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RAND LABOR AND POPULATION

Long-Term Financial Incentives and Investment in Daughters: Evidence from Conditional Cash Transfers in North India

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ABSTRACT

Since the early 1990s, several states in India have introduced financial incentive programs to discourage son preference among parents and encourage investment in daughters' education and health. This study evaluates one such program in the state of Haryana, *Apni Beti Apna Dhan* (Our Daughter, Our Wealth). Since 1994, eligible parents in Haryana have been offered a financial incentive if they give birth to a daughter. The incentive consists of an immediate cash grant and a long-term savings bond redeemable on the daughter's 18th birthday provided she is unmarried, with additional bonuses for education. Although no specific program participation data are available, we estimate early intent-to-treat program effects on mothers (sex ratio among live children, fertility preferences) and children (mother's use of antenatal care, survival, nutritional status, immunization, schooling) using statewide household survey data on fertility and child health, and constructing proxies for household and individual program eligibility. The results based on this limited data imply that *Apni Beti Apna Dhan* had a positive effect on the sex ratio of living children, but inconclusive effects on mothers' preferences for having female children as well as total desired fertility. The findings also show that parents increased their investment in daughters' human capital as a result of the program. Families made greater post-natal health investments in eligible girls, with some mixed evidence of improving health status in the short and medium term. Further evidence also suggests that the early cohort of eligible school-age girls was not significantly more likely to attend school; however, conditional on first attending any school, they may be more likely to continue their education.

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1. Introduction and Motivation

Since the early 1990s, several states in India have introduced financial incentive programs to discourage son preference among parents and to encourage investments in daughters' education and health. While beneficiary assessments have been carried out, there have been no formal impact evaluations to date. This study evaluates the early effects of *Apni Beti Apna Dhan* (Our Daughter, Our Wealth), a program in the Indian state of Haryana that provides financial transfers to families upon the birth of girls. Since 1994, eligible parents who give birth to daughters have been offered an immediate financial grant, coupled with a long-term savings bond redeemable by the unmarried daughter at the age of 18. Additional incentives are further introduced based on increasing educational attainment. The policy objective was to reduce widespread discrimination against girls, encourage later marriage and increase parents' investment in daughters' human capital. Using household survey data on fertility and child health, we estimate the early impact of the program on children's health (mortality, nutritional status) and schooling, focusing on gender differences in impacts.

This paper contributes to at least three strands of ongoing research in development economics. Firstly, the academic and policy literature has seen a surge of interest in the impact of conditional cash transfer (CCT) programs. Evaluations of CCT in Latin America and South Asia generally show these programs to be effective in raising households' investment in children (Das, Do and Ozler 2006; de Janvry and Sadoulet 2006). The *Apni Beti Apna Dhan* program is different from most well-known CCT programs (e.g. Mexico's *Oportunidades* or Bangladesh's Female Secondary School Stipend Program) in both the type of conditionality (daughter's birth and marriage delay) and the long, 18-year period over which transfers are made. This program design raises new questions about the efficacy of such incentives in a novel design that merits further empirical study.

Secondly, impact evaluation of this program will address the broader economic question of how parents adjust investments in children's human capital when their fertility choices change. The large literature on the impact of child quantity on child quality focuses on understanding the impact of the birth of an additional child on parental investments in children's human capital (Rosenzweig and Wolpin 1980; Rosenzweig and Schultz 1987; Pitt, Rosenzweig and Gibbons 1993; Sinha 2006). In this literature the source of the change in parent's fertility choices stems from twin births, unplanned pregnancies or access to contraceptives or family planning programs. The *Apni Beti Apna Dhan* program changes parents' fertility choices by subsidizing the birth of a girl – a change in the price of having an additional child unlike that induced by family planning programs or twin births. The quantity-quality literature would suggest that an additional birth could decrease parent's investment in daughters' human capital. However, the transfer also raises eligible households' income which could likely increase their demand for daughters' health and schooling. Which effect prevails is an empirical question and one that this paper attempts to answer.

Thirdly, the paper will contribute to the large body of work across economics, demography and sociology on the problem of female disadvantage in South Asia. Girls' low child survival rates have been linked to the neglect of daughters, either in food allocation (Behrman, 1988; Chen, Huq and D'Souza, 1981), or health care (Rahaman et al, 1982, Das Gupta, 1987) within the household. Such differences in the care of sons and daughters may stem from parents' perception of daughters as liabilities and sons as assets (Schultz, 1997, Mayer, 1999), which in turn could arise from differences in the net returns from raising boys and girls. For one, expected (private) returns to investing in sons may be higher if males earn higher wages in the labor market or if female labor force participation is low, which is consistent with the finding that Indian districts with higher female labor force participation display less bias against girls (Rosenzweig and Schultz, 1982, Murthi, Guio and Dreze, 1995). Parents might also expect higher returns to investing in boys because the practices of dowry and exogamous marriage effectively reduce girls' expected contribution to their natal homes while placing sons in the role of providers in old age. Finally, inherent preferences may play an independent role: parents may prefer boys not just for their economic contribution but also because of customary practices that place a higher value on sons. The results in this paper represent new evidence on the impact of an innovative policy tool on female disadvantage, as well as the extent to which such economic incentive programs can change such fundamental social and cultural preferences.

Using household survey data on fertility and child health, we estimate the impact of the program on mothers (sex ratio among live children, fertility preferences) and children (mother's use of antenatal care, survival, nutritional status, immunization, schooling), focusing on gender differences in child impacts.[2] Although the very long-term nature of these incentives means that a full-impact analysis will not be possible for several years to come, we are able to estimate intermediate program effects using data collected at intervals of up to 10 years after the program was first introduced. This data allows the estimation and analysis of differences between the short and medium-term program effects. Our results imply that *Apni Beti Apna Dhan* had positive effects on the sex ratio of total living children, and inconclusive effects on mothers' preferences for female children as well as total desired fertility. Families made greater post-natal health investments in girls after the program, with some mixed evidence of improving health status in the short and medium term. Further evidence also suggests that the early cohort of eligible school-age girls are not significantly more likely to attend school, however, conditional on first attending any school, they may be more likely to continue their education.

The paper proceeds as follows. Section 2 presents background information on the program. Section 3 describes in detail our empirical strategy and presents a brief description of the data. Section 4 describes the empirical analysis. Section 5 presents a series of robustness checks. Section 6 provides conclusions and areas for future research.

2. Background and Program Description

[2] We do not measure the impact of the program on girls' age at marriage because girls exposed to the program were relatively young at the time of the most recent survey data available. .

Haryana is one of India's richest states as measured by per capita GDP, but it ranks among the worst in terms of female disadvantage. In 2001, the lowest sex ratios for those aged 0-6 years were observed in north India, particularly in Haryana (820 girls per 1000 boys) and Punjab (793 girls per 1000 boys). Studies also document a strong pattern of female disadvantage in child survival, health and schooling. Sudha and Rajan (1999) show that sex ratios at birth in Haryana and neighboring Punjab are abnormally low, suggesting a high incidence of sex-selective abortion. Using data from 1992-93, Filmer, King and Pritchett (1998) estimate that girls in Haryana are two times more likely than boys to die between the ages of one and four. A large gender gap is also present in school enrollment for 6-14 year olds among the poorest 40% of households (Filmer and Pritchett, 1998).

The *Apni Beti Apna Dhan* (ABAD) program was introduced in October 1994 to improve parents' perceived value of daughters by offering them economic incentives. Upon the birth of a daughter, mothers are entitled to a monetary award of Rs. 500 (approximately $11) within 15 days of each birth, to cover post-delivery needs. It also endows each girl with a longer-term monetary investment of Rs. 2,500,[3] (approximately $55) in government fixed-deposit securities, redeemable for a guaranteed sum of Rs 25,000 (approximately $550) on her 18th birthday provided she remains unmarried. This yields an implicit annual return of approximately 13%. A bonus of Rs. 5000 is awarded is if the girl has received at least a Standard 5 education, and a further Rs 1000 is awarded if she has studied up to Standard 8.

To be eligible for this scheme, a girl would need to be the first, second or third child in the family. The family would have to be below the poverty line (BPL). Non-poor families with a disadvantaged caste background - formally identified in India as belonging to a "Scheduled Caste" (SC) or "Other Backward Caste" (OBC) - would also be eligible. The wealthiest in this latter group would be excluded via a restriction on gazetted government employees or income tax payees (effectively between 1-4% of the national population over most of our study period (Banerjee and Piketty, 2006)).

In 1995 the Haryana government expanded the scheme by offering a higher maturity amount for girls willing to defer redeeming their securities: Rs. 30,000 for two years, or Rs. 35,000 for 4 years. In addition, they would also receive a credit subsidy for entrepreneurship loans.

The novel design, scale and potential social impact of this program all point towards the importance of understanding its effects. A beneficiary assessment conducted in three districts in 1998-99 found that most government officials were aware of eligibility criteria, and funds were disbursed in a timely manner to successful applicants (MODE, 2000), but no impact evaluation was conducted. A rigorous program evaluation, however, is complicated because the program's implementation was not *ex-ante* designed to

[3] This represents about one-fifth of an eligible households' annual income (MODE, 2000).

facilitate such analysis. In the next section, we describe the resulting challenges and our empirical strategy, including the key assumptions and caveats underlying our findings.

3. Empirical Strategy

In the absence of data formally collected for purposes of evaluation, we use three cross-sections of household survey data collected over a period that spans program implementation by the National Family Health Survey (NFHS).[4] The NFHS is a widely-used nationally-representative survey of maternal and child health. The first wave of the NFHS was carried out before the reform in 1992/1993 (NFHS-1) and repeated, with some modification in 1998/1999 (NFHS-2) and in 2006 (NFHS-3). The survey covers women of reproductive age (15-49), including a complete birth history and retrospective health histories for recent births. The timing of the NFHS allows us to view the Haryana sample within the NFHS as follows: the 1992/1993 data may be regarded as a baseline survey and the following two surveys as follow-ups, where the 1998/1999 data covers the short-term and 2006 covers the medium-term.

Even with these data, impact evaluation presents substantial challenges. Clean identification of program effects is not straightforward for two reasons: Firstly, we do not have explicit individual or household-level measures of actual program participation from any household survey data to the best of our knowledge. By virtue of this, we are limited to estimating an intent-to-treat effect, relying on the statutory eligibility criteria for the program. Secondly, Haryana introduced ABAD in all districts simultaneously. As a result, we are unable to exploit any time variation in the program's introduction to identify effects, as there is no possibility of observing "treatment" and "control" areas within Haryana at the same time[5]. We discuss our final identification strategy, noting important caveats and assumptions that should be taken into account when interpreting the findings. We also further note that matching the available data to these criteria depends on several key assumptions, and result in some unavoidable limitations imposed by the nature of the surveys. These are also highlighted below.

