The Causal Effect of Improved Access to Family Planning on Postpartum Contraceptive Use: Evidence from a Field Experiment in Urban Malawi

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Abstract

We conduct a randomized controlled trial that identifies the causal impact of a comprehensive intervention to improve access to family planning and reproductive health care on postpartum contraceptive use in urban Malawi. A sample of 2,055 married women aged 18-35 and who were either pregnant or had recently given birth were randomly assigned to either an intervention arm or a control arm. Women assigned to the intervention arm received a package of services over a two-year intervention period. Services included: 1) a brochure and up to six home visits from trained family planning counselors; 2) free transportation to a high-quality family planning clinic; and 3) financial reimbursement for family planning services, consultations, and referrals for services. Findings from the first year follow-up survey indicate that contraceptive use among women in the intervention group is between 4.3 and 5.1 percentage points higher than contraceptive use among women in the control group after a one-year exposure to the intervention.

Background

In spite of declining birth rates and improvements to maternal health care, the total fertility rate, or the average number of births per woman, remains high in Sub-Saharan Africa. In 2012, the average total fertility rate in Sub-Saharan Africa was 4.9 births per woman, which was almost twice the average total fertility rate of 2.7 births per woman in South Asia and more than twice the average total fertility rate of 2.2 births per woman in Latin America and the Caribbean (1). In addition, many women in Sub-Saharan Africa begin to have children at a young age; estimates from Demographic and Health Surveys (DHS) indicate that in most Sub-Saharan African countries, between 25 to 40 percent of unmarried women have at least one birth by the age of 19, and many of these births are unplanned (2,3).

A high total fertility rate and large numbers of unintended pregnancies[1] and unwanted births are causes for social concern because they contribute to high rates of induced abortion, increased maternal morbidity and mortality, and poor child health outcomes, which in turn place substantial health and economic burdens on women, their children, and their families (5–7). Women who have children at a young age are also at higher risk of pregnancy-related complications, including pregnancy-induced hypertension and preterm birth (8,9). Moreover, children that are the result of these unplanned pregnancies may face poor health outcomes, including low birth weight, stunted growth, and poor nutrition, as well as lower educational attainment (10–12). In addition, women, their partners, and their families are forced to bear the financial burden associated with childrearing, which result in loss of household earnings and increases the risk of falling into poverty (4,13).

[1] Unintended pregnancies refer to pregnancies that are either unwanted or mistimed at the time of conception (4)

Improving access to family planning (FP) may help African women and couples to meet their desired fertility and to avert unintended pregnancies and unwanted births (14,15). Given that ideal family size is higher among women in Sub-Saharan Africa than in other parts of the world, demand for and use of family planning for spacing births exceeds that for limiting births; nevertheless, an estimated 8 million women in Sub-Saharan Africa have an unmet need for limiting future births (16). Previous studies have shown that women from disadvantaged backgrounds form one of the largest groups that lack access to reproductive health services and have an unmet need for modern family planning—that is, they are sexually active and want to delay or stop childbearing but are not using a modern contraceptive method (17–19). Women in developing countries often do not have access to basic information about sexuality, contraception, and sexually transmitted infections, and among those women who report awareness, many tend to harbor misperceptions or possess only superficial information about these issues (2,20).

Interventions that aim to influence demand (sexual and reproductive health behavior change, informing women and couples about the benefits of family planning) and supply (improving access to contraceptives and services) of family planning have become increasingly common in developing countries. These interventions have targeted key populations in a variety of ways, from education and awareness programs in schools to multicomponent, community-based campaigns (21,22). More recently, the number of family planning interventions that have undergone more rigorous impact evaluation has increased, and more studies have begun to utilize experimental and quasi-experimental methods to assess the effects of family planning on fertility, health behavior, and health outcomes. Findings from community-level social programs such as the MCH-FP Extensions project in Matlab, Bangladesh and the Navrongo experiment in Ghana have significantly contributed to the development of strategies for family planning and reproductive health services, and the health impacts of these strategies have been examined (23–26).

Nevertheless, there is a need for more impact evaluations of family planning interventions using randomized control trials, particularly in Sub-Saharan Africa where rigorous experimental evidence is scarce. Few randomized control trials have been conducted[2] to assess the causal impact of family planning in low-income countries, and even fewer impact evaluations have been conducted to determine the extent to which such family planning interventions may affect downstream health and economic development outcomes. To date, not many impact evaluations have sought to identify family planning and reproductive health (FP/RH) program effectiveness at the individual or household level, and apart from the frequently cited Matlab project and a recent study by Ashraf et al (28), no randomized control trial to my knowledge has attempted to causally identify the impact of family planning and birth spacing on both immediate and longer term health and economic outcomes in Sub-Saharan Africa.

Objectives

To address these gaps in the evidence base, we conduct a field experiment that identifies the causal impact of family planning on contraceptive use, fertility, maternal and child health (MCH) outcomes, and measures of economic well-being. The study population is married women aged 18-35 in Lilongwe, Malawi. As part of the trial, each woman in the study is randomly assigned to one of two

[2] Even the most widely recognized family planning program evaluation, the Matlab MCH-FP projects, did not randomly assign participating villages, and no report was found documenting the mechanism used to assign villages to regional clusters for program treatment (27).

experimental arms: an intervention arm or a control arm. A woman who is assigned to the intervention arm will receive a two-year long family planning intervention that includes:

1. a family planning information package and up to six private counseling visits at her home with trained family planning counselors;
2. a free transportation (taxi) service to a family planning clinic with low waiting times; and
3. financial reimbursement for family planning services, including out of pocket expenditures related to family planning care and treatments that are received at the family planning clinic (e.g. medications, contraceptive methods, consultation fees, exam fees, treatment of contraceptive-related side effects), and free over-the-phone consultations and referral services from a doctor in the event that she experiences contraindications or side effects related to her use of family planning.

Short-term outcomes of interest include knowledge of family planning and modern contraceptive use. Intermediate outcomes include fertility outcomes (parity, birth spacing), changes in desired fertility, unmet need for family planning, and outcomes associated with maternal and child health, including safe pregnancy, child birth height and weight, and nutritional status. Long-term outcomes include educational attainment (matriculation rates, years of schooling completed), labor market outcomes (employment status, female labor supply), and income earned for the women in the study.

