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Family Planning as an Investment in Development and Female Human Capital: Evaluating the Long Term Consequences in Matlab, Bangladesh*

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Abstract
The paper analyzes 141 villages in Matlab, Bangladesh from 1974 to 1996, in which half the villages received from 1977 to 1996 an outreach family planning and maternal-child health program. Village and individual data confirm a decline in fertility of about 15 percent in the program villages compared with the control villages, as others have noted. The consequences of the program on a series of long run family welfare outcomes are then estimated in addition to fertility : women's health, involvement in production other than childcare, earnings and household assets, use of preventive health inputs, and finally the inter-generational effects on the health and schooling of the woman's children. Many of these indicators of the women's welfare and that of their children improve significantly in conjunction with the program-induced decline in fertility, suggesting social returns to this reproductive health program in rural South Asia have many facets beyond fertility reduction.

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1. Introduction

How do population policies contribute to improve the welfare of women, their children and families, and their communities, and possibly foster economic development? Though women in various parts of the world have been provided with improved birth control technologies for the past fifty years, few studies have identified the impact of these policies on the fertility and health of women and on their lifetime productivity, consumption opportunities, savings, and asset accumulation. There is a common belief that women who avoid ill-timed or unwanted births due to a population program will also be likely to invest more in each of their children's human capital, reducing poverty in the next generation. But again, there is little evidence of this quantity-quality trade-off based on sources of variation in fertility which are independent of parent preferences and preconditions, with the exception of a few studies of twins (Schultz, 2005).

To evaluate population policies, the program intervention should be designed to distinguish between well defined treatment and control populations, both of which are followed over an extended period of time. After the program starts, the cumulative repercussions for a cohort of women and any inter-generational effects on their children should be assessed. In Matlab Bangladesh, a family planning and maternal and child health (MCHFP) program along these lines was introduced in 1977. Field workers visited all women of childbearing age every two weeks with contraceptive services and supplies. Additional child and maternal health services were added over time. Neighboring villages are also recorded in censuses in 1974, 1978, and 1982, and sampled in a comprehensive socioeconomic survey in 1996. These policy interventions in combination with census and survey data provide an unusual opportunity to evaluate long-term welfare effects of family planning and health outreach efforts at the household level which could be informative as to the likely consequences of comparable family planning and health programs in other very low-income rural areas.

Section 2 describes the Matlab data and the program intervention. Section 3 explores how fertility differed in the treatment and control areas before the program started and thereafter. It also examines other issues that could bias the observed differences in the 1996 survey outcomes between the treated and control villages and thus the estimated effect of the program on the treated. Section 4 outlines a framework within which to interpret the effects of a family planning program on fertility and spillover effects on other family outcomes. Section 5 summarizes the analysis of differences between treatment and comparison areas in 1996 for women and their families. Section 6 concludes with an interpretation of the empirical evidence. Because this research project is not complete, we discuss problems and issues which are not yet analyzed to our satisfaction, and which will be investigated further in the future.

2. The Matlab Family Planning and Health Program

Matlab is a field research station of the International Center for Diarrhoeal Disease Research, Bangladesh (ICDDR, B), located about 60 kilometers south-east of Dhaka (See Fig 1 and maps in ICDDR,B Bulletin, 2005; Munshi and Myaux, 2002). The area is a deltaic plain intersected by the tidal rivers Gumti and Meghna and their canals. Being flat and low-lying, the region is subject to frequent flooding, which may have contributed to its persistent poverty, sustained its high mortality, and slowed the introduction of even basic infrastructure. The area is relatively isolated and inaccessible to communication and transportation other than river transport. There are no major towns or cities except for the small Matlab bazaar.

Eighty-five per cent or more of the people in Matlab are Muslims and the others are Hindus. Despite a growing emphasis on education and increasing contact with urban areas, the society remains relatively traditional and religiously conservative (Fauveau, 1994). Infant mortality has fallen from 110 per thousand live births in 1983, to 75 in 1989, to 65 in 1995, while the total fertility rate has declined by half from more than 6 in 1976, to 3.2 by 1995 (Fauveau, 1994; ICDDR,B, 2005).

Matlab has been the site of numerous studies, starting with four cholera vaccine trials between 1963 and 1968. This involved a census of the entire area, assigning a census identification number to each individual. A Demographic Surveillance System (DSS) was established in 1966 to track on a monthly basis births, marriages, deaths, divorces, internal migration in and out of the area as well as movements within the area. In the mid 1970s the focus of the field station shifted from testing of vaccines to broader public health interventions. In October 1977 the ICDDR,B initiated an experimental maternal, child health and family planning (MCHFP) program in Matlab. The study area originally consisted of 149 villages with a total population of about 180,000 in 1977. Seventy of the villages in the study area (blocks A,B,C and D) received new family planning outreach services, while the remainder continued to receive only regular government health and family planning programs, which generally required that women visit her local health clinic.[1] The MCHFP project is noteworthy not only because of the poor rural conditions under which it was implemented, but also for its assignment design and its duration within a population for which vital events are accurately recorded. The project seemingly satisfies the definition of a formal experiment, with a well-defined "treatment" area where services are introduced and a “comparison” area where such services are absent, but geographical, social, economic, demographic, political and historical conditions are much the same.

In the initial stages of the MCHFP program, Community Health Workers made home visits to married women in the treatment villages about every two weeks, consulted them regarding their contraceptive needs, and encouraged them to adopt contraception. Women were offered a choice of pills, condoms, foam tablets, or injectable contraceptives (depo-medroxy-progesterone acetate), and later the copper T intra-uterine device was added, and women wanting menstrual regulation or a tubectomy were referred to the local district clinic or hospital (Phillips et al.,1982). The field workers were women from generally influential families in the village, who were married, had eight or more years of education and were themselves users of contraception.

[1] Some of these villages had been the site of a two-year trial, called the Contraceptive Distribution Project (CDP) which was carried out between 1975 and 1977 in 150 villages of the Matlab are. An additional 84 villages had served as a comparison area at this time. The CDP aimed to distribute oral pills and condoms by Lady Village Workers, who were elderly, illiterate, and non-medically trained village midwives. They were assigned the task of supplying contraceptives. The project did not provide follow-up services to deal with side-effects or discontinuation of contraceptives. Fauveau and Chakraborty (1994: p.90) write that “Although in the first three months, the project was successful, raising levels of contraceptive use from a baseline one percent to 18 percent of married couples, it had virtually no demographic impact ”.

Over time, however, additional services were added to the program. In 1982 block A and C villages (half of the treatment total) were offered additional maternal and child health (MCH) services, including the provision of maternal tetanus inoculation of all married women, measles immunizations to all children from the age of nine months to five years, training of traditional birth attendants and the distribution of safe delivery kits, oral rehydration therapy for diarrhoea and antenatal care (DeGraff et al., 1986; Phillips et al., 1988; Fauveau, 1994). In the other blocks, B and D, the Community Health Workers continued to deliver the same services as in the preceding phase.

From 1986, there was a major thrust in the development of MCH services in all of the treatment region (blocks A-D). As often as possible, new services were implemented in phases in a controlled design. In 1986 all four blocks received the following services: a complete immunization against the 6 EPI diseases, child nutrition rehabilitation and the provision of vitamin A supplements. In 1987, services focused on maternity care (MCP). Professional midwives were posted to 39 of the treatment villages (assigned to blocks C and D), and the midwives with provided a referral network to assist women with delivery complications to transport them to the maternity clinic in Matlab, or if necessary to the district hospital in Chadpur (Fauveau et al., 1991; Maine et al., 1996). In 1988, the control of acute respiratory infection and dysentery, together with maternity care, was also assigned priority. By 1990, all four blocks of the treatment area received similar levels of MCHFP services.

Since 1966, the villages of the Matlab area have been served by the Government of Bangladesh Health and Family Planning Programme, which has less coverage and notably required women to visit their local health clinics for their contraceptives and maternal health and child health needs.

The Matlab Health and Socioeconomic Survey (MHSS) is a random survey of households in 141 villages in this area collected in 1996. [2] Several features of the data are helpful for examining the effects of the family-planning program. First, because all individuals in the area have permanent identification numbers, matching and merging information over time is relatively easy and presumably accurate, and prior exposure to policy interventions by village of residence is known, and potential long-run consequences of the policies treatments for the women, their families, homesteads (i.e., extended family compounds called Bari), and entire village communities.[3] Second, for each ever-married woman, the survey collected detailed information on maternity histories, contraceptive use, health, children's health and anthropometric outcomes, as well as numerous questions about the socioeconomic status of the woman and her household. Third, the MHSS also administered a community-level retrospective questionnaire about the local health care providers, schools, economic shocks to the area, industrial activity, government policies, natural disasters and weather.

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[2] This survey is a collaborative effort of RAND, the Harvard School of Public Health, the University of Pennsylvania, the University of Colorado at Boulder, Brown University, Mitra and Associates and ICDDR,B. It was primarily funded by the national Institue on Aging with additional support from National Institute of Child Health and Development. It is distributed by the Inter-University Consortium for Political and Social Research (ICPSR) at the University of Michigan.

[3] We have found only a few investigations that compare the features of the treatment and comparison areas or populations before the program of 1977. Exceptions are Sinha (2003) and Chaudhuri (2005).

3. The Assignment of the Population to Treatment and Comparison Groups

Assignment of Villages to Treatment Regimes

To establish a causal connection between the family planning and health program and the 1996 observed characteristics of the population in the treatment and control villages researchers appear to assume that the half of the 141 villages in MHSS were randomly assigned to the program treatment. But the treatment and comparison villages were selected so as to be adjacent to each other in contiguous regions, perhaps to reduce spillover effects from the treatment to controls and to facilitate the delivery of the services (Cf. Freeman and Takeshita, 1969). The same problem arises in the assignment of the villages to the MCH and MCP. The treatment and control populations may differ in characteristics that are associated with fertility and well-being before or after the program started in 1977, which could bias intergroup comparisons as a basis for evaluating the effect of the population and health policies. The extensive literature on Matlab and its experimental programs does not appear to have analyzed potential bias due to nonrandom treatment assignment. Some studies compare fertility and a few other characteristics of the populations between the treatment and control areas before and after the program started (e.g., Phillips et al., 1988; Sinha, 2003; Fauveau et al., 1991), but the majority treat the assignment as if it were random.

Our first objective, therefore, is to link the 141 villages sampled in the 1996 MHSS to earlier Censuses to estimate fertility levels of women in the treatment and comparison villages. Those who completed their childbearing years before the program started can be readily compared to the fertility of younger women who could possibly benefit from the family planning program contraceptive subsidy. Figure 1 plots the number of children ever born per woman by five-year age intervals as reported in the 1996 MHSS and confirms that the average number of children ever born among women over the age of 55 in 1996 appears indistinguishable between the treatment and control villages. This is consistent with comparisons of age-specific birth rates in the treatment and control villages reported from 1974 to 1979, which led Phillips et al.(1982) to conclude there was little difference in total or general fertility rates between the treatment and comparison areas until the program had its impact in1978.

Although the number of children ever born to a woman is not reported in the 1974 Census, the age and sex of all residents is known in each village. The ratio of the number of children age 0 to 4 to the number of women of childbearing age 15 to 49 (C04/W) is a measure of period surviving fertility which is commonly consulted when birth registrations are incomplete and total fertility rates cannot be directly estimated (Bogue and Palmore, 1964;United Nations, 1967). The ratio of children age 5 to 9 per woman age 15-49 (C59/W) approximates the surviving fertility for a period five to nine years before the census. It should be noted that about a tenth of the children born in either five year period in Matlab do not survive to be enumerated in the subsequent census.

In the 141 villages sampled in the 1996 MHSS, the 1974 C04/W for the treatment areas are slightly larger than in the comparison areas, although the difference is not statistically significant. Based on 1978 Census, the treatment half of the villages report a lower C04/W, and this difference is statistically significant. The negative treatment effect is absolutely larger in magnitude in 1982 and 1996. These village observations on surviving fertility are likely to be noisier estimates of fertility for smaller villages than for larger villages. A generalized least squares procedure is therefore adopted which weights the village observation by the inverse of the square root of the number of women age 15 to 49 in the village. Using these weights does not change substantially the estimates reported in Table 1, although they tend to be somewhat more precise.

Pooling cross sections of villages from two years, in which the first year is collected before the program in 1974, and the second year after the program (i.e. 1978, 1982, or 1996), permits one to estimate a "difference in difference" effect of the program treatment, summarized by the coefficient on the added effect on fertility of being in a treatment village in the period after the program started. This double difference specification eliminates any time invariant village fixed effect and avoid possible bias if these village fixed effects were related to the village's assignment to the treatment. The coefficient on this "treatment*after" variable in top panel on Table 1 indicates that the C04/W is -.06 in 1978 compared with its value in 1974 (sample mean in 1974 of .82) . Since the program started in October 1977, it could only have affected fertility in the second half of 1978 and thus the estimated program effect in 1978 is no more than a half-year estimate. Indeed, by 1982 the Census data suggest the treatment villages report child-woman ratios -.14 lower than in 1974, and by 1996 the treatment villages report ratios -.13. The lower panel of Table 1 reports the regressions for C59/W for which the treatment and comparison areas do not differ in 1978 or 1982 compared with preprogram data from 1974, but as expected by 1996 the treatment areas show significantly lower surviving fertility, or -.14 from a sample mean in 1974 or .61.

These village level cross sectional time-difference estimates are consistent with the hypothesis that the program treatment was assigned to villages which exhibited very similar fertility levels before the program started. Regardless, it seems advisable to control for the village fertility levels in 1974 with difference in difference calculation as reported in Table 1. We then find the aggregate child woman ratios were slightly larger in treatment villages in 1974 and declined according to this cross sectional measure by about 16 percent (C04/W) by 1996 (i.e. -.13/.82= .16), roughly the same magnitude as observed in figure 1 based on comparing cohort completed fertility or children ever born among women age 45-49 in the 1996 MHSS.

Because the Census of 1974 did not collect good indicators of personal wealth and of different economic potential for growth of the treatment and comparison villages which could be matched to the 1996 MHSS, difference in difference methods can not be implemented to analyze other family welfare outcomes and their change over time. We assess the pre-program differences in the socio-economic status of treatment and control villages by restricting our attention to simple proxies for socioeconomic status: the average years of schooling of individuals over the age of 15 (we exclude religious education, since we do not know the duration of religious education), the proportion of individuals in the village who report they have had no schooling, the proportion of children between the ages of 9 and 15 who report they have had no schooling, the proportion of individuals in a village who live in houses whose roofs and walls were made of tin, and the average proportion of individuals in the village who are Muslims.[4] Measures of schooling and measures of

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[4] Another set of questions in the village module of the 1996 MHSS report retrospectively when public facilities and services were first provided in each village, including the year of establishing primary and secondary schools, different health care providers, electrification, the timing and intensity of the last flood and other natural disasters. The community-level data also contain information on distance of the villages from towns, markets, and various providers of services. Village access to these and other forms of public and private services, infrastructure,and vulnerability to natural disasters may possibly account for differences in subsequent economic and demographic change across the groups of villages that might otherwise be mis-attributed to, or deducted from,

residential housing quality have been have been used by Filmer and Pritchett (1999) to approximate the economic status of households in the Demographic Health Surveys. We examine the difference in religious composition of village populations mainly because Hindus and Muslims differ in sources of income, and in patterns of marriage and child-bearing (Fauveau, 1994).[5] Table 2, panel (a) presents estimates of weighted means and differences in the means of the above-mentioned variables between treatment and control areas.[6] The last column of Table 2 presents the coefficient from the weighted-regression of the variable on the variable "treatment area" and thus provides an estimates of the pre-program (1974 Census) between the two areas. There appears to be no statistically significant difference in the pre-program schooling of individuals older than 15 between the treatment and control areas. In fact, the fraction of individuals over the age of 15 who report they have never been to school is higher in the treatment villages. This is also true for the group 6 to 15. The weighted coefficient indicates that children in this age group who reside in treatment areas are 2.5 percent more likely to report that they have never been to school. The last row of the upper panel of Table 2 confirms that there are more Muslims in the treatment villages. The different proportions of Hindus and Muslims in the two regions has been documented in the past literature on Matlab areas (Fauveau, 1994).

To investigate the changes in these variables over the period that the family planning program was in operation, we use data from the 1996 MHSS to construct the same variables. Since the 1996 MHSS is a full socio-economic survey, we can examine whether our measures of education and housing quality are indeed a proxy for socioeconomic status.[7] The means of treatment and control areas, as well as the difference between them (again weighted by village populations) is presented in Panel (b) of Table 2. Compared to the estimates in panel (a) we now note a significant difference between treatment and control areas. In particular, the average years of schooling in the treatment area is higher by .6 years . Moreover, by 1996 individuals over the age of 15 in treatment areas were 2.6 percent more likely to have ever attended school and children 6 to 15 were 4.3 percent more likely to have attended school. The reversal of the difference in educational attainment between treatment and control areas has reversed between 1974 and 1996 is noteworthy.

A further analysis of the occupation structure and religious composition of treatment and control villages in 1974 and 1996 is needed to increase our confidence that the half of the 141 villages in the MHSS were indeed randomly assigned to the program treatment. If significant differences in the characteristics of the treated and control villages are discovered in 1974 and replicated in the censuses of 1978 and 1982, and these characteristics are associated with fertility and other family welfare outcomes of interest measured in the 1996 survey, a propensity score

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the estimated effect of a program treatment if these changing characteristics of the villages before and after 1977 were correlated with both their treatment status and subsequent demographic, health, and economic outcomes.

[5] Muslims are more involved in agricultural activities, while Hindus are more likely to be fishermen and skilled and craft occupations.

[6] As before, our weighs are the population of the village.

[7] The correlation coefficient of head's education with the number of rooms in a household is .21, with pucca (bricks or cement) roof and walls is .22, with electricity is .22, with a well to provide drinking water to the vari is .21, and with total household income (excluding the purchase of assets) for the year 1995 is .10, all of which correlations are statistically significant.

matching methodology may be implemented in the future to obtain alternative estimates of the program's effect on fertility and family long-term welfare outcomes (Heckman, Ichimura and Todd, 1997/1998). We have decided to include in the reduced form estimates of fertility and family outcomes interactions between the program treatment effects and the woman's age cohort, with Muslim, and with a three-way interactions between treatment, four age categories of women, and her years of schooling. Therefore, even if the programs implemented in Matlab were not assigned to a strictly random sample of villages, or the responses to the program were heterogeneous across these religious, schooling and age groups, we may capture these compositional variations in responses as they express themselves between the treatment and control villages.

4. A Conceptual Framework for Relating Fertility and Family Coordinated Outcomes

How do families respond to a reduction in the cost of birth control? Fertility declines, although the rate of the decline may differ according to how old the woman is when the program starts in her village, and the number of children she already has at that time. It is also likely that the subsequent avoidance of some "unwanted births" increases the family's resources for other activities. If the other activities are thought of as substitutes for the services children otherwise provide their parents, these other activities are likely to receive a disproportionate share of these augmented family resources and may improve the status of women and children and facilitate development. An economic framework may illustrate this idea.

Assume parents maximizes a separable two-period lifetime utility function, V , that is the sum of the utility from their periods of (1) working adulthood and (2) retirement, in which the arguments in their unified family utility function are consumption in both period, C_1, C_2 , leisure in the first period (L), number of children, N, human capital per child or child quality, Q, and assets inherited in the first period, A. Parents may add savings (or subtract dissavings) and enhance (or diminish) their consumption in the second period, when parents are unable to work. Parents could value A, N, and Q in the second period in part because they expect these commodities to yield them a "return" as an investment, r_a, r_n, r_q, respectively, while N and Q may also be enjoyed by parents as a form of consumption.

$$V = U_1 (C_1, L, N, Q) + (1/(1+\delta)) U_2 (C_2, N, Q) ,$$

where δ is a discount rate for the second period of the life cycle. Parents have a fixed amount of time in the first period, T, to allocate between working H hours for wage w or leisure L. Income in the first period is thus:

$$Y = H w + r_a A = C_1 + sY ,$$

and consumption in the first period is equal to this income minus any savings invested in physical assets, sY, expenditures on children, P_nN, and expenditures on child human capital, P_qQN, where the P's refer to the prices of a child and child human capital, respectively. Consumption in the terminal period, C_2, is then the sum of returns on the three forms of assets parents can accumulate over their working period for their consumption during retirement: physical assets, children, and child human capital:

$$C_2 = r_a (A+ sY) + r_n P_nN + r_q P_qQN.$$

This paper empirically explores the "cross effects" of fertility on the family's demand for child quality, savings, and leisure (or labor supply): Q, sY, and L(or H). Hypotheses have been advanced regarding the sign of the cross derivatives of the effects of prices on various demands, holding income constant (i.e. income-compensated cross-effects denoted by *) : (1) if children and child quality (i.e. human capital) are widely hypothesized substitutes for parents, then $(dV^2/dN\ dQ)^* < 0$, and (2) a parallel hypothesis might be considered that children and physical savings are also substitutes over the life cycle, i.e. $(dV^2/dN\ dsY)^* < 0$, and finally (3) that nonmarket time or leisure of the mother is a complement with the number of children she has, at least this would be expected when children are young, $(dV^2/dN\ dL)^* > 0$. The cross derivatives of an exogenous change in fertility caused by the random treatment to a family planning program on the demand for a commodity is negative if parents view children and the commodity as complements, or positive if children and the commodity are substitutes (Tobin and Houthakker, 1950-51; Rosenzweig and Wolpin, 1980).

