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Family Planning as an Investment in Development: Evaluation of a Program's Consequences in Matlab, Bangladesh

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T. Paul Schultz and Shareen Joshi

ABSTRACT

The paper analyzes 141 villages in Matlab, Bangladesh from 1974 to 1996, in which half the villages received from 1977 to 1996 a door-to-door 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 by 1982 , as others have noted, which persists until 1996. The consequences of the program on a series of long run family welfare outcomes are then estimated in addition to fertility : women's health, 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. Within two decades many of these indicators of the welfare of women and their children improve significantly in conjunction with the program-induced decline in fertility and child mortality. This suggests social returns to this reproductive health program in rural South Asia have many facets beyond fertility reduction, which do not appear to dissipate over two decades.

Keywords: Fertility, Family Planning, Gender and Development, Program Evaluation, Bangladesh

JEL Codes: O12, J13, I12, J16

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 induced by policies that are independent of parent preferences and preconditions (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 (FPMCH) program along these lines was introduced in 1977.[1] Field workers visited all women of childbearing age approximately every two weeks with contraceptive services, supplies, and advice. Additional child and maternal health services were added over time. Census data were also collected in neighboring villages 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 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 estimated differences in the 1996 survey outcomes between the treated and control villages as an indicator of the average 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. Sections 5 through 7 discuss reduced form estimates of differences between treatment and comparison areas in 1996 for women and their families. Section 8 reviews the implications of instrumental variable estimates of the effect of program-induced changes in fertility on other family outcomes. Section 9 concludes.

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 Figure 1 and map in Munshi and Myaux, 2006). 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. This

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[1] Originally called the Family Planning-Health Services Project and more recently the Child Maternal Health -Family Planning program (Fauveau, 1994) .

may have contributed to its persistent poverty, sustained its high mortality, and slowed the introduction of basic infrastructure for development. The area was in 1977 relatively isolated and inaccessible to communication and transportation other than by 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 while the remainder are Hindus. Despite a growing emphasis on education and increasing contact with urban areas, the society remains relatively traditional and religiously conservative. 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, 2004).

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 family planning, maternal and child health (FPMCH) 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 (blocks E and F) continued to receive only regular government health and family planning programs, which generally required that women visit her local health clinic.[2] The FPMCH 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 FPMCH 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.

[2] Some of these villages had in 1975-77 been the site of a Contraceptive Distribution Project (CDP) which included 150 villages of the Matlab thana where an additional 84 villages served as a comparison area. Elderly, illiterate , village midwives were assigned the task of distributing oral pills and condoms , but they were not trained to provide follow-up services to deal with side-effects or to recommend alternative forms of birth control. Fauveau (1994: p.90) reports 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 ” in the long run.contraceptive use returned to preprogram levels after a year.

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 pregnant women, measles immunizations to all children from the age of nine months to five years, training of traditional birth attendants, oral rehydration therapy (ORT) for diarrhoea, and antenatal care (DeGraff et al., 1986; Phillips et al., 1988; Fauveau, 1994). After 1986 the Community Health Workers began to deliver the same services to the other program villages in block B and D, and some of these services were subsequently incorporated into the national health program, such as EPI childhood inoculations and ORT (Fauveau, 1994).[3]

The Matlab Health and Socioeconomic Survey (MHSS) was designed to document in more depth the socioeconomic characteristics of the district often studied from only a demographic and health perspective. The MHSS drew on improvements in low income country Family Life Surveys of Rand and Living Standards Measurement Surveys of the World Bank. The 1996 random sample of baris and households was drawn from 141 villages of Matlab, half of which are in the program treatment villages and half in the comparison areas.[4] Several features of the data are helpful for examining the effects of the family-planning program. First, because all individuals in the area are assigned permanent identification numbers in the surveillance area, more accurate matching and merging of information over time is possible, and prior exposure to policy interventions by village of residence is known, and potential long-run consequences of the policy treatments for the women can be inferred. Second, for each ever-married woman, the survey collected detailed information on maternity histories, health, children's health, anthropometric indicators, and schooling outcomes. Third, the MHSS also administered a community-level questionnaire about local health care providers, schools, and village infrastructure.

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

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, many researchers appear to assume that the 70 of the 141 villages in MHSS assigned to the program treatment areas were randomly selected. But as seen in Figure 1, the treatment and comparison villages were in contiguous regions or blocks, perhaps to reduce spillover effects from the program treatment to comparison areas and to facilitate the delivery of the program outreach services (Cf. Freeman and

[3] After 1986 all four treatment blocks received the MCH services plus immunization against six EPI diseases, child nutrition rehabilitation, and 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 referred women with delivery complications to the maternity clinic in Matlab, or if necessary to the district hospital in Chandpur (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 in all of the treatment areas.

[4] 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 Institute 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. Rahman, et al, 1999.

Takeshita, 1969). 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 treatment-control comparisons as a basis for evaluating the effect of the family planning and health policies. The extensive literature on Matlab and its experimental programs does not appear to have analyzed the potential bias due to nonrandom treatment assignment (Fauveau, 1994). Some studies compare fertility of the populations between the treatment and control areas immediately before and after the program started (e.g., Phillips et al., 1988; Fauveau et al., 1991; Sinha, 2003), but the majority seem to implicitly assume the assignment is random.

The first objective, therefore, is to compare the number of live births to married women in the 1996 MHSS who reside in treatment and comparison villages (survey variable treatmnt =1 to 4). Figure 2 plots these average children ever born per woman by five-year age intervals in the two areas (Appendix Table C) and shows that fertility among women over the age of 55 in 1996 appears indistinguishable between the treatment and comparison villages, consistent with the hypothesis that the fertility of these older women was not substantially affected by the program, probably because they were age 38 or older when the program started and thus had by then virtually completed their childbearing. Conversely, the unconditional fertility of younger women in the treatment villages appear to be lower than in comparison areas at all ages less than 55. This finding from the 1996 MHSS corroborates the early report by Phillips et al (1982) that total and general fertility rates in the ICDDR,B registry (not a publicly available data source) were 8 percent lower in the treatment than comparison areas in pre-program period of 1976-1977 and were 25 percent lower in treatment than comparison areas in the post-program period of 1978-1979. However, the original resident population in 1977 may not be represented in the 1996 MHSS, due to migration and female mortality, which could differ between treatment and control villages. But migration for women after marriage is rare in Matlab and unlikely to alter substantially these empirical differences between comparison and treatment villages, though we later consider the effect of additional control variables which could affect fertility differently in the alternative areas, account for heterogeneity in reproductive responses to the program treatment, and quantify premarital migration.

Another approach to assessing possible pre-program differences in fertility between the treatment and control villages involves analyzing changes over time in aggregate measures of fertility at the village level over which treatment varies. 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 reported 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 an aggregate measure of surviving fertility in the last five years, which is consulted, typically when the registration of births is incomplete or unpublished and total fertility rates cannot therefore be directly inferred (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 more than a tenth of the children born in Matlab in the 1970s did not survive to their fifth birthday.

Aggregate difference in difference estimates of the program's effect on these village measures of surviving fertility can be derived from a regression across the 141 villages constructed from the Census of 1974 before the program, and another census or survey after the program of the following form:

$$C/W_{jt} = \beta_0 + \beta_1 P_j + \beta_2 T_t + \beta_3 P_j{*}T_t + e_{jt}$$

$j = 1, 2, ..., 141$, for villages ; and $t = 1974$ and 1978 or 1982 or 1996 ,

where C/W_{jt} is the child-woman ratio in village j in time period t, P_j is 1 if village j is in the program treatment area and zero otherwise, T_t is one if the observation is for a year after the program has started (i.e. 1978, 1982, 1996) and zero for the pre-program year 1974, $P_j{*}T_t$ is the product of the two variables, and e_{jt} is the error. It is assumed that the program effect on fertility is equal on each village or homogeneous for all observations, and the errors are uncorrelated with the explanatory variables. Pre-program fertility variation across villages between those assigned to the program and the comparison is captured by the estimate of β_1, and changes over time common to all areas are attributed to β_2, and thus neither is a source of fertility variation that identifies β_3, the estimated program-treatment effect on those residing in program treated villages. Because the impact of the treatment is assumed homogeneous, including in such a framework fixed effects for each village that are constant over time yields the same estimates of the program treatment.

Ordinary least squares estimates of the β's in equation (1) indicate that the average program's treatment effect after the program started in 1977 is β_3, holding constant for any preexisting differences in fertility between the treatment and comparison villages as measured in 1974 represented by β_1, which should be insignificant if the experimental design was implemented to minimize systematic differences between the treatment and comparison. The mean of the village fertility in the initial period of 1974 is represented by β_0. Because the errors in the observations on village fertility, e_{jt}, are expected to have greater variance for a smaller village, in other words observations on smaller villages would provide noisier estimates of longer run average fertility, the regressions are estimated here using generalized least squares (GLS) where the weights (i.e. STATA aweights) are the inverse of the square root of the number of women age 15-49 observed in each the village observation.[5] The sample size is 282 from combining two cross sections of villages, and the GLS estimates are reported in the three columns of Table 1 for the three different post-program census or survey years, 1978, 1982, and 1996.

The 1974 C04/W are slightly larger in the treatment than in the comparison areas (.022), 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 (-.061 from a sample mean in 1974 of .81) is statistically significant at conventional 5 percent levels. The negative treatment effect is absolutely larger in magnitude in 1982 (-.14), and remains almost as large in 1996 (-.13), although the overall level of fertility has declined markedly by this date. Nearly twenty years after the program was initiated in these adjacent rural communities, the estimated response of fertility in the program villages remains proportionately almost as large as estimated in 1982, when the program was only five years old. The program's outreach services appear to continue to reduce overall levels of surviving fertility, and this difference in child-woman ratios should be a reasonable approximation for the program's impact on community natural rate of population growth or surviving family size. Panel B in Table 1 reports the regressions for the ratio of children age 5-9 per childbearing aged woman, and this five year lagged measure of surviving fertility does not differ between the treatment and comparison areas in 1978 or 1982 compared with preprogram data from 1974, but as expected

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[5] The estimates reported in Table 1 are not sensitive to the introduction of these weights, although they tend to yield somewhat more precise estimates using the village population weights.

by 1996 the treatment areas show significantly lower surviving fertility among children 5 to 9 (-.14 from a sample mean in 1974 of .61).

These village-level cross sectional time-differenced estimates are consistent with the hypothesis that the program treatment was assigned to villages which exhibited similar surviving fertility levels before the program started, because the estimate of β_1 in 1978 is not significantly different from zero. Nonetheless, it is preferable to control for the small actual fertility difference observed in 1974 of .022 in column 1 of Table 1. Because these estimates are positive, or fertility in the treatment areas was higher than in the control areas in 1974, a single-difference estimates of the program effect based only on the post-program difference between treatment and comparison areas would be an slight underestimate. The aggregate child 0-4 woman ratios declined by about 16 percent more in the treatment than in the control areas by 1996 (i.e. from Table 1 Panel A, col. 3 : -.13 /.81 = -.16), approximately the same magnitude as observed in Figure 2 based on comparing children ever born among women age 45-49 at the end of their childbearing years in the 1996 MHSS residing in treatment versus control villages (-.15).

The first Census of Matlab is in 1974, but it did not collect comprehensive information on wealth, income or many variables which might help to predict economic well-being or the prospects for further economic development. However, several features of the population can be documented from this earliest Census, such as education, housing, and religion[6]. Population-weighted differences between the villages that were provided the FPCMH program from 1977 (program villages) or received thereafter only the existing government public health and family planning services (comparison villages) are reported in Table 2, panel (A). Years of schooling completed is reported only for those who attended secular schools, whereas the proportion (about 15 percent) who attended only Maktab, in which the Muslim religion is emphasized, were not assigned years of completed schooling. It should also be noted that the proportion of the population who attended only the Maktab is lower in the program than in the comparison areas.

In Table 2, the first row indicates that in 1974 adults over the age of 14, excluding those who attended only a Maktab, had completed 1.80 years of schooling in the program areas and 1.74 in the comparison areas, and the differences is not statistically significant (last column), nor is it for the school aged children age 6 to 14.[7] Seventy percent of adults and 41 percent of the children 6-14 had not attended any secular or religious school, and these shares also do not differ between program and comparison villages.

A Census indicator of the quality of housing is having a tin roof (overall 81 percent), which is not different between the two areas. However, Muslims are more dominant in 1974 in the comparison than in the program areas, 88 vs.79 percent, which is statistically significant across the sample of population-weighted village means, i.e. t = 2.01. This religion difference also increases

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[6] Filmer and Pritchett (1999) argue that household survey information on housing as collected in the Demographic Health Surveys are useful measures of socioeconomic status of household members, although their imputations have obvious limitations.

[7] Alternatively, if the individuals who only attended Maktabs are added back into the sample and imputed zero or one year of schooling, these estimates of education between the program and comparison villages remain insignificant.

over time, and by 1996 (Table 2, panel (B)) it is 95 and 84 percent, respectively. Because Muslims engage in different occupations than Hindus, who are the minority in Matlab, and their livelihoods might affect their fertility demands and economic behavior, a control for Muslim religion of the head is included in the subsequent multivariate analysis, and in addition the program treatment effects is allowed to differ for Muslim and Hindu households to allow for heterogeneity in response to the program (Fauveau, 1994, Munshi and Myaux, 2006).

The adult years of education have doubled in Matlab by 1996 (Table 2, panel B) from their levels in 1974, and are then about one ninth higher in the program than in the comparison areas, 3.83 vs. 3.42 , which is significant, i.e. t= 2.45. The proportion of houses which have tin roofs has increased by 1996 to 95 percent, but the program-comparison difference is still not significant. Other indicators of women's productivity, value of household assets, and investments in the health and schooling of children will be analyzed later in the paper. Sample statistics on all of the dependent and independent variables analyzed later in the regressions are reported in Appendix Table A separately for the treatment and control populations in the 1996 MHSS, and reveal many instances where the two subsets of villages have evolved to be significantly different by 1996.[8]

Because response to the program treatment is likely to be heterogeneous, the treatment variable is interacted with several additional variables, as already noted. Clearly the age of the married woman determines how large the program effect is likely to be (due to life cycle variation in reproductive fecundity and exposure to the treatment, as implied by Figure 1). In addition, we include interactions between the treatment residence dummy and two characteristics of the woman: household head is Muslim/Hindu, and years of her schooling completed. Other characteristics which might be associated with heterogeneous response were also examined, such as husband's schooling, but they were statistically insignificant with the exception of their association with household assets. In the case of household assets, the differential effect of the program is allowed to vary by the education *and* age of the woman, requiring the inclusion of this three way interaction in the later analysis of household assets.

4. A Framework for Interpreting the Relationship between Fertility and Family Outcomes

How do families respond to a reduction in the cost of birth control such as was implemented in the Matlab FPCMH program? 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, that would of course be endogenous. It is also likely that the avoidance of 'unwanted births" increases the family's resources available for other activities, in other words cause a lifetime wealth or income effect. If the other activities are thought of as substitutes for the services children otherwise provide their parents, these substitute activities would receive a disproportionately larger share of these augmented family resources, and may improve the status of women and children and facilitate economic development. A simple economic framework may illustrate this idea.

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[8] A 1996 Census of the entire population of Matlab also reveals the same increase in schooling in the program versus with the comparison areas.(Razzaque, et al. 1998)

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 in the first period (or draw down inherited assets) and thereby increase (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 selected variables to yield them a "return" as would an investment, r_a, r_n, r_q, respectively, while N and Q may also be enjoyed by parents as a form of pure 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(household production), L, and income in the first period is exhausted by consumption and savings, S :

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

where expenditures on children, P_nN, and expenditures on child human capital, P_qQN, are expressed in terms of the market prices of a child and child human capital, P_n and P_q , 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:

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

Ideally, empirical estimates would be identified of the "cross effects" of exogenous variation in fertility on the family's demand for child quality, savings, and leisure (or market labor supply): Q, S, and L (or H). Hypotheses are 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 are denoted here by *) : (1) children and child quality (i.e. human capital) are widely hypothesized to be substitutes for parents, in which case $(dV^2/dN\, dQ)^* < 0$, and (2) a parallel hypothesis is that children and physical savings over the life cycle are also substitutes, i.e. $(dV^2/dN\, dS)^* < 0$, and finally (3) that nonmarket time or leisure and home production of the mother is a complement with the number of children she has, at least this is expected when children are young and in the household, $(dV^2/dN\, dL)^* > 0$. The cross derivatives of an exogenous change in fertility caused by the exposure to the experimental family planning program on the demand for a commodity is negative if parents view children and that commodity as complements, or positive if children and that commodity are substitutes (Tobin and Houthakker, 1950-51; Rosenzweig and Wolpin, 1980). Some assets may be more productive when parents have more children, as for example complementarity between child labor and farmland. Other types of assets such as a tube-well for drinking water in the homestead or Bari might function as a substitutes for child labor as well as women's labor in the family. This investigation seeks statistical evidence on how the household portfolio of different types of assets adjusts to lower cost of birth control, which reduces fertility, and thereby exerts what is generally expected to be a positive substitution effect on the family's life cycle demand for physical assets and especially on those types of assets whose marginal product does not increase with child labor. There will also be a positive income effect due to the avoidance of unwanted and ill-timed births which raises the demand for all normal goods, which will include second period consumption as supported by the accumulation of household physical assets. The income effect will also tend to increase the demand for child quality (presumably a normal good), and could lead to the erroneous conclusion that the cross-substitution effect is positive and child quantity and quality are substitutes, when this was merely the dominant effect on lifetime wealth.

Child mortality, although less readily controlled by the family's resource allocation decisions and technology than fertility, may nonetheless be affected by the family's behavioral responses to its preferences and constraints, although child mortality is in this context often assumed to be exogenous (Schultz, 1981). 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 local availability of public and private health services, the general disease environment, and the child's genetic frailty. When, as in the case of Matlab, a community program reduces the cost of birth control and then introduces child and maternal health inputs, it is difficult to recover from an empirical evaluation of the program's effects whether these effects are a consequence of *only* the birth control subsidy component of the program, or a 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 of the life cycle decision making process which are neglected here (Ben Porath, 1976 ; 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 in the market to A, N, and Q. Unfortunately, the MHSS does not provide much data on Q, s, H, or returns on the three forms of assets. The statistical errors in these reduced-form equations will tend to also be intercorrelated because they are jointly determined by unobserved parent preferences, family endowments, prices, or technological opportunities, and errors in optimization.

A key issue for empirical analysis 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, the researcher must assume that an instrumental variable is uncorrelated with the errors in the reduced-form equations for the other family outcomes? Consistent with the evidence presented in section 3, our working hypothesis is that the Matlab family planning program was assigned to half of the relevant villages whose residents did not systematically differ from those in the comparison villages as of 1977 and this treatment assignment satisfies the conditions for the program treatment to serve as a valid instrument for a population policy-induced variation in fertility.[9]

5. Empirical Approach to Evaluating Family Planning and Health Programs

Unconditional Associations and the Specification of Reduced-Form Relationships

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[9] Various instrumental variables for fertility, such as the family planning program relied on here, could lead to different estimates of "cross effects"of a 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 average-estimates of the treatment effect (or intension to treat at the village level) for this poor rural community in South Asia (Imbens and Angrist, 1994).

Women who were less than age 59 in 1996, who resided in a village which received the program treatment, have fewer children ever born than women in the comparison villages, as illustrated by the unconditional relationship plotted in Figure 2 (based on the regression reported in Appendix Table C). Women between the ages of 30 and 59 in 1996 have on average between 0.64 and 1.05 fewer children in the program areas, and the differences are statistically significant. Many other characteristics of women and their environment are likely to differ across birth cohorts and villages, and ignoring the contribution of these factors could bias these unconditional estimated effect of the treatment on the entire population as seen in Figure 2. An extensive set of exogenous control variables are therefore proposed for inclusion in the additive reduced-form fertility equation, and differences across groups in response to the program are also assessed by estimating interactions between the program treatment and these variables. These control variables and interactions are then also interpreted as potential determinants of a series of other longer-term family life cycle outcomes, which will be estimated in parallel reduced-form equations, specifically, for the woman's health, earnings and income and household assets, and her family's use of preventive health inputs, and her children's health and schooling. As outlined in section 4, some of these family outcomes are expected to be substitutes for the number of children the woman has, and thus if the program reduces fertility the cross-substitution effect on the household's demand for these forms of child human capital and household assets should increase, in addition to any increase associated with a gain in lifetime wealth due to control of unwanted childbearing. The reduced form estimates also allow one to test allied hypotheses regarding the determination of fertility and the extent of regional diffusion of birth control practices and program effects.

Heterogeneity in Response to the Program Treatment

The effect of the program on fertility is expected to vary by the woman's birth cohort for two reasons. As already noted, it will be negligible among women over the age of 60 in 1996 who had the last of their births before the program started in 1977, but it may not increase monotonically among younger women who had more years of childbearing ahead of them when the program started. Family planning programs often exert a larger effect helping women avoid more births after they have reached their lifetime goal, i.e. stopping, rather than in delaying their first birth and increasing intervals between early births, i.e. spacing (Schultz, 1980). Rather than assume a structural model for the determination of family size goals and how birth control is used to achieve these goals, the program's effect on fertility is allowed in this study to vary flexibly across ten distinguished age groups of women.[10]

What are the key environmental and demand 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

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[10] 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. In some cases the dependent variable is defined over a smaller group of women and all ten age dummies can not be used , as with the education of sons and daughters. In these cases, a smaller subset of age-dummies or a linear control will be employed.

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 on her income, and thereby may explain why better educated women tend to have fewer children, holding other resources 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.[11]

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 years of schooling of women and their residence in program village would thus be associated with their reduced fertility. If the woman's schooling and access to the family planning program were substitutes for evaluating and adopting effective new forms of birth control, this could 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 a woman's schooling and local family planning program are associated with lower levels of fertility, whereas the interaction is partially associated with higher fertility. To assess how the Matlab outreach program affected the distribution of program benefits by education, the reduced-form equation for fertility and other family outcomes includes 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).[12]

Birth control supplies and consultations are free in both the FPMCH program and in the regular government health clinics, but the community health worker's fortnightly visit to each woman's home eliminates the opportunity cost of her time to travel to the clinic for supplies or advise. If she needs to arrange for a family member to accompany her outside of the extended family housing compound or Bari, because of the cultural restrictions on women's mobility associated with Purdah, these may be effectively relaxed by the design of the program (Razzaque et al, 1998). Nonetheless, social stigma may still be associated with changing traditional patterns of behavior related to family planning and using modern means of birth control to achieve her objectives. It also seems likely that because each woman knows others are being contacted in the village, she is less reluctant to discuss family planning options with neighbors and local relatives, and possibly develop

[11] 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.