3.1 Identification

Identification of treatment effects depends on the assumption that outcomes such as parental investment in health are exogenous to a jointly-determined measure of program eligibility. For both women and children, our measure of ABAD treatment at the time of each survey is determined by the combination of interview date, family composition as of October 1994, gender, family economic status, and caste affiliation.

We first construct proxy measures of poverty criteria (described in the following section) and combine them with caste affiliation to identify eligible and non-eligible households across all rounds of the NFHS. We then classify women and children within these

[4] The NFHS follows the format of Demographic and Health Surveys (Macro International).
[5] We also note that using other states as a control group is not feasible: owing to demographic and economic differences between the states of India, the only likely candidate for a control would be Punjab, but a similar program was introduced in Punjab at the same time.

households as individually qualified for the program based on their birth history (in the former case) and their birth order (in the latter).

Under this identification assumption, we compare eligible and non-eligible groups of women and children in the ``baseline" and "follow-up" years of the survey while controlling for relevant household and individual-level characteristics. This is a standard difference in-difference methodology, controlling for common (additive) time trends and pre-program differences between the two groups[6].

3.2 Measuring Eligibility

3.2.1. Which Households Are Poor?

NFHS data do not provide any explicit measure of poverty. As a result we construct a proxy measure based on available household asset information. NFHS computes an asset index for the sample population of households using data on 21 asset indicators and household landownership. These variables are aggregated into a wealth score, using an approach first proposed and validated by Filmer and Pritchett (2001). For each survey wave, within the rural and urban sector, we sort individuals according to the household asset index. We then define as poor the population-weighted proportion of the sample falling below the percentile thresholds implied by appropriate measures of the poverty headcount ratio.

Two important considerations should be noted here. Firstly, the use of asset indexes are not always a suitable proxy for poverty, as they are by construction a stock measure, rather than a measure of consumption flows (Filmer and Pritchett, 2001). Misclassification could result if we classify some BPL (potential) ABAD beneficiaries as non-eligible, and non-BPL non-eligible are classified as eligible. Provided misclassification errors are independent and uncorrelated with other regressors[7], this will result in attenuation bias in the estimated treatment effects.

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[6] Due to the nominally rule-based nature of this program, we also considered the potential use of regression discontinuity design (RD), where treatment is based on being above or below the threshold for a known covariate "forcing" measure (such as wealth, sibling composition or birthdate of child in this case). If the relationship between the outcome and the forcing measure is smooth, any discontinuity at the cutoff point may be interpreted as a causal program effect. In the event of a "fuzzy" RD, where treatment is in practice not perfectly consistent with a "sharp" rule of this type, the researcher accounts for this by using a two-stage-least squares estimation where the rule instruments for observed treatment. In this setting, RD analysis is generally not convincing, primarily because of our acknowledged difficulties in precisely defining treatment The eligibility criteria themselves are multiple, mostly categorical in nature and - most importantly - based on strong assumptions we have made in the analysis, such as the threshold values for poverty. for measures that are less problematic such as number of siblings at birth, the data are such that that it is not meaningful to compare local linear regressions for any reasonable bandwidth below and above the cutoff value of 2. For covariates such as poverty which are more theoretically suited to this analysis, we do not have well-defined actual measures. Secondly, we do not observe actual treatment, making it impossible to account for any fuzziness using a 2SLS approach.

[7] If there is significant concern that errors are not uncorrelated, alternative estimation strategies in Mahajan (2006) can be explored, conditional on a suitable instrument for true BPL status.

Secondly, care needs to be taken when selecting an appropriate poverty headcount ratio from the range of measures available. Official poverty headcount ratios for India and the various state are computed by the national Planning Commission, using household consumption data collected by the National Sample Survey every fifth year. State-level governments also produce poverty headcounts using a different methodology and data source; the BPL household census data[8]. Independent estimates of poverty have also been proposed, notably by Deaton (2003), using the NSS data. Confounding matters even further, the NSS survey rounds conducted during our study period (1993-1994, 1999-2000 and 2004-2006) are particularly controversial because of changes in the NSS sample design and the Planning Commission's methodology between 1993-1994 and 1999-2000. These changes have raised substantial concern among researchers, notably Deaton (2003) who proposes further adjustments to make the poverty measures for 1999-2000 comparable with the previous round.

We note that NFHS-3 does collect information on BPL cardholder status (i.e. whether the household has an official government document verifying eligibility for benefits targeted to households below the poverty line). However, for many reasons, BPL cardholding may not accurately reflect actual BPL status - other factors such as local politics can play a role in their allocation (see for example, Besley, Pande and Rao (2004) and also reports in the popular press). In our sample, 13% of the women in rural areas and 7% of women in urban areas held a BPL card. However, as shown in Table 1, consistent with previous research, card-holders are distributed across all wealth quintiles. Most cardholders are in the middle of the wealth distribution, with a significant minority at the top. Anecdotal evidence about implementation suggests that individuals are only required to present evidence of caste certification, domicile and birth registration for verification by the local authorities (MODE, 2000);[9] in practice, the BPL card may not always be requested for participation in the program. Due to the lack of data for NFHS-1 and 2 and these other issues, we are not able to rely on the BPL cardholder information.

For Haryana, the Planning Commission released rural/urban poverty headcount ratios of 28%/16% in 1993-1994 and 8%/10% in 1999-2000. However, subject to concerns that these figures were not comparable, for 2004-5, the Commission released two sets of numbers based on both methodologies. The 2004-5 figures are either 14%/15% (comparable to 1993-1994) or 9%/11% (approximately but not precisely comparable to 1999-2000). On the other hand, Deaton (2003) computes considerably lower estimates of 17% /11% for the rural/urban sector in 1993-4 and 6% / 5% in 1999-2000. Since our primary objective is to capture those most likely to receive ABAD benefits, rather than

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[8] Below-poverty line (BPL) censuses were conducted in 1992, 1997 and 2002. The 1992 BPL census identified BPL on the basis of self-reported income. The 1997 BPL first screened out the 'visibly non-poor' on the basis of asset ownership and annual income. A household was then declared poor if their per capita consumption expenditure was less than the official rupee poverty line adopted by the Planning Commission. The identification formula was changed for the 2002 BPL census, using a proxy for means testing based on indicators of socio-economic quality of life to rank households with the goal of matching Planning Commission headcount ratios. BPL census are also often subject to considerable criticism for implementation irregularities.

[9] We did not carry out field research hence it is difficult to confirm exactly what is required. See http://faridabad.nic.in/Administration/women&.htm#ABAD

measure poverty status per se, our approach is to be more inclusive rather than less so. Using the Planning Commission's estimates, we assume 28% and 16% poverty rates for the rural and urban sectors respectively in 1993 and 14% and 15% in 2004. We adopt this relatively high cutoff to better capture households receiving BPL benefits. In our robustness checks, we test this assumption using an alternative, less inclusive scenario based on Deaton's (2003) criteria. This assumes poverty rates of 17% and 11% for the rural and urban sectors in 1993 and 6% and 5% in 1999.

3.2.2. Which Households Are Eligible Under the SC/OBC Rule?

Under the program rules, all households from a disadvantaged caste background are eligible unless they are extremely wealthy, i.e. all SC and OBC households, excluding those in which the household heads are gazetted government employees or pay income taxes. The major challenge in identifying SC and OBC households in this data is that SC and OBC status are reported as separate mutually exclusive categories in NFHS-2 and NFHS-3, but in NFHS-1 only SC is reported.

In order to match SC and OBC classifications across all surveys, we first identify the caste of the household head in NFHS-1. We then categorize that household as OBC if households of that caste are categorized as OBC in NFHS-2. This results in the re-categorization of some castes that fall into SC in NFHS-1 as now OBC. In general, to avoid confusion, for analytical purposes we conflate SC and OBC together into a single category.

While we have no means of identifying top ranking government employees, this is likely to be an insignificant fraction of this sample. We do however address the income-tax qualification. In India, income tax-paying households are estimated to be the top 1-4% of the national income distribution (Banerjee and Piketty, 2006). We therefore also exclude SC or OBC households whose asset holdings place them in the top 4% of the rural or urban asset index distribution for that survey wave.

Consistent with the program rules, "Scheduled Tribe" (ST) members are not considered eligible even though ST issues are often discussed in conjunction with SC/OBC- policies. We note that there are no officially designated Scheduled Tribes in Haryana, and individuals reporting ST affiliations are likely to be misclassifications or migrants from other states (less than 5 individuals per wave).

3.2.3 Which Women and Children Are Eligible within an Eligible Household?

Within any eligible household, women who bear daughters and who have fewer than two living children at the program's start in October 1994 are eligible. Likewise, girls are eligible if they were born in or after October 1994, and had two or fewer living siblings at the time of their birth.

The NFHS collects a complete birth history from every woman interviewed, including the age of birth and death for each child. For women interviewed after October 1994, i.e.

all women in NFHS-2 and NFHS-3, we construct a cumulative measure of the number of surviving children. This is accomplished by summing over all births up to that point conditional on the child being alive or reported as having died after October 1994.

For women interviewed prior, i.e. all women in NFHS-1, we approximate this measure. First, we observe that all interviews for NFHS-1 in Haryana took place at the end of the NFHS itself, in 1993. We therefore estimate the cumulative number of surviving children by taking total surviving children as of 1993 and adding one if the woman reports a current pregnancy. This measure is an imperfect but best-possible approximation, enabling us to reasonably exclude women whose fertility is complete. Possible sources of mismeasurement that we cannot account for are child mortality in this period or new pregnancies between the relatively short time frame of 1993 and February 1994.

For children, birth date criteria and the construction of the individual sibling-composition-based criteria is relatively straightforward. For each child we construct sibling histories and sum up the number of siblings alive at the time of birth. To be eligible, the number of live siblings at birth must be less than or equal to 2.

For completeness, we note that one secondary source, the MODE, 2004 evaluation report, suggests that the eligibility criteria for OBC children appears different than for SC children, based on a later birth date of January 1996. However, this discrepancy is inconsistent with all other primary and secondary sources, and cannot be independently verified. We do not therefore take this into account in our main analysis, but in the robustness checks, we show that our results are unaffected even under this alternative criterion.