Child mortality, although less readily controlled by the family's decisions than fertility, may nonetheless be affected by the family's behavioral responses to its preferences and constraints, although child mortality is in this context typically assumed to be exogenous. The family's formation of child human capital, Q, in the form of nutrition and health care, may influence child mortality as well as respond to the availability of public and private health services, the general disease environment, and the child's genetic susceptibility. When, as in the case of Matlab, the same community program reduces the cost of birth control and then introduces child and maternal health inputs, it becomes difficult to recover from an empirical evaluation of the program's spillover effects that are a consequence of only the birth control subsidy component of the program on family outcomes, or the consequence of only the (child and maternal) health component of the program. The theoretical implications of child survival for fertility are also more complex in a dynamic behavioral model with uncertainty, features which are neglected here (Ben Porath, 1976 ; Sah, 1991 ;Wolpin, 1997).

Reduced-form equations may be estimated for N, Q, s, and H in terms of all the exogenous variables in the model: A, w, the prices of N and Q, and the financial returns to A, N, and Q. Unfortunately, the MHSS does not provide much data on Q, s, H, or returns on assets. In addition, the statistical errors in these reduced-form equations will tend to be intercorrelated because they are determined by heterogeneous preferences of the parent, unobserved family endowments, prices, or technological opportunities, and errors in optimization. A key issue is the specification and measurement of an instrumental variable which impacts fertility and yet is unrelated to the preferences or unobserved endowments and constraints affecting the family's other demands. In other words, can the researcher assume that an instrumental variable will be uncorrelated with the errors in the reduced-form equations for the other family outcomes? Our working hypothesis is that the MATLAB family planning program initiated in 1977 was systematically extended to half of the Matlab villages, and the residents of these villages did not otherwise differ from those in the comparison villages.

In empirical studies of fertility a variety of instrumental variables are employed to identify variation in fertility which can be assumed exogenous to the family lifetime decision making process, and thereby allows a researcher to estimate the "cross effects" or the structural impacts of an exogenous change in fertility on other family outcomes (Schultz, 2005). There is reason to expect that the same instrumental variable, such as a family planning program, could lead to quite different estimates of "cross effects"of a program-induced fertility decline in different circumstances. Our estimates are therefore not presented as a general pattern of response to this type of policy intervention, but as local area estimates of the treatment effect for a poor rural community in South Asia (Imbens and Angrist, 1994).

5. Evaluation of the Effects of Family Planning and Health Programs

Unconditional and Reduced Form Associations : Dependent Variables

Women less than age 55 in 1996 who resided in the villages which received the program treatment reported having fewer children than women residing in the comparison villages, as illustrated by plotting the data by age from the MHSS in Figure 2. However, many other characteristics of women are likely to differ across birth cohorts and regions and possibly interact in their determination of fertility and other family outcomes, as shown in the appendix Table 12. This study begins by estimating a comprehensive reduced-form specification of the linearized equation determining fertility and family outcomes, within which the program effects on fertility and family outcomes may be inferred with greater confidence, and allied hypotheses regarding the determination of fertility and the mechanisms by which the family planning and health program in Matlab affects behavior and outcomes can be explored. At the end of this section, a second stage in our analysis presents instrumental variable estimates of the effect of the program-induced declines in fertility on many of the same family outcomes, where the more restrictive assumption is maintained that the program treatment affects the family outcomes only through its intermediary impact on fertility.

Table 3 panel A describes the fertility and family outcome variables observed in the MHSS that are hypothesized could be affected by the family planning and health program treatment: fertility, women's health status, women's earnings and income and participation in productive groups, household assets, housing quality and sources of water, use of preventive-health-inputs, and intergenerational human capital outcomes reflecting the survival, health and schooling of the woman's children. These dependent variables are as follows:

Measures of fertility: These include (i) the total number of children ever born (*TotalChildren)*, (ii) the total number of children alive (*TotalAlive)*; (iii) the fraction of a woman's children who died before the age of five (*FracDied5);* (iv) the age (in years) at which she had her first birth (*AgeFirstBirth)*; (v) the time (in years) between the birth of the first and second child (*SecondBirthInterval*); and (vi) the time (in years) between the birth of the second and third child the (*ThirdBirthInterval).*

Measures of women's health: (i) a subjective measure of current health (*CurrHealthy*), which is a dummy variable that takes the value of 1 if a woman's self-assessment of her health status as "Healthy" and 0 otherwise; (ii) The woman's weight in kilograms (*Weight); (iii)* The woman's height in centimeters (*Height);* (iv) The woman's body-mass-index in kg/m^2 (*BMI*); (v) an index of the capacity to perform five activities of daily living (ADLs) that is 1 if no functional limitations are reported or is 0 if the maximum number of limitations occurs in the sample *(ADLIndexEq0)*.[8]

Measures of women's income, employment and participation in groups: (i) a woman's reported earnings, in taka, for the year 1995, in her primary occupation (*PrimOccIncome),* (ii) the woman's total income in 1995 (*TotalIncome*) (iii) a dummy variable indicating whether a woman has her own cash savings, (iv) the woman owns productive assets (*OwnProdAssets),* and (iv) three dummy variables that indicate whether a woman participates in a group for the purpose of obtaining a loan (*GroupLoan), or* participates in an employment group, or group savings. Group-membership is mainly considered because of the wide range of NGO group-related employment, credit and savings programs in rural Bangladesh at this time, e.g. BRAC and Grameen. We believe participation in such groups may be correlated with women's participation in income-generating activities and village enterprise and may not be readily combined with caring for young children.

Household assets, housing quality and bari sources of water: Household assets are valued and characteristics noted which may enhance women's productivity: (i) Total household assets in thousands of taka including homesteads (*TotAssets2*), (ii) Agricultural assets in the form of land, ponds, orchards, and agricultural structures and equipment, (iii) nonagricultural business assets, (iv) value of jewelry (v) a dummy variable indicating whether the household obtains drinking water from a tubewell and this well is within the Bari compound (DrWaterWellBari), and (vi) whether the household's main sources of water for cleaning and bathing is also in the Bari (*ClWellinBari*). These assessments of household wealth in the MHSS are more comprehensive and detailed than the questions on consumer durables and housing available from the Demographic Health Surveys (Filmer and Pritchett, 1999).

Use of preventive health inputs: The MCHFP program provides maternal and child health advise and services. In contrast to the utilization of curative health services which are demanded when ill or experiencing health problems, indicators of preventive care emphasized by the program are assessed: (i) the fraction of a woman's pregnancies in which she received a check-up before the birth (*PregCheckUps)*, (ii) the mean number of pre-natal check ups received during each pregnancy (*NumAnteNatalChecks*), (iii) the fraction of pregnancies where a woman received a tetanus inoculation (*ATSInject*), (iv) for the most recent child born in the past 5 years, did this child receive an inoculation against polio (*PolioVac*), Measles (*MeaslesVac*) and DPT (*DPTVac).*

Measures of children's educational attainment and health status: (i) Fraction of a woman's boys and girls aged 9-14 who are currently enrolled in school (*CurrEnroll);* (ii) the average education Z-score for boys and girls aged 9-14 (*BoyEdZScore* and *GirlEdZScore)*, and (iii) the average education Z-score for boys and girls aged 15-30 (*BoyEdZScore2* and *GirlEdZScore2)*. The z-score for the education of the children of a woman is defined as the average across her

[8] *ADLIndex* is an index that measures a woman's ability to perform 5 activities of daily living: (a) walk for one mile; (b) carry a heavy load (like 10 seer of rice) for 20 meters; (c) draw a pail of water from a tube-well; (d) stand up from a sitting position without help; (e) use a ladder to climb to a storage place that is at least 5 feet in height. The responses to these questions were coded either as can perform the task easily (a value of 1), can do it with difficulty (a value of 2) and unable to perform the task (a value of 3). We combined the responses to the five ADL measures listed to create an ADL index for person `i', (Stewart et al., 1990): ADLIndex(i)= (Score(i) – Minimum score)/(Maximum score – Minimum Score); *ADLEq0 is a dependent variable that takes a value 1* if the individual can perform all the ADLs without difficulty and thus have an ADL Index equal to 0. For a justification for this normalization see Stewart, et al. 1990.

children of the difference between the child's observed years of schooling completed and the average educational attainment of other children in the MHSS sample of his/her age, divided by the standard deviation of the years of schooling of the group of individuals his/her age, (iv) the height, weight and BMI for boys and girls age 0 to 9.

Program Treatment Variables and Other Explanatory Variables
As illustrated in Figure 1, women who were less than age 36 in 1977 when the program started, and thus less than age 55 in 1996, report in the MHSS having fewer children if they resided in a program treatment village than women residing in the comparison villages. Following the previous discussion, the response of women to the program treatment may be heterogeneous and therefore the specification of the reduced form for each of the fertility and first generational effects on family outcomes allow for interactions of the program treatment with the mother's age and certain economic and cultural variables that appeared to differ in 1974 between the treatment and comparison areas.

At a minimum, the program's effect on fertility is expected to vary across birth cohorts of women. For those whose lifetime fertility was nearly complete in 1978, over age 40, the program effect on their fertility should be negligible. The program effect reducing fertility may be absolutely larger for younger birth cohorts who were exposed to the program for a larger fraction of their childbearing years. The absolute magnitude of the program effect may then diminish among the youngest women, unless the program alters substantially the timing of early births which will be investigated. The interrelationship between the woman's age in 1996 and the program's treatment effect on her fertility should be estimated flexibly to fit the data and not assumed to take a specific structural form. We therefore allow the program treatment effect to vary freely across 10 five-year age groups of women. The 10 age-dummies and their interaction with a dummy variable indicating that a woman resides in a treatment area are denoted by *Age25to30, Age30to35, Age35to40, Age40to45, Age45to50, Age50to55, Age55to60, Age60to65, Age65Over*, *TrXAgeUnder25, TrXAge25to30, TrXAge30to35, TrXAge35to40, TrXAge40to45, TrXAge45to50, TrXAge50to55, TrXAge55to60, TrXAge60to65, and TrXAge65Over,* respectively, where the omitted category of women is those less than 25 years of age.

Family planning programs may reduce the information and learning costs of adopting a new form of birth control and thereby provide an economic substitute for the innovational advantages which better educated women already enjoy. Both the schooling of women and their residence in program village would thus be associated with their reduced fertility. But if the woman's schooling and access to the family planning program provided substitute skills and capacities to evaluate and adopt useful new forms of birth control, this would explain the empirical regularities noted in some previous studies in Colombia in 1964, Taiwan in the late 1960s, and Thailand in the late 1970s (Schultz, 1980, 1984, 1988, 1992) where the interaction of schooling and family planning program subsidy was associated with higher fertility, implying they are substitutes. However, if the demand for improved birth control in Matlab in 1996 is still highly concentrated among better educated women, or the demand for birth control is price inelastic among the least educated, the more educated may stand to benefit more from the family planning program subsidies than the less educated. In other words, education and the services of this outreach program would then be complements in reducing fertility. To assess how the Matlab outreach program affected the distribution of gains, we specify the reduced-form equation for fertility and other family outcomes to include an interaction variable which is the product of the woman's years of schooling and a dummy if she resides in a program village (TrXYrsSch).[9]

The home visits of the MCHFP field workers reduce the monetary costs (free) and the time costs of obtaining information and supplies to control unwanted births from local government clinics. If the demand for birth control were uniform across women, the monetary cost might represent less of a deterrent to the use of birth control by women with more schooling or those in higher income households. But the time costs might be a stronger deterrent for the better educated whose time is more valuable. Social stigma associated with changing traditional behavior related to family planning and using modern birth control could also impact differentially women in different strata of society. Due to the practice of Purdah in Matlab, women may be restricted in their movements outside of their homestead, and the design of the MCHFP program to visit all women in their homes (i.e. outreach) may have had the consequence of also reducing the social stigma associated with coordinating with other family members to obtain birth control from the local clinic or from private providers. A woman in a village provided with the MCHFP treatment is also informed that other women in her village are also being contacted by the field worker, and this common knowledge may encourage her to discuss the options of family planning with her neighbors and local relatives and develop more quickly a social consensus in support of the adoption of this relatively new form of behavior which is facilitated by the new technological inputs (Cf. Munshi and Myaux, 2002).[10]

If women in treatment villages communicate and share information about contraceptive choices with their neighbors in comparison villages, we would expect that there to be better information about birth control in comparison villages that share a boundary with a treatment area than other comparison villages. In this case, differences in behavioral outcomes between treatment villages and comparison villages on the boundary of the treatment area to the system of home visits by the field workers. We explore this possibility by also interacting the age of a woman with a dummy variable that indicates whether she lives in a comparison-area village that shares a boundary with a treatment area village (BoundXAgeUnd35,BoundXAge30to55, and BoundXAgeOver55). [11]

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[9] In the case where the program complements the fertility reducing effect of women's education, we would expect, other things being equal, for fertility differentials by women's education to increase in successive generations, due to the program. Where program services offset or substitute for women's education, fertility differentials might be expected to diminish across generations due to the program (Schultz, 1984, 1988, 1992). More complex forms of this heterogeneity in response to the program treatment in Matlab may also clarify why the trend downward in fertility was initially pronounced in Bangladesh and then more recently slowed (IPPF, 2005).

[10] Theories of social learning, that recognize that contraceptive behavior is socially regulated provide an additional explanation for the response to program intervention in Matlab (Munchi and Myaux, 2002). Individuals are shown to respond to contraceptive prevalence within their religious group in their village, but not the prevalence within the other religion group or those in other villages, presumably because social interactions which facilitate learning among women rarely occur across these geographically and culturally separated groups. Theories of this form of social learning may be tested more widely with the Matlab data, to account for not only contraceptive behavior but also the adoption of preventive health measures (i.e. immunizations) which improve reproductive and child health outcomes, and are documented at both the household and village levels.

[11] Alternative specifications for this spillover of program provided birth control information are considered, such as the distance between all comparison villages and the nearest treatment village, measured by graphic coordinates estimated from ICDDR,B published maps of the demographic surveillance area. These linear or quadratic spillover variables explained less of the variation in fertility than did the three boundary and age interactions described in the text.

What are the key environmental determinants of fertility which should be controlled in such a reduced form comparison? Schooling of women is often observed to be positively correlated with women's wage rates and with other indicators of their labor productivity. The monthly earnings of married women in the Matlab survey in their primary occupation and their total income are positively related to their schooling (Cf. Table 6 col.1 and 2). This empirical regularity suggests that women with more schooling will face a higher price for having a child, because the opportunity cost of the mother's time for child care is more valuable to the household. This effect on the price of children may dominate her schooling's effect increasing her income, and thereby may explain why better educated women tend to have fewer children, holding other things constant (Mincer, 1963; Schultz, 1981, 2002). A second hypothesis for why better educated women have lower fertility is that they evaluate and adopt new improved forms of birth control more rapidly or at lower cost, which leads them to avoid more unwanted births. We thus include women's years of schooling (*YrsSch)* as a control variable.[12]

Because Muslim fertility is higher than Hindus possibly due to unobserved cultural factors, and the treatment villages include three percent fewer Muslims than the comparison villages, a dummy is included if the woman is Muslim, and it is interacted also with the treatment area dummy to assess whether the program's impact differs between Muslims and Hindus (*TrXMuslim).*[13] If family planning knowledge is less likely to be shared informally between Muslims and Hindus, the minority Hindus (13-15 percent) might benefit more from the program's outreach educational efforts (Munshi and Myaux, 2002).

Controls are also included for the husband's education (*HusYrsSch)* as a measure of household income/wealth, which are not expected to reduce fertility as much as their wife's education (Schultz, 1981). The husband's age is also included in quadratic form (*HusAge and HusAgeSq)* as a auxiliary indicator of household life cycle income/wealth.[14]

Earlier study of the different types of households in Matlab suggest that female headed households are of two principal types: widows (whom we refer to as *unmarried female heads*), and married women whose husband tend to be migrants (whom we refer to as *married female heads*) (Joshi, 2004). The married female heads and their children have many advantages, whereas the

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[12] In our first exploration of the data we expected the years of education of the mother to exert a nonlinear effect on fertility and family outcomes which could differ across birth cohorts. However, additional spline terms in years of schooling and program interaction effects by three age groups of mothers did not confirm that they were statistically important in this sample and are omitted here.

[13] This religion variable captures many features of stratification in the society in addition to religion, which could affect the incentives for fertility. Because Hindus in Matlab are frequently engaged in fishing and nonagricultural occupations, returns to child labor and larger sized families may be different in these Hindu occupations from the agricultural livelihoods of most Muslim farmers. Compare differences between treatment and comparison area means Table 13.

[14] If the husband's education or birth-date is not reported, dummy variables are included to indicate these continuous variables are set to zero (HusEdMissing, HusAgeMissing =1).

widows and their children do not.[15] The variables *UnmarriedFH, MarriedFH and HusAbsentNH* denote unmarried female heads, married female heads, and women whose husbands are absent but they are not heads of their own households, respectively. Each of these small but very different groups of women are likely to differ in their fertility and socioeconomic status and are controlled in this analysis compared with the omitted category of women whose husband is their household head.

Finally, five features of the village which could influence the economic, health, and environmental conditions of families in the village are added to the reduced form specification. In particular, we control for (i) whether the Bangladesh Rural Advancement Committee is present in the village[16] (*BRACInVill),* (ii) whether the village has any paved/pucca road (*AnyPuccaRd),* (iii) the average distance in miles between the village and a sub-center health clinic where contraceptives are provided by regular government programs (*SubHospDist),* (iv) whether there is a secondary school in either the same village or a neighboring village (*SecSchNearby),* and finally (v) whether the village is accessible by motor boat (*VillMotBoat),* and presumably is therefore located along one of the canals or tributaries of the rivers which intersect Matlab.

Estimated Effects of the Program on Fertility

Table 4 column 1 reports estimates of the fertility (children every born) regression as specified in the previous paragraphs for all married women age 15 or older, with the program treatment variables interacted with the age of the woman, religion and schooling, plus other control variables. The program treatment is associated with 1.3 fewer children for women between the ages of 45 to 50, and about 1.0 fewer children between the ages of 30 and 45 and 0.9 fewer children between age 50 and 55. Each year of schooling a woman has completed is associated with a reduction in her fertility of -0.065, but the effect of schooling of the mother does not have a different effect on fertility in the treatment area, and thus no evidence of substitutability between female education and program effectiveness. The coefficient on the years of education of the husband is not significantly different than zero. Muslims have .35 more children than do Hindus, and in the treatment area Hindus have 0.24 fewer children, but this treatment difference by religion is not significant. Women in villages that share boundaries with the program treatment villages report lower fertility, which are statistically significant for women 35 to 55, although the magnitude of the reduction in their fertility is about a quarter of the size associated with residing in a program village. Some spillovers are evident beyond the communities as expected. Alternatively, residing in a village which is closer to a sub-hospital which should provide free access to contraceptive services in the regular government program is not associated with a lower level of fertility.

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[15] These women differ not only in their incomes and assets, but also in their circumstances at the time of marriage: When compared to women residing in male-headed households, widows (married women) are poorer (wealthier), have poorer (wealthier) natal homes, are less (more) likely to have paid dowries to their husband's families and more (less) likely to have lost their father and/or mother before their marriage, finding themselves disadvantaged in the marriage market. These differences extend to children who reside in these households. Children belonging to households headed by married female-heads are more likely to have ever attended school, to be currently enrolled in school, and to have completed two years of primary school. Children belonging to households headed by widows, however, are more likely to work outside the home and appear to have attained less schooling compared to children in more conventional male-headed households (Joshi, 2004).