[12] 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 substitute for women's education, fertility differentials might be expected to diminish across generations due to the program (Schultz, 1984, 1988, 1992).

more quickly a social consensus in support of the adoption of this relatively new form of behavior (Munshi and Myaux, 2006).[13]

As noted earlier, Muslim fertility tends to be higher than Hindus in this region, possibly due to unobserved cultural factors, and a dummy is included if the woman is Muslim, and it is interacted with the treatment area dummy to assess whether the program's impact differs between Muslims and Hindus (*TrXMuslim).*[14] If family planning knowledge is less likely to be shared informally between Muslims and Hindus than within these groups, the minority Hindus (11 percent: Table 3B) might be at a disadvantage in social learning processes, and benefit more from the program's outreach educational efforts (Munshi and Myaux, 2006).

If women in treatment villages communicate and share information about contraceptive choices with their neighbors in comparison villages, information about birth control in comparison villages that share a boundary with a treatment area would be better than in other comparison villages. This diffusion of knowledge beyond the treatment villages could erode the difference between fertility in the treatment and neighboring comparison villages. This possibility is explored by introducing a dummy variable if she lives in a comparison-area village that shares a boundary with a treatment area village, and interacts that variable with women in three age groups (BoundXAgeUnd35, BoundXAge30to55, and BoundXAgeOver55). [15]

Savings is one of the most difficult to measure variables from household surveys. It should represent income, defined as a combination of market and home production plus changes in net worth, minus consumption of market and home produced goods and services inclusive of housing and consumer durables. This broad definition of current savings cannot be approximated to our satisfaction from the information provided in a single survey such as the 1996 MHSS. The alternative explored here is to estimate the differences in the value of household assets between households in program and comparison villages, controlling for the age and education of both the mother and father and other attributes of village infrastructure. If we assume that households did not differ significantly before the program, as the 1974 Census suggests, and if the value of household assets diverge

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[13] Theories of social learning, that recognize that contraceptive behavior is socially regulated provide an additional explanation for the response to program intervention in Matlab (Munshi 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.

[14] 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 A-1.

[15] 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.

between the program and comparison villages by 1996, this program difference may approximate two decades of differential savings, related to the experimental program which induced declines in fertility and sought to improve maternal and child health. As we would expect, household assets increase over the life cycle of a couple, and according to the life cycle savings hypothesis savings will tend to peak in the late middle ages when investments in children are declining and retirement is approaching. The reduced-form equations for assets therefore include the village treatment variable interacted with four age groups of women (15-20, 20-30, 30-40, over 40) and the woman's years of schooling, to assess the extent of substitution of assets for children toward the end of the life cycle, which may differ by parent's level of human capital.

Most major assets of the household are assigned market values in the MHSS but not attributed to a single owner, such as housing, agricultural land, and business assets, whereas some relatively smaller assets such as livestock and jewelry have a designated personal owners, husband or wife or relative. Moreover, some assets shared by Bari residents cannot be allocated across households or families. Of great importance for the use of women's time as carriers of water, preparers of food, and managers of health care is the availability for the family of water for drinking, washing, and bathing within the Bari, a convenient distance from their household. This asset is not explicitly assigned a monetary value in the survey, and is thus included here as a special dimension of household physical assets that is of particular consequence to women.

Additional Control Variables for Individuals and Villages

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 because children occupy primarily women's time (Schultz, 1981). The husband's age is also included in quadratic form (*HusAge and HusAgeSq)* as a auxiliary indicator of household life cycle income and wealth.[16]

Earlier study of different types of households in Matlab finds 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 widows and their children do not.[17] 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 groups of women are likely to differ in their

[16] 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=1, HusAgeMissing =1).

[17] 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 females 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).

fertility and socioeconomic status and social networks compared with the omitted category of three-fourths of the women, whose husband is their household head. We assume that these variations in the composition of households can be treated here as exogenous. Omitting these control variables for types of female headed households does not change our central findings on the program effects, but do explain long run differences in demographic and family outcomes.

Finally, five features of the village as of 1996 are specified in the reduced form which could influence the economic, health, and environmental conditions of families in the village. In particular, we control for (I) whether the microfinance Bangladesh Rural Advancement Committee (bank) is present in the village[18] (*BRACInVill)*, (ii) whether the village has any paved/pucca road (*AnyPuccaRd)*, (iii) the average distance in miles between the village and a sub-center hospital 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 Matlab.

Dependent Variables: Jointly Determined Family Life Cycle Outcomes

Table 3 panel A lists the fertility and family outcome variables observed in the MHSS that may be affected by the family planning and health program : 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 inter-generational human capital outcomes reflecting the survival, health and schooling of the woman's children. These dependent variables are described in the notes to the reduced form regression tables and repeated here.

1) Measures of fertility/child mortality : 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 the third child (*ThirdBirthInterval).*

2) 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 indicator of the capacity to perform five activities of daily living (ADLs) is normalized to 1 if no functional limitations are reported, or to 0 if the maximum observed in the sample of limitations occurs *(ADLEq0)*.[19]

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[18] 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).

[19] *ADLEq0 =(1.0-ADLscore).* A woman's capability to perform five activities of daily living are aggregated into a score : (a) walk for one mile; (b) carry a heavy load (like 10 seer of rice) for 20 meters; © 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

3) Measures of women's primary earnings, total income, and participation in microfinance 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, 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 (*GroupWork)*, or group savings *(GroupSavings).* With the wide range of NGO group-related employment, credit and savings programs in rural Bangladesh, e.g. BRAC in Matlab, it is hypothesized that such groups would increase women's participation in income generating group activities that may be difficult to combine with caring for young children and thereby reduce fertility.[20]

4) Household assets, housing quality and Bari sources of water: Household assets are valued and homestead characteristics noted which may enhance women's productivity: (I) Total household assets in thousands of taka including homesteads (*TotAssets*), (ii) Total assets excluding farmland (*TotAssetsExLand*), (iii) Value of farmland (*FarmlandValue*), (iv) Value of homestead land and housing (*HsLandValue*), (v) Value of ponds, orchards, agricultural equipment and other agricultural assets (*PondsAndAgAssets*), (vi) Non-Agricultural structures and assets (*NonAgAssets*), (vii) Financial savings, and jewelry (*OtherSavings*), 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 source of water for cleaning and bathing is also on the Bari (*ClWellinBari*). These survey assessments of household wealth in the MHSS are more detailed and comprehensive than those on consumer durables and housing exploited by analysts of the World Fertility Surveys or Demographic Health Surveys (Filmer and Pritchett, 1999).

5) Use of preventive health inputs: The FPMCH 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 which are the focus here : (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 of her pregnancies (*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).*

6) 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 difference between the child's observed years of schooling completed and the median educational attainment of other children in the

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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). Following Stewart et al (1990), this ADL index is normalized for the I th individual = *ADLindex*(i)= (Score(i) – Minimum score)/(Maximum score – Minimum Score).

[20] However, one evaluation of microcredit programs in Bangladesh found that women's access to credit was associated with their increased earnings and increased fertility in post-program periods (Pitt et al. 1999).

MHSS sample of his/her age, divided by the standard deviation of the years of schooling of the group of children his/her age, averaged across her children (iv) the height, weight and BMI for boys and girls age 0 to 14, also expressed as a Z score in standard deviations from the median of the CDC reference well nourished U.S. population.[21]

6. Average Treatment Effects of the Program on Fertility

The fertility (children ever born) reduced-form equation estimates specified in the previous section for all married women age 15 or older are reported in Table 4, column 1. The program treatment is significantly associated with a mean reduction of 1.5 children for women between the ages of 45 to 50, and at least 1.0 fewer children for women between the ages of 30 and 55. There is no partial association between the program and the fertility of women older than 55, confirming again no pre-program differences in the program and comparison areas in reproductive behavior.

A woman who has completed one more year of schooling has on average .064 fewer children ever born, but this effect of schooling of the mother does not appear different in the treatment and control villages. In other words, there is no evidence that female education and program effectiveness are substitutes, or the program causes the fertility between women with more and less education to converge (or diverge). The coefficient on the years of education of the husband is not significantly different from zero. Muslims have .25 more children than do Hindus in the comparison areas, and in the treatment area Muslims have 0.56 more children (i.e. .25 + .31). The effect of the program is thus to reduce the relative fertility of the minority group, the Hindus, by more than the Muslims, perhaps because of the more limited social networks among Hindus.[22]

Women in control villages that share boundaries with the program treatment villages report lower fertility, which are statistically significant for women between the relevant ages of 15 to 55, but the magnitude of the reduction in their fertility is roughly a quarter of the size associated with residing in a program village. There is thus evidence of a modest diffusion of family planning knowledge beyond the treatment area, but it does not appear to extend further to affect fertility in additional neighboring villages, perhaps because women's social networks are localized, under strict rules of the purdah. Residing in a village which is more distant from a sub-hospital, which also provides access to contraceptive services in the regular government program, is not associated significantly with a higher fertility. Having in the village a BRAC microfinance institution, which encourages family planning and female self employment, is associated with women having .14 fewer children. Access in the village to a paved roads or a town motor boat for water transport are associated with greater fertility, and these two village variables are generally associated with greater household wealth.

Reported at the bottom of column 1 of Table 4 is the joint F test for the statistical significance of the 12 variables interacted with program treatment, which are significant with a p value of less

[21] www.cdc.gov/nccdphp/dnpa/growthcharts/sas.htm

[22] Because the proportion of the population Muslim is smaller in the treatment than the control villages, 95 vs. 83 percent (Cf. Appendix Table A), omission of the Muslim treatment interaction control variable from the fertility equation would decrease (in absolute value) the estimated overall effect of the treatment on fertility.

than .0001. 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 age-specific boundary area variables, and the village F tests the joint significance of the five infrastructure variables measured at the village level. All of the F tests are significant at least at the 10 percent level. The sample size is 5379 married women, and the R squared is .57. Although the heterogeneity in fertility response to the program is not confirmed with respect to the mother's schooling, it is with respect to Muslim, and the boundary villages, all of which treatment interaction variables are retained in the remaining reduced form estimates, because other family outcomes may be affected by the program differentially across these socioeconomic and geographic groupings. Standard errors in all estimates are corrected for the survey clustering at the village level.

The demographic transition involves the decline in both fertility and child mortality, with offsetting effects on size of surviving family. The Matlab FPCMH program 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 consider how the program is associated with 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 measured for only 5127 mothers who had at least one child five years before the survey. As expected, the program is generally associated with lower rates of child mortality, which are significant among women age 35 to 40 and 45 to 55. [23] The implied reduction in child mortality by age five is substantial, between 2.5 to 5.6 per hundred births, and this decline represents a reduction in the sample average child mortality (.137) of one fifth or more. These program associated declines in child mortality offsets nearly half of the program induced reduction in fertility among women age 45-50, who are estimated to have 1.51 fewer children, and .83 fewer surviving children.

Column 4 in Table 4 reports that the program is not jointly (F) or individually (t) associated with the age at which the women have their first birth or the first birth interval, but the program increases significantly the spacing of their births between the second and third birth, as shown in column 6.[24] Apparently the outreach FPMCH 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 third and later births further apart, as suggested in previous studies (Koenig et al., 1992; DeGraaf, 1991). In contrast, having a BRAC in the village is associated with .14 fewer births and women also delay their first birth by nearly four months (.3 years) on average.

[23] 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 anomaly which cannot be explained by the program.

[24] 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 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 marry at the same time in the treatment and control villages, even though fertility has been substantially lower in the treatment areas for two decades. Note however that the age at first birth has increased in all of Matlab by 4.7 years between women who were age 55-60 and those age 25-29 in 1996.

The effect of the woman's schooling on her number of surviving children is also a third smaller than the effect on fertility, because her schooling is significantly associated with lower child mortality(-.0039). Although it was already noted that her husband's schooling is not associated with decreased fertility, it is associated with decreased child mortality before age five (column 3, by -.0021), and thus his schooling is associated with 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, 2005). But even with schooling increasing on average from 1.0 to 3.1 years for women age 50 to 55 compared with women age 25 to 30, this large gain in women's schooling relative to men is associated with only a small overall reduction in fertility (-.13) or surviving fertility (-.09), in these estimates. The fertility and surviving fertility effects of the FPMCH program are nearly ten times larger than those directly associated with the rapid increase in women's schooling in this 25 year period.

In summary, the provision of the program services after 1977 is 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. No evidence was found that the provision of supplementary MCH services from 1982-86 (only in blocks A and C), or the Maternal Care Program after 1987, is significantly associated with additional declines in the level of fertility or child mortality as recorded in the 1996 MHSS.

7. Other Consequences of the Program on Women and their Children

Family planning has often been subsidized as a policy to improve the welfare of families and as a means to slow population growth which was expected to facilitate economic development. This commitment to population programs was reevaluated after some 40 years in the 1994 Cairo International Conference on Population and Development. Among the conclusions of this conference is that improved access to birth control is only one facet of the package of reproductive health services women require, which strengthens their reproductive rights, empowerment, lifetime opportunities and family welfare. To our knowledge population program evaluation studies have not sought to quantify whether helping women control their reproduction actually improves their health status and leads to additional improvements in well-being and that of their families. Perhaps the connection is obvious, but the standards of social program evaluation appear to be improving in low income countries, and evaluation studies such as this of the magnitude and personal distribution of the benefits from FPMCH-type programs might modify future priorities assigned to such reproductive health programs.

In the balance of this paper estimate are presented of how women exposed to the Matlab FPMCH program, who evidently reduced their fertility, also differ in their health, productivity, market income, participation in groups beyond the family, and household economic assets and water supplies within their Bari. Use of a variety of preventive health measures emphasized by the program are also evaluated which might have contributed to the decline in child mortality, and affected the health and schooling of the woman's children?[25]

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[25] Maternal deaths related to obstetric causes declined in the MCP 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 was introduced in

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 health human capital, and allow women to control with less uncertainty the allocation of their time between childbearing and other activities over their lifetime. First, all five indicators of the woman's health in Table 5 are lower for older women. This pattern by age may be due to both life cycle aging and secular gains in nutrition and health, which are likely to have differentially benefitted younger women. Because adult height does not tend to change appreciably from age 25 to 50 for an individual, and declines only gradually with aging thereafter, the evidence in Table 5 column 3 is that women in Matlab age 25 to 45 are about 2-3 centimeters taller than women over age 50. This represents a more rapid growth in stature than Fogel (2004) finds in Western Europe after the industrial revolution.

The woman's own assessment of being "healthy" in the MHSS is not reported more often among those residing in a program village compared with those in a comparison village, as seen in column 1 of Table 5, confirming the skepticism of health researchers in the meaning of these self assessments of health. Among the elderly, indicators of physical functioning based on the absence of functional disabilities (ADLs) are regarded as more a more reliable survey measure of health status (Steward et al, 1990). The MHSS index of physical functioning is statistically significantly higher for women age 50-55 in the program areas, and the joint F for all of the age-treatment variables is significant at the 5 percent level (Col. 5 Table 5). Because adult height is believed to be largely determined by the time a child is five years old, it is not surprising that the adult's subsequent exposure to the program is not associated with adult height in Matlab. However, weight and body mass index (BMI), which are current indicators of the woman's health and nutritional status, are significantly higher in treatment villages. BMI is on average one unit higher for women over the age of 25 in the treatment areas, and this represents a 0.4 standard deviation increase in this sample (Table 3A). There is relatively little documentation as to how BMI is likely to enhance economic productivity or reduce objective measures of mortality and morbidity, but it may be substantial in a poor malnourished population such as in Matlab. Because there is no significant association between the program and indicators of the husband's health, such as his BMI, the program appears to improve women's health relative to men's.

It may be useful to relate the magnitude of the program's association with women's BMI to other historical indicators. Stunting and wasting are common occurrences in this South Asian population. In the MHSS women on average weigh 41.4 kg and have an average body-mass-index of 18.7 kg/m^2, implying about half are stunted by standard CDC measures (Table 3A and by subarea in Appendix Table A). The reduced-form estimates from Table 5, column 2 suggest that the FPMCH program helped women aged 40–45 increase their weight by 2.3 kg and add to their BMI by as much as 1.3 kg/m^2. According to the estimates of Fogel (2004), an increase in BMI of one unit in a sample where the average is as low as 17.5 is associated in the European historical context with a reduction

1987, whereas the decline was insignificant from 3.9 to 3.8 in the comparison area (Fauveau et al., 1991). Studies suggest the decline is related to a reduction in abortion in the treatment area (Maine et al., 1996). Safer abortion or greater use of early pregnancy termination procedures (i.e. menstrual regulation) may have reduced the occurrence of unsafe abortions in the treatment areas. Abortion tend to be seriously underreported in surveys and are not anlayzed here, and maternal mortality is sufficiently rare to require a larger survey or census.

of mortality risks by as much as one fifth, comparable to the proportionate decline in child mortality observed between the program and comparison villages (Table 4, col 3).

Table 6 reports the reduced-form estimates of the program's association with women's economic productivity and involvement in microfinance group activities. The woman's primary occupational earnings and total income are significantly associated with better educated women. For example, a woman living in a comparison village reports having earnings from her primary occupation which are 241 taka more for each year of schooling she has completed, compared with the mean earnings in these villages of 698 taka (Appendix Table A). This private earnings "return" to schooling for women residing in a program village is three times as large or 735 taka per year of schooling, compared with the mean of 1374.[26] Contrary to expectations, column 3 suggest that women age 45-50 in treatment villages are less likely to own their own cash savings, and women's participation outside of the family in group activities is, if anything, less common in all three designated group activities for receiving a loan, working coordinated businesses, and investing savings. Bangladesh is known for the active role of NGO microcredit institutions, such as BRAC and the Grameen Bank, which have used joint liability group lending arrangements to bring credit to poor women without collateral. Having a BRAC Bank in the village is associated with more frequent group loan, savings and work by women, as expected. But before interpreting this association as causal, the location of BRAC branches may be targeted to villages where the education and productivity of women is unusually low, which might explain why earnings of women is not positively associated with a BRAC in the village. However, we do not have sufficient information to model the rules governing the placement of BRAC operations, to assess the independent effects of BRAC on women's economic performance. Across Matlab 62 percent of program villages have a BRAC, whereas only 51 percent of the comparison villages do (Appendix Table A).

It was noted earlier that assets in the MHSS are reported more comprehensively at the level of the household, than at the nuclear family or individual levels, and since the ownership of some Bari assets are not allocated, such as the supplies of water, we estimate the access to these assets as separate dependent variables. The univariate relationship between total household assets (or household per capita assets) and the woman's age is positive and roughly linear, but the level of this asset-age profile is higher in program villages than in the comparison villages, by about 50,000 taka, as seen in the Nadaraya-Watson nonparametric regression reported in Figure 3 (Appendix Table A). Table 7 reports the reduced-form regressions on total assets and five categories of household's assets, including in each the three way interactions between woman's schooling, her age, and program village. All but non agricultural assets are significantly larger in treatment areas than comparison areas. But in Table 7 the age-specific gains in treatment areas are individually not significant for women with no schooling (baseline), although gains are generally concentrated among better educated older women. In other words, we observe better educated women in treatment areas have more farm land, ponds and orchards, housing and savings/jewelry. This pattern is consistent with better educated

[26] In results not reported here, we explored further whether this earnings effect is concentrated in particular age-groups of women. To do this, TrXYrsSch is interacted with three age dummies: AgeUnder25, Age25to40 and AgeOver40. The program effect is then 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. In the analysis of household assets we retain this interaction at four age levels and find it highly significant.

women viewing most physical assets as a substitute for their declining number of children. As the program allowed better control of unwanted births, better educated women with fewer (unwanted) children may have substituted their life cycle wealth toward the accumulation of physical assets by the end of their life cycle, adding about 26,000 taka more household assets for women over the age of 30, who had an additional year of schooling (column 1 Table 7). The overall sample average of household assets is 178,000 taka (Table 3A). The program associated economic benefits measured in the MHSS in the form of women's earnings and household assets are skewed toward women with more schooling in the program villages. Savings are larger for the younger better educated women in program areas, whereas most of the other assets which may require longer periods of savings to acquire increase more among older educated women in treatment villages. These education treatment effects dominate in the total asset effects in column 1, which are negative for uneducated women until they reach age 50. Asset portfolios appear to be changing in villages in which fertility and mortality are reduced by the program, with assets accumulated and being shifted on balance from farm land to housing and ponds (aquaculture) and orchards (perennial crops) and to other more liquid forms of savings. These productive assets may require less labor inputs from fewer children and may yield favorable returns compared to farm land.

There is also evidence that households in the treatment villages are more likely to report having access within the Bari compound to a tube-well for drinking water and a source of water for cleaning and bathing (only the latter is reported in Table 7 for brevity). These assets shared in the Bari, presumably without regard to schooling or status, should reduce the time required of women and children to fetch water and improve family hygiene. Women aged 35-40 and 45–50 in the treatment area appear to be 20 percentage points more likely to draw drinking water from a tube-well on the Bari (not reported), and 26 percent 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 for the family can be reallocated to other family production and consumption activities. Non-monetized outputs of home produced goods and services may be disproportionately produced by less educated women. This home production may have also increased due to the program-induced decline in fertility just as did market earnings of women. Imputing values to these nonmarket activities might help to balance the program current benefits for various educated segments of the population, but it is not likely to explain the accumulation of greater assets by the better educated households in the program areas.

