2): 107-118.

Stash, S. 2001. Son Preference and the Dynamics of Fertility Decision-making among Wives and their Husbands in Rural Nepal. In *Fertility Transition in South Asia.* Edited by Zeba Ayesha Sathar and James F. Phillips. Oxford University Press.

Timæus, I., K. Harris, and F. Fairbairn. 1998. "Can use of health care explain sex differentials in child mortality in the developing world," in Too Young to Die: Genes or Gender?, pp. 154–178. New York: Population Division, United Nations.

Yount, K.M., R. Langsten and K.Hill. 2000. The Effect of Gender Preference on Contraceptive Use and Fertility in Rural Egypt. Studies in Family Planning, Vol. 31(4): 290-300.

Table 1: Sample distribution of currently married, non-pregnant women age 15-49 years by parity and family composition of living children and by selected background characteristics in Nepal (2001), India (1998-99), and Bangladesh (2004)

Characteristics	Nepal (2001)	India (1998-99)				Bangladesh (2004)
		All India	North India	South India	West Bengal	
Parity and family composition						
Parity 1						
0 Son	8	8	7	9	10	10
1Son	8	9	8	9	12	11
Parity 2						
0 Son	4	4	3	6	5	5
1 Son	11	14	10	19	18	14
2 Sons	8	9	7	10	9	8
Parity 3						
0 Son	2	2	2	2	2	2
1Son	7	8	7	9	8	8
2 Sons	10	11	11	11	10	9
3 Sons	3	3	3	3	2	2
Parity 4+						
0 Son	1	1	1	1	1	1
1Son	7	6	7	5	5	6
2 Sons	13	11	14	7	8	10
3 or more sons	17	13	20	8	11	14
Education						
Illiterate	74	53	70	43	44	43
Primary	14	17	12	20	26	30
Secondary+	12	30	18	38	30	27
Residence						
Urban	10	27	20	30	24	22
Rural	90	73	80	70	76	78
Work status						
Not working	16	63	68	52	75	79
Working	84	37	32	48	25	21
Wealth quintile						
Lowest	22	19	26	12	28	20
Second	19	20	25	17	25	20
Middle	19	20	19	25	15	20
Fourth	20	20	15	25	16	21
Highest	21	21	15	22	17	20
Media exposure						
No	40	44	59	28	46	58
Yes	60	56	41	72	54	42
Participation in household decisions						
No	76	68	75	59	78	75
Yes	24	32	25	41	22	25
N	6821	71096	23162	12513	3536	8864

Note: North India: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh.
South India: Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

Table 2: Percent currently married, non-pregnant women age 15-49 years desiring another child by parity and family composition in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)	India (1998-99)				Bangladesh (2004)
		All India	North India	South India	West Bengal	
Parity 1						
0 Son	87	80	92	72	59	89
1 Son	74	73	83	72	50	85
Parity 2						
0 Son	62	49	78	22	36	50
1Son	21	20	44	9	7	23
2 Sons	12	15	26	11	6	32
Parity 3						
0 Son	48	44	77	14	28	39
1Son	15	15	31	5	6	11
2 Sons	2	4	8	2	1	4
3 Sons	3	7	11	4	6	15
Parity 4+						
0 Son	29	37	60	10	12	28
1Son	8	11	19	4	3	5
2 Sons	1	3	5	1	1	2
3 or more sons	2	3	4	2	2	2
Total	28	28	41	18	17	30

Table 3: Percent currently married, non-pregnant women age 15-49 years using contraceptives by parity and family composition in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)	India (1998-99)				Bangladesh (2004)
		All India	North India	South India	West Bengal	
Parity 1						
0 Son	19	26	10	25	61	57
1 Son	27	29	15	25	67	62
Parity 2						
0 Son	24	44	16	62	76	60
1Son	45	62	33	76	79	71
2 Sons	61	69	49	79	80	68
Parity 3						
0 Son	23	42	14	66	62	61
1Son	47	64	39	81	78	73
2 Sons	69	76	60	87	83	74
3 Sons	68	76	58	85	87	73
Parity 4+						
0 Son	26	40	14	68	75	52
1Son	50	59	38	79	78	67
2 Sons	59	66	53	78	78	68
3 or more sons	48	55	43	68	71	60
Total	44	54	34	68	75	65