[16] BRAC has 3.9 million members by the end of 2003 and has expanded it program of activities to include not only providing microcredit, but also (1) coordinating savings among low income households; (2) providing insurance, and (3) helping in distributing and marketing its clients output, such as handicrafts (Aghion and Morduch, 2005. Pp. 2,14).

At the bottom of the regression in column 1 is reported the joint F test for the statistical significance of the 12 variables interacted with treatment, which are significant with a p value of less than .0000. .The subsequent F for education tests the joint significance of the woman's schooling and its interaction with treatment. The F for Muslim tests the joint significance of the two Muslim variables, the F for boundary areas tests the joint significance of the three boundary area variables, and the village F tests the joint significance of the five infrastructure variables measured at the village level. All are significant at least at the 10% level. The sample size is 5208 married women, and the R squared is .57. Although the heterogeneity in fertility response to the program is not confirmed with regard to the mother's schooling or religion, these interaction variables are retained in the remaining reduced form estimates, because they suggest that other family outcomes may not be uniformly affected across these different socioeconomic strata.

The demographic transition involves the decline in both child mortality and fertility, and the program in Matlab was likely to affect both. It is important, therefore, to estimate the determinants of the surviving number of children a woman has in column 2., and explore how this outcome was affected by the program's impact on the fraction of her children who have died before they reach their fifth birthday, as shown in column 3. This measure of child mortality is defined for only 4961 mothers who have had at least one child 60 months before the survey. As expected, the program is significantly associated with lower rates of child mortality among women age 35 to 40 and 45 to 55. The lower level of child mortality among women over age 65 who could not have directly benefitted from the program's provision of contraceptives or child health services is an anamoly which cannot be attributed to the program. The implied reduction in child mortality by age five of 4 to 5 percentage points represents a reduction in the sample average child mortality of about one fourth, a remarkable achievement. Column 4 shows that the program is not jointly or individually associated with the age at which the women have their first birth, but the program appears to begin to increase significantly the spacing of their births between second and third birth, as shown in column 6.[17] Apparently the outreach MCHFP program contributed to women adopting contraception not only to avoid unwanted final births at the end of their reproductive period, but also to space their births further apart during their reproductive period, as had been suggested in previous studies (Koenig et al., 1992; DeGraaf, 1991). In contrast, having a BRAC in the village is associated with fertility being lower by .15 births and having women delay the arrival of their first child by .29 years.

The MCHFP program's effect on the number of surviving children per woman is thus absolutely smaller than the effect on children born, declining between -.95 and -.62 averaged across the birth cohorts of women who were likely to benefit most from the program between the ages of 25 to 50 in 1996. The effect of the woman's schooling on her number of surviving children is also

[17] The burden on parents of providing a dowry for daughters to marry may increase as the young woman grows older and becomes a less desirable match, even if she is thereby able to thereby obtain more schooling. Observers interpret the early age of marriage for women in Bangladesh as a constraint on women's rights and a barrier to female secondary education (IPPF, 2005; Population Reference Bureau, 2005; Field, 2004). Further investigation is required to understand the determinants of the age at marriage and first birth in order to understand why women continue to marry early, even though completed fertility appears to have declined by half in Matlab. Our analysis finds the MCHFP appears not to have delayed ages at first birth in the treatment compared with the control areas.

diminished to 0.04 per year of her schooling. Although husband's schooling is not associated with decreased fertility of his wife, it is associated with decreased child mortality before age five (column 3, by -.002), and thus his schooling is associated with him having a larger number of surviving children in column 2. During the last 25 years the educational attainment of children in Matlab has increased rapidly, and enrollment rates are today similar between boys and girls (Sinha, 2003). But even with women's schooling increasing on average from 1.0 years to 3.1 years for mothers age 50 to 55 and those age 25 to 30, this relatively large gain in women's schooling is associated with only a small overall reduction in fertility (-.14) or surviving fertility (-.09), according to these cross sectional estimates in Table 4 . The fertility and surviving fertility effects of the MCHFP program are roughly ten times larger than those directly associated with women's increased education in this 25 year period.

The provision of the program services after 1977 appears to be associated with a substantial reduction in fertility after the program was introduced, but not before. This empirical regularity can be interpreted as a specification check on our evaluation approach. We find no evidence that the provision of the Maternal Care Program after 1987 is associated with any additional declines in fertility as measured by the child-woman ratios at the village level, or at the level of individual women's fertility in the 1996 MHSS.

Consequences of the Family Planning Program on Women and their Children

Family planning has been subsidized as a social welfare policy and a means to slow population growth and facilitate economic development. This commitment to population programs was reevaluated after some 40 years in the 1994 Cairo International Conference on Population and Development. Our understanding is that this conference concluded family planning was insufficient and improved access to birth control should be only one facet of the package of reproductive health services for women, which would strengthen their reproductive rights, empowerment, lifetime opportunities and welfare. To our knowledge population program evaluation studies have not quantified how helping women control their reproduction and improve their health status would lead to their improved well-being and that of their families.

In the balance of this paper we estimate how women exposed to the Matlab MCHFP program reduced their fertility and also improved their adult health, productivity, individual involvement in economic activities, collective participation in groups beyond the family, and accumulated more economic assets and household services, such as water supplies within the Bari. Did the program increase the use of a variety of preventive health measures, and enhance the health and schooling of the woman's children?[18]

[18] Comparisons of maternal mortality between the MCP treatment and control villages reveal a significant impact of the program on these relatively rare events. Maternal deaths related to obstetric causes declined in the treatment areas from 4.4 to 1.4 per thousand live births between the three-year period before and three years after the MCP program started in 1987, whereas the decline was insignificant from 3.9 to 3.8 in the control area (Fauveau et al., 1991). But the mechanisms underlying this reduction in maternal mortality are complicated, and studies suggest they are heavily affected (6/14 of the deaths reduced in the treatment area) are abortion related (Maine et al., 1996). Safer abortion or greater use of early pregnancy termination procedures may have reduced the need for unsafe abortions in treatment areas which were likely to lead to maternal mortality.

Women's Health, Productivity, Status, and Empowerment

The program-related changes in fertility and health of women are expected to improve their lifetime productivity, as would human capital, by allowing women to control more precisely the allocation of their time between childbearing and other activities over their lifetime. Table 5 reports the reduced-form regressions for the available indicators of the mother's health status. First, it may be noted that the health indicators are related to life cycle aging in the expected manner, declining with age for the subjective health assessment, weight, height, body mass index, and an index measuring absence of functional disabilities in performing activities of daily living (ADLs). A self reported health assessment may not be a reliable indicator of health status, but it tends to be somewhat higher for women age 35 to 40 in the treatment villages and generally positive, but the joint F is not statistically significant. The ADL normalized index is suggests fewer disabilities from age 50 to 55, when ADLs are thought to be more discriminating indicators of health among the elderly. However, the association between the full set of treatment interaction variables and woman's weight is significant at the one percent level ($p < .0043$), and this is primarily due to the significant positive association between ages 30 and 50 when the program's effect is expected. The height of a woman is presumably influenced by early childhood health and nutrition, and thus is unrelated to the program treatment of women at later ages. But the body mass index, a more sensitive indicator of health status affected by current nutrition and health conditions, is significantly associated with exposure to the program in the relevant age groups, especially between age 25 and 60 when it increases as much as one unit in the treatment villages among women age 40 to 45. Unfortunately, we do not know how such improvements in maternal health status are likely to influence a woman's economic productivity or consumption opportunities.

The effect of the treatment program on woman's weight and BMI deserve emphasis. Stunting and wasting are a common occurrence in this population. Women on average weigh 41.4 kg and have an average body-mass-index of 18.7 kg/m^2 (Table 3A). In the comparison area, these estimates are lower (Cf. Appendix Table 12). The reduced form estimates from Table 5, column 2 suggest that the MCHFP program helped women aged 40–45 increase their weight by 2.2 kg and add to their BMI by as much as 1.2 kg/m^2. According to the estimates of Fogel (2004), an increase in BMI in a sample where the average is as low as 17.5 kg/m^2, is associated in the European historical context with a reduction of mortality risks by as much as one fifth.

Table 6 reports the reduced form estimates of the program's association with women's economic productivity and market activities. The woman's primary occupational income is not significantly associated with the joint effects of the program, but for better educated women the treatment is associated with higher earnings and total incomes. For each year of schooling, women living in treatment villages, report a primary occupational income that is 482 taka higher than if they reside in a comparison village.[19] The results in column 3 suggest that women in treatment villages

[19] In results not reported here, we explored further whether this income effect was concentrated in particular age-groups of women. To do this, we further interacted TrXYrsSch with three age dummies: AgeUnder25, Age25to40 and AgeOver40. We found that the effect was the strongest for women over the age of 40. More specifically, for each year of schooling, women over age 40 in treatment villages report a primary occupational income that is 982 taka higher than if they lived in comparison village Women traditionally specialize in certain forms of agricultural production, but the sale of eggs and milk do not appear to be the source of the increased income that better educated women in treatment villages report. Again, in results not reported here we found that women's income from selling eggs is larger, but income from selling milk is not significantly affected

are less likely to own their own cash savings, whereas column 4 suggests that women's savings may be more likely to be channeled into the purchase of productive assets in program villages. Contrary to what we expected, women's participation outside of the family in groups is decreased in all three designated activities for receiving a loan, for working as in coordinated handicrafts self employed businesses, and in investing savings. Bangladesh is known for the active role of microcredit institutions, such as the Grameen Bank, which have used joint liability group lending arrangements to provide poor women with credit to expand their self employed activities. Omitting the control for BRAC Bank activity in the village results in the anticipated partial effect of the family planning program being associated with more frequent group loan, savings and work participation by women. We suspect that BRAC locate their village activities where they are most likely to be productive, and that appears to be relatively poor and less educated communities. We do not have sufficient information to model the rules governing the placement of these auxiliary NGO operations which appear to have facilitated the decline in fertility and involvement of women in the economy outside of their household.

Table 7 reports the reduced-form regressions on whether household's assets. Total household savings is difficult to measure from the 1996 survey, because assets of the household are not comparably valued at two points in time. But of the several assets distinguished in the MHSS survey, only jewelry is less often held by families in the treatment villages, and even then the value of the jewelry is larger. More important are land and orchard assets for agriculture and nonagricultural assets for other forms of business, and all of these are greater in the treatment villages than in the comparison areas, consistent with the hypothesis that children and physical assets are substitutes for parents, and as the program allowed better control of unwanted births, parents with fewer children substituted for these children increased household. As with the earnings and income of women, the household assets are significantly greater for women with more schooling in the treatment villages.

There is also evidence that households in the treatment villages are more likely to report having access within the bari compound to a tubewell for drinking water and a source of water for cleaning and bathing. These household assets should reduce the time required of women to fetch water and benefit family hygiene. The effect is again particularly strong for the age-groups who have received maximum exposure to the MCHFP program. Women aged 45–50 in the treatment area appear to be 22% more likely to draw drinking water from a tube well on the bari, and 27% more likely to have a source of water for cleaning and washing on their bari. The time of women which is not required for childcare and provision of water can be reallocated to other family productive activities, although we have not deciphered how to quantify the activities women are increasingly engaged in due to the village level MCHFP program.

Before considering the consequences of the program on children, it is useful to assess whether the program encourages greater use of standard preventive health inputs emphasized by the program. The use of curative health care is more difficult to interpret, because these demands tend to be conditional on the individual being ill or in poor health, and the program is designed to minimize such illnesses. Maternal and child health initiatives were added to the MCHFP treatment villages after 1982, and some of these inputs could be promoted and often provided by the program field staff (Fauveau, 1994). Table 8 reports the reduced-form estimates for three indicators of the mother's use of such preventive health inputs and three indicators of child vaccinations. The dependent variable in column 1 is the fraction of the woman's pregnancies during which she obtained prenatal care from a health professional, column 2 reports the fraction of pregnancies she received an inoculation against tetanus, a common cause of infant and maternal mortality in the region, and column 3 is the number of prenatal visits she received per birth, averaged across all of her births. The final three columns report whether the last child the woman had in the last five years received three vaccinations for polio, measles, and DPT (diphtheria/pertussis/tetanus). All six forms of preventive health care are jointly significantly related to the MCHFP program treatment variables in the village. For example, women age 30 to 40 report a 75 percent greater probability of having some prenatal care for all of her pregnancies than the average for the survey, i.e. mean= .13 in Table 3A. Mothers age 35-40 in treatment villages are 80 percent more likely to receive a tetanus inoculation than is the average woman in the survey, i.e. .17. In the case of childhood vaccinations, about two thirds of the recent births received these inoculations and 20 to 30 percent more report having these vaccination in the treatment than the comparison areas.[20] The coefficient for TrXYrsSch is generally negative, indicating that less educated women are more likely to increase their use of these preventive health care inputs when they are promoted by the program field staff in their village. In other words, the program's promotion of these maternal and child health inputs are substitutes for health advantages enjoyed by better educated mothers.

The estimated association with village infrastructure variables are also informative. Distance to the ICDDR,B sub-hospital has a negative effect on the use of all three maternal preventive health inputs, suggesting that the time costs for the mother to obtain these health inputs are an important constraint on their use. Perhaps because child immunization campaigns are in later years promoted by the government in all villages, the distance to the clinic is not associated with differential adoption of child vaccinations. Pucca or paved roads in the village are not associated with increased use of these preventive health inputs, and access to water transport by motor boats is associated with even less frequent prenatal care, although more frequent tetanus inoculations for mothers. Fertility is not affected by the nearness of the woman's household to a subhospital or clinic, suggesting the program's effect on fertility was more than simply reducing time costs. If the village had a paved road or village motor boat transportation, fertility appears higher, which would be consistent with these locations having greater wealth and household wealth contributing to higher fertility as well as proxies for health, such as the woman's weight and height.

Investment in Children's Human Capital : Schooling, Nutrition, and Health

It has been widely hypothesized by social scientists that parents who have fewer children commit more of their time and resources to each of their children (e.g. Becker, 1960, 1981; Becker and Lewis 1974; Zajonc, 1976; Blake, 1989). This inverse pattern between what is called the "quantity of children" and the "quality of children" might suggest that a population policy that helps parents avoid unwanted births would also contribute to the parents allocating more resources to the nutrition, health, and schooling of their children. But these potential inter-generational consequences of family planning and reproductive health programs have not been empirically estimated in a manner that avoids omitted variable bias (Schultz, 2005). In other words, parent preferences and unobserved constraints on their household that could affect both fertility and many of these other favorable family-coordinated choices and outcomes in opposite directions. Such omitted variables would then be the cause for any observed inverse relationship between quantity and quality of children, and the

[20] The unconditional means for the treatment and comparison populations are also reported in Appendix Table 12.

relationship would not represent the causal consequence one could anticipate from a family planning program that reduced birth rates. One reason society might decide to subsidize the diffusion and use of birth control is the belief that better timing of births and fewer births will allow women to invest more in themselves and in each of their children, and thereby increase the likelihood that the woman and her children will escape poverty and achieve more in their lifetimes. The MCHFP program in Matlab appears to have induced a decline in fertility which is reasonably assumed to be independent across villages of parent preferences and unobserved constraints on families, allowing us to estimate the cross effects of the program-induced decline in fertility on the welfare of children, as measured by their schooling, or nutrition and health.

The samples of children are analyzed separately for boys and girls, because historically males have received more schooling than females in Bangladesh, and health and nutrition differentials between the boys and girls also exist and may respond to different household conditions and program treatments. Rather than structure the analysis by child, the woman is retained as the observational unit of analysis, the child human capital indicator is averaged across a woman's children.[21] Although our preferred measure of schooling is the Z scores for years of schooling completed, which should normalize years of schooling by age and sex levels and dispersion within the sample, there may still be some systematic variations in outcomes associated with the child's age. Consequently, we include the child's age in years (or average age if the mother has more than one child in the relevant age interval) as an additional control variable in the child regressions, and retain interactions between residence in a treatment village and the mother's schooling and religion, but no longer with the mother's age since the child's age is included. treatment village.

The dependent variable in the reduced forms in column 1 and 3 of Table 9 is the current enrollment rate for the woman's sons and daughters between the ages of 9 and 14, respectively. Columns 2 and 4 of Table 9 contain the reduced form regressions of the average years of schooling completed normalized for the mean and distribution of schooling attainments by age for boys and girls in the survey. The full set of program treatment variables are jointly significant for Z scores for sons but not for daughters. The mother's and father's schooling is associated with their child having a higher Z score.

Among older children age 15 to 30 the Z scores for completed schooling are significantly associated with treatment for both sons and daughters, but the coefficients are again larger for sons than daughters on the normalized Z scores. However, it should be observed that parents report educational attainments among their older children more frequently for boys than for girls, i.e. samples of responses are 2159 vs.1259 . This may suggest some sample selection recall bias may be present in these reports of educational attainment for older children. In the older age group of children Muslims report more years of schooling than do the Hindus for their children, but in the

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[21] Estimates are also obtained weighting the women differentially by the number of children she has in the age group. Other studies have treated the child as the unit of analysis (Sinha, 2005). Relying on the child observations, it may be appropriate to weight the observations "down" for women with more children in the sample in order to not over-represent the child outcomes for high fertility women. Only about a quarter of the women have more than one child of one sex in a schooling or anthropometric sample, and therefore the alternative sampling and weighting methods tend to yield quite similar estimates. However, weighting the analysis to focus on women as the unit of observation maintains a parallel sampling framework as the previously reported estimates based on the women and mothers.

treatment villages this religious differential is eliminated, and among the younger children the Muslim educational advantage is significant for girls and the program treatment largely eliminates this religious differential for girls.[22]

Another result from Table 9 is that sons and daughters of unmarried female household-heads (in most cases, widows) have poorer schooling outcomes compared to children living with both parents. This is true for both the 9–14 and 15–30 age groups, though the coefficients are significant only for sons between the ages of 9–14 and daughters between the ages of 15–30. Sons and daughters of married women who head their own households (in most cases, the wives of migrants), however, have schooling outcomes which are better than children living with both their parents, although not always significantly better. Both of these findings are consistent with previous work which reports that these women who head their own households differ from wives of male household-heads not only in their current socio-economic circumstances, but also in their circumstances prior to marriage (Joshi, 2004).[23]

Table 10 reports parallel regressions for the height, weight, and body mass index (BMI) Z scores for children less than ten years of age. With the substantial decline in child mortality before age five associated with residing in a village provided the program, and the improved receipt of child vaccinations, it was expected that the nutritional status of children would improve according to these standard anthropometric indicators. But the treatment effects are not significant, although mother's education is associated with increased height and weight, but not BMI. The sons of better educated mothers in program treatment villages have somewhat higher BMI.

Heterogeneity in Individual Response to the Program and Program Design

The design of reproductive health programs might be improved if we understood more about the driving forces behind the demographic transition and how different groups responds to a program of family planning, child health preventive care, and maternal and reproductive health services, such as provided under the MCHFP. Competing conceptual frameworks advanced by demographers, economists and others for the fertility transition have not been subjected to widely accepted validating tests. Some economists think that a cause for the decline in fertility is the increasing educational attainment of women, which tends to raise the opportunity cost to couples of having additional children (Schultz, 1981). Reducing the gender gap in education is associated in most countries with more equal employment opportunities outside of the family for women relative to men, contributing thus to the decline in fertility. The educational attainment of young women in

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[22] Foster and Roy (1997) found evidence of the MCHFP effect increasing the schooling of some earlier born children, whereas Sinha (2005) analyzing enrollment rates in the MHSS found no significant program effect, although she considered a different sample, and her instrumental variable estimate for fertility did not allow for heterogeneous program effects by five year birth cohort of women, religion, or women's schooling within age groups.

[23] Widows have poorer (wealthier) natal homes, are less (more) likely to have paid dowries, and are more (less) likely to have lost a parent before marriage. These socioeconomic differences extend to children who reside in these households. Children belonging to households headed by married female-heads are less likely to work outside the home and have stronger educational attainment: they are more likely to have ever attended school, be currently enrolled in school and have completed two years of primary school. Children belonging to households headed by widows, however, are more likely to work outside the home and appear to have attained less schooling compared to children in male-headed households

Bangladesh has increased rapidly from a very low level, and in Matlab area from one to three years of schooling in the last 25 years, approaching the level for men. But according to the fertility reduced form equation estimated in Table 4, this improvement in female schooling of two years is likely to be associated with a .25 decline in average fertility, a small fraction of the national decline which is also evident in Matlab of about three fewer children in this time period (IPPF, 2005). Clearly, other changing conditions need to be explored to understand more fully the demographic transition occurring in this region.