Before considering the consequences of the program on children, the use of *preventive* health inputs which were explicitly promoted by the program are estimated in Table 8. The use of *curative* health care is more difficult to interpret, because these demands tend to be conditional on an individual being ill or in poor health, and the program is designed to minimize such illnesses as well as encourage treatment when ill, leaving ambiguous how the program would affect on balance the utilization of curative health care. Table 8 reports the reduced-form estimates for three indicators of the mother's use of preventive health inputs, averaged for all of her births, followed by three indicators of child vaccinations for the woman's last birth, if it occurred in the five years preceding the survey. [27] All six forms of preventive health care are jointly significantly more common in the

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[27] 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 is the number of prenatal visits she received per birth, averaged across all of her births, and column 3 is the fraction of pregnancies she was inoculated against tetanus, a

FPMCH program treatment areas. For example, women age 30 to 35 report a 11 percentage point greater likelihood of having some prenatal care in each of her pregnancies, whereas the average women in the sample it had prenatal care in only 13 percent of her pregnancies (Table 3A). In an extreme case, mothers age 35-40 in treatment villages are 77 percentage points more likely to receive a tetanus inoculation with each birth, when the sample overall average is 17 percent. With recent childhood vaccinations, about two thirds of the mother's last births received these inoculations, and this rate is 20 to 30 percentage points higher in the program than the comparison areas.[28] The coefficient for the treatment interacted with mother's schooling is negative, except for tetanus, indicating that the program is achieving a convergence in these good health care practices between mothers with less and more schooling. In other words, the program operates as a substitute for the advantages that a better educated mother brings to her offspring's health care. It is surprising, therefore, that the increase in child survival is not greater among less educated mothers in treatment areas (Table 4, column 3), but the program associated increase in the income and wealth of better educated mothers may offset convergence in child mortality.

The estimated associations with village infrastructure variables are weak but generally plausible. 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 limitation on their use. Child immunization campaigns are more often promoted in recent years by the government through canvassing entire villages (Fauveau, 1994), which could explain why the distance to the clinic is not associated with differential rates 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 less frequent prenatal care, although more frequent tetanus inoculations for mothers. Fertility is not associated with the proximity of the woman's household to a sub-hospital or contraceptive clinic, leading us to hypothesize that the FPCMH program has reduced stigma among contraceptive users, or distributed knowledge about birth control more effectively than do local clinics, and thus had an effect beyond reducing only the time costs for contraceptors to replenish their supplies. If the village had a paved road or village motor boat, fertility appears higher, and these locations also tend to report greater household wealth which may contribute to their higher fertility (Schultz, 1981).

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 automatically contribute to the parents allocating more resources to the nutrition, health, and schooling of their children. But these potential inter-generational consequences

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common cause of infant and maternal mortality in the region. 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).

[28] The unconditional means for the treatment and comparison populations are also reported in Appendix Table A. Vaccinations associated with the program did not differ significantly between boys and girls (not reported).

of family planning and reproductive health programs have not generally been empirically estimated allowing for heterogeneity or the likelihood that omitted variables would influence quantity and quality in opposite directions (Schultz, 2005). In other words, parent preferences and unobserved constraints on their household are likely to affect both fertility and other family choices. Omitting these variables from an analysis of the quantity and quality of children could account for an observed inverse association, which would not necessarily be causal, and a family planning program that reduced birth rates might therefore not contribute to the anticipated increase in child quality as observed in standard cross tabulations of these variables in cross sectional comparisons. One reason society might decide to subsidize the diffusion and use of birth control is the belief that better timing of births and fewer (unwanted) births will allow a woman to invest more in herself and in each of her children, and thereby increase the likelihood that they will escape poverty and achieve greater welfare in their lifetimes. The FPMCH program in Matlab appears to have induced a decline in fertility which is uncorrelated across villages in 1977 with parent reproductive preferences and unobserved constraints on fertility or schooling. Identifying exogenous variation in fertility associated with the experimental program allows one to estimate without bias the "cross effects" of the program-induced decline in fertility with its ramifications for the schooling, or nutrition and health of children.

The samples of children are analyzed separately for boys and girls, because until recently boys received more schooling than girls in Bangladesh, and health and nutrition differentials between the boys and girls may also be significant, and possibly 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 therefore averaged across a woman's children in the relevant age group.[29]

Current enrollment by age is less informative than years of schooling completed, in part because variation in age of school entry is substantial in many low income countries, and repetition of grades common. Enrollment also does not necessarily imply regular attendance, which contributes to grade advancement. Therefore, the preferred measure of schooling is years of schooling completed, which is expressed as a difference between the child's years and the average for that age and sex group, divided by the standard deviation of schooling in that group. Because there may still be some systematic variations in these Z scores of educational outcomes associated with the child's age, an additional control variable is included for the child's age in years (or average age if the mother has more than one child in the relevant age interval). Interactions between residence in a program village and the mother's schooling and religion are retained, but the program interaction with the mother's age is omitted, given the inclusion of the child's age as a control. Current enrollment in school is also estimated for comparative purposes, because Sinha (2005) examined this measure of child schooling in a parallel study of the quantity-quality tradeoff.

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[29] 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 yield quite similar estimates. However, weighting the analysis to focus on women as the unit of observation maintains here the same sampling framework as in the previous estimates based on the mothers.

The years of schooling Z score in columns 2 and 4 estimate that the program is associated with an increase in boy's schooling of a half standard deviation .54), but estimated effect of the program is to increase girl's schooling by a third standard deviation (.35) and this estimate is not statistically significant. As in most studies of the determinants of schooling, both mothers and father's schooling are positively and significantly associated with the child's schooling, with the magnitude of the effect being somewhat larger for the mother's schooling than for the father's. The current enrollment rate for the woman's sons and daughters between the ages of 9 and 14, reported in columns 1 and 3 of Table 9 are not related to the program, and also oddly unrelated to the mother's schooling. Among older children age 15 to 30, the Z scores for completed schooling are again significantly associated with the program for sons (.43) but the coefficient for daughters (.22) is again not statistically significant.[30]

Muslims report their children have more years of schooling than do Hindus, especially for girls age 9-14 , but in the treatment villages this religious differential is reduced, and among boys the educational advantage of Muslims is entirely eliminated in program treated villages.[31]

Another pattern reflected in 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, and these are significant for sons age 9-14 and daughters age 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 (Joshi, 2004).[32] In villages with a secondary school or one in an adjacent village, schooling levels are significantly higher for children 9 to 14 and for daughters age 15-30, whereas having a BRAC in the village by 1996 is associated with higher schooling levels for younger children age 9-14.

Table 10 reports parallel regressions for the height, weight, and body mass index (BMI) Z scores for children less than 15 years of age. With the substantially lower level of child mortality before age five in program villages, 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 program effects are only significant for girl's BMI (+.42), although mother's education is associated with increased height and weight of their boys and girls. Residents in villages with a BRAC have taller boys and girls, and girls with higher BMI, while nearby secondary schools are associated with lower height and BMI. These anthropometric nutrition/health indicators for child

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[30] 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 2235 vs.1717 , respectively. This may suggest some sample selection recall bias may be present in these reports of educational attainment for older children.

[31] Foster and Roy (1997) found evidence of the FPMCH effect increasing the schooling of some earlier born children, whereas Sinha (2005) estimated program effects on current enrollments which were insignificant, 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.

[32] See footnote 17.

development do not reveal the expected effects of the program or other household or community conditions.

Heterogeneity in Individual Response to the Program

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 were provided under the FPMCH. 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, associated with a decline in fertility. The educational attainment of young women in 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 young men. But according to the fertility reduced-form equation estimated in Table 4, this improvement in female schooling of two years is currently associated with a .13 decline in average fertility, a small fraction of the national decline 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 was advanced 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. This hypothesis implies that the coefficient on the schooling*treatment variable in Table 4 would be positive, but it is not significantly different from zero. However, prenatal care and child vaccinations are less common for the better educated in the program villages, contributing to a convergence in use in preventive health inputs (Table 8), but this does not achieve a convergence in child survival rates across mothers with different levels of schooling. The program does differentially benefit the minority Hindus relative to the majority Muslims in terms of fertility reduction, with the coefficient on the Muslim*treatment variable being positive in sign. But when the program evaluation is extended to an analysis of the woman's earnings, income, or household assets, there are distinctly larger absolute gains in treatment areas for women with more schooling, suggesting a redistribution of these observed economic resources by the program away from the most poorly educated and most disadvantaged strata of the society. The gains from the program in women's earnings and household assets appear to be roughly proportional as are years of schooling themselves.

Supply-Demand Framework Interpreting Fertility and Quantile Regressions

To hypothesize how a family planning program affects fertility, it may be helpful to consider how *unobserved* sources of variation in fertility that remain unexplained in the reduced-form equation (47% of variance) might be influenced by the program's treatment. Variation in fertility within a population can be attributed to factors which affect a couple's potential biological supply of fertility (i.e. fecundity), or to factors which affect a couple's demand for births (i.e. behavioral). The difference between their supply and demand will motivate them to use birth control to more closely approximate their demand (Rosenzweig and Schultz, 1985, 1987). After the onset of the demographic transition, when the potential supply of births exceeds the demands for births for most people, a birth control subsidy or family planning educational program benefits couples by increasing their understanding of and access to more effective and less costly techniques to control fertility. The FPMCH program in Matlab sought to achieve both objectives, and thereby facilitated the reduction in fertility in treatment villages, especially for couples whose fertility supply is above average, or whose fertility demand is below average, or both. [33]

One implications of this conceptual framework for fertility can be explored with the Matlab data. According to this schema, if the individual variation in fertility in Matlab that is unexplained by observable determinants of fertility demand and supply, such as female education and female age, respectively, is due primarily to supply variation in "fecundity", then, those couples whose fertility is larger than can be explained by individual, household, and village exogenous control characteristics, are likely to have experienced a positive supply "shock" to their fecundity and fertility. These couples will want to reduce their subsequent fertility and respond by using the program services more intensively than the average couple. By estimating conditional quantile regressions for fertility, the estimated impact of the program reducing fertility would then be larger at the top 90th percentile in the distribution of fertility residuals, than would the program impact be on the median or 50th percentile, or below, under the assumption that the residuals are predominantly supply (fecundity) driven.

Appendix Table B confirms this empirical regularity. The program treatment coefficients for women less than age 55 are a significantly larger negative values at the 75th percentile than at the 25th percentile. To be specific, the program treatment effect among women age 40 to 45 is estimated to fall in absolute value monotonically from -2.02 at the 90th percentile in the distribution of residuals (roughly half of the overall variance in fertility), to -1.59 at the 75th percentile , to -1.08 at the median, and -.40 at the 25th percentile. At this 25th percentile the estimated effect of the program is no longer significantly different from zero. By comparison, the ordinary least squares estimate of the treatment effect on the conditional mean is reported in the first column of Table 4 as -1.26 children.[34] This pattern of quantile regression estimates is consistent with variation in supply being the dominant source of residual variation in fertility in Matlab. Conversely, if the residuals were largely caused by unobserved demand determinants of fertility, program effects on the distribution of fertility residuals should be larger in absolute value at the 25th percentile than those at the median, and so on.[35] These

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[33] Undoubtedly some part of the variation in fertility supply is persistent over the reproductive lifetime of the couple, and their knowledge of their reproductive endowments (i.e. permanent supply effect) will thus accumulate with experience in the union, allowing them to adopt birth control practices that selectively responds to the emerging difference they learn about between their lifetime supply of, and demand for, births . In other words, the error in the fertility equation will tend to be positively serially correlated due to the couple-specific supply endowment effect (fecundity) which persists over the marriage. Demand determinants may also be persistent, to the extent that they are driven by unobserved habits, preferences, lifetime endowments and prices, which do not change rapidly (Rosenzweig and Schultz, 1985).

[34] However, it should be noted that ordinary least squares estimates minimize the square of the deviations of the predicted from the actual values of fertility, whereas the quantile regressions minimize the sum of the absolute values of the deviations between predicted and actual values (Koenker, 2005)

[35] Note that the demand effect of the wife's education on fertility residuals does not statistically significantly differ across the quantiles, varying from -.052 at the 25th percentile to -.067 at the 90th percentile, and

conditional quantile regressions suggest the benefits of the FPMCH program are concentrated disproportionately among the more fecund couples, and not concentrated in any other measured socioeconomic strata of this poor rural population, such as among better educated women or men. However, the methods for estimating the program's average effect on the treated which are estimated in this paper cannot be readily extended to assess the program's impact on the entire distribution of outcomes (i.e. quantile effects) without making stronger assumptions (Heckman, et al. 1997).

Migration as a Source of Program Evaluation Bias

Migration could bias these estimates of the program's effect on the treated, but counterfactuals are not readily observed or constructed. First, women may migrate over their reproductive lives and may not have lived since marriage in the village in which they resided at the time of the 1996 survey. In fact virtually all migration occurs for women at the time of marriage. But women might learn about family planning in their parent's household before marriage? About 12 percent of our sample of married women were born outside of the demographic surveillance system (DSS) and reside in 1996 in a program village, but this group does not display any significant difference in fertility or child mortality. The two percent of the sample who were born in a comparison village and reside in 1996 in a program village are also not distinct in their reproductive or health outcomes. Finally the women born in treatment villages but currently enumerated in a comparison village are also indistinguishable in the benchmark reduced form fertility equations. Premarriage migration is thus not associated with fertility.

The second effect of migration could influence who remains in the resident Matlab population in 1996, or who has entered the thana, and could modify the unobserved behavioral tendencies of the population sampled in the 1996 MHSS. The program could affect the probability of migration and thereby cause differential patterns of migration into and out of the program and control areas. In particular, fertility and family outcomes for those migrating could modify estimates of the program's impact on the population actually resident in the area in 1977 who were originally treated by the program. For older women we cannot assess those who left the DSS with their households, though the survey asks remaining households about members who have left and these responses do not indicate differences in out-migration in the treatment and control communities.

A third possible effect of migration could arise if the program affected the out-migration of children, which may be as important a human capital investment for the youth of Matlab as their nutrition and schooling. Based on the 1996 MHSS, the frequency of out-migration of children from the program and comparison areas as reported by their surviving parents is not statistically different, suggesting this source of migration is not a source of selection bias.

8. Instrumental Variable Estimates of Program Effects on the Family via Fertility

The reduced- form estimates reported in Tables 4 through 10 make no assumptions about the mechanisms through which the program treatment exerts its impacts on the welfare of women and

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indeed the interaction between the wife's education and treatment is also statistically insignificant. As with the unconditional estimates of the program impact on fertility portrayed in Figure 2, the quantile treatment effects are insignificant among women over age 55 in 1996, who had more or less completed their childbearing before the program started in their village.

their children other than that the program and other explanatory variables are exogenous. There are several possible pathways through which the FPMCH program could have led to the changes in family 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 FPMCH program's effect on family well-being in the treatment areas operates *only* through the reduction of women's number of children ever born. This assumption may not be defensible for understanding child and maternal health outcomes because it neglects the other targeted elements of the program, which were given increasing emphasis in the later years of the program. However, estimates of additional influences from the maternal and child health program's begun initially in distinct experimental communities (block A & C) between 1982 and 1986, and then expanded to all FPMCH villages did not appear to explain a significant share of the variation in child survival or mother's health as of 1996.

Therefore, Table 11 summarizes second-stage instrumental variable (IV) estimates of fertility's effects on a variety of family outcomes. The first column reports the ordinary least squares (OLS) coefficient on the fertility variable added to selected family outcome equations in Tables 4 through 8, when the 12 treatment explanatory variables are excluded which interact exogenous variables with the village treatment dummy, and the three treatment boundary variables are also excluded. In the cases of the education and anthropometric indicators of the children, the treatment effect is identified from only a single program residence variable. These OLS estimates would measure the association between fertility and these family outcomes, which could represent a causal effect if fertility were exogenous to the process determining these other outcomes. The second column in Table 11 presents the IV estimate of fertility's effect as an endogenous variable whose impact is identified by the 12 program treatment interaction variables through group savings, and the treatment variable alone is the basis for the IV estimates in the fifth column.

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 ($p<.0000$), and the single program variable is also significant in analogous child outcome estimates (unreported). The Sargan over-identification test, reported in the third column of Table 11 tests the implicit over identification restrictions for the initial family outcomes. The Durbin-Wu-Hausman specification test, reported in the fourth column, tests the exogeneity of fertility. For example, this test confidently rejects the exogeneity of fertility when the dependent variable is the woman's weight, BMI, or the two measures of Bari water sources, and at the 10 percent level in the case of the woman's primary occupational earnings and group work. Because the 11 over-identification restrictions are often rejected, and they are for the most part orthogonal (age categories are mutually exclusive), the identifying exclusion restrictions are collapsed into a single village treatment dummy interacted with women's aged 15 to 55, and the resulting just identified IV estimates and Hausman test statistic is recalculated in the fifth and sixth column of Table 11, as implicitly done in the case of the children's human capital outcomes which are restricted to younger women for whom Muslim and schooling interactions are excluded to yield just identified estimates of the program's effect operating through fertility.

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 is associated with a .025 reduction in the proportion of children who died before the age of five. This is a decline of about 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 twice as large, or .055 (in column 5). The over-identified IV estimates indicates that one less child is associated with an increase in a woman's weight by 1.53 kg and BMI by 0.63 kg/m^2, both of which suggest the program improved 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 earnings is 1023 taka larger, if she reduced her fertility by one birth due to the program, which represents a doubling of this source of earnings in the overall sample. In this case, the just identified model effect of fertility is small and insignificant, implying that the education interaction is the critical source of this over-identified estimate of the program effect. These estimates also indicate that as a result of the program, women are 8 percentage points more likely to reside in a household that draws drinking water from a well that is located on the Bari, and 7 percentage points more likely to derive its water for cleaning utensils and bathing from a source located on the Bari. These program effects increase to 13 and 24 percent, respectively, when the second just identified IV model is estimated.

The IV intergenerational effects of the program operating only through a fertility decline are statistically significant for the Z scores for boys years of schooling 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. In general, the IV estimates reinforce the reduced form estimates in that they confirm the program's effect operating through the reduction in fertility could explain why the program is significantly associated with improvements in the woman's BMI, her Bari's water supplies, and related to the schooling of young boys.

9. Conclusions

Matlab district of Bangladesh had evolved 19 years after an intensive family planning outreach program (FPMCH) was launched in 1977, which brought every two weeks family planning and health services and contraceptive supplies to the homes of ever married women of childbearing age**.** No evidence was found of significant fertility differences between the treatment and comparison areas in a preprogram 1974 Census , or in the reproductive histories of women over age 55 in a comprehensive household survey collected in 1996. Yet by 1978 fertility was already significantly lower in the treatment than in the comparison villages, and fertility has remained about 15 percent lower from 1982 to 1996, despite the fact that fertility has fallen rapidly in the comparison areas throughout much of this period. Other indicators of economic development potential and individual endowments, such as education of adults and children in 1974, which could possibly influence subsequent fertility and development, were insignificantly lower in the treatment than in the control areas, although this pattern has since reversed with schooling being 20 percent higher in the program areas by 1996 (Table 2), possibly due to "cross effects" of the program intervention in which increased education appears to have substituted for reduced family size. Women in villages on the boundaries of the treatment areas also report lower fertility, but this diffusion of birth control knowledge and practice probably through social networks contributes to a decline of only a third of the magnitude estimated as the program's average effect of the intension to treat, and this neighborhood spillover does not significantly reduce child mortality or improve other observable attributes of the family's health inputs or family welfare.

The FPMCH program treatment in half of the 141 villages of Matlab is associated with at least one child decline in fertility for women age 30 to 55 as of 1996, and is also associated with women's health improvements, their economic productivity outside of their household, and their household assets. The 1996 MHSS survey suggested that women who were eligible to benefit from the program in their village reported substantially greater weight and BMI, strong predictors of improved health in this malnourished population. The households of better educated women in the treatment villages had higher-valued homesteads, agriculture, nonagricultural, or financial assets, and these women also earned larger market incomes. Access to drinking and cleaning/bathing water sources within the family compound or Bari are also significantly more common in the program than in the comparison villages in 1996, a time-saving welfare gain especially for women. Group work and financial activities outside of the household by women increased in the villages which had a BRAC bank, but these self employment women's activities were not more common in program villages. Measuring the full range of work and home production of less educated women in Matlab is imperfect, and avoiding unwanted births due to the program may have added to the nonmarket income or welfare of households from which the less educated women are the primary beneficiaries. Further study of home production and consumption may uncover additional spillovers of the program-facilitated fertility decline.

Finally, the inter-generational consequences of the family planning outreach program in Matlab are weaker than might have been expected on the basis economic literature, but they are still consistent with the quantity-quality hypothesis. Parents in Matlab if provided the program opportunity to avoid additional unwanted births and achieve higher rates of child survival are observed to have about .8 fewer living children, averaging the program's coefficient for women from age 30 to 50 in Table 4 column (2). This decline in surviving family size is achieved by having 1.2 fewer births and reducing child mortality by about a quarter. This decline in fertility has occurred while the comparison villages in Matlab were also reducing their fertility from more than 6 children to less than 4 per woman. Each extra birth averted by the program is associated with boys age 9 to 14 completing more schooling, about half of a standard deviation more years of schooling, while girls in the program treatment villages gained a third of a standard deviation in their schooling, but this advance for girls is not statistically significant. The woman's older children who are aged 15 to 29 in 1996 experienced smaller gains in their schooling of .43 and .22 standard deviations in their years of schooling for boys and girls, with again the additional advance for girls in the program villages not being statistically significant.

Child mortality before the age of five is substantially lower – five percentage points – among women who reside in the treatment villages in contrast to those in the comparison areas controlling for a large number of exogenous variables. Use of six preventive health inputs promoted in the FPMCH program are all observed to be adopted more frequently in the program areas. Prenatal care and tetanus inoculations for mothers are more frequent, and the women's last child is more likely to be vaccinated against the a variety childhood diseases. But height and weight Z scores of sons and daughters less than 15 years of age are not significantly greater in the program villages than in the comparison villages, though BMI of girls is significantly higher by .42 standard deviations. 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, confirms a major improvement in early child health occurred in program areas, which is likely to improve the health status of the surviving children, and may be expected to add to the children's productive capacity as adults and reduce their mortality in later years, even though these gains in health status are not reflected in standard anthropometric indicators collected in the 1996 in the MHSS.

References:

Aghion, Beatriz A. de, and J. Morduch, 2005, Economics of Microfinance, Cambridge MA: MIT Press

Becker, G.S., 1960, "An Economic Analysis of Fertility", in Demographic and Economic change in Developed Countries, Princeton NJ: Princeton University Press and NBER

Becker, G. S., 1981, A Treatise on The Family, Cambridge: Harvard University Press.

Becker, G. S. and H. G. Lewis, 1974, "Interaction between Quantity and Quality of Children", in T. W. Schultz (ed.) The Economics of the Family, Chicago: University of Chicago Press.