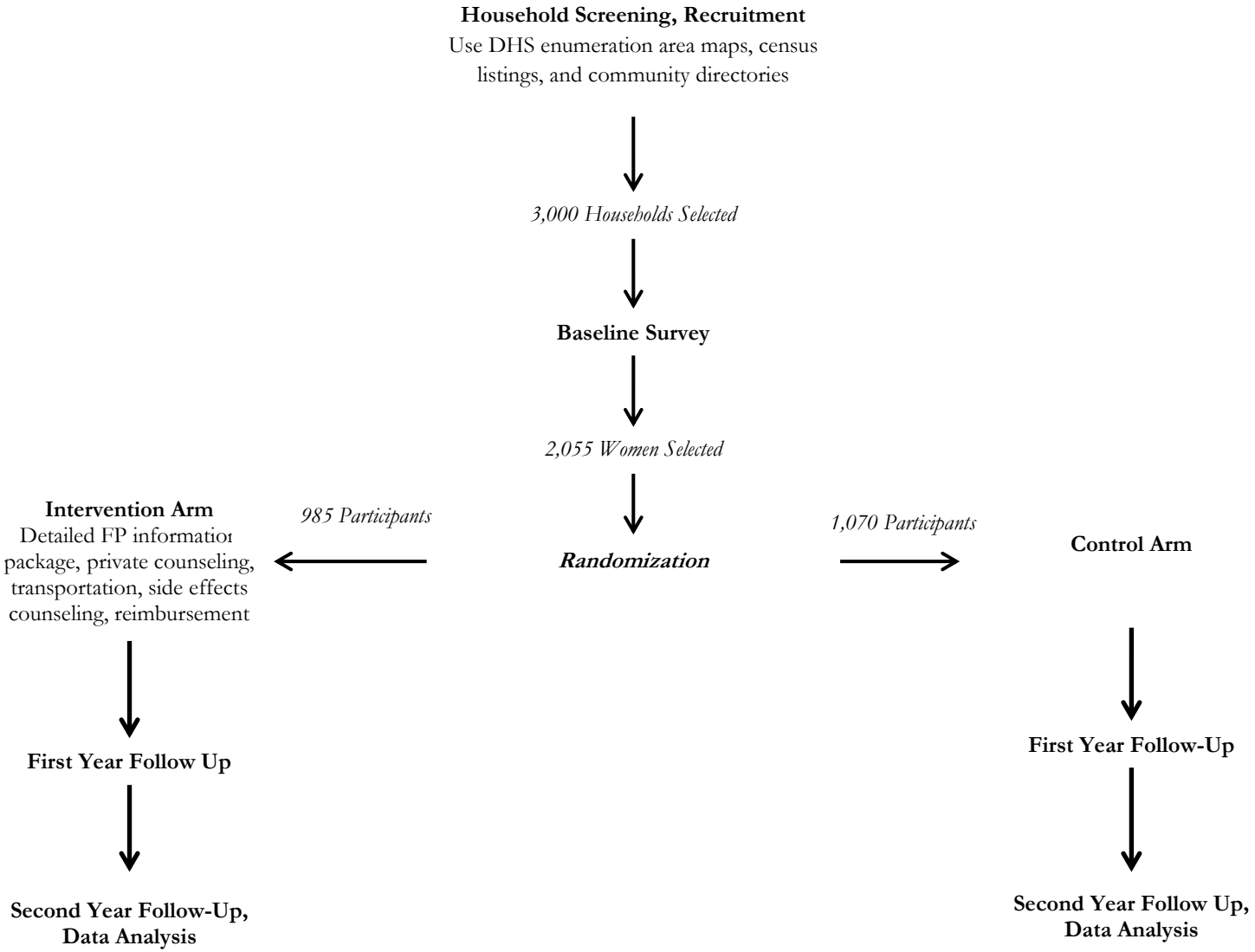
Results from this study will help to fill the current knowledge gaps on the effectiveness of family planning interventions by directly identifying the impact of an increase in access to family planning on fertility and health outcomes. More generally, findings from this study may also provide evidence to suggest that the benefits of improving access to family planning are likely to extend beyond the health domain by also improving economic well-being and contributing to poverty alleviation.

Study Design

This study is a two-armed randomized control trial that consists of a baseline survey that was implemented from September 2016 to January 2017, followed by implementation of the two-year family planning intervention starting in November 2016, two months after the start of the baseline. Two follow-up surveys were conducted after one and two years after the baseline survey, respectively. Data collection for the first follow-up survey began in August 2017 and was completed in February 2018, and data collection for the second follow-up survey began in August 2018 and is expected to be completed by February 2019. This paper presents findings on first-stage outcomes related to contraceptive use from the baseline and first-year follow-up surveys.

Figure 1 outlines the general framework of the entire field experiment.

Figure 1: Experimental Framework



Study Sample

For the study, we recruited women who, at the time of the baseline survey:

1. Were married
2. Were either currently pregnant or have gave birth within 6 months from the time of the baseline screening
3. Were between the ages of 18 to 35
4. Lived in the city of Lilongwe

Women who successfully met these criteria and who consented to participate in the study were recruited. In addition, no two eligible women were enrolled from the same household. If multiple women from the same household were potentially eligible to be recruited based on the four inclusion criteria above, the youngest eligible woman from the household was chosen to participate. In addition, we ensured that eligible women who were selected for the study were sufficiently distant (at least 5 households apart) from each other, which served to reduce any spillover effects.

In addition, one member from the recruited woman's household was identified and selected to respond to sections in the baseline and follow-up surveys that inquired about household expenditures, assets, and consumption. The household member whom we selected for this part of the study:

1. Was over 18 years old.
2. Was a resident of the same household from which the woman respondent described above was selected.
3. Claimed to be knowledgeable about the household's financial status, consumption, and expenditure

The household member who successfully met these inclusion criteria and who consented to participate in this part of the study will be recruited to participate.