Does the program affect fertility differently in different social and economic groups? The hypothesis that the program's outreach design would provide women with information and services which would act as "substitutes" for the innovative advantages enjoyed by better educated women implied that the coefficient on the schooling*treatment variable in Table 4 would be positive, but it is not significantly different from zero. Nor does the program differentially benefit the minority Hindus more than the majority Muslims, though in this case the sign of the Muslim*treatment coefficient is the expected sign or positive (Cf . But when the program evaluation is extended to an analysis of the woman's earnings, income, or household assets, there are distinctly larger gains in treatment areas for women with more schooling, suggesting a redistribution of resources by the program away from the most poorly educated and most disadvantaged strata of the society. However, the anticipated convergence in behavior of the less educated women toward the behavior of the more educated women is observed in the adoption of preventive care medical services, specifically measured by prenatal care and vaccinations for both the mother and her most recent child (Table 8).

Instrumental Variable Estimates of Program Effects through Fertility

The reduced- form estimates reported in Tables 4 through 10 make no assumptions about the mechanisms through which the program treatment exerts its effects on the welfare of women and theri children. ion methods employed in the previous sections make no assumptions about the actual mechanisms through which the treatment program affects the welfare of women and their children. There are several possible pathways through which the MCHFP program could have led to the improvements in well being that are documented in the previous section: avoiding ill timed and unwanted births, improving maternal health, and improving child health status. We explore one particular pathway of influence by making the restrictive assumption that the MCHFP program's effect on family well being in the treatment areas operates only through the reduction of women's number of children ever born alive. This is an unrealistic assumption because it neglects the other elements of the program which were given increasing emphasis in the later years of the program, say after 1986. However, we have been unable to identify as a separate influence the maternal and child health programs initiatives begun in different communities after 1986, while controlling for the overall exposure to the family planning program begun in 1977.

Therefore, Table 11 reports second stage estimates of fertility's effects on family outcomes. In the first column the ordinary least squares coefficient on the fertility variable as associated with the various family outcomes is shown, excluding from the explanatory variables the first 12 variables which are interacted with the treatment residence in the reduced form equations. The second column in Table 11 presents the instrumental variable (IV) estimate of fertility's effect as an endogenous variable whose effect is identified by the 12 program treatment interaction variables. The joint F test reported at the bottom of the first column of Table 4 confirms that these 12 exclusion restriction variables are jointly significant in explaining fertility. The Sargan over-identification test, reported in the third column often rejects these over identification restrictions, as in the case of women's earnings and household assets. The Durbin-Wu-Hausman specification test reported in the fourth column suggests the exogeneity of fertility can be rejected when the dependent variable is the woman's weight, BMI, or the two measures of bari water sources, and her participation in group work arrangements. Because the 11 over-identification restrictions are not generally accepted, and they are for the most part orthogonal, the exclusion restriction is collapsed into a single village treatment dummy without interactions with age, education, and religion of the mother, and the resulting IV estiamtes and Hausman test statistic is recalculated in the fifth and sixth column of Table 11.

The instrumental variable estimates based on the 12 treatment interaction variables imply that if the program affected child mortality only through its reduction of a woman's fertility, one fewer birth caused by the program treatment is associated with a 0.025 reduction in the proportion of children who died before the age of five. This is a relatively large decline of one fifth from the sample mean (Table 3A). If only the single treatment variable is relied on to identify this estimated effect of fertility, the impact is more than twice as large, or .055. The over-identified IV estimates indicates that one less child is associated with an increase in a woman's weight by 1.5 kg and BMI by 0.63 kg/m^2, both of which are typically associated with an substantial improvement in her health status. These estimated effects of fertility are also larger when the just identified model is estimated in column 5. According to the over-identified model, women's primary occupational income is 1023 taka larger per year, if she reduced her fertility by one birth due to the program, which represents a doubling of this source of income in the sample. In this case the just identified model effect of fertility is less. The mother is 3 percent more likely to be a member of an employment group in the community, according to the over-identified IV estimates. These estimates also indicate that as a result of the treatment program, women are 8 percent more likely to reside in a household that draws drinking water from a well that is located within the bari, and 7 percent more likely to derive its water for cleaning utensils and bathing from a source located within the bari.

The intergenerational effects of the program operating through a fertility decline are statistically significant for the z scores for boys age 9 to 14, but not significant among girls in this age-group or older children at age 15 to 30. The effect of a program induced reduction of one child is associated with boys receiving .34 standard deviations more years of schooling.

Unresolved Issues for Further Investigation

In future work we propose to analyze the effects of migration on the estimates of the program on the treated. First, women may migrate over their reproductive lives and may not have lived since marriage in the village they are observed to reside in at the time of the 1996 survey. Married women may have their origin villages in the demographic surveillance areas (SSA) and they may be distinguished as either having been exposed to the MCHFP program before they were married or not. If they moved into the SSA this should also be inferred from the migration module in the MHSS, and can be included in the program analysis by redefining their program treatment as the years they have been exposed to the program after some threshold age, such as 15.

The second effect of migration is to modify the unobserved characteristics of the resident populations sampled in the 1996 MHSS. The program could affect the probability of migration and thereby cause differential patterns of migration in the treatment and control areas. We will attempt to estimate the rates of in- and out-migration of populations of the treatment and comparison villages. In particular fertility and family outcomes for those migrating and not could alter estimates of the program's impact on the population resident in the area in 1977.

The third effect of migration is the effect of the program on the migration of children, which may be as important as health and education as a form of lifetime human capital investment made by the youth of Matlab. Our current estimates do not find a greater or earlier out-migration of children from the treatment than from the control areas.

6. Conclusions

This paper examines how Matlab district of Bangladesh has evolved 19 years after an intensive family planning program was launched in 1977 which was designed to visit every two weeks women of childbearing age in one half of the district's villages. No evidence was found of significant fertility differences between the treatment and comparison areas in a 1974 Census collected before the program started. Yet by 1978 fertility was significantly lower in the treatment than in the comparison areas, and fertility has remained lower up to 1996, as fertility declined the comparison areas. Other indicators of economic development potential and individual endowments, such as education of adults in 1974, which could possibly influence fertility and family welfare, were also found to be somewhat lower in the treatment than in the control areas, although this pattern had reversed by 1996, possibly due to the program intervention.

The decline in fertility associated with the program in the 141 villages is shown to be related to women's health improvements, their economic productivity outside of their household, and their household assets and bari sources of drinking and washing water. The 1996 MHSS survey suggested that women who benefitted from the program in their village reported greater weight and BMI and perhaps fewer limitations on their physical capacity to engage in activities of daily living. The households of women in the treatment villages had greater total assets, either in agriculture or nonagricultural forms, and these program associated gains in assets are significantly larger for better educated women. The women in treatment villages engage in more group activities, including those which support their own occupational specialization, such as groups for getting a loan, coordinating handicraft production, and saving money(Cf. Table 13), but these partial associations with the family planning program disappeared when controls were included for whether or not a BRAC bank had been established in their village by 1996, and this community control variable accounted for the increased activity of women's groups in the treatment areas. Perhaps because of the difficulty of measuring the full range of women's work, we were less successful in isolating the productive contributions of women which could have followed from the decline in their fertility and improvements in household health and assets. However, the primary occupational income of better educated women's is significantly larger in treatment villages, but productivity gains for women with less education are not observed in the 1996 survey, possibly because only monetized incomes are analyzed here and the less educated mothers reallocated their time to productive activities within the home. Further study of home production and consumption may discover additional spillovers of the program-facilitated fertility reduction.

Finally, the inter-generational consequences of the family planning outreach program in Matlab are weaker than we expected to find, but consistent with the quantity-quality hypothesis, which anticipates that parent will invest more in the human capital of each of their children when they are able to avoid more unwanted births. Women who fortuitously reside in a village where MCHFP field workers visit women in their homes and explain alternative forms of contraception have about one less birth. This is a large reduction in total fertility when total fertility rates in the comparison areas have also declined in recent years to the level of 3.5 children per woman. The years of schooling completed by boys age 9 to 14, expressed as a Z score, is significantly higher in the treatment areas compared with the comparison villages by .56 standard deviation, whereas these program effects for girl's schooling are not statistically significant, and their magnitude is about half as large in terms of higher z scores, .31. Among older children age 15 to 30, the reported son's schooling effects of the program are somewhat smaller in terms of their impact on Z scores than at the younger ages .48 , whereas these program effects for older daughters are .33 standard deviation, and in this case the program effects are statistically significant for both genders.

Child mortality before the age of five is markedly lower among women who reside in the treatment villages in contrast to those in the comparison areas, by about five percentage points. Use of several health inputs emphasized in the MCHFP program are observed to increase in the treatment areas. Prenatal care and in particular tetanus inoculations for mothers are more frequent in the program villages and the women's last child is more likely to be vaccinated against various childhood diseases. But height and weight Z scores of sons and daughters are not significantly greater for women in the treatment villages than in the comparison villages. Our sample sizes of about 1600 children of each sex may not be sufficiently large to document a decisive improvement for child health according to these anthropometric dimensions. Nonetheless, the decline of .05 in child mortality by age five for mothers age 35 to 55 in the treatment villages compared to the overall sample mean of child mortality of .14 in the MHSS, translates into a major improvement in child health.

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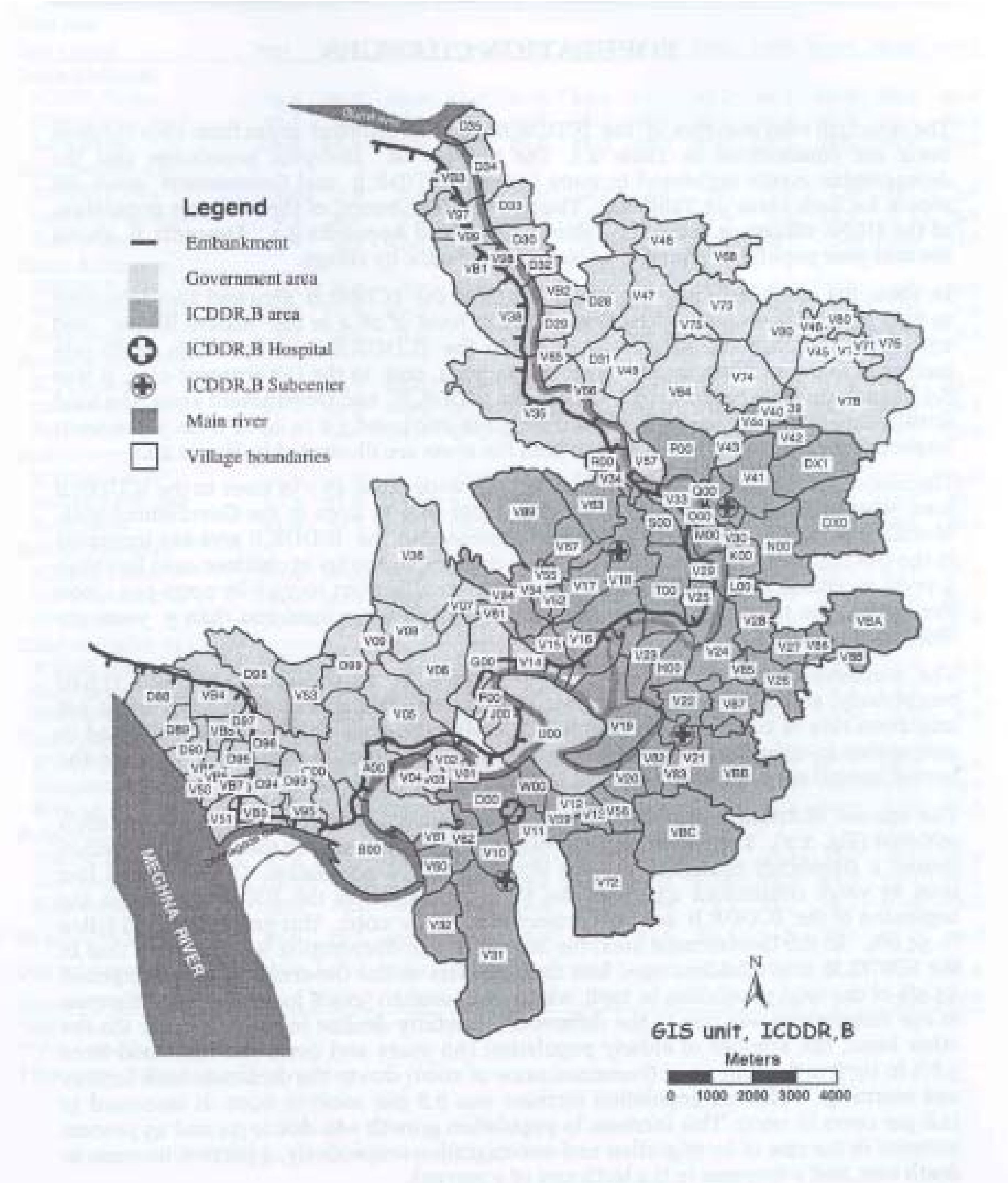

Figure 1: Matlab ICDDR,B Treatment villages and Government comparison villages

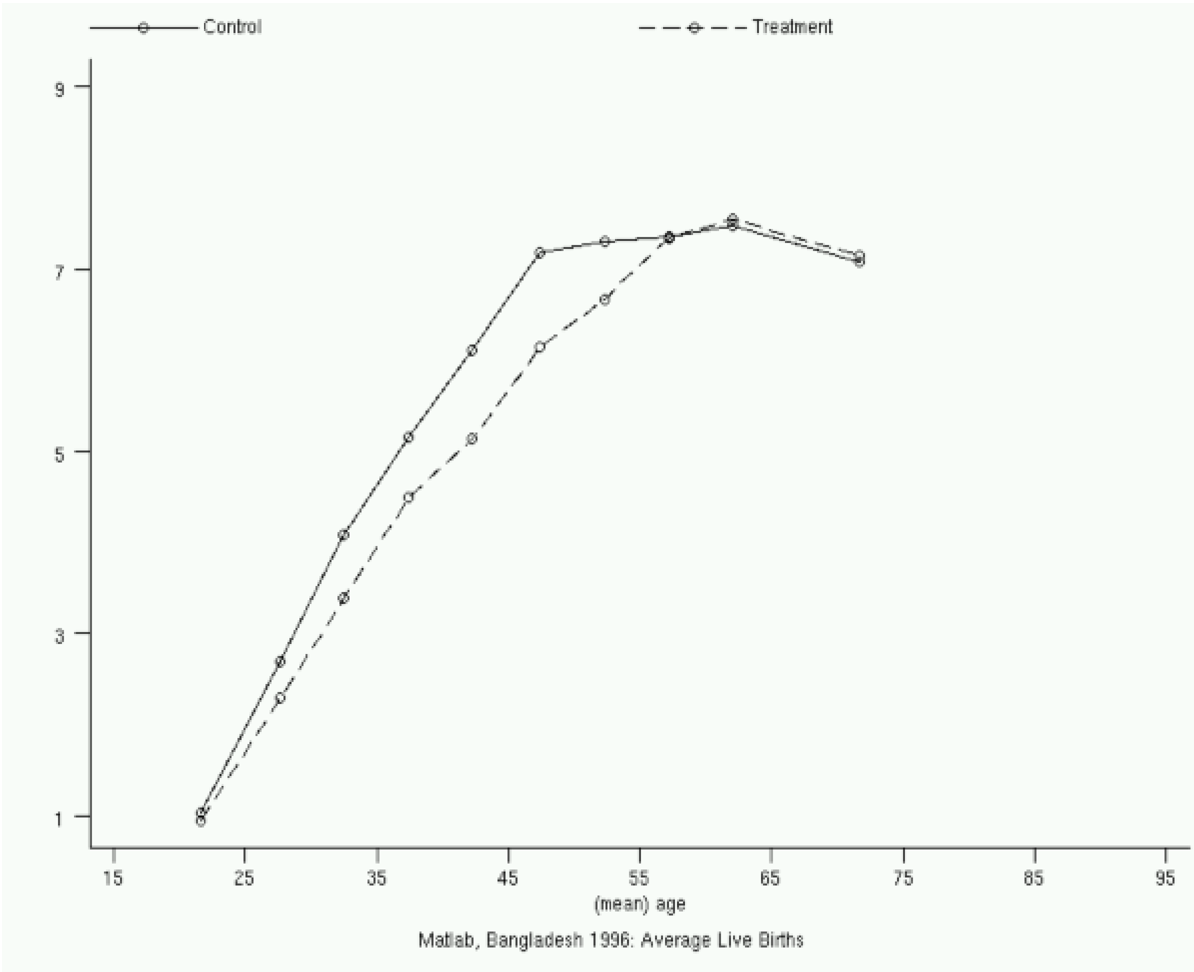

Figure 2: Number of Children Ever Born per Ever Married Woman by Five Year Age Groups in Matlab Health and Socioeconomic Survey 1996, by resident in Treatment and Control Villages

Table 1: Regression results of child-woman ratios in 141 villages on program treatment, both before and after the program.

Dependent and Independent Variables	1978 and 1974	1982 and 1974	1996 and 1974
Children 0-4/Women aged 15-49			
Treatment Villages	0.0215	0.0215	0.0215
	(1.30)	(1.58)	(2.14)*
Treatment after programs	-0.0614	-0.143	-0.127
	(2.62)**	(7.777)**	(4.92)**
Final Year after program	0.154	-0.064	-0.314
	(9.09)**	(4.80)**	(16.90)**
Intercept	0.810	0.810	0.810
	(67.7)**	(82.2)**	(112.0)**
R-squared	0.294	0.541	0.760
Children 5-9/Women aged 15-49			
Treatment Villages	0.0103	0.0103	0.0103
	(0.84)	(0.93)	(0.96)
Treatment after programs	-0.0252	-0.0113	-0.142
	(1.46)	(0.76)	(5.19)**
Final Year after program	-0.136	-0.0125	-0.0004
	(10.9)**	(1.16)	(0.02)
Intercept	0.617	0.617	0.617
	(70.0)**	(77.4)**	(80.4)**
R-squared	0.520	0.025	0.168

Table 1: Regression results of child-woman ratios in 141 villages on program treatment, both before and after the program. Notes: (i) Regression estimates are weighted by the number of women aged 15-49 in each village population in the census or 1996 survey (in STATA8, this is the "aweight" option); (ii) The estimates are obtained from a GLS regression where the village mean child woman ratio is assumed to have a variance that is inversely proportional to the square of the denominator in the child woman ratio. (iii) The sample size for each of the two pooled cross sections is 282 (since there are 141 villages) (iv) Absolute values of the t-statistics are presented in parentheses below the weighted coefficients; ** indicates 1% significance level, * indicates a 5% significance levels.

Table 2: Differences between treatment and control areas in the 1974 and 1982 census.

Variable	Obs	Weighted Mean Treatment=0	Std Error	Obs	Weighted Mean Treatment=1	Std Error	Difference
Panel (a): 1974 DATA							
Average years of schooling	30259	1.737	.018	37217	1.729	0.016	-.008 (0.35)
Individuals older than 15 report no schooling	77047	.546	.002	84472	.599	.002	.052 (21.31)**
Individuals aged 6 to 15 report no schooling	21689	.317	.003	23813	.342	0.003	.025 (5.74)**
Household had a tin roof and wall	76268	.164	.001	83757	.197	.001	.033 (17.01)**
Individual reported religion as muslim	77047	.881	.001	84472	.851	.001	-.030 (17.64)**
Panel (b): 1982 DATA							
Average years of schooling	10590	3.028	.032	10444	3.620	.0366	.592 (11.99)**
Individuals older than 15 report no schooling	10590	.385	.004	10444	.357	.004	-.026 (4.00)**
Individuals aged 6 to 15 report no schooling	3372	.256	.002	2842	.213	.001	-.043 (3.97)**
Household had a tin roof and wall	12847	.466	.004	12360	.465	.004	-.001 (0.19)
Individual reported religion as muslim	12847	.958	.001	12360	.881	.002	-0.077 (22.41)**

Table 2: Differences between treatment and control areas in the 1974 and 1982 census. Notes: (i) Though the 1974 census was carried out over 149 villages, we restrict our attention to the 141 villages that were in the 1996 MHSS. Regression estimates are weighted by the population of each village population in the census or 1996 survey (in STATA8, this is the *aweight* option) (ii) In the 1974 data, the average years of schooling excludes religious education because there was no information on the years of religious schooling; (iii) t-statistics of the differences between treatment and control areas are in parentheses; (iv) *** indicates 1% significance level, ** indicates a 5% significance level and * indicates a 10% significance level.