Ben Porath, Yorum, 1976, "Fertility response to child mortality: Micro data from Israel", Journal of Political Economy, 84 (4 part 2): S163-S178.

Blake, Judith, 1989, Family Size and Achievement, Berkeley and Los Angeles: University of California Press.

Chaudhuri, Anoshua, 2005, "Intra-Household Spillover Effects of a Maternal and Child Health Program," processed San Francisco State University, California.

DeGraff, D. S., 1991, "Increasing Contraceptive Use in Bangladesh: the Role of Demand and Supply Factors", Demography, 28(1):65-81.

Fauveau, Vincent (ed.), 1994, Women, Children and Health, ICDDR ,B Special Publication No. 35, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka.

Fauveau, V., Steart, K., Khan S.A., Chakraborty, J., 1991, "Effect on Mortality of Community Based Maternity Care Programs Rural Bangladesh," Lancet, 338:1183-86.

Field, Erica, 2004, "Consequences of Early Marriage for women in Bangladesh", draft, October, <efield@latte.harvard.edu>.

Filmer, Deon, and L. Pritchett, 1999, "The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries," Population and Development Review, 25(1):85-120.

Fogel, R. W., 2004, The Escape from Hunger and Premature Death, 1700-2100, Cambridge University Press, Cambridge UK.

Foster, A..D. and N. Roy, 1997, "The Dynamics of education and fertility: evidence from a family planning experiment", processed, Brown University, Providence RI.

Freedman, R. and J. Y. Takeshita, 1969, Family Planning in Taiwan: An Experiment in Social Change, Princeton NJ: Princeton University Press.

Frankenberg, E., W. Suriatini, and D. Thomas, 2005, "Can Expanding Access to Basic Health Care Improve Children's Health Status? Lessons from Indonesia's 'Midwife in the Village Program'", Population Studies, 59(1):5-19.

Frankenberg, E. and D. Thomas, 2001, "Women's Health and Pregnancy Outcomes: Do Services Make a Difference", Demography, 38(2):253-265.

Heckman, J. J., J. Smith and N. Clements, 1997,"Making the most out of Programme Evaluations and Social Experiments: Accounting for Heterogeneity in Programme Impacts", Review of Economic Studies, 64: 487-535.

ICDDR,B, Centre for Health and Population Research, 2004, Health and Demographic Surveillance System–Matlab, vol. 35, Registration of Health and Demographic Events, 2002, Dhaka, Bangladesh.

Imbens, G. W. and J. Angrist, 1994, "Identification and estimation of local average treatment effects", Econometrica, 62(2): 467-476

IPPF, Bangladesh Country Profile, 2005, International Planned Parenthood Federation, www.ippf.org

Joshi, Shareen, 2004, “Raising Children in Rural Bangladesh: The Role of Mothers, Fathers and Other Family Members,” unpublished Ph.D. dissertation, Yale University, New Haven, CT.
Koenker, Roger, 2005, Quantile Regression, Cambridge University Press, New York.
Koenig, M.A., U. Rob, M.A. Kahn, J. Chakraborty, and V. Fauveau, 1992, “Contraceptive use in Matlab. Bangladesh in 1990: levels, trends and explanations”, Studies in Family Planning, 23(6): 352-364.
Maine, Deborah, M.Z. Akalin, J. Chakraborty, Andres de Francisco, and M. Strong, 1996, “Why Did Maternal Mortality Decline in Matlab?” Studies in Family Planning, 27(4):179-187.
Mincer, J., 1963,”Market Prices, Opportunity Costs and Income Effects” in Measurement in Economics, (eds.) C. Christ, et al. Stanford CA: Stanford University Press.
Mincer, J. 1974, Schooling, Experience and Earnings, Columbia University Press, New York.
Munshi, K. and J. Myaux, 2006, “Social Norms and the Fertility Transition”, Journal of Development Economics, 80:1-38.
Phillips, J.,F., W. Stinson, S. Bhatia, M. Rahman, and J. Chakraborty, 1982, “The Demographic impact of Family Planning - Health Services Project in Matlab, Bangladesh, Studies in Family Planning, 13(5): 131-140.
Phillips, J. F., R. Simmons, M. A. Koenig, and J. Chakraborty, 1988, “Determinants of Reproductive Change in a Traditional Society: Evidence from Matlab, Bangladesh”, Studies in Family Planning, 19(6): 313-334.
Pitt M.M., S. R. Shandker, S-M. McKernan and M.A. Latif, 1999,”Credit Programs for the Poor and Reproductive Behavior in Low-Income Countries”, Demography, 33(1) :1-21.
Population Reference Bureau, 1999, “Bangladesh and Family Planning: An Overview,” www.prb.org.
Rahman, O., J. Menken, A. Foster and P. Gertler, 1999, Matlab [Bangladesh] Health and Socioeconomic Survey (MHSS), 1996, Inter-university Consortium for Political and Social Research, Ann Arbor, Michigan.(ICPSR 2705).
Razzaque, Abdur, L. Nahar, A.M. Sarder, J. K. Van Ginneken and M.A. K. Shaikh, 1998, 1996 Socio-Economic Census, Demographic Surveillance System-Matlab Vol. 29, Scientific Report No. 83, International Centre for Diarrhoeal Disease Research, Bangladesh.
Rosenzweig, M. R. and K. I Wolpin, 1080, “Testing the quantity-quality fertility model”, Econometrica, 48(1): 227-240.
Rosenzweig, M. R. and T. P. Schultz, 1983, “Estimating a Household Production Function: Heterogeneity, the Demand for Health Inputs, and their Effects on Birth Weight”, Journal of Political Economy, 91:5, 723-746.
Rosenzweig, M. R. and T. P. Schultz, 1985, “The Supply and Demand of Births. And their Life-Cycle Consequences” American Economic Review, 75(5): 992-1015.
Rosenzweig ,M.R. and T. P. Schultz, 1987, “Fertility and Investment in Human Capital: Estimates of the Consequences of Imperfect Fertility Control in Malaysia”, Journal of Econometrics, 36 :163-184.
Rosenzweig, M.R. and T. P. Schultz, 1989, “Schooling, Information, and Nonmarket Activity”, International Economic Review, 30: 457-477.
Sah, R.J., 1991, The effects of child mortality on fertility choice and parental welfare”, Journal of Political Economy, 99: 582- 606.
Schultz, T. P., 1980, “An Interpretation of the Decline in Fertility in a Rapidly Developing Country”, (ed.) R. A. Easterlin, Population and Economic Change in Developing Countries, Chicago: University of Chicago Press.
Schultz, T.P., 1981, Economics of Population, Reading MA: Addison-Wesley Publishers.

Schultz, T. P., 1984, "Studying the Impact of Household Economic and Community Variables on Child Mortality," Population and Development Review, 10 Supplement: 215-235.

Schultz, T. P., 1988, Population Programs: Measuring Their Impact on Fertility and the Personal Distribution of Their Effects," Journal of Policy Modeling, 10(1):113-139.

Schultz, T. P. ,1992, "Assessing Family Planning Cost Effectiveness", in Family Planning Programmes and Fertility. (Eds.) J. F. Phillips and J. A. Press, New York: Oxford University Press, 78-105.

Schultz, T. P., 2002, "Fertility Transition: Economic Explanations", International Encyclopedia of the Social and Behavioral Sciences, (eds.) N. J. Smelser and P. B. Baltes, Pergamon, Oxford, pp 5578-5584.

Schultz, T. P., 2005, "Population Policies, Fertility, Women's Human Capital , and Child Quality", Conference on Microeconomics of Development, Bellagio Italy May 2005, forthcoming Handbook of Development Economics, vol. IV, Elsevier : Amsterdam.

Sinha, Nistha, 2005, "Fertility, Child Work, and Schooling Consequences of Family Planning Programs", Economic Development and Cultural Change, 54(1):97-128.

Stewart, A., J. Ware, R. Brook, and A. Davies-Avery, et al., 1990, Measurement of Adult Health Status: Physical Health In Terms of Functional Status, Cambridge: Harvard University Press.

Strauss, J. and D. Thomas, 1995, "Human Resources : Empirical Modeling of Household and Family Decisions", in Handbook of Development Economics, vol IIIA, (eds.) J. Behrman and T,N, Srinivasan, Amsterdam: Elsevier, Chapter 34.

Tobin, James and H.S. Houthakker, 1950-51, "The effects of rationing on demand elasticities", Review of Economic Studies, 18: 140-153.

United Nations ,1967, Methods of Estimating Basic Demographic Measures from Incomplete Data, Manual IV, ST/SOA/Series A/42, New York

Wolpin, K. I., 1997, "Determinants and consequences of the mortality and health of infants and children" in Handbook of Population and Family Economics, (eds.) M. R. Rosenzweig and O. Stark, North Holland Pub. Co.:Amsterdam

Zajonc, R.B., 1976, "Family Configuration and Intelligence", Science, vol 192, No. 4236: 227-236.

Table 1: Double Differenced Estimates of Fertility Approximated by Child-Woman Ratios in Treatment and Comparison Villages Before and After Program.

Dependent and Independent Variables	1978 and 1974	1982 and 1974	1996 and 1974
Panel A: Dependent Variable Children 0-4/Women aged 15-49			
Preprogram level or constant (β_0)	0.810	0.810	0.810
	(67.7)**	(82.2)**	(112.0)**
Difference between treatment and comparison	0.022	0.022	0.022
areas pre-program , i.e. in 1974 Census (β_1)	(1.30)	(1.58)	(2.14)*
Difference between post-program and pre-program	0.154	-0.064	-0.314
in comparison areas (β_2)	(9.09)**	(4.80)**	(16.90)**
Difference between post-program and pre-program	-0.061	-0.143	-0.127
in treatment areas (β_3)	(2.62)**	(7.78)**	(4.92)**
R-squared	0.294	0.541	0.760
Panel B: Dependent Variable Children aged 5-9 / Women aged 15-49			
Preprogram level or constant (β_0)	0.617	0.617	0.617
	(70.0)**	(77.4)**	(80.4)**
Difference between treatment and comparison	0.010	0.010	0.010
areas pre-program , i.e. in 1974 Census (β_1)	(0.84)	(0.93)	(0.96)
Difference between post-program and pre-program	-0.136	-0.0125	-0.0004
in comparison areas (β_2)	(10.9)**	(1.16)	(0.02)
Difference between post-program and pre-program	-0.025	-0.011	-0.142
in treatment areas (β_3)	(1.46)	(0.76)	(5.19)**
R-squared	0.520	0.025	0.168

Table 1: 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 robust t-statistics are presented in parentheses below the weighted coefficients; ** indicates 1% significance level, * indicates a 5% significance levels.

Table 2
Differences between the Program and Comparison Areas in 1974 Census and 1996 Survvey

	Comparison Areas (Treatment=0)			Program Areas (Treatment=1)			Program - Comparison Difference	
Panel (A): 1974 Census	Persons	Mean	Standard Deviation	Persons	Mean	Standard Deviation	Mean	(|t|)
Average Years of Schooling of persons age 15 or more	31560	1.77	0.533	38780	1.80	0.463	0.0602	(0.67)
Average Years of Schooling persons age 6 to 14	15898	1.41	0.425	19691	1.42	0.330	0.016	(0.26)
Persons age 15 or more with no schooling	31560	0.700	0.097	38780	0.699	0.067	-0.0011	(0.08)
Persons age 6 to 14 with no schooling	15898	0.407	0.139	19691	0.411	0.167	-0.0090	(0.38)
Persons in house with Tin roof	76268	0.820	0.094	83757	0.811	0.077	-0.0088	(0.61)
Muslim	77047	0.881	0.214	84472	0.794	0.289	-0.087	(2.01)
Panel (B): 1996 Survey (MHSS)								
Average Years of Schooling of persons age 15 or more	7517	3.42	0.780	7878	3.83	1.15	0.408	(2.45)
Average Years of Schooling persons age 6 to 14	3073	1.94	0.353	2566	2.32	0.475	0.379	(5.42)
Persons age 15 or more with no schooling	7784	0.407	0.094	8079	0.384	0.113	-0.023	(1.29)
Persons age 6 to 14 with no schooling	3224	0.096	0.069	2761	0.096	0.074	-0.000	(0.01)
Persons in house with Tin roof	12836	0.963	0.0429	12360	0.953	0.0414	-0.0103	(1.45)
Muslim	12847	0.948	0.119	12360	0.836	0.241	-0.112	(3.51)

Table 3A: Summary of dependent variables.

Variable	Description	Mean	Std. Dev	Obs
TotalChildren	Total number of children ever born	4.979	2.894	5379
TotalAlive	Total number of children alive	3.953	2.22	5379
FracDied5	Fraction of children under the age of 5 who died	0.137	0.183	5127
AgeAtFirstBirth	Age at which a woman had first child	23.102	4.806	5077
SecondInterval	Years between first and second child	3.27	2.104	4597
ThirdInterval	Years between second and third child	3.198	1.929	4071
CurrHealthy	Dummy variable indicating whether woman's self-reported health status is "Healthy"	0.751	0.432	5370
Weight	Woman's weight (in kg)	41.441	6.592	4703
Height	Woman's height (in cm)	148.878	6.015	4703
BMI	Womans body-mass-index (kg/m^2)	18.665	2.561	4703
ADLEq0	Womans ADL Index (0 to 1 , where 1 represents no activity limitations)	0.624	0.485	5372
PrimOccIncome	Income from woman's primary occupation in 1995	1040.	8268.	5379
TotalIncome	Womans total income in 1995	1191.	8703.	5379
OwnCashSavings	Woman owns cash savings	0.122	0.327	5372
GroupLoan	Woman participates in a loan group	0.129	0.335	5372
GroupWork	Woman participates in an employment group	0.055	0.228	5372
GroupSaving	Woman participates in a savings group	0.147	0.354	5372
TotAssets	Total household assets, i.e. sum of all assets held by the household (in thousands of Taka)	177.976	357.854	5379
TotAssetsExLand	Total household assets excluding farmland (in thousands of Taka)	126.230	311.715	5379
FarmlandValue	Value of farmland owned by household (in thousands of Taka)	51.408	116.671	5379
HsLandValue	Housing Asset or value of homestead land owned (in thousands of Taka)	97.709	275.771	5379
PondsAndAgAssets	Value of ponds, orchards, and other agricultural assets (in thousands of Taka)	12.83	39.624	5379
NonAgAssetsValue	Value of Non-Agricultural structures, boats, nets and other assets (in thousands of Taka)	8.415	49.06	5379
OtherSavings	Value of financial savings and jewlery (in thousands of Taka)	7.614	56.192	5379
DrWellWaterBari	Household drinks water from a well on the bari	0.59	0.492	5379
ClWaterInBari	Household's cleaning water from a source on the bari	0.479	0.5	5378
PregCheckUps	Fraction of past pregnancies received any prenatal care	0.129	0.217	5154
ATSInject	Fraction of past pregnancies received Tetanus (ATS) innoculation	0.17	0.269	5154
NumAnteNatChecks	Average number of prenatal visits in all past pregnancies	0.912	1.415	5154
PolioVac	Polio vaccination for last child born in past 5 yrs	0.764	0.425	1797
MeaslesVac	Measles vaccination for last child born in past 5 yrs	0.621	0.485	1796
DPTVac	DPT vaccine for last child born in past 5 yrs	0.721	0.448	1798
BCurrEnroll	Fraction of boys aged 9–14 currently enrolled	0.911	0.271	1452
BoyEdZScore	Average education Z-score for boys aged 9–14	-0.018	0.952	1441
GCurrEnroll	Fraction of girls aged 9–14 currently enrolled	0.933	0.24	1385
GirlEdZScore	Average education Z-score for girls aged 9–14	-0.025	0.973	1357

Continued on next page

Table 3A: Summary of dependent variables.

Variable	Description	Mean	Std. Dev	Obs
BoyEdZScore2	Average education Z-score for males aged 14–30	-0.131	0.952	2235
GirlEdZScore2	Average education Z-score for females aged 14–30	-0.095	1.011	1717
BZWeight	Z-score of weight for boys aged 1 to 14	-2.448	0.925	1741
BZHeight	Z-score of height for boys aged 1 to 14	-2.579	1.227	1741
BZBMI	Z-score of BMI for boys aged 1 to 14	-1.427	1.108	1741
GZWeight	Z-score of weight for girls aged 1 to 14	-2.435	0.919	1716
GZHeight	Z-score of height for girls aged 1 to 14	-2.68	1.304	1716
GZBMI	Z-score of BMI for girls aged 1 to 14	-1.364	0.961	1716

Table 3A:

Table 3B: Summary of independent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
TrXAgeUnder25	(Woman resides in Treatment area) XAgeUnder25	5337	.048	.213	0	1
TrXAge25to30	(Woman resides in Treatment area) X Age25to30	5337	.062	.241	0	1
TrXAge30to35	(Woman resides in Treatment area) XAge30to35	5337	.077	.267	0	1
TrXAge35to40	(Woman resides in Treatment area) XAge35to40	5337	.066	.248	0	1
TrXAge40to45	(Woman resides in Treatment area) XAge40to45	5337	.051	.220	0	1
TrXAge45to50	(Woman resides in Treatment area) XAge45to50	5337	.046	.208	0	1
TrXAge50to55	(Woman resides in Treatment area) XAge50to55	5337	.047	.211	0	1
TrXAge55to60	(Woman resides in Treatment area) XAge55to60	5337	.037	.189	0	1
TrXAge60to65	(Woman resides in Treatment area) XAge60to65	5337	.029	.167	0	1
TrXAge65Over	(Woman resides in Treatment area) XAge65Over	5337	.041	.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	.891	.312	0	1
TrXMuslim	(Woman resides in treatment area) X Muslim	5337	.420	.494	0	1
TrXAge35to55	(Woman resides in Treatment area) X Age35to55	5337	.211	.407	0	1
Age25to30	The woman is aged to 25 to 30, i.e. 25≤ Age<30	5337	.124	.329	0	1
Age30to35	The woman is aged to 30 to 35, i.e. 30≤ Age<35	5337	.148	.355	0	1
Age35to40	The woman is aged to 35 to 40, i.e. 35≤ Age<40	5337	.128	.334	0	1
Age40to45	The woman is aged to 40 to 45, i.e. 40≤ Age<45	5337	.098	.297	0	1
Age45to50	The woman is aged to 45 to 50, i.e. 45≤ Age<50	5337	.090	.286	0	1
Age50to55	The woman is aged to 50 to 55, i.e. 50≤ Age<55	5337	.094	.292	0	1
Age55to60	The woman is aged to 55 to 60, i.e. 55≤ Age<60	5337	.072	.259	0	1
Age60to65	The woman is aged to 60 to 65, i.e. 55≤ Age<65	5337	.062	.242	0	1
Age65Over	The woman's is over 65 (Age≥ 65)	5337	.084	.277	0	1

Continued on next page

Table 3B: Summary of independent variables.

Variable	Description	Obs	Mean	Std. Dev	Min	Max
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	.071	.256	0	1
MarriedFH	Woman is married and heads her own household	5337	.051	.220	0	1
HusAbsentNH	Husband absent, woman not household head	5337	.117	.321	0	1
HusAgeMissing	Husband's age is missing	5337	.193	.395	0	1
HusEdMissing	Husband's years of schooling is missing	5337	.070	.255	0	1
BoundXAgeUnd35	Boundary village X (Age$<$35)	5337	.055	.229	0	1
BoundXAge30to55	Boundary village X (35$\leq$ Age $<$ 55)	5337	.051	.220	0	1
BoundXAgeOver55	Boundary village X (Age $\geq$ 55)	5337	.032	.176	0	1
BRACInVil	BRAC is present in the village	5308	.565	.496	0	1
AnyPuccaRd	Village has a pucca road	5308	.184	.388	0	1
SubHospDist	Distance from the hospital sub-center (in km)	5238	3.582	2.339	.097	10.738
SecSchNearby	Secondary school in village or neighbouring village	5337	.750	.433	0	1
VillMotBoat	Village accessible by motor boat	5308	.327	.469	0	1

Table 3B:

Table 4: Reduced form results for total fertility, number of children alive, below 5 mortality, age at first birth and birth intervals.