Finally, we collected child anthropometric data (height, weight, and anemia status) at baseline and will do so again at the two follow-ups. The children who were selected from the household for this part of the study:

1. Were under the age of 6.
2. Were identified as the biological or adopted children of the woman who was recruited for the main part of the study.
3. Resided in the same household as the eligible woman.

Children who successfully met these inclusion criteria and whose mothers consented to them participating in this part of the study were recruited to participate.

Randomization

Following the baseline survey, women who consented to participate in the study were individually randomized into one of two experimental arms: an intervention arm or a control arm. A woman who was assigned to the intervention arm was presented with a family planning intervention package that included 1) a detailed family planning information brochure on the benefits of family planning and healthy birth spacing as well as six private counseling sessions with a trained family planning counselor, 2) a free transportation service to our partner family planning clinic, the Good Health Kauma Clinic in Lilongwe, and 3) free medical consultation and a referral service from a doctor to seek care in the event that she experiences side effects. Women were randomized to intervention and control groups such that intervention assignment was balanced according to the following baseline characteristics: neighborhood/household cluster, distance to the nearest family planning clinic, number of living

children, months since last live birth, current use of family planning, age of marriage, educational attainment, and household wealth.

The Intervention

Women assigned to the intervention arm were offered the following three intervention components over a two year period:

Transportation Component

Women were offered a free transportation service from their homes to the Good Health Kauma Clinic. The transportation service will be provided by a driver who will be hired and trained by our local implementation partner in Malawi, Innovations for Poverty Action (IPA Malawi). Women received the driver's phone number and were instructed to contact the driver to transport them to the Good Health Kauma Clinic during the clinic's normal working hours, which are between 8 AM and 5 PM from Monday to Saturday. The driver maintained a daily schedule of the women who requested his services, and women were instructed to notify the driver at least one day before they wished to go to the clinic to make sure that the driver was able to transport them. The driver also provided one day's advanced notice to the Good Health Kauma Clinic to inform them of how many women from the study could be expected to attend the clinic on the following day. The Good Health Kauma Clinic assured the project team that women in the intervention arm who come for services would not have to wait more than 1 hour before being seen by a medical professional. In addition, one of our female field managers from IPA Malawi accompanied the driver at all times. While all women in the intervention arm were presented with pictures of the field team (and could therefore recognize our team members), the presence of another woman in the vehicle served to minimize potential stigma associated with a woman traveling alone in the company of another man.

Counselling Component

Women who are assigned to the intervention arm were also offered free, private family planning counseling sessions over the two-year intervention period. Counseling sessions were provided by trained counselors and included a risk assessment for clinical methods and detailed information on methods switching, side effects associated with each method, and the benefits of contraception, birth spacing, and dual protection. Consultations were designed to promote informed choice by discussing common misperceptions that surround family planning and use of modern contraceptives. Women received a detailed information brochures on birth spacing and side effects and also received counseling on both modern and natural family planning methods, including fertility-awareness methods (Standard Days Method, CycleBeads). Strategies on how to communicate family planning messages with partners and on how to increase partner awareness were conveyed during sessions. Counseling sessions were scheduled to last no more than one hour per session and were administered in a private room by a counselor who was trained to provide family planning and reproductive health services. Counselors were hired and trained by IPA Malawi, and we enlisted the support of the Malawi RHD and several international NGOs who work on family planning, including Population Services International (PSI), Banja La Mtsogolo (BLM) and FHI360, to help us develop training materials, brochures and flyers, and other counseling resources. We also collaborated with the Malawi RHD, BLM, and PSI to assist with the counselor training. Women in the intervention arm received a total of six counseling sessions, one comprehensive 90 minute session just after administration of the baseline (within one month) and five shorter 45-minute follow-up sessions that were spaced out over

the two year intervention period. The first session introduced women to the range of available family planning methods and counselled women on side effects. At this first session, counselors also introduced women in the intervention arm about the transport service (described above) and side effects management service (described below) that were available to them and provided women with the necessary information on how to access these services. Counselors also provided their phone numbers to women and were on call over the course of the study period to respond to any questions and concerns.

Financial Reimbursement Component

Finally, women who were assigned to the intervention arm could be financially reimbursed for any out of pocket expenditures that they incurred for receiving family planning care at the Good Health Kauma Clinic. Costs that were reimbursed at the Good Health Kauma Clinic included costs related to the procurement of family planning medications and contraceptive methods, family planning consultation fees, lab test fees, and exam fees. The reimbursement allowance for each woman was in the amount of 17,500 MKW ($25.00 USD) and could be redeemed by the woman over multiple visits at the Good Health Kauma Clinic over the two year intervention period. For every family planning service that the woman received, the cost of the service was deducted from her 17,500 MKW reimbursement allowance.

In addition, women who were assigned to the intervention arm and who experience any side effects due to contraceptive use over the course of the two year intervention period received a series of services for the treatment of side effects. In the event that a woman in the intervention arm experienced a side effect or contraindication, she could contact a trained Obstetrician-Gynecologist at the Kamuzu College of Medicine in Lilongwe, via telephone and would receive advice on how she can best seek care. The doctor would conduct a preliminary telephone consultation and would refer the woman over the phone to seek care at their nearest public clinic, public hospital, or the Good Health Kauma Clinic. All women in the intervention arm also received an "emergency package" during the first counseling visit from the counselor (see above). This "emergency package" consisted of a) a transport voucher, equivalent to an estimated 6,500 MWK ($9.28 USD) and b) a mobile phone credit scratch-off card for the mobile provider of their choice, equivalent 500 MWK ($0.72 USD). This "emergency package" was given to all women in the intervention arm, regardless of whether they took up any intervention component or not and regardless of whether they experienced a side effect or not. The counselor informed the woman that, in addition to the other side effects management services mentioned above, the woman could use the "emergency package" that she was given to cover: 1) any phone airtime costs that she used to have a consultation with one of the doctors who are on call, and 2) any emergency transport costs (taxi) she incurred to travel to a health facility where she can receive treatment for her contraceptive-related side effects. The transport voucher could be presented to any taxi driver in the city of Lilongwe, and the taxi driver would, in turn, redeem the voucher at the IPA Malawi office in exchange for cash equivalent to the cost of the trip. The woman was be asked to keep receipts of any costs she incurred at the health facility so that she could be reimbursed later. Costs for which the woman could be reimbursed included: costs of medications and lab tests, costs of additional consultations at the health facility, and costs of switching or discontinuing methods. The maximum reimbursement amount that a woman was eligible to receive for the treatment of family planning related side effects or contraindications is 35,000 MWK ($50.00 USD) over the two year intervention period. The reimbursement could apply to covering the cost for treatment for side effects for all family planning methods used by the woman and regardless of where the method or treatment was procured.