Table 3A: Summary of dependent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
TotalChildren	Total number of children ever born	5337	4.984	2.903	0	17
TotalAlive	Total number of children alive	5337	3.953	2.224	0	12
FracDied5	Fraction of children under the age of 5 who died	5082	.137	.183	0	1
AgeAtFirstBirth	Age at which a woman had first child	5033	23.101	4.813	11.25	50
SecondInterval	Yrs between first and second child	4556	3.261	2.097	1	19.5
ThirdInterval	Yrs between second and third child	4037	3.191	1.925	.75	28.167
CurrHealthy	Dummy variable indicating whether womans self-reported health status is "Healthy"	5329	.751	.432	0	1
Weight	Woman's weight (in kg)	4660	41.433	6.599	20	70
Height	Woman's height (in cm)	4660	148.864	6.016	109	175

Continued on next page

Table 3A: Summary of dependent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
BMI	Womans body-mass-index (kg/^{2})	4660	18.665	2.565	11.253	27.971
ADLEq0	Womans ADL Index is 0	5331	.624	.484	0	1
PrimOccIncome	Income from womans primary occupation in 1995	5337	1035.01	8267.094	0	300200
TotalIncome	Womans total income in 1995	5337	1187.094	8705.183	0	300200
OwnProdAssets	Woman owns productive assets	5331	.152	.359	0	1
GroupLoan	Woman participates in a loan group	5331	.128	.334	0	1
GroupWork	Woman participates in an employment group	5331	.054	.227	0	1
TotAssets	Total household assets (%1000)	5337	174.8254	326.8708	0	3000
AgAssets	Household agricultural assets (%1000)	5337	161.881	327.4788	0	5500
NonAgAssets	Household non-agricultural assets (%1000)	5337	11.91811	74.33185	0	2500.4
JewelryVal	Household non-agricultural assets (%100)	5337	36.85784	118.5627	0	5000
DrWaterInBari	Households drinks water from a well on the bari	5337	.602	.489	0	1
ClWellWater	Households cleaning water from a well on the bari	5337	.203	.403	0	1
PregCheckUps	Prenatal care in the last pregnancy	5109	.128	.216	0	1.5
NumAnteNatalChecks	Number of ante-natal checks in last pregnancy	5109	.905	1.414	0	9
ATSInject	ATS vaccination in last pregnancy	5109	.168	.267	0	2
PolioVac	Polio vaccination for child born in past 5 yrs	1764	.766	.423	0	1
MeaslesVac	Measles vaccination for child born in 5 yrs	1764	.622	.485	0	1
DPTVac	DPT vaccine for child born in past 5 yrs	1765	.723	.447	0	1
BCurrEnroll	Frac of boys aged 9–14 currently enrolled	1436	.912	.269	0	1
BoyEdZScore	Average education Z-score for boys aged 9–14	1426	-.019	.949	-1.833	3.465
GCurrEnroll	Frac of girls aged 9–14 currently enrolled	1368	.932	.242	0	1
GirlEdZScore	Average education Z-score for girls aged 9–14	1340	-.023	.973	-2.128	7.599
BoyEdZScore2	Average education Z-score for males aged 14–30	2216	-.132	.951	-1.673	2.851
GirlEdZScore2	Average education Z-score for femmales aged 14–30	1700	-.093	1.01	-2.041	2.428

Table 3A: Summary of dependent variables.

Table 3B: Summary of independent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
TrXAgeUnder25	(Woman resides in Treatment area) XAgeUnder25	5337	0.048	0.213	0	1
TrXAge25to30	(Woman resides in Treatment area) X Age25to30	5337	0.062	0.241	0	1
TrXAge30to35	(Woman resides in Treatment area) XAge30to35	5337	0.077	0.267	0	1
TrXAge35to40	(Woman resides in Treatment area) XAge35to40	5337	0.066	0.248	0	1
TrXAge40to45	(Woman resides in Treatment area) XAge40to45	5337	0.051	0.220	0	1
TrXAge45to50	(Woman resides in Treatment area) XAge45to50	5337	0.046	0.208	0	1

Continued on next page

Table 3B: Summary of independent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
TrXAge50to55	(Woman resides in Treatment area) XAge50to55	5337	0.047	0.211	0	1
TrXAge55to60	(Woman resides in Treatment area) XAge55to60	5337	0.037	0.189	0	1
TrXAge60to65	(Woman resides in Treatment area) XAge60to65	5337	0.029	0.167	0	1
TrXAge65Over	(Woman resides in Treatment area) XAge65Over	5337	0.041	0.198	0	1
TreatXYrsSch	(Woman resides in treatment area) X (Years of schooling)	5336	1.109	2.376	0	12
Muslim	Household head is muslim	5337	0.891	0.312	0	1
TrXMuslim	(Woman resides in treatment area) X Muslim	5337	0.420	0.494	0	1
Age25to30	The woman is aged to 25 to 30, i.e. 25≤ Age<30	5337	0.124	0.329	0	1
Age30to35	The woman is aged to 30 to 35, i.e. 30≤ Age<35	5337	0.148	0.355	0	1
Age35to40	The woman is aged to 35 to 40, i.e. 35≤ Age<40	5337	0.128	0.334	0	1
Age40to45	The woman is aged to 40 to 45, i.e. 40≤ Age<45	5337	0.098	0.297	0	1
Age45to50	The woman is aged to 45 to 50, i.e. 45≤ Age<50	5337	0.090	0.286	0	1
Age50to55	The woman is aged to 50 to 55, i.e. 50≤ Age<55	5337	0.094	0.292	0	1
Age55to60	The woman is aged to 55 to 60, i.e. 55≤ Age<60	5337	0.072	0.259	0	1
Age60to65	The woman is aged to 60 to 65, i.e. 55≤ Age<65	5337	0.062	0.242	0	1
Age65Over	The woman's is over 65 (Age≥ 65)	5337	0.084	0.277	0	1
YrsSch	Years of schooling	5336	2.087	2.870	0	12
HusAge	Age of husband	5337	35.745	23.650	0	95
HusAgeSq	Age of husband squared	5337	18.369	16.363	0	90.25
HusYrsSch	Husband's years of education	5337	3.015	3.838	0	17
UnmarriedFH	Woman is unmarried and heads her own household	5337	0.071	0.256	0	1
MarriedFH	Woman is married and heads her own household	5337	0.051	0.220	0	1
HusAbsentNH	Husband absent, woman not household head	5337	0.117	0.321	0	1
HusAgeMissing	Husband's age is missing	5337	0.193	0.395	0	1
HusEdMissing	Husband's years of schooling is missing	5337	0.070	0.255	0	1
BoundXAgeXAgeUnd35	Boundary village X (Age<35)	5337	0.055	0.229	0	1
BoundXAge30to55	Boundary village X (35≤ Age < 55)	5337	0.051	0.220	0	1
BoundXAgeOver55	Boundary village X (Age ≥ 55)	5337	0.032	0.176	0	1
BRACInVil	BRAC is present in the village	5308	0.565	0.496	0	1
AnyPuccaRd	Village has a pucca road	5308	0.184	0.388	0	1
SubHospDist	Distance from the hospital sub-center	5238	3.582	2.339	0.097	10.738
SecSchNearby	Secondary school in village or neighbouring village	5337	0.750	0.433	0	1
VillMotBoat	Village accessible by motor boat	5308	0.327	0.469	0	1

Table 3B: Summary of independent variables.

Table 4: Reduced form results for total fertility, number of children alive, below 5 mortality,

	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder25	-.3685	-.2217	-.0432	.4021	.2201	.7913
	(.2732)	(.2296)	(.0282)	(.6623)	(.4304)	(.6430)
TrXAge25to30	-.5301	-.4225	-.0002	.3225	.2116	.8969
	(.2545)**	(.2139)**	(.0244)	(.5780)	(.3109)	(.3269)***
TrXAge30to35	-.8994	-.6223	-.0359	.2640	.0631	1.0742
	(.2509)***	(.2108)***	(.0241)	(.5685)	(.3003)	(.2961)***
TrXAge35to40	-.8487	-.4666	-.0514	.3692	-.2161	.7113
	(.2550)***	(.2143)**	(.0244)**	(.5776)	(.3031)	(.2944)**
TrXAge40to45	-1.1348	-.8687	-.0264	-.5723	-.0883	.3561
	(.2693)***	(.2263)***	(.0258)	(.6093)	(.3189)	(.3096)
TrXAge45to50	-1.3452	-.7015	-.0577	-.0072	-.1276	.6333
	(.2722)***	(.2288)***	(.0259)**	(.6136)	(.3213)	(.3089)**
TrXAge50to55	-.9279	-.2738	-.0589	.0722	-.1467	.8290
	(.2644)***	(.2222)	(.0252)**	(.5973)	(.3135)	(.3027)***
TrXAge55to60	-.1180	.1623	-.0360	.1486	-.3903	.7810
	(.2855)	(.2399)	(.0271)	(.6429)	(.3347)	(.3228)**
TrXAge60to65	-.2008	-.1953	-.0101	.3766	-.3178	.1374
	(.2986)	(.2510)	(.0285)	(.6774)	(.3524)	(.3374)
TrXAge65Over	-.1187	.2744	-.0564	-.8863	-.2086	.7379
	(.2748)	(.2309)	(.0262)**	(.6218)	(.3267)	(.3136)**
TreatXYrsSch	.0048	.0002	.0003	-.0413	.0143	.0149
	(.0198)	(.0167)	(.0019)	(.0456)	(.0247)	(.0247)
TrXMuslim	.2441	.1316	.0220	-.2495	.2022	-.4367
	(.2008)	(.1688)	(.0195)	(.4601)	(.2458)	(.2426)*
Muslim	.3464	.3412	-.0162	.1558	-.1352	.0128
	(.1754)**	(.1474)**	(.0171)	(.4030)	(.2163)	(.2130)
Age25to30	1.3591	1.2514	-.0285	.7337	.6321	.5611
	(.1623)***	(.1364)***	(.0170)*	(.3992)*	(.2696)**	(.3846)
Age30to35	2.7135	2.3007	.0087	.0441	.5814	.4662
	(.1614)***	(.1356)***	(.0168)	(.3923)	(.2638)**	(.3749)
Age35to40	3.7512	3.0641	.0284	-1.0930	.5916	.5288
	(.1776)***	(.1493)***	(.0182)	(.4262)**	(.2771)**	(.3852)
Age40to45	4.6650	3.8567	.0215	-1.5343	.5638	.7893
	(.1934)***	(.1626)***	(.0196)	(.4604)***	(.2915)*	(.3943)**
Age45to50	5.8938	4.4487	.0596	-2.9013	.4453	.5832
	(.2047)***	(.1721)***	(.0206)***	(.4857)***	(.3012)	(.4007)
Age50to55	6.1550	4.5328	.0580	-3.4409	.4070	.5153
	(.2106)***	(.1770)***	(.0213)***	(.5004)***	(.3090)	(.4072)
Age55to60	6.1970	4.4411	.0602	-3.9940	.6160	.3488
	(.2322)***	(.1951)***	(.0232)***	(.5474)***	(.3291)*	(.4212)
Age60to65	6.6412	4.9260	.0524	-4.0915	.4108	.6028
	(.2392)***	(.2010)***	(.0240)**	(.5655)***	(.3385)	(.4261)

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	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
Age65Over	6.6755	4.5227	.0723	-3.5961	.3478	.5730
	(.2342)***	(.1969)***	(.0236)***	(.5581)***	(.3370)	(.4259)
YrsSch	-.0652	-.0442	-.0034	.1262	-.0117	.0150
	(.0180)***	(.0151)***	(.0017)**	(.0416)***	(.0224)	(.0223)
HusAge	.0428	.0413	-.0006	-.0658	-.0081	-.0022
	(.0070)***	(.0059)***	(.0007)	(.0164)***	(.0096)	(.0100)
HusAgeSq	-.0438	-.0435	.0012	.0273	.0061	-.0035
	(.0084)***	(.0070)***	(.0008)	(.0195)	(.0109)	(.0111)
HusYrsSch	-.0065	.0193	-.0020	-.0014	.0052	-.0031
	(.0106)	(.0089)**	(.0010)**	(.0242)	(.0127)	(.0124)
UnmarriedFH	-.4340	-.5262	.0694	-1.8199	.4994	-.6490
	(.2655)	(.2231)**	(.0270)**	(.6471)***	(.3603)	(.3770)*
MarriedFH	.0803	.2465	-.0150	-1.2283	-.0118	.1807
	(.1525)	(.1282)*	(.0146)	(.3448)***	(.1871)	(.1914)
HusAbsentNH	-1.0610	-1.0344	.0662	-2.1861	.6163	-.6847
	(.2622)***	(.2204)***	(.0271)**	(.6525)***	(.3683)*	(.3814)*
HusAgeMissing	.4759	.5863	-.0354	-.8233	-.7433	.3717
	(.2568)*	(.2158)***	(.0265)	(.6327)	(.3584)**	(.3772)
HusEdMissing	.0122	.1256	-.0165	-.4501	.1327	-.0060
	(.1163)	(.0977)	(.0112)	(.2671)*	(.1437)	(.1452)
BoundXAgeUnd35	-.1912	-.2013	.0164	-.2737	.0234	.0804
	(.1330)	(.1118)*	(.0131)	(.3100)	(.1755)	(.1870)
BoundXAge35to55	-.2712	-.2034	.0029	-.0041	.2407	.1519
	(.1326)**	(.1114)*	(.0124)	(.2943)	(.1496)	(.1407)
BoundXAgeOv55	-.1151	-.3273	.0302	.4580	.1448	-.0453
	(.1685)	(.1416)**	(.0158)*	(.3761)	(.1920)	(.1801)
BRACInVil	-.1465	-.1167	-.0017	.2865	.0509	.0227
	(.0587)**	(.0493)**	(.0056)	(.1328)**	(.0698)	(.0676)
AnyPuccaRd	.1780	.1389	.0009	-.3002	-.0397	-.0131
	(.0778)**	(.0654)**	(.0074)	(.1764)*	(.0924)	(.0900)
SubHospDist	-.0058	-.0066	.0007	-.0387	-.0279	.0113
	(.0202)	(.0170)	(.0019)	(.0460)	(.0242)	(.0234)
SecSchNearby	-.0405	.0178	-.0068	.1289	-.0527	-.0877
	(.0650)	(.0547)	(.0062)	(.1468)	(.0771)	(.0749)
VillMotBoat	.1296	.1079	.0058	.0754	-.0860	-.0770
	(.0626)**	(.0526)**	(.0060)	(.1416)	(.0746)	(.0719)
cons	.4595	.1157	.1378	26.9314	3.1667	2.6620
	(.2844)	(.2390)	(.0285)***	(.6698)***	(.4010)***	(.4864)***
N	5208	5208	4961	4914	4446	3936
R-squared	.5735	.4878	.0752	.2504	.0148	.0282
F	178.2127	126.1912	10.2546	41.7466	1.7010	2.9011
TreatmentF1	6.3405	5.1347	1.6069	1.0572	.8674	2.4769
p-value	2.82e-11	1.30e-08	.0823	.3925	.5802	.0032
EducationF	9.6871	6.7944	2.8386	5.3521	.1896	1.0534
p-value	.00006	.0011	.0586	.0048	.8273	.3489

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	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
MuslimF	18.8629	17.9946	.6357	.1612	.3558	6.3348
p-value	6.88e-09	1.63e-08	.5296	.8512	.7006	.0018
BoundaryF	2.8712	3.0010	.7873	.3920	1.2937	.6375
p-value	.0567	.0498	.4551	.6757	.2744	.5287
VillageF	2.3984	2.2108	.5383	1.8976	.8541	.5837
p-value	.0350	.0505	.7474	.0913	.5112	.7126

Table 4: Reduced form results for total fertility, number of children alive, below 5 mortality, age at first birth and birth intervals. Notes: (i) The dependent variables are as follows: *TotalChildren* measures the total number of live births for each woman; *TotalAlive* measures the number of children that are still alive; *FracDied5* measures the fraction of a womans children below the age of 5 who died; *AgeAtFirstBirth* measures the age at which a woman had her first child; *SecondInterval* measures the years between the birth of the first and second child; *ThirdInterval* measures the years between the birth of the second and third child; (ii) Robust t-statistics in parentheses below regression coefficients; (iii) Robust standard errors used to calculate the t-statisics are clustered at the bari-level; (iv) * significant at 5%; ** significant at 1%; (v) *All Treatment F* tests the joint-significance of the variables *TrXAgeUnder25, TrXAge25to30, TrXAge30to35, TrXAge35to40, TrXAge40to45, TrXAge45to50, TrXAge50to55, TrXAge55to60, TrXAge60to65, TrXAge65Over, TreatXYrsSch* and *TrXMuslim*; (vi) *Education F* tests the jointsignificance of *TrXYrsSch* and *YrsSch*; (vii) *Muslim F* tests the joint-significance of the variables *TrXMuslim* and *Muslim*; *Boundary F* tests the joint-significance of *BoundXAgeUnd35, BoundXAge35to55*, and *BoundXAgeOv55*; (viii) *Village F* tests the joint significance of *BRACInVil, AnyPuccaRd, SubHospDist, SecSchNearby, and VillMotBoat*.

Table 5: Reduced form results for womens health.

	CurrHealthy	Weight	Height	BMI	ADLEq0
	(1)	(2)	(3)	(4)	(5)
TrXAgeUnder25	.0590 (.0586)	.0334 (.9429)	-.9172 (.8962)	.2795 (.3783)	-.0203 (.0554)
TrXAge25to30	.0519 (.0546)	.7997 (.8810)	-1.1290 (.8374)	.6606 (.3534)*	.0490 (.0516)
TrXAge30to35	.0329 (.0538)	1.4306 (.8652)*	-.3111 (.8223)	.7563 (.3471)**	.0306 (.0508)
TrXAge35to40	.0963 (.0547)*	1.5213 (.8855)*	-1.1135 (.8416)	.9561 (.3552)***	.0388 (.0517)
TrXAge40to45	.0329 (.0577)	2.1727 (.9332)**	-.7518 (.8869)	1.1854 (.3743)***	.0557 (.0545)
TrXAge45to50	.0677 (.0584)	1.9921 (.9416)**	-.1134 (.8949)	.9163 (.3777)**	-.0104 (.0551)
TrXAge50to55	.0402 (.0567)	1.4397 (.9124)	-.6415 (.8673)	.8184 (.3660)**	.1336 (.0536)**
TrXAge55to60	.0324 (.0612)	1.2648 (.9862)	-.7530 (.9374)	.7832 (.3956)**	.0748 (.0578)
TrXAge60to65	.0318 (.0641)	1.4393 (1.0436)	.3911 (.9919)	.5677 (.4186)	.0274 (.0605)
TrXAge65Over	-.0212 (.0589)	1.0813 (.9711)	-1.4856 (.9230)	.8829 (.3896)**	.0041 (.0557)
TreatXYrsSch	-.0056 (.0043)	.1883 (.0666)***	.1555 (.0633)**	.0443 (.0267)*	.00005 (.0040)
TrXMuslim	-.0644 (.0431)	-.5008 (.6999)	.6729 (.6653)	-.4031 (.2808)	-.0758 (.0407)*
Muslim	.0234 (.0376)	.4459 (.6163)	1.3184 (.5858)**	-.1295 (.2472)	-.0153 (.0355)
Age25to30	-.0589 (.0349)*	.1319 (.5434)	.4363 (.5165)	-.0503 (.2180)	-.0779 (.0329)**
Age30to35	-.0682 (.0347)**	-.2405 (.5375)	-.4857 (.5109)	.0055 (.2156)	-.0946 (.0328)***
Age35to40	-.1118 (.0382)***	.5082 (.5942)	.7204 (.5647)	.0612 (.2383)	-.1731 (.0360)***
Age40to45	-.1194 (.0416)***	-.3939 (.6489)	-.6439 (.6168)	-.0147 (.2603)	-.2639 (.0392)***
Age45to50	-.1765 (.0440)***	-1.1382 (.6850)*	-1.7478 (.6511)***	-.0803 (.2748)	-.3725 (.0415)***
Age50to55	-.2481 (.0453)***	-2.6648 (.7107)***	-2.1238 (.6755)***	-.6818 (.2851)**	-.6008 (.0427)***
Age55to60	-.2848 (.0499)***	-2.8960 (.7792)***	-2.3648 (.7406)***	-.7514 (.3126)**	-.6589 (.0471)***
Age60to65	-.3454 (.0514)***	-4.0662 (.8173)***	-3.6212 (.7769)***	-.9684 (.3279)***	-.8000 (.0485)***