	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder25	-.5173	-.3381	-.0377	.2165	.3165	.5969
	(.2128)**	(.2160)	(.0324)	(.5892)	(.4178)	(.6504)
TrXAge25to30	-.6812	-.5661	.0101	.1165	.3244	.8967
	(.2083)***	(.2137)***	(.0242)	(.5493)	(.3056)	(.3242)***
TrXAge30to35	-1.0723	-.7306	-.0381	.1052	.2245	1.0853
	(.2332)***	(.2159)***	(.0252)	(.7111)	(.3537)	(.3178)***
TrXAge35to40	-1.0152	-.5880	-.0492	-.0915	.0343	.7694
	(.2445)***	(.2447)**	(.0246)**	(.5850)	(.3560)	(.2918)***
TrXAge40to45	-1.2619	-.9671	-.0247	-.8676	.0831	.3463
	(.2703)***	(.2798)***	(.0274)	(.5847)	(.3628)	(.3340)
TrXAge45to50	-1.5131	-.8357	-.0562	-.3598	.1722	.6890
	(.2964)***	(.2779)***	(.0246)**	(.6852)	(.3707)	(.3432)**
TrXAge50to55	-1.1066	-.4138	-.0559	-.3520	.0301	.8005
	(.2592)***	(.2615)	(.0255)**	(.6544)	(.3197)	(.3142)**
TrXAge55to60	-.3029	.0089	-.0378	-.0086	-.1563	.8244
	(.3082)	(.2596)	(.0280)	(.7500)	(.4428)	(.3570)**
TrXAge60to65	-.4042	-.3345	-.0071	.1860	-.0866	.2332
	(.3332)	(.3006)	(.0285)	(.7210)	(.3707)	(.3277)
TrXAge65Over	-.2554	.1391	-.0506	-1.1572	-.0309	.8331
	(.3242)	(.3052)	(.0268)*	(.9618)	(.3164)	(.3091)***
TreatXYrsSch	.0017	-.0027	.0008	-.0501	.0081	.0111
	(.0175)	(.0163)	(.0019)	(.0410)	(.0239)	(.0234)
TrXMuslim	.3099	.1721	.0228	-.1275	.1050	-.4938
	(.1769)*	(.1730)	(.0188)	(.3817)	(.2537)	(.2196)**
Muslim	.2518	.2866	-.0201	.0333	.0043	.1184
	(.1489)*	(.1487)*	(.0170)	(.3237)	(.2298)	(.1839)
Age25to30	1.3618	1.2694	-.0335	.7369	.6266	.4654
	(.1003)***	(.0748)***	(.0179)*	(.2069)***	(.2195)***	(.2445)*
Age30to35	2.7279	2.2998	.0112	.0572	.5421	.3624
	(.1355)***	(.1048)***	(.0165)	(.3769)	(.2355)**	(.2501)
Age35to40	3.7506	3.0664	.0288	-.8320	.4855	.3977
	(.1446)***	(.1248)***	(.0174)*	(.3551)**	(.2547)*	(.2799)
Age40to45	4.6296	3.8413	.0213	-1.4039	.5149	.6944
	(.1884)***	(.1786)***	(.0206)	(.3772)***	(.2812)*	(.2755)**
Age45to50	5.8779	4.4481	.0607	-2.7677	.3226	.4326
	(.2002)***	(.1526)***	(.0189)***	(.4373)***	(.2766)	(.3005)
Age50to55	6.1436	4.5491	.0562	-3.2535	.3543	.4354
	(.2059)***	(.1773)***	(.0236)**	(.4799)***	(.2638)	(.2926)
Age55to60	6.2123	4.4692	.0655	-4.0074	.5017	.1916
	(.2287)***	(.2246)***	(.0254)***	(.5487)***	(.2974)*	(.2798)
Age60to65	6.6664	4.9437	.0523	-4.0886	.3000	.4074
	(.2353)***	(.2284)***	(.0283)*	(.6198)***	(.3544)	(.3440)

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	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
Age65Over	6.6185	4.5147	.0702	-3.4708	.3289	.3861
	(.2636)***	(.2396)***	(.0307)**	(.7374)***	(.2855)	(.3251)
YrsSch	-.0638	-.0424	-.0039	.1323	-.0031	.0173
	(.0141)***	(.0116)***	(.0016)**	(.0363)***	(.0255)	(.0190)
HusAge	.0424	.0412	-.0005	-.0695	-.0067	-.0016
	(.0050)***	(.0044)***	(.0008)	(.0172)***	(.0077)	(.0105)
HusAgeSq	-.0425	-.0431	.0012	.0321	.0050	-.0038
	(.0082)***	(.0066)***	(.0011)	(.0235)	(.0099)	(.0105)
HusYrsSch	-.0049	.0199	-.0021	.0006	.0008	-.0020
	(.0103)	(.0088)**	(.0009)**	(.0243)	(.0148)	(.0127)
UnmarriedFH	-.4877	-.5577	.0616	-1.6193	.5902	-.5812
	(.2329)**	(.2151)***	(.0351)*	(.7634)**	(.3490)*	(.3458)*
MarriedFH	.0971	.2591	-.0148	-1.2958	.0533	.1926
	(.1166)	(.1057)**	(.0117)	(.3652)***	(.1534)	(.1576)
HusAbsentNH	-1.0858	-1.0301	.0590	-2.0547	.6840	-.6350
	(.1876)***	(.1841)***	(.0368)	(.7883)***	(.3525)*	(.3589)*
HusAgeMissing	.5279	.5961	-.0289	-1.0209	-.7759	.3284
	(.1832)***	(.1679)***	(.0354)	(.6934)	(.3480)**	(.3671)
HusEdMissing	.0082	.1223	-.0136	-.5266	.2013	-.0082
	(.1039)	(.0940)	(.0103)	(.2766)*	(.1525)	(.1473)
BoundXAgeUnd35	-.2232	-.2239	.0196	-.2191	-.0361	-.0496
	(.1209)*	(.0962)**	(.0114)*	(.4331)	(.2059)	(.2334)
BoundXAge35to55	-.3896	-.2955	.0034	-.5774	.4372	.0177
	(.1599)**	(.1379)**	(.0134)	(.3930)	(.1940)**	(.1493)
BoundXAgeOv55	-.2164	-.3139	.0147	.0933	.2414	.2185
	(.1898)	(.2041)	(.0222)	(.5348)	(.1881)	(.2164)
BRACInVil	-.1447	-.1084	-.0035	.2916	.0482	.0300
	(.0691)**	(.0594)*	(.0047)	(.1887)	(.0784)	(.0680)
AnyPuccaRd	.1921	.1406	.0025	-.2968	-.0310	-.0094
	(.0778)**	(.0708)**	(.0067)	(.2686)	(.0853)	(.1013)
SubHospDist	-.0223	-.0198	.0011	-.0678	-.0151	.0078
	(.0208)	(.0211)	(.0019)	(.0715)	(.0286)	(.0273)
SecSchNearby	-.0689	-.0079	-.0059	.1512	-.0332	-.0744
	(.0847)	(.0638)	(.0057)	(.2073)	(.0924)	(.0784)
VillMotBoat	.1077	.0879	.0064	.0442	-.0474	-.0467
	(.0606)*	(.0552)	(.0056)	(.2198)	(.0872)	(.0721)
Constant	.6848	.2789	.1386	27.2138	2.9261	2.6813
	(.2440)***	(.2553)	(.0324)***	(.6633)***	(.4310)***	(.3871)***
N	5379	5379	5127	5077	4597	4071
R-squared	.5710	.4864	.0719	.2518	.0155	.0258
F	615.2865	491.1020	17.2386	60.3539	3.0807	5.6889
TreatmentF	5.8442	2.8393	2.2518	1.0412	.8330	2.6468
p-value	3.94e-08	.0016	.0124	.4151	.6164	.0032
EducationF	16.3095	11.4299	3.5765	6.8732	.0625	1.1255
p-value	4.38e-07	.00003	.0306	.0014	.9395	.3275
MuslimF	17.4850	12.9651	.7651	.1014	.4943	4.3906

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	TotalChildren	TotalAlive	FracDied5	AgeAtFirstBirth	SecondInterval	ThirdInterval
	(1)	(2)	(3)	(4)	(5)	(6)
p-value	1.70e-07	7.00e-06	.4672	.9037	.6111	.0142
BoundaryF	7.1758	5.2023	1.4684	1.1149	2.8852	.0671
p-value	.0011	.0066	.2339	.3309	.0592	.9352
VillageF	2.0545	1.3642	.7665	.9405	.1676	.3072
p-value	.0748	.2415	.5755	.4569	.9741	.9079

Table 4: 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 standard errors, clustered at the village level, are in parentheses below regression coefficients; (iii) * significant at 5%; ** significant at 1%; (iv) *All Treatment F* tests the joint-significance of the variables *TrXAgeUnder25, TrXAge25to30, TrXAge30to35, TrXAge35to40, TrXAge40to45, TrXAge45to50, TrXAge50to55, TrXAge55to60, TrXAge60to65, TrXAge65Over, TreatXYrsSch* and *TrXMuslim*; (v) *Education F* tests the jointsignificance of *TrXYrsSch* and *YrsSch*; (vi) *Muslim F* tests the joint-significance of the variables *TrXMuslim* and *Muslim*; *Boundary F* tests the joint-significance of *BoundXAgeUnd35, BoundXAge35to55*, and *BoundXAgeOv55*; (vii) *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	.0480	.0524	-1.2820	.3796	-.0011
	(.0580)	(1.0335)	(.9339)	(.3845)	(.0527)
TrXAge25to30	.0423	.9394	-1.5700	.8394	.0667
	(.0640)	(1.0055)	(.8500)*	(.3788)**	(.0471)
TrXAge30to35	.0253	1.6273	-.7233	.9453	.0418
	(.0644)	(.9354)*	(.9363)	(.3456)***	(.0512)
TrXAge35to40	.0870	1.7169	-1.4810	1.1350	.0522
	(.0664)	(.9231)*	(.8951)*	(.3470)***	(.0547)
TrXAge40to45	.0280	2.3423	-1.3188	1.4016	.0815
	(.0718)	(1.0128)**	(.9210)	(.3849)***	(.0653)
TrXAge45to50	.0677	2.4370	-.4182	1.1864	.0130
	(.0681)	(.9834)**	(.9849)	(.3582)***	(.0739)
TrXAge50to55	.0315	1.6220	-1.1410	1.0206	.1450
	(.0803)	(.9659)*	(.9239)	(.3898)***	(.0671)**
TrXAge55to60	.0333	1.3565	-1.3226	.9570	.0983
	(.0703)	(1.0640)	(.9183)	(.4250)**	(.0614)
TrXAge60to65	.0455	1.5417	-.0251	.7162	.0362
	(.0866)	(1.0399)	(.9770)	(.4052)*	(.0573)
TrXAge65Over	-.0163	1.1001	-1.9622	.9985	.0246
	(.0797)	(1.0832)	(1.1507)*	(.3826)***	(.0526)
TreatXYrsSch	-.0051	.1905	.1394	.0493	.0012
	(.0036)	(.1257)	(.0696)**	(.0505)	(.0040)
TrXMuslim	-.0615	-.4659	.8303	-.4263	-.0881
	(.0426)	(.7374)	(.6825)	(.2850)	(.0395)**
Muslim	.0151	.4299	1.1864	-.1016	-.0036
	(.0361)	(.5216)	(.6070)*	(.1892)	(.0290)
Age25to30	-.0552	.0871	.5304	-.0983	-.0747
	(.0243)**	(.4772)	(.4367)	(.2108)	(.0196)***
Age30to35	-.0700	-.3754	-.3853	-.0766	-.0882
	(.0228)***	(.5212)	(.4511)	(.2008)	(.0238)***
Age35to40	-.1127	.3714	.8095	-.0205	-.1677
	(.0318)***	(.5010)	(.4937)	(.2179)	(.0297)***
Age40to45	-.1247	-.5198	-.3745	-.1357	-.2735
	(.0388)***	(.6195)	(.6189)	(.2488)	(.0408)***
Age45to50	-.1799	-1.4659	-1.7239	-.2265	-.3729
	(.0364)***	(.6191)**	(.6749)**	(.2445)	(.0516)***
Age50to55	-.2418	-2.8018	-1.9445	-.7809	-.5967
	(.0444)***	(.7110)***	(.6511)***	(.2851)***	(.0432)***
Age55to60	-.2772	-2.8057	-2.1529	-.7519	-.6547
	(.0453)***	(.7639)***	(.7670)***	(.2857)***	(.0425)***
Age60to65	-.3552	-4.0913	-3.6002	-.9836	-.7822
	(.0530)***	(.7475)***	(.7814)***	(.3094)***	(.0419)***
Age65Over	-.4055	-4.2980	-3.3439	-1.1831	-.8572

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	CurrHealthy	Weight	Height	BMI	ADLEq0
	(1)	(2)	(3)	(4)	(5)
	(.0575)***	(.8388)***	(.8072)***	(.2788)***	(.0352)***
YrsSch	.0044	.1633	.0859	.0493	-.0024
	(.0035)	(.0583)***	(.0672)	(.0213)**	(.0032)
HusAge	-.0009	.0216	.0291	.0039	-.0009
	(.0012)	(.0268)	(.0227)	(.0099)	(.0011)
HusAgeSq	.0006	-.0370	-.0361	-.0096	-.0001
	(.0017)	(.0305)	(.0271)	(.0116)	(.0014)
HusYrsSch	.0027	.2316	.0430	.0946	.0038
	(.0024)	(.0388)***	(.0329)	(.0152)***	(.0021)*
UnmarriedFH	-.0327	.9112	1.8278	-.0548	-.0429
	(.0583)	(.8902)	(.6735)***	(.3654)	(.0556)
MarriedFH	-.0126	.5320	.2908	.1738	-.0197
	(.0283)	(.5516)	(.4919)	(.2116)	(.0351)
HusAbsentNH	-.0716	.4729	1.2595	-.1263	-.0658
	(.0599)	(.8309)	(.7416)*	(.3437)	(.0514)
HusAgeMissing	-.0185	-.7969	-1.0348	-.0588	.0065
	(.0556)	(.7546)	(.6913)	(.3031)	(.0499)
HusEdMissing	.0271	.2029	.1227	.0754	.0316
	(.0220)	(.3332)	(.3743)	(.1261)	(.0192)
BoundXAgeUnd35	-.0476	.3964	.0377	.1916	-.0082
	(.0394)	(.5327)	(.5911)	(.2384)	(.0314)
BoundXAge35to55	-.0772	.4161	-.5646	.3232	-.0003
	(.0712)	(.6729)	(.5010)	(.2994)	(.0617)
BoundXAgeOv55	.0137	-.0039	-.6583	.1532	.0345
	(.0614)	(.7207)	(.8442)	(.3085)	(.0357)
BRACInVil	-.0178	.2562	-.4107	.2117	-.0156
	(.0236)	(.2268)	(.2643)	(.0831)**	(.0198)
AnyPuccaRd	.0068	.7071	.7994	.1172	-.0063
	(.0255)	(.5255)	(.3262)**	(.2254)	(.0296)
SubHospDist	-.0018	.1580	.0982	.0482	-.0072
	(.0096)	(.1004)	(.1018)	(.0466)	(.0073)
SecSchNearby	.0175	-.0034	.3921	-.1064	-.0014
	(.0248)	(.2762)	(.2983)	(.0953)	(.0216)
VillMotBoat	-.0076	.3396	.3779	.0554	-.0555
	(.0255)	(.2515)	(.2688)	(.1060)	(.0192)***
Constant	.9362	39.3428	147.3326	18.0954	1.0519
	(.0706)***	(1.1860)***	(1.1512)***	(.4118)***	(.0548)***
N	5370	4703	4703	4703	5372
R-squared	.1156	.1747	.1011	.1226	.3720
F	28.3771	47.0998	17.4339	26.1537	249.8999
TreatmentF	.7884	1.8394	1.3198	2.2449	1.9175
p-value	.6617	.0476	.2140	.0127	.0371
EducationF	1.1844	7.8411	11.4633	4.3997	.3004
p-value	.3090	.0006	.00002	.0141	.7410
MuslimF	1.8526	.3492	23.8143	2.5581	5.3765
p-value	.1607	.7059	1.33e-09	.0811	.0056

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	CurrHealthy	Weight	Height	BMI	ADLEq0
	(1)	(2)	(3)	(4)	(5)
BoundaryF	.7900	.3033	.9130	.6115	.0886
p-value	.4559	.7389	.4037	.5440	.9153
VillageF	.2543	2.7625	2.4834	2.5231	2.4807
p-value	.9371	.0207	.0346	.0322	.0347

Table 5: Notes: (i) 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 an individual's *ADLIndex* takes value 0. *ADLIndex* 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)—(vii) of Table 4 apply.

Table 6: Reduced form regression results for womens income, and participation in employment, saving and credit groups.

	PrimOccIncome	TotalIncome	OwnCashSavings	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder25	-2026.1990	-1584.7330	-.1394	-.0733	-.0625	-.1921
	(1700.3640)	(1745.8450)	(.0543)**	(.0543)	(.0306)**	(.0629)***
TrXAge25to30	-2857.7010	-2841.5940	-.0704	.0154	.0008	-.0774
	(1664.4130)*	(1703.3830)*	(.0606)	(.0682)	(.0353)	(.0703)
TrXAge30to35	-759.2230	-420.5117	-.0487	.0076	-.0113	-.1163
	(999.1334)	(1065.3670)	(.0587)	(.0630)	(.0334)	(.0668)*
TrXAge35to40	-499.0568	-216.5028	-.0449	.0449	.0040	-.0631
	(1109.7690)	(1252.8810)	(.0583)	(.0647)	(.0360)	(.0614)
TrXAge40to45	970.9871	1146.0080	-.0640	-.0144	-.0243	-.0912
	(1149.4190)	(1182.2590)	(.0552)	(.0682)	(.0348)	(.0683)
TrXAge45to50	292.1160	500.4487	-.1157	.0015	-.0370	-.0913
	(1162.8860)	(1207.0310)	(.0646)*	(.0644)	(.0345)	(.0692)
TrXAge50to55	-884.8426	-595.7733	-.0573	.0198	-.0006	-.1066
	(1005.6660)	(1047.5380)	(.0551)	(.0593)	(.0257)	(.0591)*
TrXAge55to60	-581.5490	-285.6570	-.0802	-.0201	-.0053	-.0764
	(1048.1100)	(1112.6310)	(.0542)	(.0582)	(.0276)	(.0630)
TrXAge60to65	-285.3401	-5.6608	-.0889	-.0537	-.0544	-.1565
	(914.4509)	(973.4658)	(.0545)	(.0585)	(.0309)*	(.0630)**
TrXAge65Over	-557.5592	-198.0880	-.0637	-.0822	-.0471	-.1775
	(889.4835)	(957.8280)	(.0573)	(.0614)	(.0265)*	(.0636)***
TreatXYrsSch	493.8342	486.0786	.0076	.0008	-.0018	.0064
	(279.6979)*	(273.2251)*	(.0047)	(.0033)	(.0027)	(.0038)*
TrXMuslim	-742.1541	-1171.5560	.0145	.0011	-.0033	.0651
	(736.2094)	(827.7398)	(.0376)	(.0480)	(.0242)	(.0499)
Muslim	-371.8867	-175.3614	.0203	-.0285	-.0053	-.0833
	(530.7639)	(567.2553)	(.0324)	(.0427)	(.0189)	(.0446)*
Age25to30	1519.7780	1972.2470	.0455	.0520	-.0031	.0429
	(1242.8410)	(1329.3870)	(.0352)	(.0213)**	(.0179)	(.0290)
Age30to35	996.4324	1155.3970	.0575	.0813	-.0063	.0527
	(584.0604)*	(601.3022)*	(.0351)	(.0235)***	(.0165)	(.0335)
Age35to40	931.6533	1495.5160	.0324	.0612	-.0006	.0560
	(694.5117)	(721.7289)**	(.0393)	(.0305)**	(.0200)	(.0324)*
Age40to45	1055.0490	1350.7870	.0112	.0562	-.0057	.0061
	(826.2925)	(838.2886)	(.0303)	(.0272)**	(.0199)	(.0306)
Age45to50	683.8055	904.4160	.0435	.0266	-.0122	.0016
	(802.3207)	(824.2650)	(.0472)	(.0248)	(.0222)	(.0334)
Age50to55	838.0067	1008.4400	-.0255	-.0154	-.0602	-.0371
	(821.6802)	(858.8882)	(.0336)	(.0324)	(.0244)**	(.0359)
Age55to60	550.1320	676.3460	.0052	-.0030	-.0422	-.0338
	(831.3058)	(832.6736)	(.0391)	(.0279)	(.0189)**	(.0288)
Age60to65	197.3904	332.5200	-.0265	.0078	-.0194	-.0375
	(763.7507)	(771.3138)	(.0409)	(.0279)	(.0201)	(.0350)

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	PrimOccIncome	TotalIncome	OwnCashSavings	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)
Age65Over	159.0981	288.8546	-.0586	.0024	-.0336	-.0315
	(773.9166)	(783.1878)	(.0436)	(.0319)	(.0232)	(.0363)
YrsSch	240.7247	275.7592	.0139	.0009	.0011	-.0021
	(124.8114)*	(119.5205)**	(.0035)***	(.0032)	(.0025)	(.0036)
HusAge	-24.9370	-24.1758	-.0010	.0035	.0015	.0021
	(64.4118)	(68.7164)	(.0016)	(.0012)***	(.0010)	(.0014)
HusAgeSq	20.7164	24.0821	.0013	-.0038	-.0013	-.0024
	(60.7952)	(64.6580)	(.0017)	(.0015)***	(.0010)	(.0017)
HusYrsSch	-9.6626	-8.7484	-.0026	-.0027	-.0004	.0006
	(33.1465)	(34.7313)	(.0017)	(.0023)	(.0015)	(.0024)
UnmarriedFH	462.0175	565.0438	.0121	.0259	.0076	.0347
	(1035.6750)	(1078.8640)	(.0388)	(.0387)	(.0288)	(.0470)
MarriedFH	177.4863	64.7253	-.0013	-.0165	.0023	.0362
	(1108.6510)	(1158.3450)	(.0307)	(.0237)	(.0220)	(.0320)
HusAbsentNH	168.2155	257.1218	-.0059	-.0024	.0093	.0128
	(1022.0650)	(1068.2950)	(.0425)	(.0372)	(.0304)	(.0446)
HusAgeMissing	-414.7385	-364.5967	-.0026	.0222	.0095	-.0193
	(1312.8770)	(1361.8230)	(.0484)	(.0338)	(.0296)	(.0449)
HusEdMissing	-1098.7800	-829.1288	-.0394	.0182	.0250	.0391
	(383.7424)***	(460.7906)*	(.0191)**	(.0254)	(.0162)	(.0272)
BoundXAgeUnd35	-821.6502	-611.8837	-.0125	.0263	.0022	-.0117
	(838.9855)	(880.7894)	(.0438)	(.0416)	(.0245)	(.0388)
BoundXAge35to55	-935.0508	-835.2294	.0184	.0811	.0436	.0256
	(375.8239)**	(493.5513)*	(.0380)	(.0347)**	(.0264)*	(.0358)
BoundXAgeOv55	-775.2032	-861.3475	-.0099	-.0390	-.0363	-.0659
	(367.7532)**	(384.7687)**	(.0308)	(.0254)	(.0232)	(.0275)**
BRACInVil	240.8596	229.9689	.0295	.0711	.0219	.0555
	(245.5733)	(263.9809)	(.0139)**	(.0189)***	(.0104)**	(.0199)***
AnyPuccaRd	544.2214	594.1011	.0386	.0243	.0051	.0167
	(430.8461)	(412.8723)	(.0205)*	(.0262)	(.0161)	(.0252)
SubHospDist	-168.7787	-192.4274	-.0188	-.0134	-.0130	-.0215
	(96.6143)*	(101.3399)*	(.0067)***	(.0064)**	(.0045)***	(.0076)***
SecSchNearby	4.8391	46.8958	-.0039	.0337	.0303	.0099
	(208.1177)	(219.7871)	(.0176)	(.0230)	(.0113)***	(.0240)
VillMotBoat	440.3474	518.8957	.0411	-.0008	.0206	.0083
	(287.7328)	(309.9981)*	(.0180)**	(.0184)	(.0124)*	(.0196)
Constant	1246.1030	836.5463	.1404	.0416	.0566	.2308
	(1187.9730)	(1361.7880)	(.0548)**	(.0605)	(.0401)	(.0748)***
N	5379	5379	5372	5372	5372	5372
R-squared	.0487	.0487	.0597	.0773	.0424	.0680
F	5.6790	6.9951	8.3247	12.7921	4.7305	13.0444
TreatmentF1	1.3013	1.4987	1.4986	3.1202	2.1798	3.7153
p-value	.2244	.1315	.1315	.0006	.0158	.00007
EducationF	5.1161	6.0914	17.9859	.2048	.2295	1.6334
p-value	.0072	.0029	1.14e-07	.8151	.7952	.1990
MuslimF	2.6351	2.4977	2.0443	.9974	.1806	2.0989

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	PrimOccIncome	TotalIncome	OwnCashSavings	GroupLoan	GroupWork	GroupSaving
	(1)	(2)	(3)	(4)	(5)	(6)
p-value	.0753	.0860	.1334	.3715	.8349	.1265
BoundaryF	3.9533	1.4646	1.4190	2.8462	1.8752	.7132
p-value	.0214	.2347	.2455	.0615	.1572	.4919
VillageF	1.1652	1.4062	2.9582	10.3052	4.2279	6.0917
p-value	.3295	.2258	.0144	2.07e-08	.0013	.00004

Table 6: Notes: (i) The dependent variables are as follows: *PrimOccIncome* measures the income a woman earned from her primary occupation in the year preceding the survey; *TotalIncome* measures the sum of a woman's income from her primary and secondary occupations in the year preceding the survey; *OwnCashSavings* is a dummy variable that takes value 1 if a woman reports having her own savings stored in the form of cash, and 0 otherwise; *GroupLoan*, *GroupWork* and *GroupSaving* are dummy variables that take value 1 if a woman belongs to a microcredit group, employment group or savings group respectively, and 0 otherwise. Notes (ii)—(vii) of Table 4 apply.