Table 4: Percent using modern and traditional contraceptive methods by parity and family composition in Nepal (2001), India (1998-99), and Bangladesh (2004)

			India (1998-99)									
	Nepal (2001)		All India		North India		South India		West Bengal		Bangladesh (2004)	
Parity and family composition	**Modern**	**Traditional**	**Modern**	**Traditional**	**Modern**	**Traditional**	**Modern**	**Traditional**	**Modern**	**Traditional**	**Modern**	**Traditional**
Parity 1												
0 Son	17	3	17	8	6	4	20	5	29	32	47	10
1 Son	21	6	19	10	10	4	19	6	32	35	54	8
Parity 2												
0 Son	18	6	37	7	12	4	59	3	45	31	51	9
1Son	39	6	55	7	28	5	74	3	59	21	62	9
2 Sons	57	4	64	5	45	3	76	3	66	14	58	10
Parity 3												
0 Son	20	4	36	6	11	3	63	3	42	20	48	13
1Son	41	6	59	5	34	4	81	1	64	15	60	13
2 Sons	66	3	72	4	56	4	86	1	73	10	62	12
3 Sons	65	2	71	4	54	4	82	2	71	16	62	11
Parity 4+												
0 Son	20	6	35	5	11	3	66	1	63	13	33	19
1Son	45	5	53	6	33	5	77	2	61	17	54	12
2 Sons	53	6	61	5	48	5	77	1	65	13	50	18
3 or more sons	45	3	49	5	38	5	67	1	55	16	45	15
Total	39	5	48	6	30	4	65	2	56	19	53	12

Table 5: Percent using temporary and permanent contraceptive methods by parity and family composition in Nepal (2001), India (1998-99), and Bangladesh (2004)

			India (1998-99)									
	Nepal (2001)		All India		North India		South India		West Bengal		Bangladesh (2004)	
Parity and family composition	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Permanent**
Parity 1												
0 Son	18	1	20	5	10	1	15	11	55	5	55	2
1 Son	24	3	23	6	12	3	15	10	59	7	59	3
Parity 2												
0 Son	21	3	18	26	12	4	10	53	52	24	57	3
1Son	29	17	19	43	15	17	7	69	37	42	65	6
2 Sons	23	38	15	55	12	36	6	73	26	54	62	6
Parity 3												
0 Son	18	5	12	29	7	6	7	59	32	30	58	3
1Son	24	23	13	51	12	27	2	80	25	53	64	9
2 Sons	17	52	9	68	9	52	2	85	20	63	59	15
3 Sons	11	57	8	68	7	51	4	81	18	70	65	8
Parity 4+												
0 Son	16	10	8	32	4	10	2	66	23	52	50	3
1Son	25	25	12	46	11	27	4	75	32	46	59	7
2 Sons	21	38	9	57	9	44	2	76	22	56	59	9
3 or more sons	18	30	10	45	9	34	3	66	27	44	51	9
Total	20	23	14	41	10	24	6	62	33	42	59	6