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	CurrHealthy	Weight	Height	BMI	ADLEq0
	(1)	(2)	(3)	(4)	(5)
Age65Over	-.4138	-4.4504	-3.4768	-1.2338	-.8663
	(.0504)***	(.8020)***	(.7623)***	(.3217)***	(.0476)***
YrsSch	.0043	.1623	.0736	.0518	-.0016
	(.0039)	(.0601)***	(.0571)	(.0241)**	(.0036)
HusAge	-.0014	.0150	.0309	.0006	-.0008
	(.0015)	(.0236)	(.0224)	(.0095)	(.0014)
HusAgeSq	.0012	-.0293	-.0357	-.0062	-.0002
	(.0018)	(.0283)	(.0269)	(.0114)	(.0017)
HusYrsSch	.0033	.2353	.0481	.0949	.0040
	(.0023)	(.0358)***	(.0341)	(.0144)***	(.0022)*
UnmarriedFH	-.0105	.9305	1.9230	-.0648	-.0390
	(.0575)	(.8964)	(.8520)**	(.3596)	(.0543)
MarriedFH	-.0250	.4432	.3606	.1201	-.0253
	(.0327)	(.5052)	(.4802)	(.2027)	(.0309)
HusAbsentNH	-.0467	.5010	1.3022	-.1209	-.0659
	(.0568)	(.8852)	(.8413)	(.3551)	(.0537)
HusAgeMissing	-.0358	-.9431	-.9796	-.1386	.0142
	(.0557)	(.8622)	(.8195)	(.3459)	(.0527)
HusEdMissing	.0254	.1229	-.0043	.0708	.0305
	(.0249)	(.3900)	(.3707)	(.1565)	(.0236)
BoundXAgeUnd35	-.0636	.1675	.4653	-.0232	-.0382
	(.0286)**	(.4418)	(.4199)	(.1772)	(.0270)
BoundXAge35to55	-.1251	-.5996	.1156	-.2822	-.0481
	(.0284)***	(.4515)	(.4291)	(.1811)	(.0269)*
BoundXAgeOv55	-.0029	.4503	-.5594	.3497	.0380
	(.0361)	(.5844)	(.5554)	(.2344)	(.0341)
BRACInVil	-.0206	.2262	-.4456	.2078	-.0207
	(.0126)	(.1972)	(.1874)**	(.0791)***	(.0119)*
AnyPuccaRd	.0087	.7602	.7718	.1474	-.0031
	(.0167)	(.2647)***	(.2516)***	(.1062)	(.0158)
SubHospDist	-.0027	.1271	.1551	.0207	-.0091
	(.0043)	(.0680)*	(.0647)**	(.0273)	(.0041)**
SecSchNearby	.0261	-.0115	.3864	-.1091	-.0019
	(.0139)*	(.2191)	(.2082)*	(.0879)	(.0132)
VillMotBoat	-.0026	.3338	.3201	.0656	-.0574
	(.0134)	(.2116)	(.2011)	(.0849)	(.0127)***
cons	.9318	39.6200	146.8384	18.3438	1.0782
	(.0610)***	(.9861)***	(.9372)***	(.3956)***	(.0576)***
N	5200	4555	4555	4555	5202
R-squared	.1183	.1753	.1013	.1230	.3730
F	17.7498	24.6152	13.0522	16.2349	78.7328
TreatmentF	.9241	2.3993	1.2789	2.2159	1.7497
p-value	.5214	.0043	.2235	.0090	.0508
EducationF	.9294	19.1770	9.0056	9.1342	.1509
p-value	.3949	5.09e-09	.0001	.0001	.8600

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	CurrHealthy	Weight	Height	BMI	ADLEq0
	(1)	(2)	(3)	(4)	(5)
MuslimF	2.0036	.2767	21.0183	7.6203	9.9798
p-value	.1350	.7583	8.21e-10	.0005	.00005
BoundaryF	11.3377	1.0075	.6286	1.2141	2.3888
p-value	1.00e-05	.3652	.5334	.2971	.0918
VillageF	1.2077	3.2442	5.5708	2.2883	5.7051
p-value	.3027	.0063	.00004	.0435	.00003

Table 5: Reduced form results for womens health. The dependent variables are as follows: *CurrHealthy* is a dummy variable that takes value 1 if the woman reports that she is currently healthy; *Weight* measures her weight in kilograms; *Height* measures her height in centimers; *BMI* is a measure of her body-mass index in kilograms per square meter; *ADLEq0* is a dependent variable that takes a value 1 if the individual's *ADLIndex* takes value 0. *ADLIndex* is an index that measures a womans ability to perform 5 activities of daily living: (a) walk for one mile; (b) carry a heavy load (like 10 seer of rice) for 20 meters; (c) draw a pail of water from a tube-well; (d) stand up from a sitting position without help; (e) use a ladder to climb to a storage place that is at least 5 feet in height. The responses to these questions were coded either as can perform the task easily (a value of 1), can do it with difficulty (a value of 2) and unable to perform the task (a value of 3). We combined the responses to the five ADL measures listed to create the following ADL index for person 'i: ADLIndex(i)= (Score(i) - (Minimum score))/(Maximum score - Minimum Score); Notes (ii)—(viii) of Table 4 apply.

Table 6: Reduced form regression results for womens income, household income

	PrimOccIncome	TotalIncome	OwnCashSavings	OwnProdAssets	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TrXAgeUnder25	-1960.2300	-1564.8030	-.1438	.0729	-.0835	-.0652	-.1900
	(1176.4580)*	(1238.9130)	(.0457)***	(.0509)	(.0462)*	(.0319)**	(.0493)***
TrXAge25to30	-2892.1270	-2938.3380	-.0891	.0805	.0025	-.0112	-.0961
	(1095.9470)***	(1154.1280)**	(.0426)**	(.0475)*	(.0431)	(.0298)	(.0459)**
TrXAge30to35	-810.1006	-514.7009	-.0694	.0756	-.0054	-.0187	-.1240
	(1080.2380)	(1137.5850)	(.0420)*	(.0468)	(.0425)	(.0293)	(.0452)***
TrXAge35to40	-490.1973	-267.0740	-.0622	.0527	.0269	-.0110	-.0749
	(1098.1850)	(1156.4850)	(.0426)	(.0475)	(.0432)	(.0298)	(.0460)
TrXAge40to45	1128.4950	1262.4110	-.0746	.1048	-.0363	-.0387	-.1021
	(1159.3850)	(1220.9340)	(.0450)*	(.0502)**	(.0456)	(.0315)	(.0485)**
TrXAge45to50	422.5906	573.5344	-.1361	.0582	-.0118	-.0566	-.1074
	(1171.9750)	(1234.1920)	(.0455)***	(.0507)	(.0461)	(.0318)*	(.0490)**
TrXAge50to55	-773.5425	-547.2290	-.0745	.0326	-.0029	-.0190	-.1210
	(1138.4180)	(1198.8540)	(.0442)*	(.0493)	(.0447)	(.0309)	(.0476)**
TrXAge55to60	-417.6135	-138.8617	-.0792	.0843	-.0241	-.0078	-.0723
	(1229.0940)	(1294.3440)	(.0477)*	(.0532)	(.0483)	(.0334)	(.0514)
TrXAge60to65	-151.1087	98.7723	-.0976	.1208	-.0520	-.0586	-.1591
	(1285.7510)	(1354.0090)	(.0499)*	(.0557)**	(.0506)	(.0349)*	(.0538)***
TrXAge65Over	-424.7540	-85.7566	-.0717	.0611	-.0851	-.0491	-.1782
	(1183.1980)	(1246.0100)	(.0459)	(.0512)	(.0465)*	(.0321)	(.0495)***
TreatXYrsSch	481.9276	473.0382	.0071	-.0092	.0002	-.0024	.0060
	(85.4025)***	(89.9363)***	(.0033)**	(.0037)**	(.0034)	(.0023)	(.0036)*
TrXMuslim	-808.2531	-1233.0320	.0113	-.0273	.0139	.0040	.0819
	(864.7657)	(910.6739)	(.0336)	(.0374)	(.0340)	(.0235)	(.0362)**
Muslim	-263.9432	-78.4564	.0217	.0732	-.0390	-.0135	-.0974
	(755.3916)	(795.4933)	(.0293)	(.0327)**	(.0297)	(.0205)	(.0316)***
Age25to30	1586.9160	2060.0630	.0569	.0435	.0546	.0068	.0617
	(698.9418)**	(736.0468)***	(.0272)**	(.0303)	(.0275)**	(.0190)	(.0293)**
Age30to35	1059.5250	1221.2400	.0773	.0937	.0840	-.0009	.0656
	(694.8071)	(731.6925)*	(.0270)***	(.0301)***	(.0274)***	(.0189)	(.0291)**
Age35to40	836.9904	1434.8310	.0404	.0812	.0591	.0064	.0645
	(764.7674)	(805.3669)*	(.0297)	(.0331)**	(.0301)**	(.0208)	(.0320)**
Age40to45	923.7310	1226.0250	.0185	.0808	.0597	.0049	.0185
	(832.9142)	(877.1314)	(.0324)	(.0361)**	(.0328)*	(.0226)	(.0349)

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	PrimOccIncome	TotalIncome	OwnCashSavings	OwnProdAssets	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age45to50	548.8167	794.4846	.0600	.0533	.0233	.0003	.0164
	(881.5325)	(928.3307)	(.0343)*	(.0382)	(.0347)	(.0240)	(.0369)
Age50to55	726.7640	928.8102	-.0127	.0646	-.0064	-.0453	-.0212
	(906.7075)	(954.8422)	(.0353)	(.0393)	(.0357)	(.0246)*	(.0380)
Age55to60	367.5872	491.5805	-.0028	-.0041	-.0044	-.0388	-.0298
	(999.6619)	(1052.7310)	(.0389)	(.0433)	(.0393)	(.0272)	(.0419)
Age60to65	-7.4808	130.6240	-.0256	-.0004	.0002	-.0152	-.0295
	(1030.0150)	(1084.6960)	(.0401)	(.0447)	(.0405)	(.0280)	(.0432)
Age65Over	-27.3406	102.9079	-.0586	-.0528	.0009	-.0307	-.0239
	(1008.5510)	(1062.0920)	(.0392)	(.0438)	(.0397)	(.0274)	(.0423)
YrsSch	246.6904	283.8176	.0139	.0019	.0017	.0023	-.0013
	(77.4199)***	(81.5299)***	(.0030)***	(.0034)	(.0030)	(.0021)	(.0032)
HusAge	-24.1967	-22.9545	-.0015	.0023	.0038	.0014	.0019
	(30.2208)	(31.8251)	(.0012)	(.0013)*	(.0012)***	(.0008)*	(.0013)
HusAgeSq	20.5149	23.5292	.0017	-.0012	-.0042	-.0013	-.0023
	(36.0833)	(37.9988)	(.0014)	(.0016)	(.0014)***	(.0010)	(.0015)
HusYrsSch	-11.1215	-10.3527	-.0026	.0045	-.0032	-.0011	.0002
	(45.7989)	(48.2302)	(.0018)	(.0020)**	(.0018)*	(.0012)	(.0019)
UnmarriedFH	500.4516	617.0901	.0041	.0945	.0270	.0060	.0328
	(1143.0870)	(1203.7700)	(.0448)	(.0500)*	(.0454)	(.0313)	(.0483)
MarriedFH	223.2180	122.1350	-.0187	.0965	-.0141	-.0028	.0293
	(656.6306)	(691.4894)	(.0255)	(.0284)***	(.0258)	(.0178)	(.0275)
HusAbsentNH	186.5054	282.2911	-.0135	.0706	-.0055	.0050	.0096
	(1129.0570)	(1188.9950)	(.0443)	(.0494)	(.0448)	(.0310)	(.0478)
HusAgeMissing	-394.1610	-343.1736	-.0101	.0117	.0204	.0063	-.0280
	(1105.7920)	(1164.4950)	(.0434)	(.0484)	(.0440)	(.0304)	(.0468)
HusEdMissing	-1081.1040	-812.3911	-.0445	.0409	.0113	.0174	.0276
	(500.5873)**	(527.1622)	(.0194)**	(.0217)*	(.0197)	(.0136)	(.0210)
BoundXAgeUnd35	-1495.8380	-1243.7370	-.0646	-.0111	.0096	-.0117	-.0231
	(572.6150)***	(603.0136)**	(.0222)***	(.0248)	(.0225)	(.0156)	(.0240)
BoundXAge35to55	-1267.8910	-1241.3670	-.0242	.0170	.1072	.0427	.0496
	(570.7963)**	(601.0983)**	(.0222)	(.0247)	(.0224)***	(.0155)***	(.0239)**
BoundXAgeOv55	-731.2621	-820.5894	.0087	.0565	-.0002	-.0152	-.0333
	(725.5196)	(764.0355)	(.0282)	(.0314)*	(.0285)	(.0197)	(.0304)
BRACInVil	245.6812	242.6741	.0299	-.0033	.0728	.0229	.0564
	(252.5969)	(266.0067)	(.0098)***	(.0109)	(.0099)***	(.0069)***	(.0106)***
AnyPuccaRd	525.0855	573.1616	.0420	-.0161	.0243	.0039	.0159

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	PrimOccIncome	TotalIncome	OwnCashSavings	OwnProdAssets	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(335.0970)	(352.8865)	(.0130)***	(.0145)	(.0132)*	(.0091)	(.0140)
SubHospDist	-184.2924	-214.6583	-.0216	-.0031	-.0129	-.0134	-.0202
	(87.1724)**	(91.8001)**	(.0034)***	(.0038)	(.0034)***	(.0024)***	(.0036)***
SecSchNearby	136.1932	174.3505	-.0028	-.0255	.0260	.0291	.0074
	(280.0179)	(294.8832)	(.0109)	(.0121)**	(.0110)**	(.0076)***	(.0117)
VillMotBoat	603.8306	685.5574	.0440	.0228	-.0048	.0191	.0073
	(269.3841)**	(283.6850)**	(.0105)***	(.0117)*	(.0106)	(.0073)***	(.0113)
cons	1163.8290	784.8584	.1670	-.0507	.0535	.0662	.2352
	(1224.4350)	(1289.4370)	(.0475)***	(.0530)	(.0481)	(.0332)**	(.0513)***
N	5208	5208	5202	5202	5202	5202	5202
R-squared	.0493	.0491	.0608	.0305	.0788	.0416	.0683
F	6.8757	6.8441	8.5673	4.1698	11.3149	5.7437	9.7068
TreatmentF	4.1293	3.9031	2.3948	1.2363	1.3155	1.7271	2.2311
p-value	2.00e-06	5.00e-06	.0044	.2509	.2016	.0549	.0084
EducationF	51.0837	49.6372	30.5225	3.7734	.2782	.7225	1.7275
p-value	1.07e-22	4.44e-22	6.64e-14	.0230	.7572	.4856	.1778
MuslimF	3.0909	4.1080	2.1548	5.3816	1.9090	.5357	5.0690
p-value	.0455	.0165	.1160	.0046	.1483	.5853	.0063
BoundaryF	5.3727	3.8873	4.5451	.3678	11.4223	4.3218	2.8428
p-value	.0047	.0206	.0107	.6923	1.00e-05	.0133	.0584
VillageF	2.9383	3.3453	18.0833	2.9639	24.1718	16.7310	17.2654
p-value	.0118	.0051	7.92e-18	.0112	4.00e-24	1.97e-16	5.53e-17

Table 6: Reduced form regression results for womens utilization average use of pre-natal care, ante-natal care, tetnus innoculations for all past births (maximum 9 past births), and polio, measles and DPT inoculations for a child born in the last 5 years. Notes: (i) The dependent variables are as follows: *PregCheckUp* measures the fraction of the womans births (maximum of 9), where the woman had a pre-natal check up; *ATSInject* measures the fraction of the womans births (maximum of 9), where the woman was vaccinated against tetanus; *NumAnteNatalChecks* measures the average of the number of ante-natal checks for each child born (maximum of 9); *PolioVac*, *MeaslesVac* and *DPTVac* are dummies that take a value of 1 if the last child born in the past 5 years was inoculated against Polio, Measles and tuberculosis respectively; Notes (ii)—(viii) of Table 4 apply.

Table 7: Reduced form regression results for household ownership of assets, housing quality and sources of drinking water.

	TotAssets2	AgAssets	NonAgAssets	JewelryVal	DrWellWaterBari	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder25	-12.3890	-27.8570	4.0135	5.9047	.1476	.2598
	(44.1215)	(44.8203)	(10.5972)	(16.5818)	(.0680)**	(.0695)***
TrXAge25to30	34.8780	30.0876	-1.9249	-1.6922	.1306	.2663
	(41.1020)	(41.7530)	(9.8719)	(15.4470)	(.0634)**	(.0647)***
TrXAge30to35	30.1646	29.6192	-2.6069	5.0851	.1719	.2573
	(40.5129)	(41.1545)	(9.7304)	(15.2256)	(.0625)***	(.0638)***
TrXAge35to40	34.3412	34.4052	-7.5520	12.6134	.2240	.2709
	(41.1860)	(41.8383)	(9.8921)	(15.4785)	(.0635)***	(.0649)***
TrXAge40to45	18.4014	7.2527	1.8364	12.5259	.1624	.3014
	(43.4812)	(44.1698)	(10.4434)	(16.3411)	(.0670)**	(.0685)***
TrXAge45to50	-12.6028	-24.3297	-.6559	-16.4320	.2209	.2714
	(43.9534)	(44.6495)	(10.5568)	(16.5186)	(.0678)***	(.0692)***
TrXAge50to55	78.4029	74.3176	-1.7511	12.7953	.1625	.2924
	(42.6949)*	(43.3711)*	(10.2545)	(16.0456)	(.0658)**	(.0672)***
TrXAge55to60	78.3814	67.0793	-3.4316	6.0971	.1358	.2860
	(46.0956)*	(46.8256)	(11.0713)	(17.3237)	(.0711)*	(.0726)***
TrXAge60to65	113.5785	104.6017	10.8606	34.4916	.1512	.1988
	(48.2204)**	(48.9841)**	(11.5816)	(18.1222)*	(.0743)**	(.0760)***
TrXAge65Over	79.9893	65.0490	1.9013	7.7177	.1487	.3554
	(44.3743)*	(45.0770)	(10.6579)	(16.6768)	(.0684)**	(.0699)***
TreatXYrsSch	21.2099	19.9064	3.1696	1.9335	-.0111	-.0018
	(3.2029)***	(3.2536)***	(.7693)***	(1.2037)	(.0049)**	(.0050)
TrXMuslim	-39.1215	-30.2427	-6.5431	-9.9026	-.0879	-.1819
	(32.4319)	(32.9455)	(7.7895)	(12.1886)	(.0500)*	(.0511)***
Muslim	60.6156	63.0986	.0966	-6.1393	.1457	.1536
	(28.3300)**	(28.7786)**	(6.8043)	(10.6470)	(.0437)***	(.0446)***
Age25to30	14.1450	5.1809	10.1251	5.5936	.0284	.0235
	(26.2129)	(26.6280)	(6.2958)	(9.8513)	(.0404)	(.0413)
Age30to35	19.1479	12.0530	9.6726	3.2919	.0111	.0320
	(26.0578)	(26.4705)	(6.2586)	(9.7931)	(.0402)	(.0410)
Age35to40	37.0458	24.5760	14.7931	1.2108	-.0177	.0343
	(28.6816)	(29.1358)	(6.8888)**	(10.7791)	(.0442)	(.0452)
Age40to45	47.9879	37.3612	14.1801	8.9244	.0210	.0313