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

	TotAssets	TotAssetsExLand	FarmlandValue	HomeValue	PondsAndAgAssets	NonAgAssets	Savings	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TrXAgeUnder25	-32.6685	15.9126	-48.5812	16.5105	.9688	8.5493	-10.1160	.2547
	(48.2652)	(37.8974)	(22.0891)**	(36.1296)	(4.4757)	(7.3883)	(6.4210)	(.1184)**
TrXAge25to30	2.6839	38.8879	-36.2039	42.0485	1.7391	-3.8901	-1.0096	.2692
	(61.5757)	(52.8626)	(22.0983)	(50.7401)	(4.5561)	(7.3381)	(4.8965)	(.1024)***
TrXAge30to35	-40.4404	7.3652	-47.8056	11.9935	1.5094	1.4132	-7.5509	.2510
	(49.6603)	(38.0042)	(24.9281)*	(36.2554)	(3.8288)	(5.6971)	(4.5192)*	(.1105)**
TrXAge35to40	-42.3881	6.3171	-48.7051	18.1619	-.5241	-2.3553	-8.9654	.2626
	(59.3346)	(52.2706)	(23.4549)**	(48.3636)	(4.8671)	(6.7152)	(5.0724)*	(.1076)**
TrXAge40to45	-42.2288	3.5626	-45.7914	6.3458	-1.5120	3.7902	-5.0614	.3085
	(52.1785)	(41.6715)	(22.0079)**	(40.1037)	(4.4888)	(6.3642)	(5.1227)	(.1050)***
TrXAge45to50	-84.3787	-21.5408	-62.8379	-14.7706	.3699	2.4246	-9.5646	.2650
	(54.1847)	(44.5520)	(23.6072)***	(43.2846)	(4.9792)	(6.4936)	(4.6244)**	(.1060)**
TrXAge50to55	18.4146	47.0892	-28.6746	50.9179	2.7400	1.4455	-8.0143	.2951
	(49.1960)	(38.5652)	(23.2936)	(37.3865)	(4.1471)	(6.0124)	(5.2233)	(.1043)***
TrXAge55to60	9.4096	41.6640	-32.2544	44.5102	4.2431	3.4925	-10.5817	.2894
	(74.5946)	(64.4650)	(23.8404)	(62.7750)	(4.4379)	(9.0020)	(5.0235)**	(.1168)**
TrXAge60to65	57.1519	107.3721	-50.2202	94.8204	1.6350	-2.6382	13.5548	.2101
	(72.6507)	(65.2126)*	(26.1698)*	(60.3595)	(7.1270)	(6.2672)	(15.4595)	(.1092)*
TrXAge65Over	5.2369	27.5164	-22.2795	27.8458	2.0848	4.1367	-6.5508	.3546
	(61.8111)	(51.8709)	(25.6774)	(50.6299)	(4.3425)	(8.5932)	(4.9778)	(.1079)***
TrXSchXAge15to20	14.5593	5.4967	9.0627	1.2800	-.3477	3.3815	1.1828	.0089
	(8.3919)*	(6.0938)	(5.5048)*	(4.0989)	(.9097)	(3.5951)	(.6022)**	(.0166)
TrXSchXAge20to30	17.5561	15.5609	1.9952	9.9554	2.2013	1.8845	1.5197	.0014
	(6.3036)***	(5.8998)***	(2.0235)	(5.7299)*	(1.1345)*	(1.4651)	(.8244)*	(.0103)
TrXSchXAge30to40	29.3547	24.6190	4.7357	18.7211	2.4119	1.8156	1.6704	.00006
	(8.2130)***	(8.1447)***	(2.4827)*	(6.2725)***	(.7915)***	(1.0201)*	(1.0548)	(.0077)
TrXSchXAgeOver40	23.4861	22.2744	1.2117	16.8045	2.8852	1.9217	.6630	-.0076
	(9.9075)**	(8.7357)**	(2.7506)	(7.6017)**	(1.1513)**	(1.3203)	(1.4929)	(.0086)
TrXMuslim	-9.8167	-47.8109	37.9942	-41.3015	-2.1401	-8.7981	4.4288	-.1474
	(34.7118)	(26.0965)*	(19.3450)**	(22.9083)*	(3.5301)	(6.3046)	(3.9992)	(.0737)**
Muslim	35.5488	41.0882	-5.5394	43.2113	2.7496	-2.0949	-2.7777	.1284
	(28.1911)	(17.4031)**	(18.1887)	(12.8716)***	(1.9319)	(4.3261)	(2.7402)	(.0569)**
Age25to30	4.4501	12.2662	-7.8161	4.8640	1.1020	2.7334	3.5667	.0271
	(16.7594)	(14.2212)	(6.3590)	(12.8854)	(1.5034)	(3.8203)	(1.1664)***	(.0393)
Age30to35	24.8203	22.9698	1.8505	13.6900	2.3115	2.6122	4.3562	.0433

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	TotAssets	TotAssetsExLand	FarmlandValue	HomeValue	PondsAndAgAssets	NonAgAssets	Savings	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(19.9139)	(15.5073)	(9.5975)	(14.2418)	(1.5489)	(3.7088)	(1.6531)***	(.0653)
Age35to40	44.7780	30.6332	14.1447	18.7534	-.6869	5.9125	6.6543	.0522
	(21.0647)**	(15.9383)*	(9.7066)	(14.0976)	(1.5942)	(5.0035)	(1.9764)***	(.0618)
Age40to45	27.4849	19.4902	7.9947	11.4501	-.3726	3.4835	4.9291	.0296
	(19.7201)	(17.5638)	(10.5129)	(15.6290)	(1.7858)	(4.5394)	(2.5780)*	(.0615)
Age45to50	104.0518	77.5572	26.4946	62.4035	1.3952	4.1495	9.6090	.1137
	(38.0775)***	(36.3687)**	(9.1036)***	(35.3513)*	(1.9536)	(4.7126)	(3.1168)***	(.0542)**
Age50to55	59.6367	37.9029	21.7338	18.2861	-.0021	9.2205	10.3984	.0659
	(29.0250)**	(25.6722)	(9.1009)**	(23.1919)	(2.8317)	(5.3122)*	(3.3922)***	(.0632)
Age55to60	88.1622	80.6449	7.5173	52.6051	1.0154	12.7110	14.3134	.0738
	(40.8151)**	(39.8139)**	(11.2617)	(38.1939)	(3.0975)	(8.3155)	(3.9240)***	(.0640)
Age60to65	89.2322	62.3181	26.9142	44.8691	1.2006	6.6775	9.5710	.1551
	(34.1258)***	(29.5095)**	(12.8503)**	(28.9380)	(4.0055)	(4.6045)	(2.8368)***	(.0727)**
Age65Over	118.7478	93.4617	25.2861	73.5512	2.9131	8.2019	8.7954	.1208
	(51.6088)**	(46.5597)**	(12.5511)**	(45.6676)	(3.7031)	(5.3065)	(2.3521)***	(.0627)*
SchXAge20to30	6.6941	3.1675	3.5266	1.5730	-.2232	1.2758	.5419	-.0088
	(4.5488)	(4.1320)	(2.2845)	(4.0753)	(.4760)	(.4238)***	(.1857)***	(.0110)
SchXAge30to40	4.3149	1.5026	2.8123	.0012	-.2366	1.4810	.2570	-.0065
	(4.7266)	(3.7141)	(2.2009)	(3.5256)	(.6232)	(.6101)**	(.2807)	(.0136)
SchXAgeOver40	17.1981	10.4159	6.7822	5.3601	.8799	2.1661	2.0098	.0010
	(7.2219)**	(6.3962)	(2.2842)***	(6.0056)	(.6933)	(.9641)**	(.8370)**	(.0123)
YrsSch	1.5101	1.8056	-.2955	1.6923	.5386	-.6929	.2677	.0309
	(4.7809)	(4.1900)	(2.0860)	(4.0111)	(.6338)	(.5186)	(.3279)	(.0130)**
HusAge	-3.7032	-3.5463	-.1569	-2.9554	-.3157	-.0828	-.1924	.0003
	(1.6219)**	(1.4590)**	(.4091)	(1.3319)**	(.2600)	(.2060)	(.1312)	(.0017)
HusAgeSq	4.6453	4.2607	.3846	3.7614	.5133	-.0289	.0150	.0010
	(1.8741)**	(1.7571)**	(.4813)	(1.6624)**	(.3296)	(.2068)	(.1738)	(.0021)
HusYrsSch	12.6320	9.4701	3.1620	7.4010	.9241	.5129	.6321	.0122
	(1.7065)***	(1.4367)***	(.6660)***	(1.3498)***	(.2647)***	(.3718)	(.1929)***	(.0029)***
UnmarriedFH	-101.0011	-60.1515	-40.8496	-47.0659	-4.4975	-2.6400	-5.9482	-.0721
	(40.5480)**	(32.2113)*	(16.1959)**	(29.0589)	(3.6192)	(5.1764)	(3.2433)*	(.0718)
MarriedFH	-62.9763	-44.0313	-18.9450	-27.2735	-9.0701	-5.2959	-2.3918	.0617
	(29.1842)**	(25.9613)*	(7.7866)**	(23.8036)	(2.2204)***	(4.2632)	(2.2586)	(.0453)
HusAbsentNH	-65.5076	-32.2254	-33.2822	-31.4702	.7773	-1.8394	.3069	-.0615
	(43.4224)	(35.0401)	(16.2090)**	(32.5353)	(3.7114)	(4.6881)	(3.0604)	(.0673)
HusAgeMissing	21.9816	-15.2434	37.2250	-11.4088	1.2591	-2.1582	-2.9356	.1198
	(38.1207)	(28.4138)	(15.3484)**	(26.2807)	(3.8887)	(5.2870)	(2.7279)	(.0626)*

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	TotAssets	TotAssetsExLand	FarmlandValue	HomeValue	PondsAndAgAssets	NonAgAssets	Savings	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HusEdMissing	-27.8706	-20.7995	-7.0711	-12.5007	-5.2069	-6.4933	3.4015	-.0394
	(15.5558)*	(13.9761)	(4.8562)	(9.0844)	(1.7964)***	(2.4504)***	(6.6137)	(.0302)
BoundXAgeUnd35	.6231	-11.1451	11.7682	-10.6395	.1144	.0079	-.6279	.0770
	(25.3332)	(21.2651)	(9.6015)	(20.3976)	(2.2269)	(4.4017)	(2.4614)	(.0634)
BoundXAge35to55	-13.2463	-4.5632	-8.6831	3.9822	-.5260	-4.1840	-3.8354	.0269
	(26.7279)	(24.1516)	(9.1169)	(23.3148)	(2.0520)	(3.1611)	(2.2669)*	(.0579)
BoundXAgeOv55	-21.7977	-29.9462	8.1485	-19.4691	-3.4670	-2.1223	-4.8878	.0231
	(41.1062)	(36.6837)	(12.2643)	(36.0287)	(2.7839)	(5.0313)	(2.9491)*	(.0662)
BRACInVil	-16.2265	-5.6954	-10.5311	-9.3778	-.1254	2.8914	.9165	.0529
	(16.8434)	(15.2149)	(5.2543)**	(14.5998)	(1.7455)	(1.7983)	(1.7477)	(.0420)
AnyPuccaRd	44.6965	53.6280	-8.9315	45.1221	5.1014	-1.2890	4.6935	.0043
	(25.6169)*	(26.8599)**	(6.8381)	(22.6170)**	(3.0621)*	(4.1561)	(3.0315)	(.0569)
SubHospDist	-10.9323	-4.9198	-6.0125	-2.8689	-.7729	-.5662	-.7118	.0116
	(5.8853)*	(5.3279)	(1.8867)***	(5.0273)	(.4045)*	(.7913)	(.4929)	(.0124)
SecSchNearby	1.0997	-4.7379	5.8376	-9.8034	.6521	4.1618	.2516	.0456
	(16.2673)	(14.5246)	(6.4247)	(13.9250)	(2.0584)	(1.7414)**	(1.8135)	(.0514)
VillMotBoat	42.9623	31.1526	11.8097	25.1948	-1.3053	1.9253	5.3378	-.0325
	(17.4853)**	(16.5802)*	(6.3095)*	(15.7592)	(1.5906)	(2.2604)	(3.3476)	(.0392)
Constant	115.3487	64.8381	50.5106	46.1720	7.6513	4.9340	6.0808	-.0058
	(59.5161)*	(49.2678)	(24.8635)**	(43.1430)	(6.1057)	(8.6250)	(6.6747)	(.1297)
N	5379	5379	5379	5379	5379	5379	5379	5379
R-squared	.1217	.0974	.0774	.0699	.0795	.0350	.0285	.0713
F	15.5121	15.5178	8.2522	12.0222	12.2572	3.9108	11.8460	8.8951
TreatmentF	2.2354	2.4873	1.3933	2.3916	3.6536	.9079	1.6209	1.2082
p-value	.0078	.0029	.1587	.0042	.00002	.5569	.0755	.2726
EducationF	4.0210	3.2570	1.7292	2.8146	6.2108	1.1901	1.7207	3.7549
p-value	.0019	.0082	.1319	.0188	.00003	.3172	.1338	.0032
MuslimF	1.5193	2.8638	9.4191	5.6489	1.0145	2.6225	.7552	2.7055
p-value	.2225	.0604	.0001	.0044	.3653	.0762	.4719	.0704
BoundaryF	.2654	.1679	2.7751	.4220	.0844	1.1238	2.7337	.7630
p-value	.7673	.8456	.0658	.6566	.9191	.3280	.0685	.4682
VillageF	2.9155	1.8350	4.7602	1.7365	1.6560	2.1541	2.6628	1.1035
p-value	.0156	.1099	.0005	.1302	.1493	.0627	.0249	.3614

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	TotAssets	TotAssetsExLand	FarmlandValue	HomeValue	PondsAndAgAssets	NonAgAssets	Savings	ClWaterInBari
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Table 7: Notes: (i) The dependent variables are as follows: *TotAssets*, *AgAssetsExLand*, *FarmLandValue*, *HomeValue*, *PondsAndAgAssets*, *NonAgAssets* and *Savings* measure whether the values of total assets, land, total assets excluding farmland, farmland, homestead land, ponds and other agricultural assets, non-agricultural assets and other savings (in the form of cash and jewelry) respectively; *ClWaterInBari* is a dummy variable that take value 1 if the source of water for cleaning is on the bari, and 0 otherwise; Notes (ii)–(vii) 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	.0729	-.0158	.6780	.2754	.3126	.3245
	(.0298)**	(.0400)	(.1732)***	(.0995)***	(.1172)***	(.1036)***
TrXAge30to35	.1097	.0495	.7049	.2826	.3434	.3247
	(.0318)***	(.0424)	(.1820)***	(.1049)***	(.1233)***	(.1097)***
TrXAge35to40	.0871	.1193	.7653	.2507	.2385	.2961
	(.0236)***	(.0354)***	(.1765)***	(.1121)**	(.1315)*	(.1116)***
TrXAge40to45	.0243	.0261	.2583	.2516	.2861	.2945
	(.0219)	(.0384)	(.1771)	(.1158)**	(.1434)**	(.1192)**
TrXAge45to50	-.0297	.0104	.0146	.2973	.3914	.3116
	(.0224)	(.0334)	(.1824)	(.1484)**	(.1635)**	(.1936)
TrXAge50to55	-.0210	-.0210	.0855		.5391	.2850
	(.0216)	(.0332)	(.1580)		(.1405)***	(.1364)**
TrXAge55to60	-.0484	-.0468	-.1307			
	(.0207)**	(.0302)	(.1507)			
TrXAge60to65	-.0603	-.0736	-.2432			
	(.0208)***	(.0296)**	(.1693)			
TrXAge65Over	-.0587	-.0707	-.1959			
	(.0200)***	(.0290)**	(.1502)			
TreatXYrsSch	-.0069	-.0101	.0103	-.0185	-.0203	-.0247
	(.0022)***	(.0029)***	(.0160)	(.0072)**	(.0081)**	(.0076)***
TrXMuslim	.0351	.0278	-.0182	.1538	.0790	.0945
	(.0182)*	(.0269)	(.1238)	(.0719)**	(.0975)	(.0767)
Muslim	-.0414	-.0231	-.0192	-.1258	-.0446	-.0669
	(.0145)***	(.0229)	(.0823)	(.0687)*	(.0888)	(.0720)
Age25to30	-.0668	-.0136	-.1758	.0142	.0660	.0049
	(.0173)***	(.0191)	(.0871)**	(.0299)	(.0367)*	(.0332)
Age30to35	-.1371	-.0565	-.3717	.0154	.0585	.0100
	(.0204)***	(.0267)**	(.1142)***	(.0557)	(.0522)	(.0527)
Age35to40	-.2057	-.1658	-.6675	.0287	.1523	.0177
	(.0210)***	(.0269)***	(.1102)***	(.0692)	(.0697)**	(.0689)
Age40to45	-.2356	-.1872	-.7898	.0056	.0818	-.0190
	(.0217)***	(.0303)***	(.1306)***	(.0717)	(.0640)	(.0763)
Age45to50	-.2341	-.2270	-.9649	-.0002	.1294	-.1587

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	PregCheckUps	NumAnteNatChecks	ATSInject	PolioVac	MeaslesVac	DPTVac
	(1)	(2)	(3)	(4)	(5)	(6)
	(.0216)***	(.0303)***	(.1493)***	(.1284)	(.1226)	(.1226)
Age50to55	-.2346 (.0224)***	-.2447 (.0298)***	-1.0959 (.1229)***	-.7119 (.1278)***		
Age55to60	-.2226 (.0231)***	-.2351 (.0315)***	-1.0826 (.1264)***			
Age60to65	-.2188 (.0232)***	-.2254 (.0316)***	-.9992 (.1496)***			
Age65Over	-.2136 (.0229)***	-.2175 (.0313)***	-.9615 (.1346)***			
YrsSch	.0079 (.0020)***	.0063 (.0024)***	.0398 (.0108)***	.0078 (.0078)	.0121 (.0078)	.0149 (.0075)**
HusAge	-.0010 (.0009)	-.0002 (.0011)	.0005 (.0041)	-.0011 (.0025)	.0003 (.0030)	-.0020 (.0028)
HusAgeSq	-.0007 (.0009)	-.0021 (.0010)**	-.0094 (.0043)**	.0043 (.0045)	.0023 (.0050)	.0079 (.0048)*
HusYrsSch	-.0006 (.0010)	-.0007 (.0015)	.0076 (.0076)	.0103 (.0042)**	.0089 (.0048)*	.0073 (.0039)*
UnmarriedFH	-.0745 (.0323)**	-.0936 (.0419)**	-.2502 (.1766)	.0017 (.0973)	.0330 (.1174)	.0752 (.1080)
MarriedFH	-.0541 (.0161)***	-.0321 (.0223)	-.0258 (.1018)	.0473 (.0313)	.0816 (.0424)*	.0837 (.0354)**
HusAbsentNH	-.0821 (.0316)***	-.0987 (.0419)**	-.3233 (.1623)**	-.0599 (.1265)	-.0354 (.1644)	-.0646 (.1533)
HusAgeMissing	-.0301 (.0314)	-.0286 (.0346)	-.1706 (.1765)	.0736 (.0701)	.0754 (.0872)	.0541 (.0851)
HusEdMissing	-.0240 (.0093)**	.0035 (.0180)	-.0245 (.0832)	.0028 (.0457)	-.0104 (.0523)	-.0153 (.0492)
BoundXAgeUnd35	-.0021 (.0278)	-.0381 (.0341)	-.1937 (.1449)	-.0273 (.0656)	-.0175 (.0712)	-.0832 (.0595)
BoundXAge35to55	-.0075 (.0120)	-.0421 (.0162)***	-.1242 (.0916)	-.0422 (.0791)	-.1139 (.0916)	-.0511 (.0801)
BoundXAgeOv55	-.0127 (.0075)*	-.0263 (.0118)**	-.0955 (.0707)			
BRACInVil	-.0040 (.0069)	-.0102 (.0094)	-.0254 (.0606)	-.0368 (.0244)	-.0116 (.0273)	-.0321 (.0241)
AnyPuccaRd	.0047 (.0105)	.0040 (.0150)	.0453 (.0869)	.0071 (.0328)	.0088 (.0411)	.0160 (.0339)