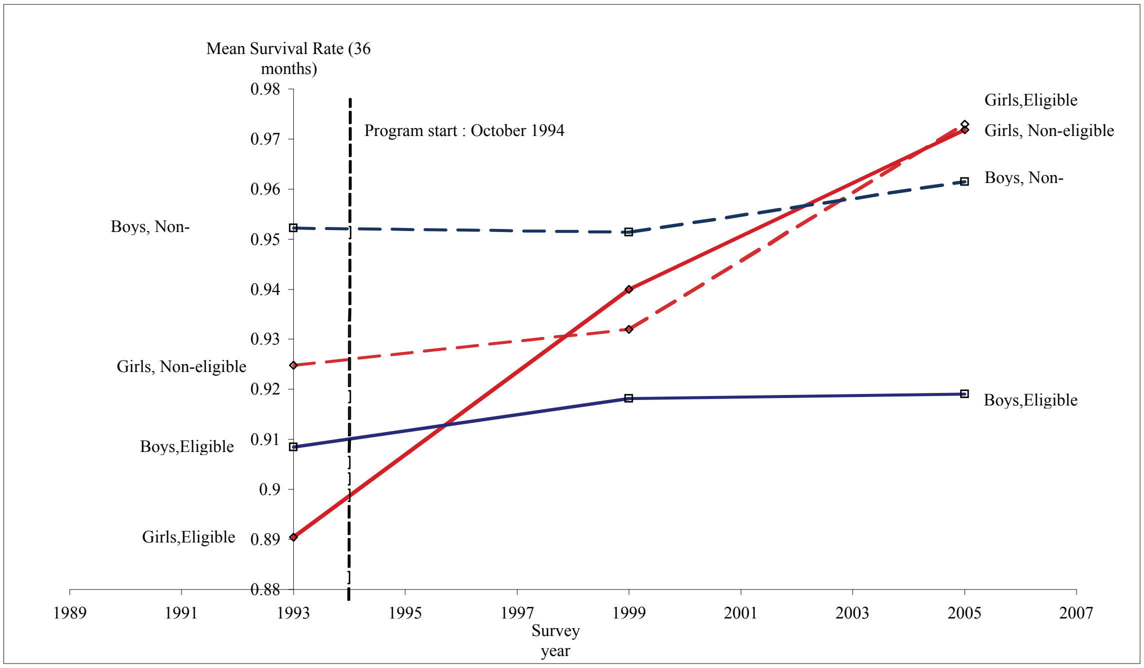
3.3 Graphical Illustration

To make the identification strategy more concrete, we graph the share of children alive at 36 months, showing the sample means for each survey wave by gender and eligibility in Figure 1, below. At "baseline", the initial survival likelihood of eligible and non-eligible boys is higher than for girls in each category. Moreover, non-eligible children as a whole are more likely to survive. Girls eligible for the ABAD program are the worst off.

Since only eligible girls were likely to have received the program in 1994, we examine program effects by comparing the gap between eligible/non-eligible boys to the gap between eligible/non-eligible girls over time. While the survival rates of both eligible and non-eligible boys remains steady over time, girls' survival to 36 months increases across both groups. This result suggests a common trend underlying the treatment of girls outside of the ABAD program. In addition, however, the gap between eligible and non-eligible girls narrows over time while the gap for eligible and non-eligible boys shows no change. As a result, mean survival for eligible girls in 2006 is statistically indistinguishable from mean survival for non-eligible children overall, while the eligible boys still trail behind.

The difference in convergence between the eligible/non-eligible boys and girls is consistent with a program effect on the survival of eligible girls. Our formal empirical analysis captures this intuition in the context of multivariate regression.

Figure 1. Comparing Survival at 36 months, Eligible vs Non- Eligible Girls and Boys



4. Empirical Analysis

4.1. Women's Fertility Preferences

To analyze women's fertility preferences, we use repeated cross-sections of individual-level NFHS data, collected from a representative sample of women ages 15-49 (child-bearing age) in Haryana. The NFHS-1 sample contains 2846 individuals, NFHS-2 2908 and NFHS-3 2790. We highlight with interest the large increase in the percentage of women who report at least some secondary education across survey waves, which is also described in the NFHS final report (summary statistics are found in Table 2a). These changes underscore the need to control for household socioeconomic status in our specifications. We also point out the number of SC/OBC households is lower in NFHS-1, which we partially attribute to measurement error resulting from our calculation of the OBC category.

We examine the impacts of ABAD on the sex-ratio of living children and on the number and gender of children a woman reports as her ideal. The sex ratio of living children is computed by dividing (number of living girls/number of living boys). By construction, this requires a mix of male and female children within a household. The value is missing among women whose children are all girls (for whom the ratio is technically infinite) or who have no children at all. Since the calculation drops households with all female children, we would expect the results to understate preferences for girls. We also compute an "ideal" sex ratio using a subset of individuals who report both the total number of desired children by gender, which allows us to perform a similar computation for the gender mix in the "ideal" state.

For woman *i* interviewed at time *t*, our basic estimating equation is a linear specification for outcome Y_{it}, where

$$Y_{it} = c_i + \beta_2 P_i T_{t=2} + \beta_3 P_i T_{t=3} + \tau_2 T_{t=2} + \tau_3 T_{t=3} + \phi P^{w}_{i} + X_i`\alpha + \varepsilon_i \quad (1)$$

where P^{w}_{i} is an indicator of program eligibility (1 if the household qualifies under the BPL or SC/OBC rule and the woman had two or fewer children as of October 1994 and 0 otherwise). T_t are dummies for each survey wave. This is a standard difference in-difference methodology, which controls for common (additive) time trends and pre-program differences between the two groups. In this interpretation, β_2 and β_3 are estimates of short and medium-term program effects respectively. For each of these outcomes, we estimate Equation (1), controlling for *X*, a vector of household level background characteristics such as urban location, religious affiliation, BPL and SC/OBC status across waves. We also include relevant individual characteristics, notably education, number of children at the time of the program introduction and age in quadratic form. In this and all other specifications going forward, we use robust standard errors clustered at the primary sampling unit, and apply the NFHS state-sample weights. For discrete outcomes, we use probit regression and report marginal effects; for continuous outcomes, we report OLS estimates. The complete regression results are reported in Appendix Table A.

For eligible women, the program positively and significantly affects the ratio of living daughters to living sons--and the effect becomes larger in the medium-term (Table 3, Column 1). In terms of fertility preferences, we observe mixed results: first, a smaller, insignificant negative, then eventually positive impact on the ratio of ideal daughters to ideal sons. We see a similar effect on the likelihood of a woman expressing the desire for at least one daughter (Table 3, Columns 2 and 3). These findings are suggestive of a positive change in women's preferences for girls, but not conclusively so.

Our results are consistent with the MODE evaluation report (MODE, 2000) which showed that 70% of beneficiaries reported positive behavioral changes among their family members, but only 2% felt that actual discrimination against girls would decrease. Note also that the total number of ideal children appears to have fallen both in the short and medium term but not significantly so. (Table 3, Column 4).

4.2. Child Mortality, Health Outcomes and Investments in Health

For this analysis, we use as the primary dataset the child health history collected from mothers with young children, in which detailed vaccination and health outcomes are recorded. In NFHS-1, the detailed child health history is taken for 1790 children born up to 47 months prior to the survey, while in NFHS-2 the same extends only to 1060 children born up to 36 months prior. NFHS-3 is the most comprehensive, covering 1256 children born up to 60 months prior to the survey date. We conduct all our analysis restricting our sample to those born up to 36 months before to be consistent with the most restrictive age limit, NFHS-2. This is reflected in the summary statistics for child age in each sample (Table 2b). The benefit of restricting the sample is to minimize possible recall or survival bias, at the cost of sample size.

We examine impacts on early-childhood mortality, child health status, and parental investments in child health, using this sub-sample of children aged up to 36 months. We match all observations to mother's birth history data and to household-level data in order to compute eligibility for each individual child.

To examine the program effects here, we adopt the same strategy, computing the pre- and post program differences between eligible and non-eligible children. Because we have an additional source of variation by gender (since only girls may receive the benefits), we can further account for underlying time-varying trends that differentially affect eligible and non-eligible children, using the pre- and post program differences between eligible and non-eligible boys as a further comparison group. This leads to a triple-differenced linear specification for outcome Y_i for any child i,, where

$$\begin{aligned} Y_{it} = {} & c_i + \beta_2 I^c_i F_i T_{t=2} + \beta_3 I^c_i F_i T_{t=3} + \tau_2 T_{t=2} + \tau_3 T_{t=3} + \phi I^c_i \\ & + \tau_{2f} F_i T_{t=2} + \tau_{3f} F_i T_{t=3} + \tau_{2I} I^c_i T_{t=2} + \tau_{3I} I^c_i T_{t=3} + \phi_f F_i I^c_i + X_i`\alpha + \varepsilon_i \quad (2) \end{aligned}$$

where I^c_i is an indicator of an individual child's eligibility excluding the gender criterion (1 if the child is the first, second or third child and their household is BPL or SC/OBC and 0 otherwise). F_i is an indicator for being female, and T_t are dummies for each survey wave. This specification captures differential trends over time for female children (τ_{2f} and τ_{3f}) and eligible children (τ_{2I} and τ_{3I}) as well as any underlying baseline differences specific to female children in eligible households (ϕ_f). Again, X is a vector of household and individual level controls, this time including BPL status, SC/OBC status, gender and birth order.

First, we look at the available health status outcomes including children's mortality and height-and-weight-for-age scores. We examine children's mortality (reported death) at 0, 6, 12 and 24 months since birth[10]. Next, for the sample of all living children, we look at height-for-age and weight-for-age z-scores, as well as the incidence of stunting (a height-for-age score under -2).

For the subsample of living children aged up to 36 months, we also examine immunization. However, a large fraction of the children in the sample lack a formal

[10] The distribution of reported age at death in the NFHS has some marked irregularities (see Appendix Table A). In particular, while a spike in number of deaths recorded at birth (0 months) is plausible, the distribution also suggests that 6, 12, 18, 24 and 36 months are disproportionately represented salient focal points where bunching occurs, while the latter is not applicable to the NFHS-2 sample. We therefore use broad classifications of mortality to somewhat account for this.

vaccination card. As a result we rely on mothers' vaccination reports. Our outcomes of interest are the total number of vaccinations, ever having received a vaccination, as well as the incidence of the Polio 1 and measles vaccines. Polio 1 is delivered shortly after birth, and measles is usually delivered close to 1 year of age. For the latter sample, we consider only children aged 1 or more.