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	TotAssets2	AgAssets	NonAgAssets	JewelryVal	DrWellWaterBari	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)
	(31.2374)	(31.7321)	(7.5026)*	(11.7396)	(.0482)	(.0492)
Age45to50	108.7315	101.5685	16.1974	34.2737	.0368	.1000
	(33.0607)***	(33.5843)***	(7.9406)**	(12.4249)***	(.0510)	(.0521)*
Age50to55	68.5119	52.2313	21.2554	26.0030	.0408	.0617
	(34.0049)**	(34.5434)	(8.1673)***	(12.7797)**	(.0524)	(.0536)
Age55to60	68.3552	59.1242	28.1152	46.8844	.0831	.0691
	(37.4910)*	(38.0848)	(9.0046)***	(14.0899)***	(.0578)	(.0591)
Age60to65	83.4594	71.2973	17.1779	48.7524	.1359	.1633
	(38.6294)**	(39.2412)*	(9.2781)*	(14.5177)***	(.0596)**	(.0609)***
Age65Over	103.1306	99.0241	17.1832	45.9201	.1446	.1133
	(37.8244)***	(38.4234)***	(9.0847)*	(14.2152)***	(.0583)**	(.0596)*
YrsSch	10.2466	8.2417	1.4793	5.8232	.0338	.0255
	(2.9035)***	(2.9495)***	(.6974)**	(1.0912)***	(.0045)***	(.0046)***
HusAge	-3.0326	-2.9715	-.1854	-.2155	.0003	-.00006
	(1.1334)***	(1.1513)***	(.2722)	(.4260)	(.0017)	(.0018)
HusAgeSq	4.3150	4.2784	-.0356	-.2218	.0010	.0014
	(1.3533)***	(1.3747)***	(.3250)	(.5086)	(.0021)	(.0021)
HusYrsSch	13.3017	12.1149	.8258	3.7920	.0136	.0128
	(1.7176)***	(1.7448)***	(.4125)**	(.6455)***	(.0026)***	(.0027)***
UnmarriedFH	-84.7343	-86.7052	-6.9284	-1.2177	-.0865	-.0627
	(42.8700)**	(43.5489)**	(10.2966)	(16.1114)	(.0661)	(.0675)
MarriedFH	-45.1627	-44.9367	-6.5126	4.6531	.0530	.0630
	(24.6261)*	(25.0161)*	(5.9147)	(9.2550)	(.0380)	(.0389)
HusAbsentNH	-53.7652	-60.8995	.6578	-15.5393	-.0341	-.0535
	(42.3438)	(43.0144)	(10.1702)	(15.9137)	(.0653)	(.0667)
HusAgeMissing	36.4388	33.2728	-3.9669	-1.1147	.1008	.1048
	(41.4713)	(42.1281)	(9.9606)	(15.5858)	(.0639)	(.0653)
HusEdMissing	-24.8227	-22.0536	-1.4955	-4.5738	-.0138	-.0417
	(18.7739)	(19.0712)	(4.5091)	(7.0556)	(.0289)	(.0296)
BoundXAgeUnd35	28.3926	27.1518	-2.3865	3.9563	.0233	.0479
	(21.4752)	(21.8153)	(5.1579)	(8.0708)	(.0331)	(.0338)
BoundXAge35to55	18.1852	30.6826	-7.0675	3.6834	.0453	.0351
	(21.4070)	(21.7460)	(5.1416)	(8.0452)	(.0330)	(.0337)
BoundXAgeOv55	72.6267	77.5794	-3.8410	-4.0483	.0418	.0084
	(27.2097)***	(27.6406)***	(6.5353)	(10.2260)	(.0420)	(.0429)
BRACInVil	-16.4457	-19.3437	3.7289	.5378	-.0560	.0639
	(9.4733)*	(9.6234)**	(2.2753)	(3.5603)	(.0146)***	(.0149)***

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	TotAssets2	AgAssets	NonAgAssets	JewelryVal	DrWellWaterBari	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)
AnyPuccaRd	36.3687	33.5842	2.4508	10.4790	-.0187	-.0009
	(12.5674)***	(12.7664)***	(3.0184)	(4.7231)**	(.0194)	(.0198)
SubHospDist	-5.4445	-5.1824	-1.0454	-.7953	-.0038	.0068
	(3.2693)*	(3.3211)	(.7852)	(1.2287)	(.0050)	(.0051)
SecSchNearby	-.3308	-6.3937	5.6305	-9.0434	.0762	.0442
	(10.5017)	(10.6680)	(2.5223)**	(3.9468)**	(.0162)***	(.0165)***
VillMotBoat	38.2102	32.6669	6.9077	9.3198	-.0204	-.0260
	(10.1029)***	(10.2629)***	(2.4265)***	(3.7969)**	(.0156)	(.0159)
cons	27.0926	36.4873	-3.7572	17.4987	.2291	.0149
	(45.9208)	(46.6481)	(11.0293)	(17.2580)	(.0708)***	(.0723)
N	5208	5208	5208	5208	5208	5207
R-squared	.1343	.1127	.0353	.0776	.0776	.0705
F	20.5649	16.8303	4.8492	11.1518	11.1488	10.0439
TreatmentF	5.0853	4.5572	1.9695	1.1438	1.8270	3.0767
p-value	1.66e-08	2.27e-07	.0230	.3189	.0387	.0002
EducationF	67.7686	52.8090	25.6794	33.1652	32.9555	23.0399
p-value	8.87e-30	1.98e-23	7.99e-12	4.88e-15	6.00e-15	1.09e-10
MuslimF	3.1098	4.2974	1.3572	3.5708	8.0702	6.6000
p-value	.0447	.0137	.2575	.0282	.0003	.0014
BoundaryF	1.1377	1.6166	1.0000	.2053	1.1055	1.4163
p-value	.3206	.1987	.3679	.8144	.3311	.2427
VillageF	4.2687	3.4172	4.5480	2.4308	6.8118	7.3771
p-value	.0007	.0044	.0004	.0329	2.00e-06	6.68e-07

Table 7: Reduced form regression results for household ownership of assets, housing quality and sources of drinking water. Notes: (i) The dependent variables are as follows: *OwnFarmland*, *OwnJewelry* and *OwnPond* measure whether the household in which a woman resides owns farmland, jewelry or a pond or orchard respectively; *TinRoofWall* is dummy variables that take a value 1 if the roof and wall of the main room of the house in which a woman resides are constructed of tin respectively, and 0 otherwise; *DrWellWaterBari* is a dummy variables that takes value 1 if the household in which a woman resides drink well water and the well is on the bari, and 0 otherwise; ClWaterInBari is a dummy variables that take value 1 if the source of water for cleaning is on the bari, and 0 otherwise; Notes (ii)—(viii) of Table 4 apply.

Table 8: Reduced form regression results for health input behavior for women's use of prenatal care and tetanus inoculations for all past births, and last child's vaccination for polio, measles and DPT

	PregCheckUps	NumAnteNatChecks	ATSInject	PolioVac	MeaslesVac	DPTVac
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder30	.0698	.0017	.7019	.2598	.3070	.3517
	(.0221)***	(.0294)	(.1517)***	(.0752)***	(.0878)***	(.0799)***
TrXAge30to35	.1088	.0646	.7507	.2602	.3296	.3391
	(.0230)***	(.0307)**	(.1580)***	(.0793)***	(.0925)***	(.0841)***
TrXAge35to40	.0865	.1344	.7971	.2434	.2468	.3190
	(.0234)***	(.0311)***	(.1602)***	(.0877)***	(.1025)**	(.0931)***
TrXAge40to45	.0259	.0422	.3241	.2460	.2843	.3188
	(.0247)	(.0328)	(.1691)*	(.1063)**	(.1241)**	(.1128)***
TrXAge45to50	-.0314	.0242	.0414	.2817	.3790	.3237
	(.0248)	(.0330)	(.1701)	(.1633)*	(.1906)**	(.1734)*
TrXAge50to55	-.0213	-.0051	.1300	-.7434	.5152	.3075
	(.0241)	(.0321)	(.1654)	(.3973)*	(.4639)	(.4218)
TrXAge55to60	-.0473	-.0318	-.0901			
	(.0260)*	(.0346)	(.1782)			
TrXAge60to65	-.0593	-.0586	-.2105			
	(.0273)**	(.0363)	(.1871)			
TrXAge65Over	-.0584	-.0541	-.1524			
	(.0251)**	(.0334)	(.1719)			
TreatXYrsSch	-.0063	-.0094	.0150	-.0221	-.0236	-.0276
	(.0018)***	(.0024)***	(.0126)	(.0062)***	(.0073)***	(.0066)***
TrXMuslim	.0395	.0281	-.0206	.1368	.0484	.0603
	(.0186)**	(.0247)	(.1276)	(.0695)**	(.0812)	(.0738)
Muslim	-.0459	-.0195	.0029	-.1067	-.0035	-.0271
	(.0163)***	(.0217)	(.1120)	(.0591)*	(.0690)	(.0627)
Age25to30	-.0701	-.0153	-.1958	.0080	.0636	.0024
	(.0113)***	(.0151)	(.0776)**	(.0279)	(.0326)*	(.0296)
Age30to35	-.1437	-.0604	-.3999	.0085	.0523	.0097
	(.0142)***	(.0189)***	(.0973)***	(.0376)	(.0439)	(.0399)
Age35to40	-.2113	-.1654	-.6819	.0122	.1439	.0182
	(.0157)***	(.0208)***	(.1074)***	(.0497)	(.0580)**	(.0528)
Age40to45	-.2428	-.1858	-.8317	-.0211	.0674	-.0279
	(.0171)***	(.0228)***	(.1175)***	(.0644)	(.0752)	(.0684)
Age45to50	-.2382	-.2249	-.9749	-.0123	.1318	-.1490

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	PregCheckUps	NumAnteNatChecks	ATSInject	PolioVac	MeaslesVac	DPTVac
	(1)	(2)	(3)	(4)	(5)	(6)
	(.0182)***	(.0242)***	(.1247)***	(.1042)	(.1217)	(.1106)
Age50to55	-.2400	-.2438	-1.1280			
	(.0189)***	(.0251)***	(.1294)***			
Age55to60	-.2283	-.2331	-1.0987			
	(.0209)***	(.0278)***	(.1435)***			
Age60to65	-.2245	-.2236	-1.0098			
	(.0217)***	(.0289)***	(.1488)***			
Age65Over	-.2181	-.2165	-.9783			
	(.0213)***	(.0283)***	(.1461)***			
YrsSch	.0074	.0059	.0365	.0109	.0139	.0169
	(.0017)***	(.0022)***	(.0114)***	(.0054)**	(.0063)**	(.0058)***
HusAge	-.0010	-.0001	.0006	-.0010	.0002	-.0017
	(.0007)	(.0009)	(.0046)	(.0027)	(.0031)	(.0028)
HusAgeSq	-.0008	-.0021	-.0095	.0043	.0032	.0075
	(.0008)	(.0010)**	(.0054)*	(.0047)	(.0055)	(.0050)
HusYrsSch	-.0004	-.0009	.0059	.0102	.0095	.0079
	(.0010)	(.0013)	(.0067)	(.0035)***	(.0041)**	(.0038)**
UnmarriedFH	-.0843	-.1014	-.2932	.0542	.0692	.1313
	(.0256)***	(.0341)***	(.1757)*	(.1239)	(.1446)	(.1315)
MarriedFH	-.0570	-.0359	-.0263	.0561	.0869	.0905
	(.0140)***	(.0186)*	(.0957)	(.0441)	(.0515)*	(.0469)*
HusAbsentNH	-.0913	-.1076	-.3511	-.0516	-.0309	-.0546
	(.0258)***	(.0343)***	(.1766)**	(.1315)	(.1536)	(.1397)
HusAgeMissing	-.0210	-.0219	-.1589	.0575	.0636	.0377
	(.0251)	(.0334)	(.1722)	(.0864)	(.1009)	(.0917)
HusEdMissing	-.0204	.0063	-.0182	.0123	.0010	-.0052
	(.0108)*	(.0143)	(.0737)	(.0353)	(.0412)	(.0375)
BoundXAgeUnd35	-.0106	-.0339	-.2077	-.1298	-.1076	-.1354
	(.0125)	(.0166)**	(.0858)**	(.0340)***	(.0397)***	(.0361)***
BoundXAge35to55	-.0022	-.0320	-.1156	-.1098	-.2297	-.1246
	(.0119)	(.0158)**	(.0816)	(.0604)*	(.0705)***	(.0642)*
BoundXAgeOv55	-.0039	-.0122	-.0498			
	(.0152)	(.0202)	(.1041)			
BRACInVil	-.0033	-.0113	-.0340	-.0370	-.0105	-.0324
	(.0053)	(.0071)	(.0366)	(.0208)*	(.0242)	(.0220)
AnyPuccaRd	.0051	.0040	.0438	.0246	.0218	.0261
	(.0071)	(.0094)	(.0487)	(.0273)	(.0319)	(.0290)

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	PregCheckUps	NumAnteNatChecks	ATSInject	PolioVac	MeaslesVac	DPTVac
	(1)	(2)	(3)	(4)	(5)	(6)
SubHospDist	-.0057	-.0095	-.0401	.0047	-.0131	.0017
	(.0019)***	(.0025)***	(.0127)***	(.0073)	(.0085)	(.0077)
SecSchNearby	-.0117	-.0028	-.0414	.0018	.0126	-.0065
	(.0059)**	(.0079)	(.0405)	(.0226)	(.0264)	(.0240)
VillMotBoat	-.0164	-.0132	.1018	.0354	.0392	.0238
	(.0057)***	(.0076)*	(.0391)***	(.0220)	(.0257)	(.0234)
cons	.4201	.4281	1.7256	.6187	.3522	.4991
	(.0262)***	(.0349)***	(.1800)***	(.0902)***	(.1053)***	(.0957)***
N	4988	4988	4988	1725	1725	1726
F	.3925	52.9051	63.3376	12.7374	10.7399	12.2315
R-squared	84.1425					
TreatmentF	16.7321	8.2406	15.9078	14.0682	8.0220	12.1216
p-value	6.76e-33	1.74e-14	4.32e-31	5.67e-20	1.14e-10	5.75e-17
EducationF	10.3365	7.5486	13.1531	6.3349	5.3397	8.9144
p-value	.00003	.0005	2.00e-06	.0018	.0049	.0001
MuslimF	4.1556	.6638	.0403	1.9777	.5138	.4400
p-value	.0157	.5149	.9605	.1387	.5983	.6441
BoundaryF	.2533	2.5473	2.4460	8.1694	7.9734	8.1073
p-value	.8590	.0541	.0620	.0003	.0004	.0003
VillageF	5.0068	3.9547	3.5169	1.3613	1.0178	.7204
p-value	.0001	.0014	.0036	.2360	.4055	.6081

Table 8: Reduced form regression results for health input behavior for women's use of prenatal care and tetanus inoculations for all past births (maximum 9 past births), and polio, measles and DPT inoculations for the last child born in the last 5 years. Notes: (i) The dependent variables are as follows: *PregCheckUp* measures the fraction of the womans births (maximum of 9), where the woman had a pre-natal check up; *ATSInject* measures the fraction of the womans births (maximum of 9), where the woman was vaccinated against tetnus; *NumAnteNatalChecks* measures the average of the number of ante-natal checks for each child born (maximum of 9); *PolioVac*, *MeaslesVac* and *DPTVac* are dummies that take a value of 1 if the last child born in the past 5 years was inoculated against Polio, Measles and tuberculosis respectively; Notes (ii)—(viii) of Table 4 apply.

Table 9: Reduced form regression results for education of individuals aged 9–14 and 14–30.

	Boys aged 9–14		Girls aged 9–14			Males aged 14–30	Girls aged 14–30
	BCurrEnroll	BoyEdZScore	GCurrEnroll	GirlEdZScore		MaleEdZScore	FemaleEdZScore
	(1)	(2)	(3)	(4)		(5)	(6)
GirlsAvAge			-.0028 (.0045)	-.0222 (.0158)	GirlAvAge		-.0061 (.0073)
BoysAvAge	-.0148 (.0049)***	.0035 (.0154)			BoyAvAge	-.0100 (.0065)	
TreatmntArea	.0452 (.0622)	.5645 (.1966)***	.0502 (.0552)	.3137 (.1943)	TreatmntArea	.4825 (.1548)***	.3260 (.1995)*
TreatXYrsSch	-.0012 (.0052)	.0049 (.0165)	.0095 (.0046)**	.0218 (.0160)	TreatXYrsSch	-.0113 (.0144)	.0248 (.0161)
TrXMuslim	-.0721 (.0596)	-.3239 (.1882)*	-.0998 (.0531)*	-.2898 (.1868)	TrXMuslim	-.5297 (.1497)***	-.5336 (.1953)***
Muslim	.1091 (.0523)**	.1151 (.1650)	.2144 (.0459)***	.4088 (.1615)**	Muslim	.5124 (.1337)***	.6128 (.1794)***
Age25to30			-.0461 (.0707)	-.3046 (.2489)	AgeUnder35	-.0563 (.1209)	
Age30to35	.0320 (.0333)	.0944 (.1052)	-.0373 (.0667)	-.4088 (.2348)*	Age35to40	-.0874 (.0921)	-.0031 (.1069)
Age35to40	-.0243 (.0347)	-.0864 (.1097)	-.0431 (.0646)	-.4402 (.2274)*	Age40to45	-.2435 (.0781)***	-.1072 (.1116)
Age40to45	-.0283 (.0381)	-.0856 (.1205)	-.0418 (.0632)	-.5868 (.2225)***	Age45to50	-.1845 (.0680)***	-.0434 (.1204)
Age45to50	.0293 (.0437)	.0440 (.1380)	-.0398 (.0620)	-.4380 (.2182)**	Age50to55	-.1745 (.0615)***	-.0001 (.1290)
Age50to55	-.0090 (.0499)	.0493 (.1576)	-.0733 (.0631)	-.4263 (.2223)*	AgeOver55		.1067 (.1429)
AgeOver55	-.1436 (.0820)*	-.3787 (.2589)					
YrsSch	.0044 (.0047)	.0861 (.0147)***	-.0001 (.0040)	.0923 (.0142)***	YrsSch	.0942 (.0134)***	.0940 (.0152)***
HusAge	.0003 (.0024)	-.0150 (.0076)**	-.0003 (.0020)	-.0165 (.0072)**	HusAge	-.0061 (.0070)	-.0148 (.0078)*
HusAgeSq	-.0005 (.0032)	.0207 (.0100)**	.0003 (.0027)	.0195 (.0093)**	HusAgeSq	.0079 (.0072)	.0143 (.0081)*
HusYrsSch	.0109	.0585	.0072	.0539	HusYrsSch	.0689	.0806

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	(.0027)***	(.0085)***	(.0024)***	(.0085)***		(.0070)***	(.0079)***
UnmarriedFH	-.1910	-.7590	-.0418	-.3830	UnmarriedFH	-.1924	-.5810
	(.0865)**	(.2733)***	(.0804)	(.2830)		(.2373)	(.2567)**
MarriedFH	.0318	.0879	.0246	.1897	MarriedFH	.3163	.1188
	(.0431)	(.1362)	(.0338)	(.1189)		(.1269)**	(.1356)
HusAbsentNH	-.0815	-.2476	-.3936	-.9320	HusAbsentNH	-.4558	-.6247
	(.1075)	(.3394)	(.1018)***	(.3584)***		(.2430)*	(.2608)**
HusAgeMissing	.1219	.3977	-.0510	.0863	HusAgeMissing	.1238	.1616
	(.0758)	(.2395)*	(.0758)	(.2670)		(.2420)	(.2627)
HusEdMissing	.0488	.1088	.0197	.0766	HusEdMissing	.0845	-.0216
	(.0310)	(.0980)	(.0268)	(.0943)		(.0911)	(.1042)
Boundary	-.0301	-.0074	.0175	.0114	Boundary	-.0537	-.0569
	(.0248)	(.0784)	(.0214)	(.0752)		(.0609)	(.0698)
BRACInVil	.0092	.1260	.0332	.0984	BRACInVil	-.0343	-.0156
	(.0157)	(.0495)**	(.0138)**	(.0487)**		(.0399)	(.0465)
AnyPuccaRd	-.0225	-.1411	-.0078	-.0466	AnyPuccaRd	.0520	.0690
	(.0214)	(.0675)**	(.0188)	(.0662)		(.0531)	(.0603)
SubHospDist	-.0030	.0293	.0021	-.0005	SubHospDist	-.0132	-.0299
	(.0055)	(.0172)*	(.0047)	(.0166)		(.0138)	(.0159)*
SecSchNearby	.0196	.1168	.0245	.1341	SecSchNearby	.0858	.1149
	(.0173)	(.0547)**	(.0156)	(.0550)**		(.0437)**	(.0522)**
VillMotBoat	-.0384	-.0148	-.0232	-.0858	VillMotBoat	.0130	.0210
	(.0166)**	(.0523)	(.0148)	(.0520)*		(.0422)	(.0485)
N	1371	1371	1295	1295	N	2159	1663
R-squared	.0813	.2708	.1036	.2964	R-squared	.2595	.3194
F	4.5731	20.73	2.37	22.29	F	29.9012	30.72
TreatmentF	.8257	4.5687	2.9601	1.7635	TreatmentF	4.5959	4.1730
p-value	.4797	.0034	.0313	.1523	p-value	.0033	.0059
VillageF	1.4007	3.1860	2.4872	2.8801	VillageF	1.3460	2.2998
p-value	.2212	.0073	.0298	.0136	p-value	.2420	.0428

Table 9: Reduced form regression results for education of individuals aged 9–14 and 14–30. Note: (i) Regression estimates are weighted by the number of girls and boys per woman that are in each age category. (ii) *BoyEdZScore* and *GirlEdZScore* are defined as the difference between the observed years of schooling of a boy or girl and the average educational attainment of other individuals in his/her age, divided by the std deviation of the years of schooling of the reference group; Notes (ii)—(viii) of Table 4 apply.