Table 6: Effects (unadjusted and adjusted odds ratios) of family composition on desire to have another child in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)		India (1998-99)								Bangladesh (2004)	
			All India		North India		South India		West Bengal			
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Parity 1												
0 Son	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1 Son	0.43**	0.43**	0.63**	0.63**	0.48**	0.48**	0.99	0.96	0.68**	0.62**	0.68**	0.65**
N	1089		11564		3316		2309		877		1883	
Parity 2												
0 Son	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1 Son	0.15**	0.12**	0.24**	0.21**	0.19**	0.16**	0.38**	0.35**	0.15**	0.10**	0.27**	0.27**
2 Sons	0.07**	0.05**	0.17**	0.13**	0.09**	0.06**	0.47**	0.41**	0.15**	0.10**	0.45**	0.44**
N	1545		19221		4657		4511		1130		2393	
Parity 3												
0 Son	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1 Son	0.20**	0.18**	0.23**	0.21**	0.14**	0.12**	0.31**	0.32**	0.17**	0.12**	0.24**	0.21**
2 Sons	0.02**	0.02**	0.06**	0.05**	0.02**	0.02**	0.14**	0.14**	0.03**	0.01**	0.08**	0.07**
3 Sons	0.04**	0.04**	0.10**	0.08**	0.03**	0.03**	0.27**	0.27**	0.13**	0.08**	0.32**	0.27**
N	1533		17384		5282		3150		726		1864	
Parity 4+												
0 Son	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1 Son	0.17**	0.15**	0.20**	0.20**	0.14**	0.14**	0.42**	0.43*	0.17*	0.15*	0.17**	0.15**
2 Sons	0.02**	0.02**	0.06**	0.06**	0.03**	0.02**	0.12**	0.11**	0.05**	0.04**	0.09**	0.08**
3 or more sons	0.04**	0.03**	0.07**	0.06**	0.02**	0.02**	0.22**	0.20**	0.09**	0.08**	0.07**	0.06**
N	2653		21973		9361		2482		796		2722	

Note: Adjusted model controls for Mothers' education, current work status, media exposure to family planning messages, residence, wealth quintiles, and participation in household decision-making. Reference category for parity in each model is having no sons.

** Significant at 1 percent, *significant at 5 percent. N in unadjusted and adjusted models are very close.

Table 7: Effects (unadjusted and adjusted odds ratios) of family composition on contraceptive use in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)		India (1998-99)								Bangladesh (2004)	
			All India		North India		South India		West Bengal			
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Parity 1												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	1.44*	1.55**	1.21**	1.24**	1.53**	1.60**	0.96	0.99	1.18	1.24	1.20	1.25*
N	1089		11741		3407		2326		879		1884	
Parity 2												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.85**	3.04**	2.12**	2.16**	2.89**	2.91**	1.82**	1.85**	1.15	1.16	1.57**	1.54**
2 Sons	5.33**	6.39**	2.84**	3.18**	5.63**	6.65**	2.12**	2.28**	1.27	1.32	1.42**	1.41**
N	1546		19421		4763		4524		1132		2393	
Parity 3												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.60**	2.97**	2.37**	2.38**	3.91**	3.82**	2.15**	2.17**	1.79*	2.05**	1.81**	1.91**
2 Sons	6.68**	9.06**	4.31**	4.75**	10.31**	11.58**	3.23**	3.36**	2.50**	3.04**	1.87**	1.99**
3 Sons	6.34**	8.10**	4.11**	4.60**	9.21**	10.94**	2.91**	3.00**	3.75**	4.46**	1.80**	1.83**
N	1533		17550		5380		3164		727		1864	
Parity 4+												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.59**	2.58**	2.19**	2.20**	3.86**	3.67**	1.68*	1.75**	1.24	1.32	1.64*	1.67*
2 Sons	3.55**	4.06**	2.90**	3.30**	7.02**	7.72**	1.63*	1.79**	1.39	1.62	1.64*	1.75**
3 or more sons	2.37**	2.84**	1.88**	2.29**	4.85**	5.79**	1.01	1.13	0.89	1.07	1.17	1.26
N	2653		22384		9612		2499		798		2723	

Note: Adjusted model controls for Mothers' education, current work status, media exposure to family planning messages, residence, wealth quintiles, and participation in household decision-making. Reference category for parity in each model is having no sons.