For each of these health outcomes, we estimate Equation (2), controlling for household level background characteristics such as urban location, religious affiliation, BPL and SC/OBC status across waves. We include relevant mother's characteristics and total living siblings at birth. The height-for-age and weight-for age scores are age-adjusted, but for the vaccination outcomes we include an additional 35 individual dummies for age in months. This flexible specification is desirable because prescribed vaccination schedule for children is non-linear, rising sharply to the age of 1 year and then flattening out.

Among female infants and young children, the estimated program effects consistently suggest better health status, although the results are generally not statistically significant (Table 3). Overall, the estimates are consistent with no change in neonatal mortality, (Table 3, Column 1) a lower mortality rate over the next 2 years (Table 5, Columns 2-4), and higher height-for-age and weight-for age scores (Table 5, Columns1 and 2) across the short and medium- term. The estimated effects for stunting are mixed (Table 5, Column 3).

We see strong results in the program's effect on post-natal health investment in the form of vaccinations (Table 6). Among eligible girls, the number of vaccinations and the probability of ever receiving any vaccine increases significantly. Notably, this effect is present even for measles, which is given relatively late and is relatively expensive (Table 6, Column 2). The effects on vaccinations generally are most significant in the short-term, while the effect on measles persists in the medium-term.

4.3 Education

A key set of outcomes for this study pertains to girls' education since a major goal of the program is to increase girls' school enrollment through age 18. The household roster of NFHS provides data on age and education levels, which enables us to observe educational outcomes for younger school-going children in NFHS3. In particular, we are interested in comparing those in NFHS-3 who would have been exposed to ABAD to their school peer-group in NFHS-2.

For education, our analysis can be performed using only the household eligibility criteria, as data limitations prevent us from determining individual eligibility. We are unable to recover the full sibling composition using the household roster as (1) sibling relationships are not noted (only relationships to the household head) and (2) the roster covers only household members who are physically present. Matching to the mother's birth history is not possible in all waves: while in NFHS-3, the mother's line number is recorded for any children below 17 years, this is not the case for NFHS-2. While it is possible to match women back to the households they live in, the match is not exclusive: in about 40% of cases, there is more than one woman of childbearing age in a household[11].

We estimate Equation (2), treating the 1998/9 NFHS-2 cohort as a baseline and the 2006 NFHS-3 cohort as the "post-program cohort". We restrict our sample to children ages 7-11 years in both survey waves. The outcomes of interest are an indicator for ever having schooling and number of school years completed[12]. As we do not have an explicit measure of dropping out across both waves, we also look at the effect on years of education conditional on ever having had schooling. As before, we control for household-level characteristics such as urban location, religion, BPL and SC/OBC status. We do not have mother-level characteristics or number of siblings, but we are able to include a measure of household size.

The results in Table 7 suggest consistent but statistically insignificant improvement for girls ages 7-11. The likelihood of receiving any education increases slightly (Table 7, Column 1), as do unconditional years of schooling. These findings hold in both a standard OLS specification and a Tobit regression (accounting for censoring at 0). See Table 7, Columns 2 and 3. Conditional on receiving any education, eligible girls are likely to have more years of schooling (Table 7, Columns 2 and 4), which suggest that girls in the program are more likely to continue their education once they start. This may be another effect of the long-term nature of financial incentives: although the incentives may be too weak to move the marginal child into school, they may still play a role in helping girls stay in school longer.

5. Further Analysis and Robustness Checks

5.1 Poverty Criteria

[11] Several alternative strategies were considered. For the earlier NFHS, the following compromise may be proposed: from each mother's birth history, we retrieve information on their children's birthdate, and whether that child is still living with them. We will also be able to impute the child's relationship to household head implied by the mother's relationship. We are able to match mothers with the household roster by line number. We may then attempt to identify the children for each mother by matching child age, gender and relationship to household head implied by the mother's relationship. However, in this case, there is much room for error, for many reasons: for example, the age records in the household roster are elicited in years rather than computed from birth dates as in the birth history, and much more likely to be grouped around focal years. More importantly, measurement error will be highly and systematically correlated with family structure: larger extended families with cousins of similar age living together for example (where all children are likely to be grandchildren of the household head). Another strategy is to simply retain only the household roster entries of children of the household head in each case and match them to women who report being the wife of the household head or the household head themselves. This has the disadvantage again of keeping a sample that is highly selected on household structure.

[12] NFHS-2 interviews were carried out from November 1998-February 1999, while NFHS-3 interviews were carried out from April to June 2006. Children born in October 1994 or later would thus be aged 11 at the time of NFHS-3. Under India's Universal Primary Education policy, all children aged 6 and above at the time of the academic school year are entitled to school enrollment. As the school year in Haryana begins in late April, NFHS-2 potentially includes 6 year olds who were not age-eligible to enroll for that school year while NFHS-3 may include unenrolled 6 year olds whose schools begin late or late enrolles for that school year (more likely to be included in NFHS-2). Unfortunately birth date information for these children is not recorded. This makes education history measures less comparable for 6 year olds, and also has implications for comparing current enrolment across any age group (not recorded in NFHS-2, in any case). For 7 year olds, however, having any schooling is a comparable outcome between the two groups, as are completed years of previous education.

To evaluate potential problems associated with controversial poverty headcount ratios, we present an alternative scenario using Deaton's (2003) regional poverty estimates for Haryana. This gives a much lower BPL threshold of 17% and 11% for the rural and urban sectors respectively in 1993, and 6% and 5% in the subsequent rounds based on estimates for 1999. Our results are not substantively changed (Tables 8 and 9 show the re-estimated regressions), which suggests that program effects may be driven by changes occurring at the lower end of the wealth distribution.

5.2 Community Norms

We are concerned about the potential effects of local community norms on women's preferences and realized sex ratios. As a result we re-estimate the regressions and include a measure of community gender preference: the sex ratio among all living children for women of the respondent's village or primary sampling unit. This measure is significant and positively correlated with the sex ratio of the individual's children, as expected. Notwithstanding this result, our program effect remains unaffected by its inclusion (Table 10).

5.3 Potential Unverified Discrepancy in Eligibility Criteria for OBC

As earlier described, the MODE 2000 evaluation report suggested a possible discrepancy in the eligibility criteria for OBC children. Although we searched official sources and other secondary reports, we were not able to independently verify this potential discrepancy. Nonetheless, we test whether our results are sensitive to this change.

Returning to our samples, we find that the children's analysis is likely to be unaffected by an eligibility discrepancy based on the earlier birth date. Only five children meet the alternative criteria (between 0-36 months, OBC, above the poverty line, below the income-tax criteria, and with the appropriate number of siblings, born between October 1994 and January 1996).

For women, however, a birth date discrepancy is potentially significant. About 250 OBC women in our sample meet the other eligibility criteria (above the main poverty line, below the income-tax criteria and have two children as of October 1994). Depending on their subsequent fertility, they may or may not have qualified under the new criteria. To examine this possibility, we re-estimate the analysis for women, and drop these cases. We find no substantive change in our results (Table 11).

5.4 Counterfactual for Child Health Investments: Prenatal or Birth Attendance

Birthplace and prenatal care for girls versus boys provides us with an interesting counterfactual—as we would expect to find no gender-effects. Due to the conditional nature of the program's payment and the likelihood of household credit-constraints, we expect that households would be unlikely to borrow prior to birth in expectation of receiving any transfers. Also, while the MODE assessment suggests that funds were released in a timely fashion after applications were approved, this was likely to take place significantly later than birth itself. The program rules suggest that Rs. 500 should be received within three weeks of birth, but in practice seventy-two percent of respondents submitted the application within a month after the delivery, while the rest applied more than one month later. Moreover, applications took between 2-6 months to approve. Further surveys of local community leaders revealed that late disbursement of the immediate cash grants were a major problem, resulting in the perceived loss of their initial purpose (MODE, 2004).

We generate indicators for whether birth took place in any health facility (as opposed to at home) or a private health facility, as well as for having had any antenatal visits. We replicate our analysis for child health investments to see if the program "affects" these outcomes. Any positive and significant "effects" would be a major concern, and would cast doubt upon our previous findings, suggesting positive effects on other types of health investments may be due to some other confounding effects.

When we examine the program effects on prenatal investments (birth in a health facility or any antenatal care) (Table 12), we find no significant positive differences by gender, indeed, the direction suggests that mixed or slight negative effects[13].

5.5 Availability of Facilities: Health Facilities and Health Investments

The proximity of health facilities in a community is likely to be an important factor in the explaining the decision to take up health investments (Datar et al., 2007). However, at the present time data on community-level health and educational service availability is not available for NFHS-3. In NFHS-1 and 2, this information is collected only in villages, and not in urban areas. We are able therefore to replicate our previous analysis on child health and service availability using only data from the rural sector of NFHS-1 and 2. We construct three broad categories that are approximately equivalent across the two waves[14]: health centers (government facilities that are smaller than hospitals), clinics / dispensaries, and hospitals (private or government) and add them to our regression analysis. The results in Tables 13, 14 and 15 demonstrate that our overall findings remain substantially the same and are robust to the inclusion of these new measures of facility availability[15].

5.6 Potentially Confounding Programs/Schemes

[13] We also do not find significant impacts on takeup of birth in health facilities (general or private) or antenatal care for the eligible group as a whole (although the sign of the coefficients is small but positive).

[14] Ideally, we would most like to see the impact of an anganwadi, the main representative of local health services that conducts the ABAD scheme. However, NFHS-2 did not collect this data. This is a major drawback.

[15] Note also that the presence of any health facility is not uniformly positively associated with better outcomes, possibly because certain types of facilities, such as the health centers, are indicative of the remoteness of the individual village.

Since identification critically depends on changes affecting only our eligible population, it is important to understand and account for simultaneous policies or other changes that could confound our analysis. The joint nature of our eligibility criteria is particularly helpful as identification is based on overlap between several demographic categories (caste/age/income/gender/sibling composition), reducing the likelihood that our estimates are confounded with the impacts of other programs targeted at one of these broad criteria (e.g. welfare assistance schemes for the poor). We also control for these criteria individually in our specifications. However, two female child welfare programs similar to *ABAD,* should be explicitly addressed.

First, in August 2006, Haryana also launched the *Ladli* ("Dearest") program. All families with a second female child born after August 2006 receive Rs. 5000 per year for a period of up to five years as long as both girls survive. This award is made regardless of caste, income or other restrictions. The money is invested in a government fixed deposit at 8.25% and released only when the younger sister turns 18. We do not anticipate any confounding effects from this program since our final survey measures are taken several months prior to August 2006.