All reimbursements for an incurred cost were distributed as closely as possible to the time that the reimbursable cost was incurred.

Control Arm

Women who are assigned to the control arm will receive a package of publicly available literature and information on the benefits of family planning as well as information about their nearest family planning clinic. This information package will be delivered to all women at the time of the baseline interview. Women in the control arm will only be re-contacted by the research team at follow-up.

Follow-Up

At the designated one-year and two year follow-up periods, the entire study sample of women were resurveyed so as to create a panel of individual women in which each woman and household would be observed over three time periods. The first follow-up survey was completed with 1,773 women in February 2018, and the second follow-up survey began in August 2018 and will be completed by February 2019. This paper presents findings on first-stage outcomes related to contraceptive use from the baseline and first-year follow-up surveys.

In each follow-up round, we collected survey data on short-term, intermediate, and longer-term outcomes of interest, including:
Attitude/Knowledge of Family Planning, including: knowledge of family planning; knowledge of birth spacing and timing; and perceptions toward contraception (including intentions to use).
Contraceptive Use, including: changes in contraceptive prevalence; changes in method mix; and adherence to methods (compliance, discontinuation).
Pregnancy and Fertility Outcomes, including: pregnancy status; parity; delivery in a facility; months since last birth; wantedness of last birth; and intentions to become pregnant in future.
Child Anthropometric Outcomes, including child height, weight, and anemia status for all children born after the start of the intervention.
Women's Anthropometric Outcomes, including height, weight, and anemia status.
Women's and Children's Educational Attainment, including time spent in school; type of school (public or private) attended, and the highest educational qualification achieved
Weeks Worked, Income, and Women's Employment, including women's time use (time spent on childcare versus household and income-generating activities) and sources of household income.
Household Assets and Wealth, including changes in asset ownership over time.
Expenditures, in particular changes in food expenditures and durable expenditures over time.

Results

Baseline Recruitment and Randomization

Field activities for the baseline survey (wave 1) for the Malawi Family Planning Study (MFPS) began with field staff hires, training, and piloting of the survey instrument in July 2016 and continued through August 2016. Official data collection for the baseline survey began in September 2016, and the last respondents were interviewed at the end of January 2017. During the five month baseline survey period, 11,562 households were approached, and women in these households were screened based on the pre-defined eligibility criteria; that is, 1) they lived in Lilongwe, 2) they were between the ages of 18-35, 3) they were married, and 4) they were either pregnant or up to 6 months postpartum at the

time of the screening. Based on the eligibility screening, 2,370 women (20.5 percent) of women in these households were eligible to participate in the study. Of these 2,370 women, 2,208 women (93.1 percent) agreed to go through the consent form with the enumerator, and 2,078 women (94.1 percent) of the women who agreed to go through the consent form consented to participate and were subsequently enrolled in the study. This consenting sample of 2,078 women constitutes 87.7 percent of the eligible sample. Of these 2,078 women, 2,055 women (98.8 percent) completed the baseline survey and were eligible to be randomized into the intervention or control groups. From this final sample, 985 women were randomly assigned to the intervention group while the remaining 1,070 women were randomly assigned to the control group.[3] Figure 2 below presents the screening, recruitment, and randomization process.

[3] In addition to the 2,055 women who were selected for the main study, 88 women were interviewed as part of a preliminary pilot study to test the feasibility of the survey instruments and implementation of the intervention. As part of the intervention rollout, these 88 respondents were also randomized into treatment (N = 41) and control (N = 47) groups.