** Significant at 1 percent, *significant at 5 percent. N in unadjusted and adjusted models are very close.

Table 8: Effects (adjusted odds ratios from multinomial logit models) of family composition on modern and traditional contraceptive use in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)		India (1998-99)								Bangladesh (2004)	
			All India		North India		South India		West Bengal			
	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional
Parity 1												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	1.43*	2.27*	1.26**	1.20*	1.77.**	1.28	0.95	1.17	1.40	1.14	1.31**	0.97
N	1089		11741		3405		2325		873		1884	
Parity 2												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	3.31**	1.94*	2.31**	3.52**	3.31**	1.52	1.88**	1.29	1.37	0.87	1.59**	1.26
2 Sons	7.52**	1.79	3.52**	1.68**	8.06**	1.75*	2.31**	1.76*	1.72*	0.72	1.40*	1.46
N	1546		19421		4760		4524		1132		2393	
Parity 3												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	3.01**	2.70	2.52**	1.61**	4.22**	1.99	2.25**	0.58	2.45**	1.23	2.00**	1.56
2 Sons	9.96**	3.36*	5.26**	1.98**	13.38**	3.44**	3.46**	1.20	3.96**	1.10	2.09**	1.62
3 Sons	8.99**	2.44	5.08**	1.95**	12.68**	3.12**	3.06**	1.83	5.25**	2.89*	2.05**	1.04
N	1533		17550		5380		3163		726		1863	
Parity 4+												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.97**	1.23	2.35**	1.53**	4.23**	1.82	1.73**	3.63	1.30	1.38	2.04**	0.98
2 Sons	4.74**	1.67	3.71**	1.47*	9.36**	2.42*	1.79**	2.44	1.72	1.15	1.93**	1.42
3 or more sons	3.41**	0.86	2.53**	1.22	6.93**	2.10*	1.12	2.02	1.05	1.14	1.43	0.94
N	2653		22384		9607		2499		794		2723	

Note: Adjusted model controls for Mothers' education, current work status, media exposure to family planning messages, residence, wealth quintiles, and participation in household decision-making. Not using any contraception is the base category. Reference category for parity in each model is having no sons.
** Significant at 1 percent, *significant at 5 percent.

Table 9: Effects (adjusted odds ratios from multinomial logit models) of family composition on temporary and permanent contraceptive use in Nepal (2001), India (1998-99), and Bangladesh (2004)

Parity and family composition	Nepal (2001)		India (1998-99)								Bangladesh (2004)	
			All India		North India		South India		West Bengal			
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Parity 1												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	1.49*	2.26	1.22**	1.34**	1.38**	3.22**	1.04	0.91	1.19	1.87	1.23*	2.02*
N	1089		11732		3405		2325		873		1884	
Parity 2												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.15**	10.07**	1.58**	2.67**	1.60**	6.13**	1.13	1.99**	0.86	1.94*	1.46**	3.42**
2 Sons	2.78**	33.16**	1.67**	4.47**	1.94**	17.38**	1.16	2.49**	0.72	2.78**	1.34*	3.12**
N	1546		19417		4760		4524		1132		2393	
Parity 3												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.12**	5.37**	1.67**	2.76**	2.11**	5.55**	0.53	2.37**	1.43	2.65**	1.77**	3.86**
2 Sons	3.09**	26.00**	1.86**	6.28**	2.77**	20.12**	1.00	3.64**	1.38	4.55**	1.72**	5.92**
3 Sons	2.08*	25.36**	1.69**	6.12**	2.20**	19.39**	1.16	3.22**	2.42	6.41**	1.70*	3.67**
N	1533		17543		5380		3163		726		1863	
Parity 4+												
0 Son	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Son	2.20**	3.21**	1.68**	2.45**	2.77**	4.14**	3.79	1.70*	1.23	1.36	1.57*	3.33*
2 Sons	2.36**	6.87**	1.59**	4.11**	3.19**	10.00**	2.26	1.78**	1.04	1.96	1.62*	3.94*
3 or more sons	1.79*	4.58**	1.33*	2.75**	2.92**	7.25**	2.11	1.10	0.94	1.14	1.13	3.35*
N	2653		22372		9607		2499		794		2723	

Note: Adjusted model controls for Mothers' education, current work status, media exposure to family planning messages, residence, wealth quintiles, and participation in household decision-making. Not using any contraception is the base category. Reference category for parity in each model is having no sons.

** Significant at 1 percent, *significant at 5 percent.