Secondly, and more significantly, in August 1997, the Government of India introduced a centrally-sponsored national scheme called the *Balika Samridhi Yojna (BSY)*. Under this scheme, a post-birth grant of Rs. 500 is invested in a savings account to be redeemed at age 18, with additional cash deposit bonuses for completing different education standards (levels). The education awards start from Rs 300 for Standards 1-3 to Rs 1000 for Standard 10. All female children belonging to families below the poverty line born on or after August 15th, 1997 were eligible, subject to a maximum of two girls per household. Like *ABAD*, this scheme was also to be implemented via local health workers.

While *BSY* might have been expected to complement *ABAD*, reported distribution has been surprisingly low, perhaps due to high variance in the release of central funding. The annual number of recipients in Haryana since 1997 has been relatively insignificant, with a maximum of 9166 beneficiaries reported in 2001-2[16]. *BSY* is thus unlikely to have had an economically meaningful impact.

6. Conclusions

Using household survey data on fertility and child health from three rounds of India's National Family Health Survey, we estimate the impact of a state-run program in Haryana that offers parents an immediate financial grant upon the birth of a daughter, coupled with a long-term savings bond redeemable by the unmarried daughter at the age of 18. We estimate program impacts on the sex composition of women's living children and fertility preferences. We also estimate impacts on children's health (mortality,

[16] See http://wcdhry.gov.in/balika_samridhi_yojana.htm for details

nutritional status, and vaccinations) and schooling, focusing on gender differences in child impacts.

Our results imply that the conditional cash transfers provided to eligible households under the *Apni Beti Apna Dhan* program positively affected girls' birth and survival as measured by changes in the sex ratio of mother's total living children over time. The program had inconclusive effects on mothers' preferences for female children and for total desired fertility. We also find that parents increased their investment in daughters' human capital as a result of the program. Families made greater post-natal health investments in girls after the program, with some mixed evidence of improving health status in the short and medium term. Further evidence also suggests weak but consistently positive impacts on education: the early cohort of eligible school-age girls are not more likely to attend school, however, conditional on first attending any school, they may be more likely to continue their education. These early results carry many interesting implications for similar programs in other states of India, including Rajasthan's *Raj Laxmi* scheme and Tamil *Nadu's Puratchi Thalaivi Dr. Jailalitha* Scheme.

Our results, evaluated about 10 years after the program was introduced, suggest that poor households respond to long-term conditional transfers by meeting the conditionality (birth of a daughter) and changing their behavior towards daughters. Clearly it would be important to measure these impacts in the longer term. Firstly, it will be important to evaluate how the program affects girls' age at marriage since the program seeks to encourage households to delay girls' marriage beyond 18. Secondly, as the cohort ages further, the impact of educational incentives remains to be fully analyzed. As the minimum requirement to receive educational benefits is grade 8, it will be particularly interesting to see how this nonlinearity in the benefit scheme manifests over the long term i.e. whether families are motivated to increase education but invest only up to the minimum point.

We note several limitations of our analysis and possible extensions. Firstly, the sample size afforded by the Haryana sub-sample of the NFHS is small, and the limitations of the data at hand have been discussed at length in the paper. More comprehensive data sources such as the National Sample Survey (NSS) could be explored, particularly if they have better direct or indirect measures of household program eligibility. Secondly, this work may be immediately extended to the estimation of heterogeneous treatment effects by individual or household type, given that various interest groups are affected. It is also of paramount interest to understand differential program impacts across different regions within the state; for example in areas with less access to schooling, health facilities and/or financial institutions. Other analytical extensions include the use of econometric strategies to handle the issue of censoring in the sex ratio, and further exploration of instrumental variables strategies to allow estimation of effects on outcomes such as total fertility which are endogenously related to the birth-history eligibility criteria. Interesting instrumental variables that could be explored further with richer data include the role of the community (*anganwadi)* health worker and the availability of post-offices, given that the program is administered through the Integrated Child Development Scheme (ICDS) health infrastructure and savings accounts at post offices.

Most importantly, however, the results and the caveats point to a clear need for further research in the field about the actual operations of this program. As a first-order priority, we note that actual take-up numbers and disbursements are unknown. We have very limited information about dissemination among the general population, as the formally commissioned evaluation study consists of a selected sample of program applicants (MODE 2000). Some operational details of the program also remain unclear, such as the need to hold a BPL card or quotas for certain ethnic groups. With some idea of actual program operations, we may for instance, be able to exploit additional sources of exogenous variation such as differences in launch date across different areas of Haryana. To reiterate, the novel design, scale and potential social impact of this program all emphasize the importance of further understanding its effects, and the need to monitor related developments in the future.

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Table 1. Households reporting BPL card, by All-India wealth quintiles, NFHS-3 Haryana sample

National Wealth Quintile	% individuals reporting BPL card	BPL cardholders / total BPL cardholders	Family has BPL card
Lowest	15.8%	8.9%	12
Second	18.9%	26.7%	36
Middle	12.9%	30.4%	41
Fourth	10.3%	25.9%	35
Highest	3.3%	8.1%	11

Note: The rows in the table represent categories defined by national-level wealth quintiles rather than sample quintiles,and thus each category does not necessarily contain 20% of our sample.

Table 2. Summary Statistics by NFHS wave (means

2a: Women of reproductive age

NFHS Round:	**1**	**2**	**3**
Age in years	29.8	31.6	29.0
Scheduled Caste/Other Backward Caste (SC/OBC)	35.2%	42.2%	43.7%
Non-Hindu	10.7%	10.9%	11.1%
Own education: primary	14.8%	13.4%	12.0%
Own education: secondary	19.7%	22.3%	42.8%
Own education: higher	3.4%	10.1%	7.6%
Urban	26.3%	28.8%	30.3%
Total children born	3.1	3.0	2.2
Total living children	2.7	2.7	2.0
Living sons	1.4	1.5	1.1
Living daughters	1.3	1.2	1.0
Ideal boys (if reported)	1.4	1.4	1.1
Ideal girls (if reported)	0.9	0.9	0.8

2b: Children under 36 months sample

NFHS Round:	**1**	**2**	**3**
Child age in months	16.69	17.09	18.23
Mother's age in years	24.87	25.21	25.32
SC/OBC	38.14%	49.45%	47.60%
Non-Hindu	13.7%	13.9%	17.1%
Mother's education: primary	15.0%	15.3%	11.8%
Mother's education: secondary	19.7%	26.5%	44.1%
Mother's education: higher	2.9%	8.3%	8.1%
Urban	22.0%	23.2%	25.0%
Child is alive	92.5%	93.8%	95.7%
Living siblings	1.7	1.6	1.5
Number of vaccinations	4.9	5.6	5.9
Ever vaccinated	0.8	0.8	0.9
Polio 1	71.5%	82.7%	88.5%
Measles	43.1%	53.9%	55.1%
Height-for-age	-1.7	-2.0	-1.5
Weight-for-age	-1.5	-1.5	-1.7

2c: Children 7-11 years

NFHS Round:	**1**	**2**
Child age in years	9.0	9.0
SC/OBC	46.9%	520%
Non-Hindu	12.7%	16.3%
Years of education	2.2	2.8
Ever attended school	93.3%	89.9%

Note: State-weights applied to all

Table **3.** Program Impacts: Child sex ratio and fertility preferences, all women

	(1) Sex Ratio (Girls / Boys) OLS	(2) Ideal Sex Ratio (Girls/ Boys) OLS	(3) Want at least one girl = 1 Probit MFX	(4) Ideal number of children OLS
Eligible woman x 1998	0.231***	-0.007	-0.023	-0.109*
	(0.053)	(0.025)	(0.024)	(0.052)
Eligible woman x 2006	0.305***	0.021	0.010	-0.046
	(0.061)	(0.022)	(0.022)	(0.056)
Eligible woman	-0.094*	0.021	0.031	0.040
	(0.045)	(0.019)	(0.017)	(0.047)
Year = 1998	0.163***	0.035**	0.007	0.141***
	(0.033)	(0.013)	(0.010)	(0.039)
Year =2006	0.495***	0.101***	0.034**	-0.005
	(0.039)	(0.017)	(0.011)	(0.039)
Household is BPL	-0.049	-0.050***	-0.022*	0.217***
	(0.035)	(0.011)	(0.010)	(0.041)
Household is SC/OBC	-0.065	-0.023	0.006	0.152***
	(0.033)	(0.012)	(0.011)	(0.036)
Household is non-Hindu	0.002	-0.019	-0.002	0.228*
	(0.042)	(0.017)	(0.013)	(0.102)
Household is urban	0.028	0.036***	0.023*	-0.074**
	(0.027)	(0.011)	(0.009)	(0.026)
Age (years)	0.064***	-0.008*	-0.006*	-0.030**
	(0.011)	(0.004)	(0.003)	(0.010)
Age-squared (years)	-0.001***	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Has primary education	0.046	0.039*	-0.001	-0.192***
	(0.034)	(0.015)	(0.011)	(0.026)
Has secondary education	0.083*	0.073***	-0.012	-0.318***
	(0.036)	(0.011)	(0.009)	(0.024)
Has higher education	0.075	0.128***	0.015	-0.397***
	(0.047)	(0.019)	(0.016)	(0.030)
Total living children October 1994	0.306***	0.005	0.025***	0.152***
	(0.017)	(0.004)	(0.004)	(0.011)
Constant	-0.798***	0.806***		2.587***
	(0.171)	(0.053)		(0.143)
N	6350	6954	6954	8003
R-squared	0.17	0.05		0.26

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU
(a) Ideal sex ratio is measured as the number of ideal girls to the number of ideal boys.