Figure 2: Flowchart of Recruitment and Final Sample

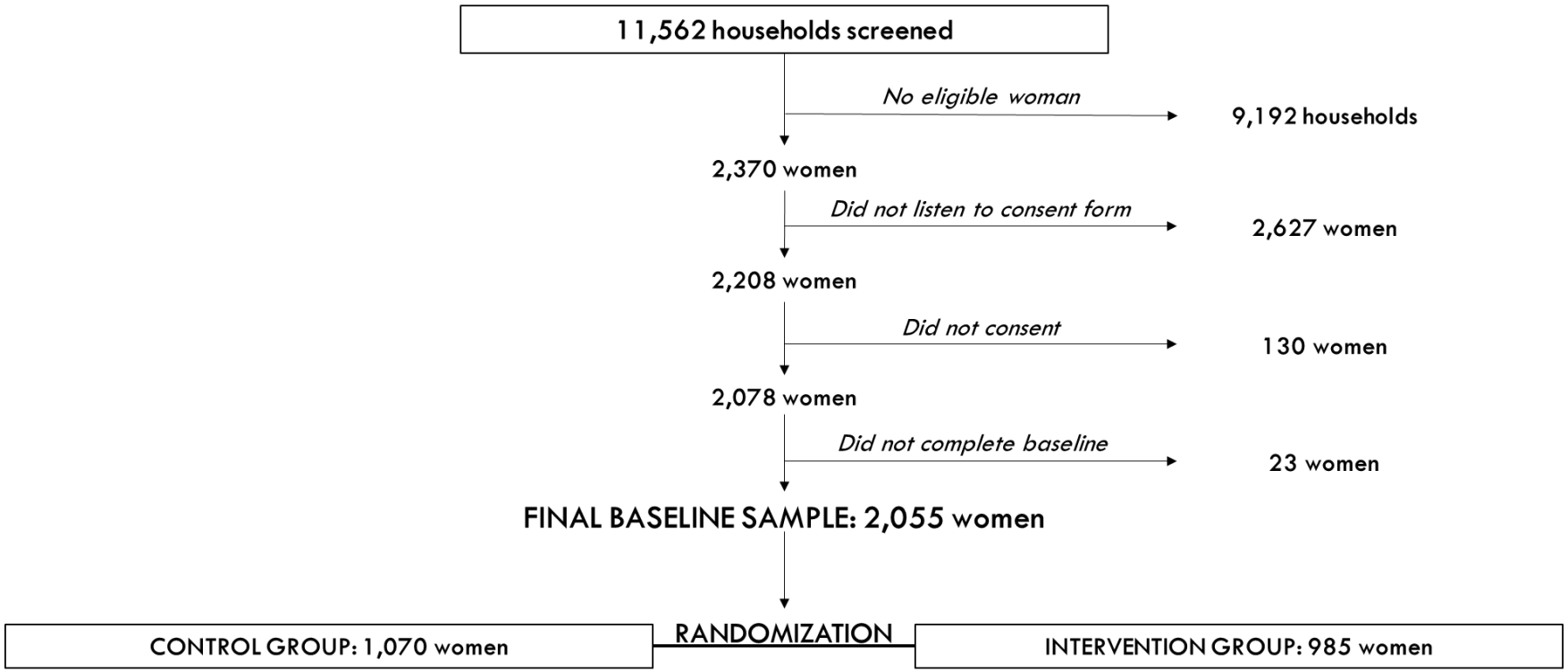


Table 1 presents descriptive statistics from the baseline data collection on the final sample of 2,055 women who were selected for the study. Additional descriptive statistics on the baseline sample are presented in the Appendix.

Table 1: Baseline Descriptive Statistics

Variable	Mean
Household Variables (HH Questionnaire)	
Household Characteristics	
Number of members in HH	3.98
Has electricity (1 = yes)	0.160
Share toilet? (1 = yes)	0.831
Has a TV? (1 = yes)	0.201
Has a fridge? (1 = yes)	0.059
Cooking in home? (1 = yes)	0.156
Owns a cell phone (1 = yes)	0.765
Own a car / truck? (1 = yes)	0.018
Own a bicycle? (1 = yes)	0.309
Follow-Up Information	
Photo of respondent? (1 = yes)	0.847
Photo of household? (1 = yes)	0.798
Plans to move in next 6 months (1 = yes)	0.194
Woman Variables (Woman Questionnaire)	
Respondent Background	
Age of respondent (years)	21.69
Ever attended school (1 = yes)	0.983
Can read in English? (1 = yes)	0.561
Can read in Chichewa? (1 = yes)	0.781
Reproduction	
Ever given birth? (1 = yes)	0.851
Total number of births	1.86
Total number of children alive	1.74
Currently pregnant (1 = yes)	0.514
Months pregnant	5.61
Wanted to get pregnant at that time (1 = yes)	0.564
Had a miscarriage, stillbirth, abortion (1 = yes)	0.135
Contraception	
Among non-pregnant, current use FP (1 =yes)	0.495
Among pregnant, ever use of FP (1 = yes)	0.687
Last amount spent on FP (MWK)	249.80
Waiting time for FP (mins)	38.1
Travel time (mins)	32.2
Travel distance for FP (km)	3.58
Counselled on FP in last pregnancy (1 = yes)	0.056
N	**2,055**

Variable	Mean
Woman Questionnaire Cont'd	
Pregnancy and PNC	
Menstrual cycle returned (1 =yes)	0.49
Birthweight from health card (kg)	3.22
Had sex since birth (1 =yes)	0.485
Months after birth before sex	2.22
Breastfed child (1 = yes)	0.994
Still breastfeeding (1 = yes)	0.993
Age of youngest child (days)	90.6
Marriage and Sexual Activity	
Husband living with woman?	0.972
Husband have other wives?	0.052
How old when live with man?	18.9
How old when first had sex?	17.7
Fertility Preferences	
Want more children?	0.571
Ideal no. of boys	1.41
Ideal no. of girls	1.44
Ideal no. of children	3.25
Heard FP on radio?	0.393
Does husband know of FP use?	0.949
W8: Husband Background	
Husband ever attend school?	0.976
Husband works?	0.933
Covered by health insurance?	0.022
W12: Labor and Employment	
Woman works?	0.243
Husband works?	0.925
Time Use	
Not busy enough (1 = yes)	0.527
Children with her while worked?	0.662
Respondent took care while worked?	0.832
Woman and Child Anthropometrics	
Woman height (cm)	154.9
Woman weight (kg)	59.9
Woman anemia status (g/dl)	11.02
Child under 5 height (cm)	73.5
Child under 5 weight (kg)	9.24

Intervention Monitoring

Rollout of the multi-component family planning intervention to women assigned to the intervention group began shortly after the launch of the baseline survey in September 2016. Six family planning counselors (registered nurses and midwives with prior counseling experience in family planning) were identified in mid-September 2016 and were trained through October 2016 to administer six counseling sessions in women's homes over a two year intervention period. The counselors were first trained by the MFPS management team in field enumeration techniques, mapping and tracking of clients (women assigned to the intervention group), electronic data collection, and field monitoring. The counselors were then trained in the provision of family planning counseling services from a master trainer from the Malawi Reproductive Health Directorate (RHD), with collaboration and support from the Malawi Ministry of Health (MOH). Counselor training topics included: 1) return to fertility; 2) healthy spacing and timing of pregnancies (HTSP); 3) the links between birth spacing and maternal and child health outcomes; 4) contraceptive methods, including their uses, relative effectiveness, side effects and contraindications, and other related information; 5) myths and misconceptions associated with family planning; and 6) partner engagement and family planning communication strategies. Training materials (counselling flip charts, family planning demo kits, brochures and flyers, etc.) were provided by the RHD, and a family planning brochure that covered the four topics described above was developed in collaboration with the RHD. Counseling of clients in the intervention group began in November 2016 and concluded in March 2018, at which time counselors may have completed up to six visits with each client.