Table 10: **Reduced form regression results for children's anthropometrics.**

	Boys			Girls		
	ZHeight	ZWeight	ZBMI	ZHeight	ZWeight	ZBMI
	(1)	(2)	(3)	(4)	(5)	(6)
GirlAvAge				-.0094	-.0599	-.0294
				(.0088)	(.0122)***	(.0093)***
BoyAvAge	-.0428	-.0606	-.0607			
	(.0087)***	(.0116)***	(.0106)***			
TreatmntArea	.1117	.3755	-.1388	.1323	-.1335	.2950
	(.1903)	(.2523)	(.2317)	(.1914)	(.2665)	(.2032)
TreatXYrsSch	.0048	-.0239	.0312	.0178	.0152	.0119
	(.0154)	(.0204)	(.0187)*	(.0155)	(.0216)	(.0165)
TrXMuslim	-.0092	-.2793	.1725	-.0387	.2564	-.2568
	(.1787)	(.2369)	(.2176)	(.1796)	(.2500)	(.1906)
Muslim	-.0995	.0890	-.1930	-.0356	-.1529	.0669
	(.1574)	(.2088)	(.1917)	(.1571)	(.2188)	(.1668)
Age25to30	.2849	.2074	.1478	.1663	.0839	.0739
	(.1118)**	(.1482)	(.1361)	(.1078)	(.1501)	(.1144)
Age30to35	.1461	-.0024	.1613	.0828	-.0612	.0334
	(.1156)	(.1533)	(.1408)	(.1116)	(.1554)	(.1185)
Age35to40	.2806	.1991	.2009	.1244	.0274	.0964
	(.1263)**	(.1675)	(.1538)	(.1242)	(.1729)	(.1318)
Age40to45	.2679	.1979	.1838	.0938	-.0277	.0878
	(.1419)*	(.1882)	(.1728)	(.1376)	(.1915)	(.1460)
Age45to50	.1852	.1253	.1321	.0662	.0244	-.0020
	(.1626)	(.2157)	(.1980)	(.1536)	(.2139)	(.1631)
Age50to55	.1077	.1039	.0618	.1892	.1031	.1189
	(.1922)	(.2549)	(.2341)	(.1875)	(.2610)	(.1990)
AgeOver55	-.1661	-.2597	-.0800	.1121	-.6549	.4483
	(.3054)	(.4050)	(.3719)	(.2966)	(.4129)	(.3148)
YrsSch	.0411	.0749	-.0055	.0437	.0827	.0028
	(.0140)***	(.0186)***	(.0171)	(.0139)***	(.0193)***	(.0147)
HusAge	-.0125	-.0110	-.0100	-.0131	-.0183	-.0046
	(.0066)*	(.0087)	(.0080)	(.0063)**	(.0088)**	(.0067)
HusAgeSq	.0165	.0105	.0139	.0197	.0255	.0079
	(.0093)*	(.0123)	(.0113)	(.0090)**	(.0125)**	(.0095)
HusYrsSch	.0037	.0036	.0065	.0074	.0123	.0037
	(.0084)	(.0111)	(.0102)	(.0084)	(.0117)	(.0090)
UnmarriedFH	.3464	.1701	.3586	-.0810	.0340	-.0399
	(.2333)	(.3093)	(.2841)	(.2521)	(.3510)	(.2676)
MarriedFH	.0079	.0590	-.0960	-.0045	-.1383	.0956
	(.1169)	(.1550)	(.1423)	(.1080)	(.1504)	(.1147)
HusAbsentNH	.2075	-.1920	.3708	.0209	.3552	-.1200
	(.3419)	(.4534)	(.4164)	(.3222)	(.4486)	(.3420)
HusAgeMissing	-.3674	-.3849	-.2948	-.0789	-.2946	-.0022

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	Boys			Girls		
	ZHeight	ZWeight	ZBMI	ZHeight	ZWeight	ZBMI
	(1)	(2)	(3)	(4)	(5)	(6)
	(.2061)*	(.2733)	(.2510)	(.2318)	(.3228)	(.2461)
HusEdMissing	-.0343	-.1647	.1310	.0679	.0519	.0377
	(.0885)	(.1173)	(.1078)	(.0908)	(.1264)	(.0964)
Boundary	.0307	-.0134	.0146	.0076	.0417	-.0062
	(.0775)	(.1028)	(.0944)	(.0736)	(.1025)	(.0782)
BRACInVil	.0881	.0320	.0962	.1064	.0285	.1368
	(.0493)*	(.0653)	(.0600)	(.0485)**	(.0675)	(.0515)***
AnyPuccaRd	.0718	.0335	.0605	-.0757	-.1903	-.0002
	(.0651)	(.0863)	(.0792)	(.0664)	(.0924)**	(.0705)
SubHospDist	.0064	-.0048	.0093	-.0024	-.0016	-.0011
	(.0172)	(.0229)	(.0210)	(.0166)	(.0231)	(.0176)
SecSchNearby	-.1054	.0443	-.1916	-.1241	.0330	-.1854
	(.0536)**	(.0710)	(.0652)***	(.0547)**	(.0762)	(.0581)***
VillMotBoat	.0071	-.0311	.0507	.0173	-.0846	.0671
	(.0523)	(.0693)	(.0637)	(.0523)	(.0728)	(.0555)
N	1679	1679	1679	1660	1660	1660
R-squared	.0708	.0763	.0465	.0568	.0907	.0288
F	4.6557	5.0513	2.9825	3.6398	6.0298	1.7902
TreatmentF	.6703	1.0320	1.4590	1.3613	1.0670	1.0295
p-value	.5703	.3773	.2239	.2530	.3620	.3785
EducationF	7.5682	9.3049	1.7340	11.7526	17.0164	.5463
p-value	.0005	.0001	.1769	9.00e-06	4.85e-08	.5792
MuslimF	.9630	1.4560	.5219	.3690	.5995	2.0993
p-value	.3819	.2335	.5935	.6915	.5492	.1229
VillageF	1.5143	.3522	2.0828	2.2509	.9216	3.3892
p-value	.1821	.8810	.0649	.0471	.4659	.0047

Table 10: Reduced form regression results for the Z-scores of heights, weights and BMIs of boys and girls aged 0–14 in the MHSS. Note: (i) The variable ZHeight for boys for example, is defined as the difference between the observed height of boy or girl and the average height f other boys his age, divided by the standard deviation of the height of the boys who are his age; (iii) Notes (ii)—(viii) of Table 4 apply.

Table 11: A comparison of IV and OLS coefficients of the endogenous regressor *TotalChildren*

	OLS Estimates Coefficient (std. err.)	IV Estimate Coefficient (std. err.)	Sargan Test Chi-sq stat (p-value)	Durbin-Wu-Hausman Chi-sq stat (p-value)	IV Estimate (b) Coefficient std. err.	Durbin-Wu-Hausman (b) Chi-sq stat (p-value)
FracDied5	.021	.025	19.063	.133	.055	3.166
	(.001)***	(.011)***	(.060)	(.716)	(.020)**	(.075)
Weight	-0.049	-1.532	15.174	14.122	-3.249	16.095
	(.047)	(.439)***	(.175)	(.000)	(1.135)***	(.000)
Height	.014	-0.179	14.702	.267	-0.462	.396
	(.045)	(.378)	(.197)	(.605)	(.767)	(.529)
BMI	-0.024	-0.631	13.262	14.724	-1.342	16.991
	(.019)	(.177)***	(.277)	(.000)	(.462)***	(.000)
TotAssets	7.734	13.724	54.185	.082	-71.422	3.358
	(2.458)***	(21.136)	(.000)	(.775)	(47.396)	(.067)
AgAssets	6.708	11.659	48.695	.065	-66.570	3.365
	(2.273)***	(19.545)	(.000)	(.799)	(43.841)	(.067)
NonAgAssets	.903	1.289	23.892	.007	-4.769	.362
	(.536)*	(4.607)	(.013)	(.933)	(9.537)	(.547)
JewelryVal	1.235	7.759	12.965	.832	-0.834	.020
	(.838)	(7.243)	(.296)	(.362)	(14.758)	(.888)
DrWellWaterBari	.004	-0.079	11.026	7.960	-0.131	4.964
	(.003)	(.031)*	(.441)	(.005)	(.069)**	(.026)
ClWaterInBari	.005	-0.068	27.655	5.987	-0.243	16.138
	(.004)	(.031)*	(.004)	(.014)	(.087)***	(.000)
PrimOccIncome	-198.416	-1023.380	42.743	2.625	-92.407	.010
	(59.654)***	(522.058)**	(.000)	(.105)	(1050.356)	(.919)
TotalIncome	-186.571	-816.022	41.738	1.379	582.250	.485
	(62.796)***	(544.897)	(.000)	(.240)	(1121.223)	(.486)
OwnCashSavings	-0.001	.031	21.393	2.503	.133	10.949
	(.002)	(.020)	(.030)	(.114)	(.052)*	(.001)
OwnProdAssets	.005	-0.011	13.156	.523	-0.062	2.213
	(.003)*	(.022)	(.283)	(.470)	(.048)	(.137)
GroupLoan	-0.000	-0.005	16.706	.055	.081	3.927
	(.002)	(.020)	(.117)	(.815)	(.045)*	(.048)
GroupWork	-0.000	.027	20.031	3.820	.098	12.241
	(.002)	(.014)	(.045)	(.051)	(.037)*	(.000)
GroupSaving	.000	.007	25.650	.117	.090	4.298
	(.002)	(.021)	(.007)	(.732)	(.049)*	(.038)

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BoyCurrEnroll	-.0153		.021	.409
	(.038)		(.037)	(.526)
BoyEdZScore	-.002		-.340	7.128
	(.015)		(.117)***	(.007)
GCurrEnroll	-.003		.048	1.37
	(.003)		(.047)	(.241)
GirlEdZScore	-.063		-.167	.443
	(.013)***		(.159)	(.505)
BoyEdScore2	-.018		.047	0.454
	(.009)*		(.097)	(.500)
GirlEdZScore2	-.011		.329	1.68
	(.010)		(.467)	(.193)
BZWeight	-.039		-.249	1.394
	(.014)***		(.189)	(.237)
BZHeight	-.063		-.123	.064
	(.019)***		(.236)	(.799)
BZBMI	-.001		-.209	.927
	(.018)		(.226)	(.335)
GZWeight	.009		-.269	1.371
	(.008)		(.234)	(.241)
GZHeight	-.062		-.233	1.837
	(.020)***		(.185)	(.175)
GZBMI	-.0001		-.124	1.294
	(.108)		(.142)	(.255)

Table 11: Estimates from OLS and IV regressions. Notes: (i) Instruments (in the IV regression) and controls (in the OLS regression) include *ChAvAge*, *Muslim*, *AgeUnder35*, *Age35to40*, *Age40to45*, *Age45to50*, *Age50to55*, *Age55to60*, *AgeOver60*, *YrsSch*, *HusAge*, *HusAgeSq*, *HusYrsSch*, *UnmarriedFH*, *MarriedFH*, *HusAbsentNH*, *HusAgeMissing*, *HusEdMissing*, *BRACInVil*, *AnyPuccaRd*, *SubHospDist*, *SecSchNearby*, *VillMotBoat*, *TrXChAvAge*, *TrXAgeUnder35*, *TrXAge35to40* , *TrXAge40to45*, *TrXAge45to50*, *TrXAge50to55*, *TrXAge55to60*, *TrXAgeOver60*, *TreatXYrsSch*, *TrXMuslim*; (ii) * significant at 5%; ** significant at 1%; Instruments in the second IV regression–labelled as IV Estimate (b)— include only the variable *TreatmntArea*; (iii) The Durbin-Wu-Hausman test is computed using the stata command "ivendog", which tests for endogeneity in a regression estimated via instrumental variables. The null hypothesis states that an OLS estimator of the same equation would yield consistent estimates. A rejection of the null indicates that endogenous regressors' effects on the estimates are meaningful, and IV techniques are required; (iv) The Hansen-Sargan test is a test of overidentifying restrictions. The joint null hypothesis is that the instruments are uncorrelated with the error term, and that the excluded instruments are correctly excluded from the estimated equation. A rejection casts doubt on the validity of the instruments.

APPENDIX

Table Appendix, A: Summary of independent variables.

Variable	Obs	Mean	Std. Dev	Min	Max
Treatment=0					
Muslim	2655	0.947	0.224	0	1
Age25to30	2655	0.124	0.330	0	1
Age30to35	2655	0.142	0.349	0	1
Age35to40	2655	0.125	0.331	0	1
Age40to45	2655	0.094	0.292	0	1
Age45to50	2655	0.090	0.286	0	1
Age50to55	2655	0.096	0.294	0	1
Age55to60	2655	0.071	0.257	0	1
Age60to65	2655	0.068	0.251	0	1
Age65Over	2655	0.087	0.282	0	1
YrsSch	2655	1.966	2.762	0	12
HusAge	2655	35.560	23.732	0	90
HusAgeSq	2655	18.275	16.443	0	81
HusYrsSch	2655	2.822	3.700	0	17
UnmarriedFH	2655	0.072	0.259	0	1
MarriedFH	2655	0.046	0.209	0	1
HusAbsentNH	2655	0.121	0.326	0	1
HusAgeMissing	2655	0.195	0.397	0	1
HusEdMissing	2655	0.075	0.264	0	1
BoundXAgeUnd35	2655	0.092	0.288	0	1
BoundXAge35to55	2655	0.077	0.267	0	1
BoundXAgeOver55	2655	0.050	0.219	0	1
BRACInVil	2626	0.508	0.500	0	1
AnyPuccaRd	2626	0.131	0.337	0	1
SubHospDist	2556	5.444	1.935	1.453	10.738
SecSchNearby	2655	0.767	0.423	0	1
VillMotBoat	2626	0.422	0.494	0	1
Treatment=1					
TrXAgeUnder25	2682	0.095	0.293	0	1
TrXAge25to30	2682	0.123	0.329	0	1
TrXAge30to35	2682	0.154	0.361	0	1
TrXAge35to40	2682	0.131	0.337	0	1
TrXAge40to45	2682	0.101	0.302	0	1
TrXAge45to50	2682	0.091	0.287	0	1
TrXAge50to55	2682	0.093	0.291	0	1
TrXAge55to60	2682	0.074	0.262	0	1
TrXAge60to65	2682	0.057	0.232	0	1
TrXAge65Over	2682	0.081	0.273	0	1
TreatXYrsSch	2681	2.207	2.969	0	12
TrXMuslim	2682	0.836	0.371	0	1

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Table Appendix, A: Summary of independent variables.

Variable	Obs	Mean	Std. Dev	Min	Max
Muslim	2682	0.836	0.371	0	1
Age25to30	2682	0.123	0.329	0	1
Age30to35	2682	0.154	0.361	0	1
Age35to40	2682	0.131	0.337	0	1
Age40to45	2682	0.101	0.302	0	1
Age45to50	2682	0.091	0.287	0	1
Age50to55	2682	0.093	0.291	0	1
Age55to60	2682	0.074	0.262	0	1
Age60to65	2682	0.057	0.232	0	1
Age65Over	2682	0.081	0.273	0	1
YrsSch	2681	2.207	2.969	0	12
HusAge	2682	35.929	23.571	0	95
HusAgeSq	2682	18.463	16.287	0	90.25
HusYrsSch	2682	3.206	3.962	0	17
UnmarriedFH	2682	0.069	0.253	0	1
MarriedFH	2682	0.056	0.229	0	1
HusAbsentNH	2682	0.113	0.317	0	1
HusAgeMissing	2682	0.190	0.392	0	1
HusEdMissing	2682	0.064	0.245	0	1
BoundXAgeUnd35	2682	0.019	0.138	0	1
BoundXAge35to55	2682	0.025	0.157	0	1
BoundXAgeOver55	2682	0.014	0.117	0	1
BRACInVil	2682	0.620	0.485	0	1
AnyPuccaRd	2682	0.236	0.425	0	1
SubHospDist	2682	1.808	0.818	0.097	4.381
SecSchNearby	2682	0.733	0.443	0	1
VillMotBoat	2682	0.235	0.424	0	1

Table Appendix, A: Summary of independent variables.

Table Appendix, B: Differences between treatment and control areas for the independent variables.

Variable	Mean for Treatment=0	Mean for Treatment=1	Difference	Std. Err of difference
TrXAgeUnder25		.095	.095	.005***
TrXAge25to30		.123	.123	.006***
TrXAge30to35		.154	.154	.006***
TrXAge35to40		.131	.131	.006***
TrXAge40to45		.101	.101	.005***
TrXAge45to50		.091	.091	.005***
TrXAge50to55		.093	.093	.005***
TrXAge55to60		.074	.074	.005***
TrXAge60to65		.057	.057	.004***
TrXAge65Over		.081	.081	.005***
TreatXYrsSch		2.207	2.207	.057***
TrXMuslim		.835	.835	.007***
Muslim	.946	.835	-.111	.008***
Age25to30	.124	.123	-.0005	.009
Age30to35	.142	.154	.012	.009
Age35to40	.125	.131	.006	.009
Age40to45	.093	.101	.008	.008
Age45to50	.089	.090	.001	.007
Age50to55	.095	.093	-.002	.008
Age55to60	.071	.073	.003	.007
Age60to65	.068	.057	-.011	.006
Age65Over	.087	.081	-.006	.007
YrsSch	1.97	2.20	.241	.078***
HusAge	35.560	35.92	.369	.647
HusAgeSq	18.275	18.46	.188	.448
HusYrsSch	2.822	3.206	.384	.104**
UnmarriedFH	.072	.069	-.003	.007
MarriedFH	.0459	.056	.009	.006
HusAbsentNH	.121	.113	-.008	.009
HusAgeMissing	.195	.190	-.005	.010
HusEdMissing	.075	.064	-.011	.006*
BoundXAgeUnd35	.092	.019	-.072	.006***
BoundXAge35to55	.077	.025	-.052	.005***
BoundXAgeOv55	.054	.014	-.037	.004***
BRACInVil	.508	.620	.113	.013***
AnyPuccaRd	.131	.236	.105	.0105***
SubHospDist	5.444	1.808	-3.636	.0407***
SecSchNearby	.767	.733	-.0346	.011***
VillMotBoat	.422	.235	-.187	.012***

Table Appendix, B: : Differences between treatment and control areas for the independent variables.

Table Appendix, C: Differences between treatment and control areas for the dependent variables.

Variable	Mean for Treatment=0	Mean for Treatment=1	Difference	Std. Err of difference
TotalChildren	5.236	4.733	-.503	.079***
TotalAlive	4.298	4.01	-.291	.059***
FracDied5	.150	.125	-.0251	.005***
AgeAtFirstBirth	23.110	23.091	-.019	.136
SecondInterval	3.154	3.365	.211	.062***
ThirdInterval	3.0264	3.363	.336	.060***
FracDied5	.150	.1249	-.025	.005***
o TotalAlive	4.298	4.006	-.291	.059***
CurrHealthy	.751	.752	.001	.012
Weight	40.945	41.924	.978	.193***
Height	149.134	148.592	-.542	.176***
BMI	18.380	18.951	.572	.075***
ADLEq0	.609	.637	.028	.013**
PregCheckUps	.088	.167	.079	.006***
NumAnteNatalChecks	.621	1.184	.563	.039***
ATSInject	.1313	.203	.073	.007***
PolioVac	.612	.934	.322	.018***
MeaslesVac	.458	.803	.345	.023***
DPTVac	.563	.899	.336	.019***
PrimOccIncome	700.770	1365.87	665.106	226.167***
TotalIncome	895.068	1476.18	581.111	238.212**
OwnProdAssets	.137	.165	.028	.009***
GroupLoan	.105	.151	.046	.009***
GroupWork	.047	.015	.006***	
TotAssets	143.360	205.973	62.613	8.908***
AgAssets	132.95	190.515	57.560	8.931***
NonAgAssets	9.267	14.541	5.274	2.033***
JewelryVal	32.640	41.032	8.392172	3.244***
DrWaterInBari	.560	.643	.0831	.013***
ClWaterInBari	.428	.529	.101	.014***
BCurrEnroll	.913	.910	-.002	.014
BoyEdZScore	-.124	.101	.225	.050***
GCurrEnroll	.944	.919	-.025	.013**
GirlEdZScore	-.107	.070	.178	.053***
BEverAttd2	.639	.631	-.008	.017
BoyEdZScore2	-.175	-.090	.084	.040***
GEverAttd2	.889	.869	-.020	.012**
GirlEdZScore2	-.131	-.057	.073	.0489

Table Appendix, C: : Differences between treatment and control areas for the dependent variables.