Table **4.** Program Impacts: Mortality, children born within 36 months of survey

	(1) Reported death at 0 months Probit MFX	(2) Reported death <= 6 months Probit MFX	(3) Reported death <= 12 months Probit MFX	(4) Reported death <= 24 months Probit MFX
Eligible age/caste/income x girl x 1998	0.000	-0.017	-0.021	-0.020
	(0.024)	(0.024)	(0.024)	(0.025)
Eligible age/caste/income x girl x 2006	0.010	0.001	-0.010	-0.012
	(0.037)	(0.039)	(0.036)	(0.037)
Eligible age/caste/income x girl	-0.016	-0.005	-0.006	-0.004
	(0.010)	(0.019)	(0.020)	(0.020)
Eligible age/caste/income x 1998	-0.002	-0.003	-0.002	0.001
	(0.015)	(0.021)	(0.024)	(0.026)
Eligible age/caste/income x 2006	0.012	-0.007	-0.001	0.001
	(0.026)	(0.024)	(0.027)	(0.028)
Girl x 1998	-0.010	-0.005	-0.007	-0.007
	(0.012)	(0.020)	(0.021)	(0.021)
Girl x 2006	-0.012	-0.025	-0.031	-0.038*
	(0.013)	(0.019)	(0.020)	(0.018)
Year = 1998	0.010	0.011	0.004	0.001
	(0.011)	(0.014)	(0.015)	(0.016)
Year = 2006	-0.012	-0.002	-0.007	-0.004
	(0.011)	(0.018)	(0.018)	(0.018)
Eligible age/caste/income	0.014	0.043	0.040*	0.039
	(0.013)	(0.023)	(0.020)	(0.022)
Girl	0.004	0.010	0.019	0.024
	(0.010)	(0.014)	(0.016)	(0.015)
Total siblings at birth	-0.006	-0.001	0.001	-0.001
	(0.004)	(0.004)	(0.005)	(0.005)
Household is BPL	0.006	0.009	0.011	0.008
	(0.008)	(0.010)	(0.011)	(0.012)
Household is SC/OBC	-0.003	-0.013	-0.011	-0.011
	(0.007)	(0.011)	(0.011)	(0.011)
Household is non-Hindu	-0.003	-0.005	-0.012	-0.012
	(0.009)	(0.011)	(0.011)	(0.011)
Household is urban	-0.018**	-0.017*	-0.025**	-0.022*
	(0.006)	(0.008)	(0.008)	(0.009)
Mother's age (years)	-0.001	-0.005	-0.004	-0.005
	(0.004)	(0.006)	(0.007)	(0.007)
Mother's age squared (years)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mother has primary educ.	0.003	0.003	0.003	-0.002
	(0.013)	(0.017)	(0.018)	(0.017)
Mother has secondary educ.	-0.001	0.006	0.005	0.000
	(0.008)	(0.011)	(0.011)	(0.011)
Mother has higher education	-0.023***	-0.032**	-0.038**	-0.044***
	(0.007)	(0.012)	(0.013)	(0.012)
N	3164	3164	3164	3164

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU

Table **5.** Program Impacts: Health status, children born within 36 months of survey

	(1) Height-for-age score OLS	(2) Weight-for-age score OLS	(3) Stunting Probit MFX
Eligible age/caste/income x girl x 1998	0.288	0.510**	-0.112
	(0.256)	(0.191)	(0.085)
Eligible age/caste/income x girl x 2006	0.340	0.441	0.012
	(0.262)	(0.255)	(0.088)
Eligible age/caste/income x girl	-0.357*	-0.401**	0.094
	(0.138)	(0.137)	(0.060)
Eligible age/caste/income x 1998	-0.212	-0.250	0.039
	(0.172)	(0.142)	(0.064)
Eligible age/caste/income x 2006	-0.399*	-0.495**	0.052
	(0.168)	(0.165)	(0.070)
Girl x 1998	-0.061	-0.100	0.040
	(0.160)	(0.122)	(0.057)
Girl x 2006	0.184	0.025	-0.069
	(0.160)	(0.143)	(0.054)
Year = 1998	-0.361**	-0.018	0.090*
	(0.117)	(0.094)	(0.038)
Year = 2006	0.070	-0.239*	-0.022
	(0.115)	(0.115)	(0.045)
Eligible age/caste/income	0.185	0.204	-0.072
	(0.139)	(0.124)	(0.055)
Girl	-0.066	-0.066	0.021
	(0.104)	(0.094)	(0.038)
Total siblings at birth	-0.030	-0.002	0.015
	(0.035)	(0.028)	(0.013)
Household is BPL	-0.165	-0.200**	0.077**
	(0.090)	(0.068)	(0.029)
Household is SC/OBC	-0.105	-0.076	0.070*
	(0.098)	(0.077)	(0.033)
Household is non-Hindu	0.121	0.107	-0.015
	(0.102)	(0.077)	(0.041)
Household is urban	0.138*	0.002	-0.035
	(0.068)	(0.055)	(0.022)
Mother’s age (years)	-0.023	0.008	0.027
	(0.048)	(0.037)	(0.015)
Mother’s age squared (years)	0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.000)
Mother has primary educ.	0.097	0.081	-0.012
	(0.095)	(0.079)	(0.033)
Mother has secondary educ.	0.428***	0.434***	-0.114***
	(0.076)	(0.070)	(0.028)
Mother has higher education	1.005***	0.995***	-0.264***
	(0.146)	(0.115)	(0.043)
Constant	-1.297*	-1.451**	
	(0.626)	(0.514)	
N	2612	2612	2612
R-squared	0.09	0.09	

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU

Table 6. Program Impacts: Immunization outcomes, surviving children born within 36 months of survey

	(1) Polio1	(2) Measles [Children > 1 year]	(3) Total Vaccinations	(4) Number of vaccinations
	Probit MFX	Probit MFX	Probit MFX	OLS
Eligible age/caste/income x girl x 1998	0.103**	0.187***	0.093***	1.130**
	(0.034)	(0.051)	(0.026)	(0.416)
Eligible age/caste/income x girl x 2006	0.086*	0.217***	0.081*	0.633
	(0.044)	(0.040)	(0.034)	(0.421)
Eligible age/caste/income x girl	-0.066	-0.137*	-0.054	-0.598
	(0.043)	(0.068)	(0.038)	(0.306)
Eligible age/caste/income x 1998	-0.024	-0.025	-0.030	-0.210
	(0.048)	(0.079)	(0.043)	(0.301)
Eligible age/caste/income x 2006	-0.060	-0.201*	-0.055	-0.120
	(0.058)	(0.090)	(0.057)	(0.314)
Girl x 1998	-0.003	-0.033	0.002	0.173
	(0.041)	(0.071)	(0.036)	(0.285)
Girl x 2006	-0.013	-0.075	-0.012	0.311
	(0.053)	(0.076)	(0.050)	(0.290)
Year = 1998	0.073**	0.070	0.036	0.219
	(0.027)	(0.048)	(0.025)	(0.200)
Year = 2006	0.103***	0.081	0.071*	0.174
	(0.030)	(0.049)	(0.031)	(0.214)
Eligible age/caste/income	-0.003	0.022	-0.011	0.098
	(0.034)	(0.056)	(0.031)	(0.281)
Girl	-0.048	-0.001	-0.043	-0.484*
	(0.026)	(0.041)	(0.027)	(0.195)
Total siblings at birth	-0.033***	-0.058***	-0.031***	-0.304***
	(0.008)	(0.012)	(0.007)	(0.061)
Household is BPL	-0.080**	-0.147***	-0.059*	-0.827***
	(0.028)	(0.037)	(0.024)	(0.187)
Household is SC/OBC	0.012	0.002	0.014	0.018
	(0.026)	(0.036)	(0.021)	(0.206)
Household is non-Hindu	-0.065	-0.115*	-0.062	-0.601**
	(0.035)	(0.045)	(0.032)	(0.228)
Household is urban	-0.028	-0.026	-0.042	-0.084
	(0.027)	(0.033)	(0.025)	(0.158)
Mother's age (years)	0.006	0.031	0.001	0.106
	(0.010)	(0.018)	(0.010)	(0.077)
Mother's age squared (years)	-0.000	-0.000	0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.001)
Mother has primary educ.	0.092***	0.139***	0.070***	0.888***
	(0.016)	(0.023)	(0.014)	(0.136)
Mother has secondary educ.	0.128***	0.195***	0.122***	1.104***
	(0.016)	(0.024)	(0.014)	(0.123)
Mother has higher education	0.137***	0.250***	0.121***	1.430***
	(0.014)	(0.022)	(0.013)	(0.163)
Constant				-1.700
				(1.002)
N	2967	1949	2968	2965
R-squared				0.42

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU. Dummies for child age in months included but not shown.

Table **7.** Program Impacts: Education outcomes, surviving children aged 7-11 in 1998 and 2006

	(1)	(2)		(3)
	Ever attended school = 1	Years of completed schooling	Years of completed schooling	Years of schooling if ever schooling =1
	Probit MFX	OLS	Tobit	OLS
Eligible household x girl x 2006	0.002	0.039	0.023	0.083
	(0.029)	(0.241)	(0.277)	(0.240)
Eligible household x girl	-0.039	-0.101	-0.162	0.013
	(0.028)	(0.127)	(0.148)	(0.134)
Girl x 2006	0.002	-0.048	-0.056	-0.042
	(0.025)	(0.174)	(0.191)	(0.171)
Eligible household x 2006	0.027	0.206	0.226	0.219
	(0.021)	(0.170)	(0.192)	(0.169)
Girl	-0.006	-0.003	0.012	-0.002
	(0.019)	(0.098)	(0.110)	(0.098)
Eligible	-0.024	-0.333	-0.408	-0.342*
	(0.023)	(0.175)	(0.225)	(0.167)
Year = 2006	-0.044	0.478***	0.495***	0.581***
	(0.026)	(0.134)	(0.150)	(0.127)
Household is BPL	-0.129***	-0.704***	-0.903***	-0.376***
	(0.026)	(0.105)	(0.136)	(0.102)
Household is SC/OBC	0.001	0.083	0.148	0.067
	(0.017)	(0.154)	(0.211)	(0.146)
Household is urban	0.007	0.128	0.148	0.110
	(0.012)	(0.084)	(0.097)	(0.078)
Household size	-0.002	-0.037***	-0.042***	-0.034***
	(0.001)	(0.010)	(0.012)	(0.010)
Household is non-Hindu	-0.120***	-0.622***	-0.816***	-0.290**
	(0.030)	(0.147)	(0.194)	(0.108)
Constant		2.782***	2.731***	2.802***
		(0.106)	(0.123)	(0.105)
N	3507	3505	3505	3219
R2		0.09		0.07

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU. Dummies for child age in years included but not shown.