In addition to hiring six counselors, the MPFS management team hired and trained a licensed taxi driver in October 2016 to assist with the implementation of the transportation component of the intervention. The taxi driver was contracted to be dedicated to the project and, in particular, was responsible for working with the management team to respond to clients' transport needs to and from the Good Health Kauma Clinic, or any other clinic or hospital of the client's choosing. In October 2016, the management team also identified an obstetrician at the Kamuzu College of Medicine to be the "medical doctor on call." The obstetrician was asked to be responsible for: 1) answering any calls from clients; 2) providing any support or consultation services over the phone, to the best of his ability; and 3) referring any clients who may be experiencing health concerns, particularly those related to their use of family planning, to the management team for follow-up.

Counseling activities with women in the intervention group concluded in March 2018; however, other intervention activities (providing transportation to women to visit the Kauma Clinic for services, providing financial reimbursements to women for any family planning services that they obtain) will continue until February 2019.

Table 2 illustrates the progress made in intervention activities to date (through September 2018).

Table 2: Intervention Monitoring Data

Activity / Variable	Freq.
Number of women assigned to intervention group	985
Number of clients contacted since treatment assignment	972
Number of first visits and counselling sessions	886
Number of taxi trips/client visits to Kauma Clinic	354
Services / Methods Received	
Number of clients who received services	202
Average expenditure for services received (MWK)	1689.41
No. of clients who received side effects management	20
Received condoms	4
Received pills	20
Received Injectables / Depo-Provera	227
Received Implants / Jadelle	61
Received IUD	4
Received female sterilization	7

One Year Follow-Up Results – Contraceptive Use

Field activities for the Year 1 follow-up survey (wave 2) for the MFPS began with field staff hires, training, and piloting of the follow-up survey instrument in July 2017 and continued through August 2017. Official data collection for the baseline survey began in August 2017, and the last respondents were interviewed at the end of February 2018.

During the first year follow-up survey period, a total of 2,092 women (which includes the full sample of 2,055 women from the main study and an additional 88 women that were interviewed at baseline as part of the pilot phase of the study, but not including 51 women who withdrew from the study prior to the start of the year 1 follow-up survey) were selected for follow up at their homes. Field enumerators visited women's homes up to three times to complete the survey. In the event that respondents were unavailable for a home visit, field enumerators would complete an abbreviated version of the survey with women over the phone. A total of 1,773 women, or 84.7 percent of women who were eligible for follow-up, were successfully contacted and re-interviewed at follow-up. Of the 319 women who were eligible but did not complete a follow-up survey over the six month follow-up period, 2 women were found to have died since the last survey, 93 women were found to have moved to locations outside of Lilongwe and were uncontactable by phone, 43 women moved to locations within Lilongwe but were unable to be found at their new locations and were also uncontactable by phone, 172 women were found to be unavailable at their homes and were uncontactable by phone, and 9 women were contacted but refused to participate in the follow-up survey. Analyses of the women who were lost to follow-up are presently being conducted.

Table 3 presents a balance table of baseline characteristics by treatment group; additional variables on which balance was assessed are presented in the Appendix. Women in the treatment group lived slightly further away from a health service provider and paid slightly more in transport costs to seek care. On average, however, the two groups were balanced across a range of variables.

Table 3: Balance Table of Key Baseline Covariates by Treatment Group

	(1) Treatment	(2) Control	(3) Difference
Current Use of FP (1 = Yes)	0.854	0.832	0.022
Ever Use of FP (1 = Yes)	0.746	0.778	0.033*
Woman's Age (Years)	24.39	24.70	0.310
Total Number of Children	1.679	1.779	0.010*
Average Education Level (1-3)	1.455	1.439	-0.016
Woman Works (1 = Yes)	0.092	0.094	0.002
Age of Sexual Debut (Years)	18.83	18.92	0.090
Distance to provider (km)	1.736	1.448	0.288*
Transport Cost (MWK)	487.167	296.724	190.443***
Observations	**1,733**		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4 presents unadjusted and adjusted intent-to-treat (ITT) estimates of the intervention's impact on contraceptive use and shows that contraceptive use among women in the intervention group is 3.6 (unadjusted) and 4.3 (adjusted) percentage points higher than women in the control group after one year of exposure to the intervention.

Table 4: ITT Estimates for the Effect of the Intervention on Contraceptive Use at One Year

VARIABLES	(1) Current Use of FP OLS (LPM)	(2) Current Use of FP OLS (LPM)
Treatment	0.036**	0.043***
	0.005 - 0.067	0.012 - 0.074
Woman's Age		-0.005**
		-0.009 - -0.000
Total No. of Children		-0.028*
		-0.058 - 0.003
Age of Sexual Debut		0.002
		-0.004 - 0.008
Education - Secondary		-0.032
		-0.072 - 0.007
Education - Higher		0.092**
		0.018 - 0.166
Woman Works		-0.018
		-0.056 - 0.021
Constant	0.815***	0.760***
	0.783 - 0.848	0.615 - 0.906
Observations	**1,701**	**1,692**
R-squared	**0.002**	**0.050**

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Notes: For both columns, the unit of observation is a woman. The results are OLS / linear probability model results with 95% confidence intervals below each estimate. The reference group in all adjusted model Column 2 are women with primary school education. Regression include woman-level controls such as educational attainment of the woman (primary as the reference, secondary, and higher), age of the woman, number of births, and whether the woman works. Cluster fixed effects are included, and robust standard errors are presented.

We also conduct a preliminary difference-in-differences analysis to estimate the intervention's impact on contraceptive use (Table 5). We find that contraceptive use among women in the intervention group to be 3.8 (unadjusted) and 5.1 (adjusted) percentage points higher than women in the control group after one year of exposure to the intervention.