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	PregCheckUps	NumAnteNatChecks	ATSInject	PolioVac	MeaslesVac	DPTVac
	(1)	(2)	(3)	(4)	(5)	(6)
SubHospDist	-.0063	-.0121	-.0459	.0124	-.0044	.0056
	(.0020)***	(.0031)***	(.0187)**	(.0104)	(.0106)	(.0101)
SecSchNearby	-.0117	-.0055	-.0531	-.0056	.0055	-.0176
	(.0076)	(.0102)	(.0655)	(.0355)	(.0336)	(.0344)
VillMotBoat	-.0157	-.0141	.0979	.0105	.0177	.0005
	(.0073)**	(.0097)	(.0550)*	(.0318)	(.0331)	(.0302)
Constant	.4175	.4529	1.7646	.5933	.3451	.5331
	(.0366)***	(.0452)***	(.2021)***	(.1166)***	(.1420)**	(.1279)***
N	5154	5154	5154	1797	1796	1798
F	.3887	90.0351	63.1081	.0000	.0000	.0000
R-squared	95.0311					
TreatmentF	24.3788	12.8750	9.6498	11.0479	7.3076	7.6078
p-value	3.06e-27	1.47e-16	8.81e-13	5.22e-11	4.74e-08	2.23e-08
EducationF	8.1906	6.7751	13.0117	4.0453	3.1192	5.3414
p-value	.0004	.0016	7.00e-06	.0197	.0474	.0058
MuslimF	4.1464	.5647	.1068	2.4220	.4633	.8856
p-value	.0178	.5698	.8988	.0926	.6302	.4148
BoundaryF	.9889	2.8208	1.1629	.1494	1.3065	1.0258
p-value	.4001	.0413	.3263	.8614	.2742	.3613
VillageF	3.8882	3.8432	1.8062	.8245	.1436	.4907
p-value	.0025	.0027	.1155	.5343	.9816	.7827

Table 8: 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)–(vii) 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			-.0029	-.0220	GirlAvAge2		-.0034
			(.0042)	(.0147)			(.0082)
BoysAvAge	-.0140	.0062			BoyAvAge2	-.0103	
	(.0057)**	(.0148)				(.0082)	
TreatmntArea	.0100	.5413	.0797	.3518	TreatmntArea	.4296	.2212
	(.0653)	(.1940)***	(.1116)	(.2465)		(.1847)**	(.2107)
TreatXYrsSch	.00005	.0048	.0101	.0184	TreatXYrsSch	-.0114	.0258
	(.0036)	(.0163)	(.0038)***	(.0174)		(.0152)	(.0141)*
TrXMuslim	-.0556	-.2828	-.1240	-.2765	TrXMuslim	-.4688	-.4041
	(.0612)	(.1816)	(.1054)	(.2319)		(.1595)***	(.1929)**
Muslim	.0858	.0615	.2435	.4094	Muslim	.4560	.4745
	(.0483)*	(.1457)	(.0970)**	(.1987)**		(.1396)***	(.1683)***
Age25to30			-.0454	-.2140			
			(.0655)	(.2425)			
Age30to35	.0298	.0795	-.0379	-.3289	AgeUnder35	-.0626	
	(.0270)	(.1239)	(.0649)	(.2310)		(.1231)	
Age35to40	-.0255	-.1022	-.0387	-.3527	Age35to40	-.0826	.0181
	(.0343)	(.1246)	(.0602)	(.2167)		(.0815)	(.1082)
Age40to45	-.0274	-.0909	-.0356	-.5203	Age40to45	-.2456	-.1095
	(.0359)	(.1309)	(.0600)	(.2200)**		(.0774)***	(.1130)
Age45to50	.0280	.0152	-.0393	-.3571	Age45to50	-.1915	-.0354
	(.0409)	(.1528)	(.0594)	(.2105)*		(.0689)***	(.1127)
Age50to55	-.0073	.0254	-.0824	-.3335	Age50to55	-.1726	.0149
	(.0500)	(.1551)	(.0658)	(.2154)		(.0656)***	(.1349)
AgeOver55	-.1428	-.4051			AgeOver55		.1187
	(.1192)	(.2328)*					(.1506)
YrsSch	.0035	.0876	-.0005	.0934	YrsSch	.0917	.0975
	(.0031)	(.0148)***	(.0026)	(.0141)***		(.0132)***	(.0125)***
HusAge	.0004	-.0134	-.0007	-.0165	HusAge	-.0049	-.0126
	(.0015)	(.0079)*	(.0013)	(.0072)**		(.0068)	(.0074)*
HusAgeSq	-.0007	.0193	.0009	.0198	HusAgeSq	.0067	.0119
	(.0029)	(.0108)*	(.0022)	(.0092)**		(.0073)	(.0081)
HusYrsSch	.0111	.0580	.0073	.0564	HusYrsSch	.0714	.0778

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	(.0020)***	(.0078)***	(.0016)***	(.0079)***		(.0075)***	(.0073)***
UnmarriedFH	-.1846	-.7291	-.0488	-.4026	UnmarriedFH	-.1704	-.5563
	(.0758)**	(.2846)**	(.0895)	(.2834)		(.2323)	(.3191)*
MarriedFH	.0361	.1020	.0236	.1918	MarriedFH	.3360	.1433
	(.0249)	(.1283)	(.0154)	(.1162)*		(.1170)***	(.1206)
HusAbsentNH	-.0657	-.2021	-.3161	-.9146	HusAbsentNH	-.4257	-.5766
	(.0908)	(.3275)	(.1551)**	(.3910)**		(.2446)*	(.3275)*
HusAgeMissing	.1153	.4136	-.0559	.0987	HusAgeMissing	.1306	.1869
	(.0563)**	(.2727)	(.0744)	(.2680)		(.2700)	(.2735)
HusEdMissing	.0504	.0848	.0221	.0742	HusEdMissing	.1082	-.0257
	(.0269)*	(.0967)	(.0254)	(.0847)		(.0926)	(.1069)
Boundary	-.0300	.0711	.0239	.0644	Boundary	-.0103	.0025
	(.0287)	(.1069)	(.0254)	(.0775)		(.0767)	(.0826)
BRACInVil	.0123	.1363	.0340	.1023	BRACInVil	-.0280	-.0083
	(.0145)	(.0554)**	(.0146)**	(.0443)**		(.0477)	(.0530)
AnyPuccaRd	-.0246	-.1705	-.0099	-.0610	AnyPuccaRd	.0483	.0716
	(.0194)	(.0748)**	(.0159)	(.0752)		(.0525)	(.0662)
SubHospDist	-.0049	.0328	.0032	.0074	SubHospDist	-.0117	-.0245
	(.0062)	(.0205)	(.0059)	(.0170)		(.0174)	(.0199)
SecSchNearby	.0196	.1237	.0308	.1460	SecSchNearby	.0844	.1116
	(.0158)	(.0571)**	(.0193)	(.0562)***		(.0528)	(.0605)*
VillMotBoat	-.0397	-.0148	-.0248	-.0970	VillMotBoat	.0099	.0126
	(.0152)***	(.0565)	(.0171)	(.0525)*		(.0572)	(.0463)
Constant	.9803	-.7661	.7298	-.1420		-.5360	-.5785
N	1416	1416	1338	1338	N	2235	1717
R-squared	.0797	.2629	.1261	.3053	R-squared	.2587	.3118
F	5.1847	27.84	4.36	24.97	F	57.9874	62.73
TreatmentF	1.1668	3.7253	3.0266	1.3320	TreatmentF	3.3644	3.2452
p-value	.3249	.0130	.0318	.2666	p-value	.0206	.0240
VillageF	2.5228	3.1554	2.0529	3.0685	VillageF	1.2893	1.5913
p-value	.0323	.0100	.0752	.0118	p-value	.2721	.1665

Table 9: 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)–(vii) 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)
GirlAvAge4				-.0080	-.0598	-.0268
				(.0100)	(.0116)***	(.0101)***
BoyAvAge4	-.0406	-.0591	-.0593			
	(.0081)***	(.0109)***	(.0112)***			
TreatmntArea	.0669	.1955	-.0472	.2107	-.1669	.4240
	(.2261)	(.3095)	(.2593)	(.1708)	(.2339)	(.1850)**
TreatXYrsSch	-.0009	-.0300	.0278	.0181	.0146	.0125
	(.0175)	(.0223)	(.0177)	(.0181)	(.0233)	(.0160)
TrXMuslim	.0350	-.1889	.1476	-.0801	.1876	-.2457
	(.2005)	(.2675)	(.2557)	(.1683)	(.2493)	(.1548)
Muslim	-.1549	-.0123	-.2033	-.0138	-.1236	.0658
	(.1815)	(.2390)	(.2353)	(.1560)	(.2250)	(.1322)
Age25to30	.2891	.2167	.1393	.1944	.0912	.1108
	(.1146)**	(.1638)	(.1699)	(.1294)	(.1698)	(.1467)
Age30to35	.1198	-.0191	.1336	.0897	-.0667	.0487
	(.1216)	(.1625)	(.1871)	(.1237)	(.1654)	(.1339)
Age35to40	.2623	.2016	.1701	.1283	.0084	.1130
	(.1307)**	(.1777)	(.1924)	(.1239)	(.1790)	(.1340)
Age40to45	.2266	.1720	.1461	.0902	-.0375	.0882
	(.1439)	(.2055)	(.1999)	(.1441)	(.1878)	(.1541)
Age45to50	.1496	.1013	.1010	.0597	-.0079	.0093
	(.1688)	(.2323)	(.1905)	(.1747)	(.2295)	(.1694)
Age50to55	.0623	.0646	.0318	.2074	.0904	.1494
	(.2013)	(.2841)	(.2260)	(.1918)	(.2406)	(.1897)
AgeOver55	-.2052	-.2887	-.1095	.0561	-.6294	.3505
	(.3639)	(.4616)	(.2999)	(.2770)	(.3407)*	(.2626)
YrsSch	.0447	.0775	-.0023	.0452	.0838	.0045
	(.0135)***	(.0196)***	(.0141)	(.0119)***	(.0180)***	(.0148)
HusAge	-.0122	-.0089	-.0113	-.0118	-.0169	-.0038
	(.0089)	(.0113)	(.0096)	(.0077)	(.0103)	(.0061)
HusAgeSq	.0173	.0089	.0163	.0188	.0244	.0077
	(.0107)	(.0146)	(.0118)	(.0101)*	(.0132)*	(.0087)
HusYrsSch	.0055	.0059	.0065	.0065	.0110	.0034
	(.0076)	(.0110)	(.0072)	(.0086)	(.0111)	(.0092)
UnmarriedFH	.3506	.2455	.2761	-.0532	.0435	-.0078
	(.1895)*	(.2300)	(.2194)	(.2322)	(.2827)	(.2671)
MarriedFH	.0404	.1454	-.1246	.0369	-.1023	.1311
	(.1485)	(.2012)	(.1520)	(.1273)	(.1627)	(.0945)
HusAbsentNH	.2715	.0050	.3107	-.0033	.3464	-.1350
	(.3457)	(.4443)	(.3585)	(.3147)	(.3094)	(.3174)
HusAgeMissing	-.3463	-.3731	-.2655	-.0740	-.2938	.0058
	(.1636)**	(.2027)*	(.1850)	(.2167)	(.2505)	(.2235)

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	Boys			Girls		
	ZHeight	ZWeight	ZBMI	ZHeight	ZWeight	ZBMI
	(1)	(2)	(3)	(4)	(5)	(6)
HusEdMissing	-.0054	-.1606	.1691	.0652	.0742	.0148
	(.0687)	(.0989)	(.1070)	(.0945)	(.1228)	(.1057)
Boundary	.0325	-.1406	.1232	.0922	-.0784	.2081
	(.0851)	(.1119)	(.1038)	(.0855)	(.1538)	(.0912)**
BRACInVil	.0997	.0514	.0993	.1035	.0570	.1067
	(.0570)*	(.0696)	(.0615)	(.0572)*	(.0749)	(.0521)**
AnyPuccaRd	.0746	.0415	.0549	-.0796	-.1895	-.0060
	(.0626)	(.1065)	(.0967)	(.0788)	(.1236)	(.0601)
SubHospDist	.0016	-.0245	.0174	.0046	-.0182	.0222
	(.0247)	(.0279)	(.0217)	(.0246)	(.0341)	(.0197)
SecSchNearby	-.1043	.0407	-.1886	-.1354	.0230	-.1900
	(.0527)**	(.0763)	(.0598)***	(.0574)**	(.0730)	(.0564)***
VillMotBoat	.0300	-.0038	.0497	.0177	-.0798	.0673
	(.0539)	(.0666)	(.0569)	(.0559)	(.0764)	(.0615)
Constant	-2.1771	-2.1381	-.8466	-2.5472	-1.9991	-1.4774
	(.3305)***	(.4820)***	(.3623)**	(.2872)***	(.3513)***	(.2855)***
N	1741	1741	1741	1716	1716	1716
R-squared	.0736	.0786	.0482	.0588	.0897	.0306
F	6.7151	7.1728	3.5772	4.1343	8.3069	2.9723
TreatmentF	.3285	.8676	1.6045	1.2230	.3108	2.0542
p-value	.8047	.4597	.1912	.3038	.8175	.1093
EducationF	7.5282	8.8265	1.6520	11.9761	19.0530	.7205
p-value	.0008	.0002	.1955	.00002	5.07e-08	.4883
MuslimF	1.5200	1.3091	.5159	1.0294	.3332	2.1800
p-value	.2224	.2735	.5981	.3600	.7172	.1170
VillageF	1.6544	.6209	2.2605	2.3549	.8629	4.2530
p-value	.1499	.6841	.0519	.0437	.5079	.0013

Table 10: 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)–(vii) 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 (.001)***	.025 (.011)***	19.063 (.060)	.133 (.716)	.055 (.020)**	3.166 (.075)
Weight	-0.049 (.047)	-1.532 (.439)***	15.174 (.175)	14.122 (.000)	-3.249 (1.135)***	16.095 (.000)
Height	.014 (.045)	-0.179 (.378)	14.702 (.197)	.267 (.605)	-0.462 (.767)	.396 (.529)
BMI	-0.024 (.019)	-0.631 (.177)***	13.262 (.277)	14.724 (.000)	-1.342 (.462)***	16.991 (.000)
TotAssets	7.734 (2.458)***	13.724 (21.136)	54.185 (.000)	.082 (.775)	-71.422 (47.396)	3.358 (.067)
AgAssets	6.708 (2.273)***	11.659 (19.545)	48.695 (.000)	.065 (.799)	-66.570 (43.841)	3.365 (.067)
NonAgAssets	.903 (.536)*	1.289 (4.607)	23.892 (.013)	.007 (.933)	-4.769 (9.537)	.362 (.547)
JewelryVal	1.235 (.838)	7.759 (7.243)	12.965 (.296)	.832 (.362)	-0.834 (14.758)	.020 (.888)
DrWellWaterBari	.004 (.003)	-0.079 (.031)*	11.026 (.441)	7.960 (.005)	-0.131 (.069)**	4.964 (.026)
ClWaterInBari	.005 (.004)	-0.068 (.031)*	27.655 (.004)	5.987 (.014)	-0.243 (.087)***	16.138 (.000)
PrimOccIncome	-198.416 (59.654)***	-1023.380 (522.058)**	42.743 (.000)	2.625 (.105)	-92.407 (1050.356)	.010 (.919)
TotalIncome	-186.571 (62.796)***	-816.022 (544.897)	41.738 (.000)	1.379 (.240)	582.250 (1121.223)	.485 (.486)
OwnCashSavings	-0.001 (.002)	.031 (.020)	21.393 (.030)	2.503 (.114)	.133 (.052)*	10.949 (.001)
GroupLoan	-0.000 (.002)	-0.005 (.020)	16.706 (.117)	.055 (.815)	.081 (.045)*	3.927 (.048)
GroupWork	-0.000 (.002)	.027 (.014)	20.031 (.045)	3.820 (.051)	.098 (.037)*	12.241 (.000)
GroupSaving	.000 (.002)	.007 (.021)	25.650 (.007)	.117 (.732)	.090 (.049)*	4.298 (.038)
BoyCurrEnroll	-.0153 (.038)				.021 (.037)	.409 (.526)

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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)
BoyEdZScore	-.002 (.015)				-.340 (.117)***	7.128 (.007)
GCurrEnroll	-.003 (.003)				.048 (.047)	1.37 (.241)
GirlEdZScore	-.063 (.013)***				-.167 (.159)	.443 (.506)
BoyEdScore2	-.018 (.009)*				.047 (.097)	0.454 (.500)
GirlEdZScore2	-.011 (.010)				.329 (.467)	1.68 (.193)
BZWeight	-.039 (.014)***				-.249 (.189)	1.394 (.237)
BZHeight	-.063 (.019)***				-.123 (.236)	.064 (.799)
BZBMI	-.001 (.018)				-.209 (.226)	.927 (.335)
GZWeight	.009 (.008)				-.269 (.234)	1.371 (.241)
GZHeight	-.062 (.020)***				-.233 (.185)	1.837 (.175)
GZBMI	-.0001 (.108)				-.124 (.142)	1.294 (.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; (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. A rejection casts doubt on the validity of the instruments.

APPENDIX

Table A: Differences between treatment and control areas for key variables.

Variable	Treatment=0 N	Treatment=0 Mean (std. dev.)	Treatment=1 N	Treatment=1 Mean (std. dev.)	Difference (std. err.)
PANEL (a): Dependent Variables					
TotalChildren	2656	5.229 (2.967)	2723	4.736 (2.801)	-.496 (0.078)***
TotalAlive	2656	4.080 (2.261)	2724	3.827 (2.174)	-.013 (.003)***
FracDied5	2523	.149 (0.187)	2604	.126 (0.178)	-.023 (0.005)***
AgeAtFirstBirth	2507	23.104 (4.809)	2570	23.101 (4.803)	-.003 (0.135)
SecondInterval	2272	3.169 (2.060)	2325	3.369 (2.142)	.201 (0.062)***
ThirdInterval	2062	3.040 (1.690)	2009	3.359 (2.135)	.319 (0.060)***
CurrHealthy	2651	.750 (0.433)	2719	.752 (0.432)	.002 (0.012)
Weight	2347	40.937 (6.257)	2356	41.944 (6.875)	1.007 (0.192)***
Height	2347	149.150 (6.096)	2356	148.608 (5.923)	-.542 (0.175)***
BMI	2347	18.372 (2.393)	2356	18.957 (2.687)	.585 (0.074)***
ADLEq0	2653	.609 (0.488)	2719	.637 (0.481)	.028 (0.013)*
PrimOccIncome	2656	697.675 (6651.221)	2723	1373.739 (9575.640)	676.064 (225.321)***
TotalIncome	2656	891.061 (7215.652)	2723	1482.896 (9933.662)	591.835 (237.220)**
OwnCashSavings	2653	.109 (0.312)	2719	.134 (0.340)	.024 (0.009)***
GroupLoan	2653	.106 (0.308)	2719	.152 (0.359)	.046 (0.009)***
GroupWork	2653	.047 (0.212)	2719	.063 (0.242)	.015 (0.006)***
GroupSaving	2653	.119 (0.324)	2719	.174 (0.379)	.055 (0.010)***
TotAssets	2656	145.945 (277.324)	2723	209.219 (419.548)	63.897 (9.672)***
TotAssetsExLand	2656	101.709 (244.733)	2723	150.8154 (365.131)	49.743 (8.450)***
FarmlandValue	2656	44.236 (101.388)	2723	58.404 (129.494)	14.153 (3.166)***

Continued on next page

Table A: Differences between treatment and control areas for key variables.

	Treatment=0		Treatment=1		
Variable	N	Mean (std. dev.)	N	Mean (std. dev.)	Difference (std. err.)
HomeValue	2656	80.16 (228.573)	2723	114.827 (314.169)	35.222 (7.4662)***
PondsAndAgAssets	2656	8.439 (21.430)	2723	17.113 (51.156)	8.690 (1.068)***
NonAgAssets	2656	7.679 (42.822)	2723	9.133 (54.46)	1.516 (1.330)
OtherSavings	2656	5.431 (21.193)	2723	9.742 (76.100)	4.316 (1.522)***
DrWellWaterinBari	2656	.553 (0.497)	2723	.626 (0.484)	.072 (0.013)***
ClWaterInBari	2656	.428 (0.495)	2722	.529 (0.499)	.101 (0.014)***
PregCheckUps	2534	.089 (0.190)	2620	.168 (0.234)	.079 (0.006)***
ATSInject	2534	.133 (0.256)	2620	.206 (0.277)	.073 (0.007)***
NumAnteNatalChecks	2534	.621 (1.204)	2620	1.193 (1.542)	.572 (0.039)***
PolioVac	930	.606 (0.489)	867	.933 (0.250)	.327 (0.019)***
MeaslesVac	930	.453 (0.498)	866	.803 (0.398)	.350 (0.021)***
DPTVac	930	.556 (0.497)	868	.899 (0.302)	.343 (0.020)***
BCurrEnroll	771	.912 (0.268)	681	.910 (0.273)	-.002 (0.014)
BoyEdZScore	767	-.122 (0.904)	674	.100 (0.990)	.221 (0.050)***
GCurrEnroll	710	.947 (0.217)	675	.919 (0.262)	-.028 (0.013)**
GirlEdZScore	707	-.107 (0.897)	650	.065 (1.042)	.172 (0.053)***
BoyEdZScore2	1083	-.178 (.926)	1152	-.086 (.974)	-.086 (.040)**
GirlEdZScore2	829	-.131 (.957)	888	-.061 (1.057)	.071 (.048)
BZWeight	896	-2.518 (0.895)	845	-2.375 (0.951)	.143 (0.044)***
BZHeight	896	-2.647 (1.249)	845	-2.507 (1.199)	.140 (0.059)**
BZBMI	896	-1.475 (1.116)	845	-1.375 (1.098)	.100 (0.053)*
GZWeight	887	-2.516 (0.906)	829	-2.348 (0.926)	.168 (0.044)***

Continued on next page

Table A: Differences between treatment and control areas for key variables.