Table **8.** Program impacts, all women, BPL criteria based on Deaton (1993) estimates

	(1) Sex Ratio (Girls / Boys) OLS	(2) Ideal Sex Ratio (Girls/ Boys) OLS	(3) Want at least one girl = 1 Probit MFX	(4) Ideal number of children OLS
Eligible woman x 1998	0.221***	-0.003	-0.013	-0.106*
	(0.053)	(0.024)	(0.021)	(0.052)
Eligible woman x 2006	0.274***	0.018	0.005	-0.035
	(0.060)	(0.023)	(0.022)	(0.055)
Eligible woman	-0.087	0.016	0.024	0.022
	(0.046)	(0.018)	(0.016)	(0.045)
Year = 1998	0.165***	0.035**	0.005	0.145***
	(0.033)	(0.013)	(0.010)	(0.040)
Year =2006	0.503***	0.102***	0.036***	-0.000
	(0.038)	(0.016)	(0.010)	(0.039)
Household is BPL	-0.070	-0.037**	-0.007	0.289***
	(0.049)	(0.014)	(0.014)	(0.049)
Household is SC/OBC	-0.064	-0.023	0.006	0.166***
	(0.035)	(0.013)	(0.011)	(0.036)
Household is non-Hindu	0.005	-0.019	-0.002	0.226*
	(0.042)	(0.017)	(0.013)	(0.102)
Household is urban	0.027	0.034**	0.022*	-0.066*
	(0.027)	(0.011)	(0.009)	(0.026)
Age (years)	0.065***	-0.008*	-0.006*	-0.030**
	(0.011)	(0.004)	(0.003)	(0.010)
Age-squared (years)	-0.001***	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Has primary education	0.044	0.043**	0.001	-0.198***
	(0.034)	(0.015)	(0.011)	(0.027)
Has secondary education	0.082*	0.079***	-0.008	-0.332***
	(0.035)	(0.011)	(0.009)	(0.025)
Has higher education	0.073	0.135***	0.018	-0.419***
	(0.046)	(0.019)	(0.016)	(0.031)
Total living children October 1994	0.304***	0.004	0.024***	0.152***
	(0.017)	(0.004)	(0.004)	(0.011)
Constant	-0.808***	0.801***		2.613***
	(0.169)	(0.053)		(0.143)
N	6350	6954	6954	8003
R-squared	0.17	0.05		0.26

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU

(a) Ideal sex ratio is measured as the number of ideal girls to the number of ideal boys.

Table **9.** Program Impacts: Immunization outcomes, surviving children born within 36 months of survey, BPL criteria based on Deaton (1993) estimates

	(1) Polio1 Probit MFX	(2) Measles [Children > 1 year] Probit MFX	(3) Total Vaccinations Probit MFX	(4) Number of vaccinations OLS
Eligible age/caste/income x girl x 1998	0.122***	0.199***	0.106***	1.449***
	(0.028)	(0.050)	(0.023)	(0.408)
Eligible age/caste/income x girl x 2006	0.085	0.237***	0.075*	0.875*
	(0.045)	(0.033)	(0.036)	(0.415)
Eligible age/caste/income x girl	-0.122**	-0.195*	-0.095*	-0.921**
	(0.046)	(0.077)	(0.040)	(0.304)
Eligible age/caste/income x 1998	-0.057	-0.062	-0.043	-0.363
	(0.053)	(0.087)	(0.043)	(0.292)
Eligible age/caste/income x 2006	-0.048	-0.243*	-0.030	-0.149
	(0.061)	(0.105)	(0.053)	(0.325)
Girl x 1998	-0.009	-0.021	-0.001	0.143
	(0.043)	(0.074)	(0.037)	(0.289)
Girl x 2006	-0.002	-0.081	-0.000	0.285
	(0.048)	(0.074)	(0.045)	(0.286)
Year = 1998	0.082**	0.075	0.039	0.254
	(0.027)	(0.048)	(0.024)	(0.200)
Year = 2006	0.096**	0.081	0.061*	0.156
	(0.030)	(0.050)	(0.030)	(0.227)
Eligible age/caste/income	0.013	0.041	-0.014	0.072
	(0.035)	(0.066)	(0.031)	(0.287)
Girl	-0.036	0.005	-0.034	-0.421*
	(0.024)	(0.042)	(0.024)	(0.197)
Total siblings at birth	-0.035***	-0.061***	-0.033***	-0.334***
	(0.008)	(0.012)	(0.007)	(0.061)
Household is BPL	-0.056	-0.131**	-0.034	-0.700**
	(0.033)	(0.046)	(0.028)	(0.226)
Household is SC/OBC	0.017	0.011	0.024	0.110
	(0.027)	(0.038)	(0.023)	(0.217)
Household is non-Hindu	-0.070	-0.118**	-0.065	-0.626**
	(0.036)	(0.045)	(0.034)	(0.237)
Household is urban	-0.031	-0.032	-0.045	-0.107
	(0.027)	(0.033)	(0.026)	(0.161)
Mother's age (years)	0.007	0.033	0.002	0.122
	(0.010)	(0.017)	(0.010)	(0.076)
Mother's age squared (years)	-0.000	-0.000	0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.001)
Mother has primary educ.	0.095***	0.142***	0.073***	0.920***
	(0.016)	(0.023)	(0.014)	(0.135)
Mother has secondary educ.	0.136***	0.205***	0.128***	1.176***
	(0.016)	(0.023)	(0.014)	(0.124)
Mother has higher education	0.141***	0.257***	0.124***	1.511***
	(0.014)	(0.021)	(0.013)	(0.168)
Constant				-2.052*
				(1.014)
N	2967	1949	2968	2965
R-squared				0.41

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU. Dummies for child age in months included but not shown.

Table **10.** Program Impacts, all women, controlling for community sex ratio norms

	(1) Sex Ratio (Girls / Boys) OLS	(2) Ideal Sex Ratio (Girls/ Boys) OLS	(3) Want at least one girl = 1 Probit MFX	(4) Ideal number of children OLS
Eligible woman x 1998	0.232***	-0.006	-0.023	-0.110*
	(0.052)	(0.025)	(0.024)	(0.052)
Eligible woman x 2006	0.311***	0.022	0.010	-0.047
	(0.058)	(0.022)	(0.022)	(0.056)
Eligible woman	-0.098*	0.021	0.030	0.041
	(0.043)	(0.019)	(0.017)	(0.047)
Year = 1998	0.194***	0.036**	0.008	0.138***
	(0.027)	(0.013)	(0.010)	(0.039)
Year =2006	0.493***	0.101***	0.034**	-0.005
	(0.035)	(0.017)	(0.011)	(0.039)
Household is BPL	-0.045	-0.050***	-0.022*	0.217***
	(0.034)	(0.011)	(0.010)	(0.041)
Household is SC/OBC	-0.060	-0.022	0.006	0.151***
	(0.032)	(0.012)	(0.011)	(0.036)
Household is non-Hindu	-0.015	-0.019	-0.002	0.229*
	(0.038)	(0.017)	(0.013)	(0.101)
Household is urban	0.016	0.036**	0.023*	-0.072**
	(0.019)	(0.011)	(0.009)	(0.026)
Age (years)	0.063***	-0.008*	-0.006*	-0.030**
	(0.011)	(0.004)	(0.003)	(0.010)
Age-squared (years)	-0.001***	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Has primary education	0.049	0.039*	-0.001	-0.192***
	(0.034)	(0.015)	(0.011)	(0.026)
Has secondary education	0.085*	0.073***	-0.011	-0.318***
	(0.035)	(0.011)	(0.009)	(0.024)
Has higher education	0.085	0.129***	0.016	-0.398***
	(0.045)	(0.019)	(0.016)	(0.030)
Total living children October 1994	0.300***	0.005	0.024***	0.153***
	(0.017)	(0.004)	(0.004)	(0.011)
Average community(PSU) sex ratio	0.648***	0.018	0.012	-0.041
	(0.048)	(0.027)	(0.022)	(0.068)
Constant	-1.340***	0.790***		2.624***
	(0.180)	(0.059)		(0.165)
N	6350	6954	6954	8003
R-squared	0.19	0.05		0.26

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU (primary sampling unit)
(a) Ideal sex ratio is measured as the number of ideal girls to the number of ideal boys.

Table 11. Program impacts, all women except potentially ineligible OBC under alternative OBC child birth-date rule

	(1) Sex Ratio (Girls / Boys) OLS	(2) Ideal Sex Ratio (Girls/ Boys) OLS	(3) Want at least one girl = 1 Probit MFX	(4) Ideal number of children OLS
Eligible woman x 1998	0.263***	-0.013	-0.032	-0.115*
	(0.059)	(0.027)	(0.026)	(0.052)
Eligible woman x 2006	0.297***	0.017	-0.003	-0.075
	(0.066)	(0.024)	(0.023)	(0.055)
Eligible woman	-0.070	0.019	0.041**	0.088
	(0.049)	(0.021)	(0.015)	(0.046)
Year = 1998	0.163***	0.035**	0.006	0.140***
	(0.033)	(0.013)	(0.010)	(0.039)
Year =2006	0.499***	0.099***	0.033**	-0.000
	(0.039)	(0.017)	(0.011)	(0.039)
Household is BPL	-0.056	-0.049***	-0.026*	0.209***
	(0.037)	(0.012)	(0.011)	(0.042)
Household is SC/OBC	-0.063	-0.022	0.007	0.154***
	(0.033)	(0.012)	(0.010)	(0.036)
Household is non-Hindu	-0.000	-0.013	0.002	0.229*
	(0.042)	(0.017)	(0.014)	(0.102)
Household is urban	0.022	0.036***	0.022*	-0.076**
	(0.027)	(0.011)	(0.009)	(0.026)
Age (years)	0.068***	-0.007*	-0.005	-0.025*
	(0.011)	(0.004)	(0.003)	(0.010)
Age-squared (years)	-0.001***	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Has primary education	0.051	0.039*	0.000	-0.193***
	(0.036)	(0.015)	(0.011)	(0.026)
Has secondary education	0.085*	0.078***	-0.006	-0.318***
	(0.036)	(0.011)	(0.009)	(0.024)
Has higher education	0.091	0.130***	0.017	-0.396***
	(0.048)	(0.020)	(0.016)	(0.030)
Total living children October 1994	0.309***	0.005	0.025***	0.155***
	(0.017)	(0.004)	(0.004)	(0.011)
Constant	-0.865***	0.803***		2.511***
	(0.172)	(0.055)		(0.141)
N	6125	6751	6751	7774
R-squared	0.17	0.05		0.26

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU
(a) Ideal sex ratio is measured as the number of ideal girls to the number of ideal boys.