Table 5: DID Estimates for the Effect of the Intervention on Contraceptive Use at One Year

VARIABLES	(1) Current Use of FP DID	(2) Current Use of FP DID
Treatment	-0.002	-0.015
	-0.035 - 0.030	-0.044 - 0.013
Year 2017	0.574***	0.535***
	0.533 - 0.616	0.486 - 0.585
Treatment x Year 2017	0.038**	0.051**
	0.000 - 0.076	0.011 - 0.091
Woman's Age		-0.017***
		-0.020 - -0.014
Total No. of Children		0.031***
		0.017 - 0.045
Age of Sexual Debut		0.013***
		0.008 - 0.019
Ever Use of FP		0.443***
		0.404 - 0.481
Education - Secondary		-0.005
		-0.035 - 0.026
Education - Higher		0.033
		-0.043 - 0.109
Woman Works		-0.026
		-0.057 - 0.006
Constant	0.241***	-0.030
	0.208 - 0.274	-0.145 - 0.085
Observations	**3,712**	**3,690**
R-squared	**0.349**	**0.457**

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Notes: For both columns, the unit of observation is a woman. The results are OLS / linear probability model results with 95% confidence intervals below each estimate. The reference group in all adjusted model Column 2 are women with primary school education. Regression include woman-level controls such as educational attainment of the woman (primary as the reference, secondary, and higher), age of the woman, number of births, and whether the woman works. Cluster fixed effects are included, and robust standard errors are presented.

References

1. World Bank. World Development Indicators. Washington, DC: World Bank; 2017 [cited 2013 Jan 20]. Available from: http://data.worldbank.org/

2. Sharan M, Ahmed S, May J, Soucat A. Chapter 25 - Family Planning Trends in Sub-Saharan Africa: Progress, Prospects, and Lessons Learned. In: Yes, Africa Can: success stories from a dynamic continent. Washington, DC: World Bank Publications; 2011. p. 445–63.

3. Singh S. Adolescent Childbearing in Developing Countries: A Global Review. Stud Fam Plann. 1998;29(2):117–136.

4. Brown SS, Eisenberg L. The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Washington, DC: National Academies Press; 1995. 392 p.

5. Bongaarts J, Sinding SW. A Response to Critics of Family Planning Programs. Int Perspect Sex Reprod Health. 2009;35(1):39–44.

6. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J. Family planning: the unfinished agenda. The Lancet. 2006;368(9549):1810–1827.

7. Gribble J, Haffey J. Reproductive Health in Sub-Saharan Africa. Popul Ref Bur. 2008;8.

8. Gortzak-Uzan L, Hallak M, Press F, Katz M, Shoham-Vardi I. Teenage pregnancy: Risk factors for adverse perinatal outcome. J Matern Fetal Neonatal Med. 2001;10(6):393–397.

9. Jolly MC, Sebire N, Harris J, Robinson S, Regan L. Obstetric risks of pregnancy in women less than 18 years old. Obstet Gynecol. 2000;96(6):962–966.

10. Branson N, Ardington C, Leibbrandt M. Health Outcomes for Children Born to Teen Mothers in Cape Town, South Africa. South Afr Labour Dev Res Unit Work Pap No 55. 2011;

11. Gipson JD, Koenig MA, Hindin MJ. The Effects of Unintended Pregnancy on Infant, Child, and Parental Health: A Review of the Literature. Stud Fam Plann. 2008 Mar 1;39(1):18–38.

12. Marston C, Cleland J. Do Unintended Pregnancies Carried to Term Lead to Adverse Outcomes for Mother and Child? An Assessment in Five Developing Countries. Popul Stud. 2003 Mar 1;57(1):77–93.

13. Ribar DC. The Socioeconomic Consequences of Young Women's Childbearing: Reconciling Disparate Evidence. J Popul Econ. 1999;12(4):547–65.

14. Bongaarts J, Mauldin WP, Phillips JF. The demographic impact of family planning programs. Stud Fam Plann. 1990;21(6):299–310.

15. Ross JA, Lloyd CB. Methods for measuring the fertility impact of family planning programs: The experience of the last decade. Vol. 7. New York, NY: Population Council; 1992.

16. Van Lith LM, Yahner M, Bakamjian L. Women's growing desire to limit births in sub-Saharan Africa: meeting the challenge. Glob Health Sci Pract. 2013 Mar 21;1(1):97–107.

17. Casterline JB, Sinding SW. Unmet Need for Family Planning in Developing Countries and Implications for Population Policy. Popul Dev Rev. 2000 Dec 1;26(4):691–723.

18. Gribble J. Fact Sheet: Unmet Need for Family Planning. 2012. Available from: http://www.prb.org.

19. Westoff CF, Ochoa LH. Unmet need and the demand for family planning. Vol. 5. Columbia, MD: Institute for Resource Development/Macro International; 1991.

20. Char A, Saavala M, Kulmala T. Assessing young unmarried men's access to reproductive health information and services in rural India. BMC Public Health. 2011;11(1):476.

21. Mwaikambo L, Speizer IS, Schurmann A, Morgan G, Fikree F. What works in family planning interventions: A systematic review. Stud Fam Plann. 2011;42(2):67–82.

22. Speizer I, Magnani R, Colvin CE. The Effectiveness of Adolescent Reproductive Health Interventions in Developing Countries: A Review of the Evidence. J Adolesc Health. 2003;33:324–48.

23. Debpuur C, Phillips JF, Jackson EF, Nazzar A, Ngom P, Binka FN. The Impact of the Navrongo Project on Contraceptive Knowledge and Use, Reproductive Preferences, and Fertility. Stud Fam Plann. 2002;33(2):141–164.

24. Joshi S, Schultz TP. Family planning as an investment in development: Evaluation of a program's consequences in Matlab, Bangladesh. Econ Growth Cent Discuss Pap. 2007;951.

25. Phillips JF, Bawah AA, Binka FN. Accelerating reproductive and child health programme impact with community-based services: the Navrongo experiment in Ghana. Bull World Health Organ. 2006;84(12):949–955.

26. Sinha N. Fertility, Child Work, and Schooling Consequences of Family Planning Programs: Evidence from an Experiment in Rural Bangladesh. Econ Dev Cult Change. 2005 Oct;54(1):97–128.

27. Schultz TP. How Does Family Planning Promote Development? Evidence from a Social Experiment in Matlab, Bangladesh, 1977–1996. Yale Univ Econ Growth Cent N Hav Conn. 2009.