Variable	Treatment=0 N	Treatment=0 Mean (std. dev.)	Treatment=1 N	Treatment=1 Mean (std. dev.)	Difference (std. err.)
GZHeight	887	-2.744 (1.278)	829	-2.611 (1.330)	.133 (0.063)**
GZBMI	887	-1.417 (1.028)	829	-1.307 (0.880)	.110 (0.046)**
PANEL (a): Independent Variables					
TrXAgeUnder25	2656	NA (0)	2723	.095 (.292)	.095 (.0056)***
TrXAge25to30	2656	NA (0)	2723	.123 (.329)	.123 (.006)***
TrXAge30to35	2656	NA (0)	2723	.157 (.364)	.157 (.007)***
TrXAge35to40	2656	NA (0)	2723	.131 (.338)	.132 (.006)***
TrXAge40to45	2656	NA (0)	2723	.101 (.301)	.101 (.006)***
TrXAge45to50	2656	NA (0)	2723	.09 (.287)	.09 (.006)***
TrXAge50to55	2656	NA (0)	2723	.093 (.291)	.093 (.006)***
TrXAge55to60	2656	NA (0)	2723	.073 (.26)	.073 (.005)***
TrXAge60to65	2656	NA (0)	2723	.057 (.231)	.057 (.005)***
TrXAge65Over	2656	NA (0)	2723	.08 (.271)	.08 (.005)***
TreatXYrsSch	2656	NA (0)	2723	2.21 (2.971)	2.21 (.057)***
TrXMuslim	2656	NA (0)	2723	.834 (.372)	.834 (.007)***
TrXNumWom35to55	2656	NA (0)	.496	2723 (.519)	.496 (.010)***
Muslim	2656	.949 (.22)	2723	.834 (.372)	-.115 (.008)***
Age25to30	2656	.125 (.331)	2723	.123 (.329)	-.002 (.009)
Age30to35	2656	.144 (.351)	2723	.157 (.364)	.013 (.009)
Age35to40	2656	.123 (.329)	2723	.131 (.338)	.008 (.009)
Age40to45	2656	.095 (.293)	2723	.101 (.301)	.006 (.008)
Age45to50	2656	.089	2723	.09	.002

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Table A: Differences between treatment and control areas for key variables.

Variable	Treatment=0 N	Treatment=0 Mean (std. dev.)	Treatment=1 N	Treatment=1 Mean (std. dev.)	Difference (std. err.)
		(.285)		(.287)	(.008)
Age50to55	2656	.095 (.294)	2723	.093 (.291)	-.002 (.008)
Age55to60	2656	.07 (.256)	2723	.073 (.26)	.003 (.007)
Age60to65	2656	.068 (.251)	2723	.057 (.231)	-.011 (.006)*
Age65Over	2656	.086 (.281)	2723	.08 (.271)	-.006 (.008)
NumWom35to55	2656	.483 (.515)	2723	.496 (.519)	.013 (.014)
YrsSch	2656	1.969 (2.763)	2723	2.21 (2.971)	.242 (.078)***
HusAge	2656	35.654 (23.686)	2723	36 (23.506)	.346 (.644)
HusAgeSq	2656	18.32 (16.421)	2723	18.484 (16.265)	.163 (.446)
HusYrsSch	2656	2.817 (3.702)	2723	3.213 (3.961)	.397 (.104)***
UnmarriedFH	2656	.072 (.258)	2723	.069 (.253)	-.003 (.007)
MarriedFH	2656	.046 (.21)	2723	.056 (.23)	.01 (.006)
HusAbsentNH	2656	.12 (.325)	2723	.112 (.315)	-.008 (.009)
HusAgeMissing	2656	.194 (.395)	2723	.188 (.391)	-.005 (.011)
HusEdMissing	2656	.076 (.265)	2723	.064 (.245)	-.011 (.007)
BoundXAgeUnd35	2656	.123 (.329)	2723	NA (0)	-.123 (.006)***
BoundXAge35to55	2656	.113 (.317)	2723	NA (0)	-.113 (.006)***
BoundXAgeOv55	2656	.072 (.259)	2723	NA (0)	-.072 (.005)***
BRACInVil	2656	.506 (.5)	2723	.621 (.485)	.115 (.013)***
AnyPuccaRd	2656	.13 (.337)	2723	.235 (.424)	.105 (.010)***
SubHospDist	2656	5.369 (1.942)	2723	1.811 (.819)	-3.559 (.041)***
SecSchNearby	2656	.776 (.417)	2723	.73 (.444) (.012)***	-.046
VillMotBoat	2656	.423	2723	.235	-.189

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Table A: Differences between treatment and control areas for key variables.

Variable	N	Mean (std. dev.)	N	Mean (std. dev.)	Difference (std. err.)
	Treatment=0		**Treatment=1**		
		(.494)		(.424) (.013)***	

Table A: : Differences between treatment and control areas for the dependent variables.

Table B:Quantile Regression for the Dependent Variable *TotalChildren*

	q=25	q=50	q=75	q=90	q=95	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
TrXAgeUnder25	.3865	-.2117	-.6010	-.7462	-1.3690	-.5173
	(.3371)	(.3318)	(.3204)*	(.6402)	(.3855)***	(.2792)*
TrXAge25to30	.3389	-.5135	-.9920	-1.1462	-1.4496	-.6812
	(.3156)	(.2975)*	(.3215)***	(.5414)**	(.4332)***	(.2605)***
TrXAge30to35	.0426	-.7995	-1.1410	-1.4763	-1.8465	-1.0723
	(.3789)	(.3316)**	(.3081)***	(.6358)**	(.4194)***	(.2552)***
TrXAge35to40	.2132	-.7129	-.9355	-1.8133	-2.1268	-1.0152
	(.3422)	(.3911)*	(.3672)**	(.6544)***	(.4764)***	(.2621)***
TrXAge40to45	-.3955	-1.0838	-1.5862	-2.0211	-2.2534	-1.2619
	(.3642)	(.3872)***	(.4410)***	(.5915)***	(.5839)***	(.2733)***
TrXAge45to50	-.6857	-1.6389	-1.3070	-1.9948	-1.9831	-1.5131
	(.3317)**	(.3509)***	(.3627)***	(.7669)***	(.4776)***	(.2790)***
TrXAge50to55	-.4195	-.9768	-1.0795	-1.8562	-1.7228	-1.1066
	(.4146)	(.3435)***	(.4873)**	(.8105)**	(.4789)***	(.2707)***
TrXAge55to60	-.0210	-.1742	-.1351	-.0867	-.8175	-.3029
	(.5511)	(.4152)	(.3873)	(.6480)	(.5014)	(.2927)
TrXAge60to65	.6818	-.1591	-.8469	-.2335	-1.2677	-.4042
	(.5911)	(.5037)	(.4516)*	(.7443)	(.4939)**	(.3062)
TrXAge65Over	.4576	.0126	-.0914	-.1319	-.9523	-.2554
	(.4673)	(.4328)	(.5040)	(.6237)	(.4881)*	(.2828)
TreatXYrsSch	-.0201	.0208	.0095	-.1134	-.0346	.0017
	(.0241)	(.0276)	(.0280)	(.0499)**	(.0356)	(.0196)
TrXMuslim	-.3572	-.0360	.3371	.8475	.8187	.3099
	(.2882)	(.3043)	(.2881)	(.4479)*	(.3179)**	(.1963)
Muslim	.5926	.4905	.1612	.0393	-.1239	.2518
	(.2529)**	(.2665)*	(.2552)	(.4194)	(.2927)	(.1710)
Age25to30	1.1335	1.4288	1.6039	1.8309	1.5077	1.3618
	(.1731)***	(.1574)***	(.1947)***	(.3034)***	(.2152)***	(.1583)***
Age30to35	2.3296	2.7649	2.8771	3.6831	3.2345	2.7279
	(.2443)***	(.1312)***	(.1423)***	(.2785)***	(.2037)***	(.1573)***
Age35to40	3.1422	3.9188	4.0958	4.8969	4.6739	3.7506
	(.2136)***	(.2573)***	(.2512)***	(.4195)***	(.3096)***	(.1792)***
Age40to45	4.0281	4.7035	5.4255	6.5251	5.8785	4.6296
	(.2214)***	(.2742)***	(.2714)***	(.3352)***	(.3806)***	(.1928)***
Age45to50	5.2090	6.1762	6.4352	7.4469	6.9162	5.8779
	(.2785)***	(.2304)***	(.1983)***	(.4607)***	(.3698)***	(.2053)***
Age50to55	5.7993	6.1734	6.6153	8.3427	7.3308	6.1436
	(.3483)***	(.2427)***	(.2763)***	(.4899)***	(.4282)***	(.2102)***
Age55to60	5.9073	6.3289	6.8879	7.3587	7.2758	6.2123
	(.4379)***	(.2716)***	(.2944)***	(.4610)***	(.4050)***	(.2312)***
Age60to65	5.9424	6.7815	7.6489	7.5242	7.5851	6.6664
	(.5291)***	(.3689)***	(.3135)***	(.4394)***	(.3580)***	(.2391)***

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	q=25	q=50	q=75	q=90	q=95	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
Age65Over	5.9424	6.6942	7.2245	7.5222	7.6089	6.6185
	(.3926)***	(.3033)***	(.3952)***	(.5124)***	(.3482)***	(.2338)***
YrsSch	-.0566	-.0813	-.0673	-.0377	-.0855	-.0638
	(.0236)**	(.0240)***	(.0254)***	(.0398)	(.0348)**	(.0177)***
HusAge	.0385	.0296	.0349	.0390	.0314	.0424
	(.0069)***	(.0064)***	(.0065)***	(.0115)***	(.0083)***	(.0069)***
HusAgeSq	-.0414	-.0232	-.0285	-.0260	-.0194	-.0425
	(.0112)***	(.0089)***	(.0105)***	(.0173)	(.0125)	(.0083)***
HusYrsSch	.0104	-.0052	-.0159	-.0015	.0009	-.0049
	(.0088)	(.0083)	(.0107)	(.0191)	(.0145)	(.0106)
UnmarriedFH	-.6194	-.2177	.0259	.4187	.0121	-.4877
	(.2896)**	(.2752)	(.4181)	(.5543)	(.4200)	(.2618)*
MarriedFH	.0950	.0812	.2684	.1415	.0902	.0971
	(.0938)	(.1376)	(.1454)*	(.2281)	(.2445)	(.1497)
HusAbsentNH	-1.3449	-.7716	-.7576	-.2460	-.2652	-1.0858
	(.2617)***	(.2424)***	(.4084)*	(.4908)	(.3689)	(.2585)***
HusAgeMissing	.2746	.1730	.3758	.6671	.3818	.5279
	(.1675)	(.2250)	(.3688)	(.4553)	(.3623)	(.2529)**
HusEdMissing	.0669	-.1006	-.0296	-.0782	.0882	.0082
	(.0831)	(.0906)	(.1070)	(.2330)	(.1672)	(.1143)
BoundXAgeUnd35	.0029	-.1116	-.2312	-.1813	-.5049	-.2232
	(.1383)	(.0989)	(.1270)*	(.2918)	(.2049)**	(.1426)
BoundXAge35to55	-.1730	-.5739	-.2952	-.0863	-.5359	-.3896
	(.1930)	(.2071)***	(.2600)	(.4331)	(.3490)	(.1432)***
BoundXAgeOv55	-.0150	-.1067	-.2344	.7372	-.2067	-.2164
	(.3926)	(.3080)	(.2413)	(.4111)*	(.4032)	(.1788)
BRACInVil	-.0601	-.0531	-.1278	.0138	-.0308	-.1447
	(.0522)	(.0500)	(.0664)*	(.1155)	(.0893)	(.0582)**
AnyPuccaRd	.0733	.0773	.1813	.0368	.2365	.1921
	(.0693)	(.0719)	(.0935)*	(.1363)	(.1314)*	(.0774)**
SubHospDist	.0133	-.0165	-.0009	-.0272	-.0662	-.0223
	(.0202)	(.0205)	(.0211)	(.0486)	(.0365)*	(.0221)
SecSchNearby	-.0311	-.0271	-.0113	-.0277	-.1130	-.0689
	(.0502)	(.0535)	(.0706)	(.1234)	(.0956)	(.0643)
VillMotBoat	.0731	.0445	.1682	-.0298	.0810	.1077
	(.0528)	(.0566)	(.0696)**	(.1210)	(.0961)	(.0606)*
Constant	-.4949	.5000	1.3600	2.3482	2.7696	.6848
	(.3254)	(.3596)	(.3161)***	(.6247)***	(.4393)***	(.2954)**
N	5379	5379	5379	5379	5379	5379
F	.0000	.0000	.0000	.0000	.0000	182.2304
TreatmentF1	3.6749	7.1509	4.2198	3.7275	3.5821	
p-value	.00002	4.15e-13	1.00e-06	1.00e-05	.00002	
EducationF	6.1404	8.0069	7.2107	8.7117	17.0981	
p-value	.0022	.0003	.0007	.0002	3.96e-08	
MuslimF	4.0128	6.7533	7.4953	13.5909	18.5391	

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	q=25	q=50	q=75	q=90	q=95	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
p-value	.0181	.0012	.0006	1.00e-06	9.47e-09	
BoundaryF	.4038	4.1620	1.9631	.2046	3.5006	
p-value	.6678	.0156	.1405	.8149	.0302	
VillageF	.6785	.3923	1.5559	.1098	.9718	
p-value	.6397	.8544	.1690	.9902	.4334	

Table B: Notes: (i) Estimation was performed using the STATA 9.0 command "qreg"; (ii) Standard errors are bootstrapped for 350 repetitions.

Table C

Regression of Number of Children Born on The Age of Married Women by Residence in a Program Treatment or Comparison Village*			
Explantory Variable	Coefficient	|t| ratio	P> |t|
Age less than 25	-4.51	29.4	0.000
Age 25-29	-2.88	19.7	0.000
30-34	-1.38	10.2	0.000
35-39	-0.350	2.44	0.015
40-44	0.594	3.77	0.000
45-49	1.72	10.5	0.000
50-54	1.92	12.3	0.000
55-59	1.94	11.0	0.000
60-64	1.92	10.7	0.000
Treatment*LessThan 25	-0.067	0.33	0.739
Treatment*25-29	-0.372	2.01	0.044
Treatment*30-34	-0.751	4.54	0.000
Treatment*35-39	-0.654	3.68	0.000
Treatment*40-44	-0.870	4.37	0.000
Treatment* 45-49	-1.050	4.95	0.000
Treatment*50-59	-0.642	3.19	0.001
Treatment*60-64	0.230	0.94	0.346
Treatment*65 or more	1.760	11.3	0.000
Constant	5.39	82	0.000
R^2	0.456		

*Note: MHSS Survey of 1996 including in the sample 5551 married women age 15 to 93 reporting relevant variables. Coefficients are basis for figure 2.

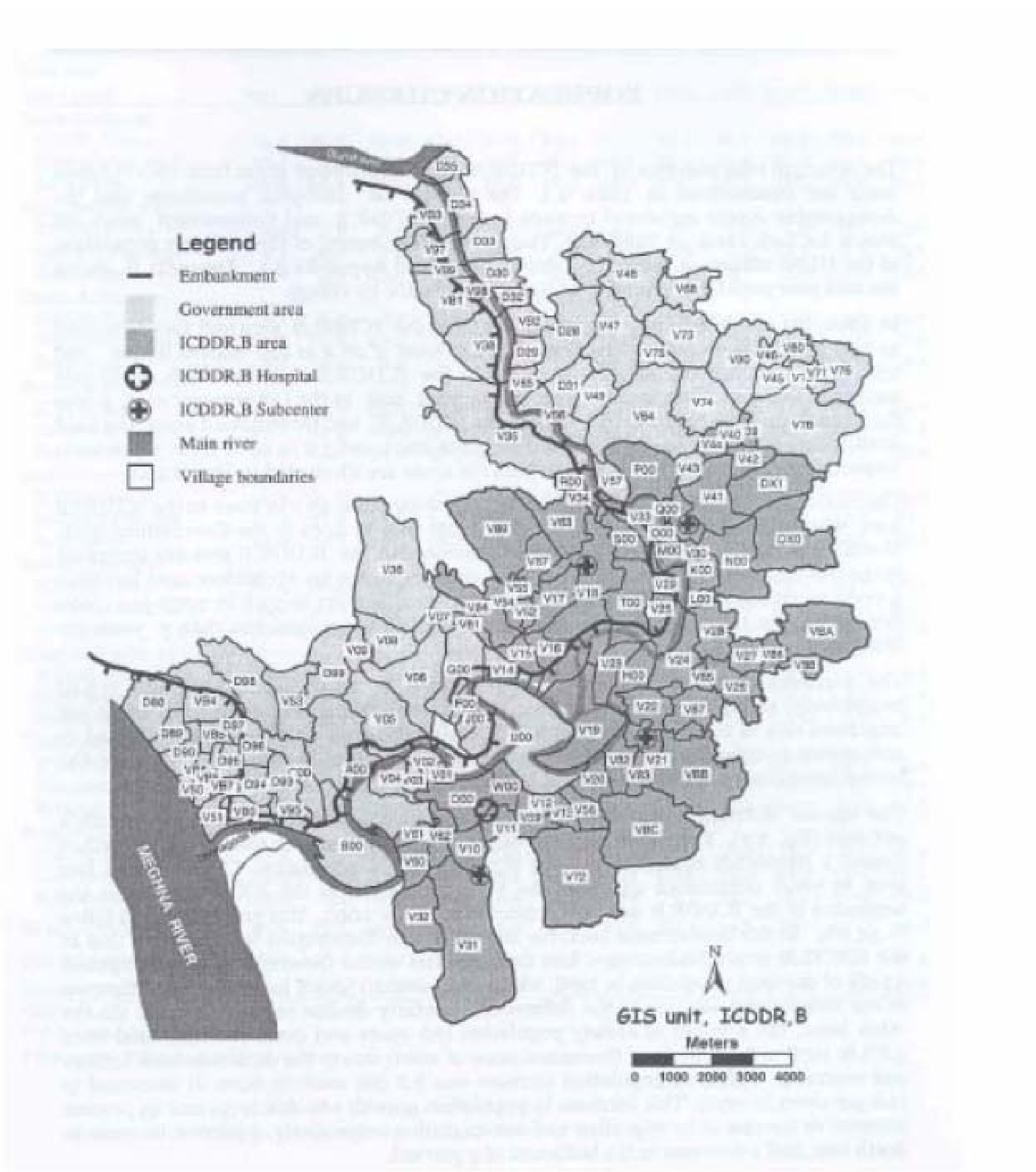

Figure 1: Matlab ICDDR,B Treatment villages and Government comparison villages

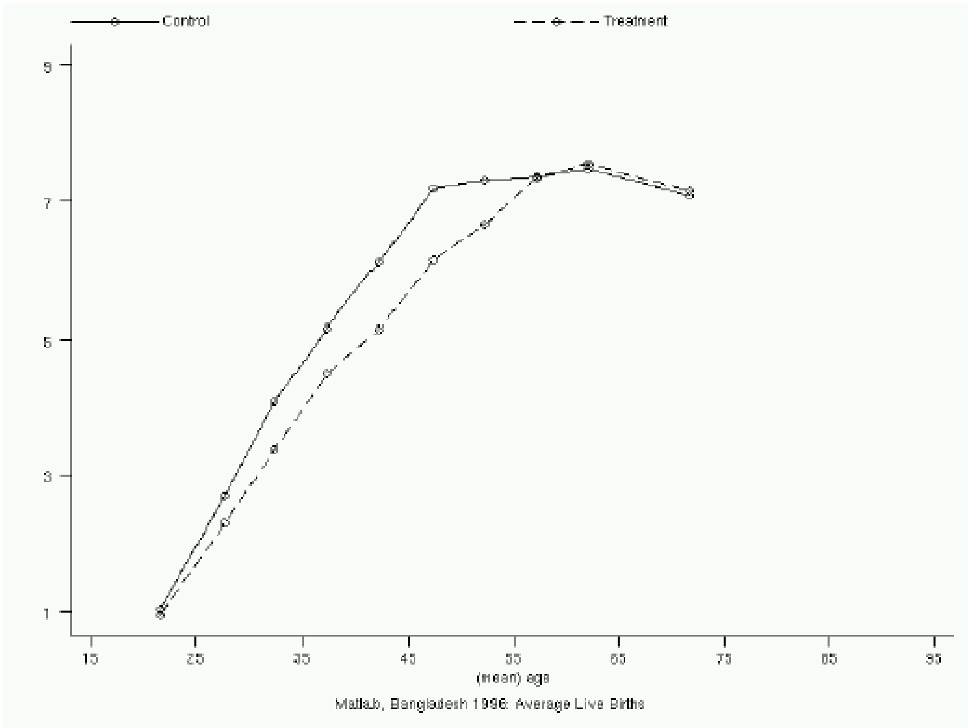

Figure 2: Number of Children Ever Born per Ever Married Woman by Five Year Age Groups in Matlab Health and Socioeconomic Survey 1996, resident in Treatment and Control Villages.

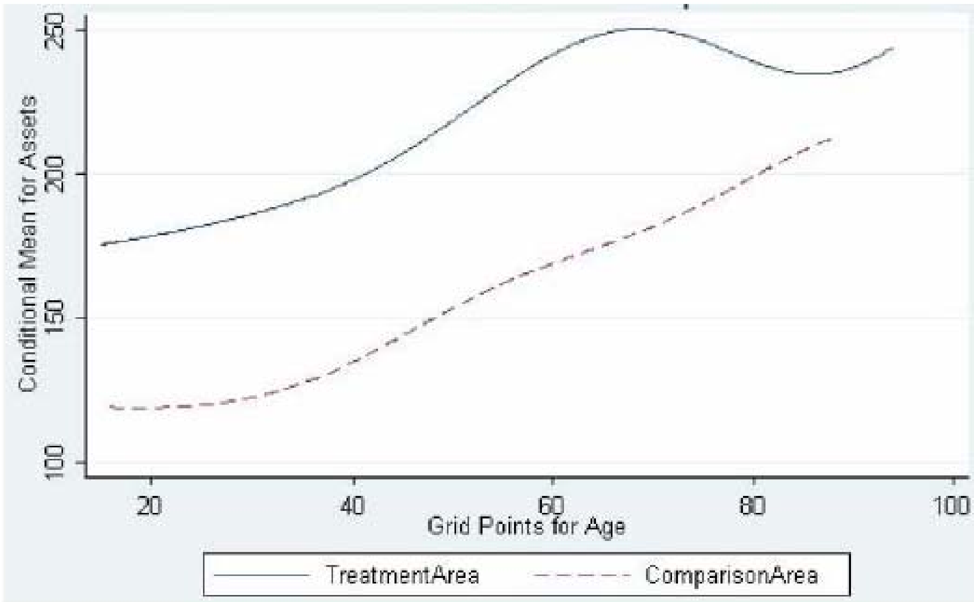

Figure 3: Total Assets in Treatment and Comparison Areas