Table **12.** Program Impacts: Birthplace and any antenatal visits, children born within 36 months of survey

	(1) Birth in a health facility Probit MFX	(2) Birth in a private health facility Probit MFX	(3) Any antenatal visit Probit MFX
Eligible age/caste/income x girl x 1998	-0.061	-0.026	0.098
	(0.061)	(0.052)	(0.067)
Eligible age/caste/income x girl x 2006	-0.092	-0.049	-0.101
	(0.050)	(0.040)	(0.087)
Eligible age/caste/income x girl	0.054	0.048	-0.001
	(0.055)	(0.059)	(0.046)
Eligible age/caste/income x 1998	0.033	0.010	-0.012
	(0.057)	(0.042)	(0.057)
Eligible age/caste/income x 2006	0.075	0.043	0.008
	(0.064)	(0.049)	(0.052)
Girl x 1998	0.011	-0.005	-0.031
	(0.049)	(0.031)	(0.053)
Girl x 2006	0.056	0.032	-0.022
	(0.051)	(0.037)	(0.052)
Year = 1998	-0.004	0.057*	-0.240***
	(0.036)	(0.028)	(0.044)
Year = 2006	0.091*	0.072*	-0.048
	(0.040)	(0.032)	(0.043)
Eligible age/caste/income	-0.075	-0.076*	0.020
	(0.043)	(0.034)	(0.041)
Girl	-0.026	-0.024	-0.049
	(0.032)	(0.024)	(0.030)
Total siblings at birth	-0.079***	-0.041***	-0.028**
	(0.010)	(0.008)	(0.009)
Household is BPL	-0.088***	-0.047**	-0.112***
	(0.020)	(0.017)	(0.028)
Household is SC/OBC	0.006	0.037	0.020
	(0.030)	(0.023)	(0.027)
Household is non-Hindu	0.045	0.014	-0.034
	(0.035)	(0.023)	(0.038)
Household is urban	0.191***	0.088***	0.138***
	(0.024)	(0.019)	(0.023)
Mother's age (years)	0.006	0.007	-0.006
	(0.010)	(0.008)	(0.010)
Mother's age squared (years)	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Mother has primary educ.	0.093**	0.046	0.127***
	(0.031)	(0.026)	(0.020)
Mother has secondary educ.	0.217***	0.119***	0.193***
	(0.031)	(0.022)	(0.021)
Mother has higher education	0.454***	0.320***	0.240***
	(0.054)	(0.051)	(0.026)
N	3164	3164	3164

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU

Table **13.** Program Impacts: Mortality outcomes, surviving children born within 36 months of survey, controls for health facilities included, rural only

	(1) Reported death at 0 months Probit MFX	(2) Reported death <= 6 months Probit MFX	(3) Reported death <= 12 months Probit MFX	(4) Reported death <= 24 months Probit MFX
Eligible age/caste/income x girl x 1998	0.004	-0.040	-0.048	-0.052*
	(0.036)	(0.023)	(0.026)	(0.024)
Eligible age/caste/income x girl	-0.023	0.012	0.012	0.020
	(0.012)	(0.033)	(0.039)	(0.040)
Eligible age/caste/income x 1998	0.004	0.012	0.023	0.029
	(0.023)	(0.033)	(0.041)	(0.044)
Girl x 1998	-0.016	0.010	0.011	0.016
	(0.016)	(0.032)	(0.037)	(0.038)
Year = 1998	-0.001	-0.009	-0.022	-0.027
	(0.014)	(0.018)	(0.023)	(0.024)
Eligible age/caste/income	0.013	0.047	0.043	0.037
	(0.015)	(0.031)	(0.027)	(0.029)
Girl	0.006	-0.002	0.008	0.009
	(0.013)	(0.021)	(0.029)	(0.029)
Total siblings at birth	-0.007	0.002	0.007	0.005
	(0.005)	(0.007)	(0.009)	(0.010)
Household is BPL	0.011	0.005	0.006	0.008
	(0.012)	(0.014)	(0.017)	(0.017)
Household is SC/OBC	0.000	-0.020	-0.022	-0.020
	(0.010)	(0.015)	(0.016)	(0.016)
Household is non-Hindu	-0.016	-0.015	-0.022	-0.025*
	(0.011)	(0.012)	(0.013)	(0.013)
Mother’s age (years)	0.011	0.001	0.001	0.002
	(0.007)	(0.010)	(0.010)	(0.010)
Mother’s age squared (years)	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mother has primary educ.	0.006	0.001	-0.001	-0.006
	(0.018)	(0.024)	(0.026)	(0.024)
Mother has secondary educ.	0.001	0.006	0.002	-0.004
	(0.013)	(0.016)	(0.018)	(0.018)
PSU has local health center	-0.016*	-0.023*	-0.032**	-0.033**
	(0.007)	(0.010)	(0.011)	(0.011)
PSU has clinic or dispensary	0.010	0.033**	0.028*	0.034*
	(0.008)	(0.012)	(0.013)	(0.014)
PSU has hospital	-0.010	-0.018	-0.028*	-0.024
	(0.010)	(0.011)	(0.012)	(0.012)
N	1847	1847	1847	1847

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU. Mother’s higher education is dropped as it predicts outcome perfectly

Table **14.** Program Impacts: Health status, children born within 36 months of survey, controlling for health facilities, rural sector only

	(1) Height-for-age score OLS	(2) Weight-for-age score OLS	(3) Stunting Probit MFX
Eligible age/caste/income x girl x 1998	0.391	0.432*	-0.142
	(0.279)	(0.213)	(0.101)
Eligible age/caste/income x girl	-0.442**	-0.451**	0.085
	(0.153)	(0.158)	(0.075)
Eligible age/caste/income x 1998	-0.119	-0.095	0.040
	(0.202)	(0.170)	(0.075)
Girl x 1998	-0.162	-0.039	0.087
	(0.186)	(0.148)	(0.067)
Year = 1998	-0.430**	-0.175	0.091
	(0.152)	(0.114)	(0.048)
Eligible age/caste/income	0.238	0.144	-0.086
	(0.162)	(0.139)	(0.065)
Girl	-0.076	-0.082	0.029
	(0.129)	(0.113)	(0.049)
Total siblings at birth	-0.049	-0.019	0.019
	(0.052)	(0.040)	(0.019)
Household is BPL	-0.152	-0.184*	0.058
	(0.114)	(0.092)	(0.036)
Household is SC/OBC	-0.167	0.001	0.092*
	(0.128)	(0.106)	(0.044)
Household is non-Hindu	0.124	0.134	-0.015
	(0.132)	(0.130)	(0.055)
Household is urban	-0.004	-0.011	0.027
	(0.062)	(0.048)	(0.021)
Mother's age (years)	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.000)
Mother's age squared (years)	0.113	0.166	-0.052
	(0.115)	(0.102)	(0.041)
Mother has primary educ.	0.486***	0.472***	-0.107**
	(0.103)	(0.106)	(0.041)
Mother has secondary educ.	0.777**	0.921***	-0.216**
	(0.287)	(0.232)	(0.083)
Mother has higher educ.	0.008	0.017	-0.009
	(0.079)	(0.069)	(0.027)
PSU has local health center	0.086	0.150*	-0.030
	(0.078)	(0.064)	(0.032)
PSU has clinic or dispensary	-0.133	-0.174*	0.028
	(0.126)	(0.070)	(0.041)
PSU has hospital	-1.551	-1.291	
	(0.811)	(0.653)	
Constant	1500	1500	1500
	0.06	0.07	
N	0.391	0.432*	-0.142
R-squared	(0.279)	(0.213)	(0.101)

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU

Table **15.** Program Impacts: Immunization outcomes, surviving children born within 36 months of survey, controls for health facilities included, , rural only

	(1) Polio1 Probit MFX	(2) Measles [Children > 1 year] Probit MFX	(3) Total Vaccinations Probit MFX	(4) Number of vaccinations OLS
Eligible age/caste/income x girl x 1998	0.111	0.215**	0.107*	0.927
	(0.062)	(0.071)	(0.042)	(0.470)
Eligible age/caste/income x girl	-0.060	-0.183*	-0.065	-0.444
	(0.057)	(0.075)	(0.050)	(0.342)
Eligible age/caste/income x 1998	-0.017	-0.036	-0.036	-0.263
	(0.065)	(0.105)	(0.056)	(0.364)
Girl x 1998	0.046	-0.044	0.034	0.501
	(0.052)	(0.095)	(0.044)	(0.317)
Year = 1998	0.079	0.068	0.033	0.172
	(0.045)	(0.067)	(0.038)	(0.244)
Eligible age/caste/income	-0.042	0.010	-0.037	-0.143
	(0.047)	(0.074)	(0.043)	(0.335)
Girl	-0.096**	-0.006	-0.064	-0.745***
	(0.036)	(0.056)	(0.036)	(0.211)
Total siblings at birth	-0.047***	-0.071***	-0.039***	-0.361***
	(0.013)	(0.018)	(0.011)	(0.083)
Household is BPL	-0.065	-0.081	-0.035	-0.574*
	(0.038)	(0.054)	(0.030)	(0.231)
Household is SC/OBC	0.041	0.050	0.041	0.265
	(0.035)	(0.046)	(0.026)	(0.236)
Household is non-Hindu	-0.009	-0.035	-0.005	-0.236
	(0.058)	(0.057)	(0.048)	(0.299)
Mother’s age (years)	-0.012	0.018	-0.025	0.014
	(0.014)	(0.023)	(0.014)	(0.079)
Mother’s age squared (years)	0.000	-0.000	0.001*	0.001
	(0.000)	(0.000)	(0.000)	(0.001)
Mother has primary educ.	0.122***	0.178***	0.086***	1.007***
	(0.027)	(0.032)	(0.022)	(0.163)
Mother has secondary educ.	0.138***	0.159***	0.133***	1.066***
	(0.022)	(0.032)	(0.019)	(0.149)
Mother has higher education	0.221***	0.202**	0.160***	1.478***
	(0.019)	(0.078)	(0.016)	(0.268)
PSU has local health center	-0.002	-0.002	-0.022	-0.116
	(0.031)	(0.034)	(0.028)	(0.172)
PSU has clinic or dispensary	-0.023	0.030	-0.010	-0.017
	(0.032)	(0.039)	(0.028)	(0.196)
PSU has hospital	-0.005	0.022	-0.021	0.049
	(0.039)	(0.040)	(0.034)	(0.226)
Constant				-0.478
				(1.055)
N	1742	1118	1743	1742
R-squared				0.40

*p<0.1, **p<0.05, ***p<0.01. State sample weights applied. Robust standard errors clustered on PSU. Dummies for child age in months included but not shown.

Appendix Table A: Reported age at death, All-India NFHS Samples

Age in Months	NFHS-1	NFHS-2	NFHS-3
0	2048	1220	1726
1	217	128	203
2	177	92	107
3	152	77	115
4	104	49	57
5	69	31	55
6	120	73	62
7	67	35	38
8	73	41	47
9	61	35	39
10	74	24	31
11	53	25	28
12	139	95	78
13	19	10	15
14	25	10	12
15	16	15	14
16	15	7	10
17	4	4	9
18	50	11	44
19	7	0	2
20	7	2	4
21	5	2	2
22	4	3	3
23	8	1	3
24	118	51	101
25	2	0	0
26	0	0	1
27	0	0	0
28	0	0	0
29	0	0	0
30	1	1	3
31	0	0	0
32	0	0	0
33	0	0	0
34	0	0	0
35	1	0	0
36	44	NA	54