28. Ashraf N, Field E, Lee J. Household Bargaining and Excess Fertility: An Experimental Study in Zambia. Am Econ Rev Revis. 2010;

	Mean	Standard Deviation	N	Min	Max
Age	24.57546	4.611756	2054	18	35
Education level	1.445486	.54271	2027	1	3
Total births	1.859512	1.443171	2050	0	11
Pregnancy status	.5141463	.4999218	2050	0	1
No. sons in house	.9515337	.8840623	1630	0	6
No. daughters in house	.9693252	.908478	1630	0	6
No. sons died	.6635514	.5885276	214	0	3
No. Daughters died	.4859813	.5792092	214	0	3
Wanted child	.2890511	.453432	2055	0	1
Observations	2055				

Table 1: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Currently using contraceptives	.4954683	.5002314	993	0	1
Counseled public sector	.0472019	.2121222	2055	0	1
Counseled private sector	.006326	.0793037	2055	0	1
Distance to service provider (km)	3.575	4.145999	160	0	30
Time to service (min)	32.16291	50.57395	399	0	606
Transport cost (MK)	249.7982	648.6338	441	0	10000
Wait at service provider (min)	38.05374	58.87692	428	0	500
Alternative methods from health worker	.1478873	.3562449	142	0	1
Counseled during last pregnancy	.0562622	.2304838	2044	0	1
Visited by fp fieldworker last 12 mo	.0156556	.1241693	2044	0	1
Visited a health facility last 12 mo	.7945205	.4041504	2044	0	1
Staff at facility mentioned fp	.5098522	.5000569	1624	0	1
Wanted last pregnancy	.5738693	.4947619	995	0	1
Later=1,never=2	1.174528	.3800115	424	1	2
Ever breastfeed	.9939698	.0774585	995	0	1
Current use male sterlilize	.0020325	.0450835	492	0	1
Current use IUD	.0060976	.0779277	492	0	1
Current use Injectables	.7906504	.4072585	492	0	1
Current use Implants	.1321138	.3389591	492	0	1
Current use Pills	.0203252	.1412538	492	0	1
Current use Condoms	.0223577	.1479945	492	0	1
Current use Lactational Amenorrhea Method	.0020325	.0450835	492	0	1
Current use Withdrawal	.0020325	.0450835	492	0	1
Current use Other modern	.0162602	.1266031	492	0	1
Current use Other traditional	.0060976	.0779277	492	0	1
Observations	2055				

Table 2: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Currently married/partnered	1	0	2055	1	1
Husband/partner lives with you	.9721408	.1646097	2046	0	1
Husband has other wives	.0379562	.1911369	2055	0	1
Married once	.8558162	.3513619	2046	0	1
Age at first cohabitation	18.85142	2.793008	2046	11	32
Age at first intercourse	17.63266	2.547282	2039	3	28
Want another child	.2749392	.4465923	2055	0	1
Plan to use contraceptives	.982962	.1294554	1526	0	1
Husband knows you use contraceptives	.954918	.2076968	488	0	1
Husband wants same number of kids	.6029197	.489412	2055	0	1
Husband attended school	.9755501	.154479	2045	0	1
Observations	2055				

Table 3: Summary Statistics for Baseline- Wave 1 and Wave 2

Delay births	Mean	Standard Deviation	N	Min	Max
Fertility related	.2938053	.4559075	565	0	1
Opposition to use	.0035398	.0594436	565	0	1
Lack of knowledge	.0017699	.0420703	565	0	1
Method-related reason	.0212389	.1443077	565	0	1
Observations	565				

No more births	Mean	Standard Deviation	N	Min	Max
Fertility related	.3754045	.4850126	309	0	1
Opposition to use	.0097087	.0982125	309	0	1
Lack of knowledge	.0064725	.0803211	309	0	1
Method-related reason	.0194175	.1382109	309	0	1
Observations	309				

Table 4: Summary Statistics for Baseline-Delay or avoid births

	Mean	Standard Deviation	N	Min	Max
Heard on radio	.39256	.4884398	2043	0	1
On television	.1248164	.3305916	2043	0	1
Newspaper/magazine	.133627	.3403344	2043	0	1
Poster	.3348018	.4720367	2043	0	1
Clothing	.3534019	.4781432	2043	0	1
Drama	.2838962	.4509975	2043	0	1
Drama	.2838962	.4509975	2043	0	1
Other	.3573177	.4793268	2043	0	1
Observations	2043				

Table 5: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Reason not go-permission	.0343137	.1820784	2040	0	1
Reason not go-money	.2656863	.4418062	2040	0	1
Reason not go-distance	.2318627	.4221253	2040	0	1
Reason not go-alone	.1372549	.3442006	2040	0	1
Reason not go-no time	.1318627	.3384244	2040	0	1
Have health insurance	.0226586	.1488501	1986	0	1
Observations	2040				

Table 6: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Composite of next 3 categories	.2409403	.4277589	2042	0	1
Work for pay last wk	.039667	.1952234	2042	0	1
Biz activity last wk	.1973555	.3981004	2042	0	1
Unpaid HH biz work last wk	.0416259	.1997816	2042	0	1
Household farm work last wk	.75	.452267	12	0	1
Unpaid job to return to	.1763943	.3812789	1542	0	1
Cash payment main job	23.12342	107.1687	112	0	1000
Employer by a private household	.2982968	.4576218	2055	0	1
Cash payment work for pay	23.12342	107.1687	112	0	1000
Hrs last week primary job	21.99027	86.85474	2055	0	616
More than 1 econ activity	.0336788	.1805179	772	0	1
Would have liked to work more last wk	.1902676	.3926078	2055	0	1
Observations	2055				

Table 7: Summary Statistics for Baseline- Female Labor

	Mean	Standard Deviation	N	Min	Max
Composite of next 3 categories	.9289912	.2569025	2042	0	1
Work for pay last wk	.6483839	.4775918	2042	0	1
Biz activity last wk	.3320274	.4710561	2042	0	1
Unpaid HH biz work last wk	.0455436	.2085442	2042	0	1
Household farm work last wk	.75	.4399413	32	0	1
Unpaid job to return to	.6323529	.4839471	136	0	1
Cash payment main job	201.0872	1762.861	130	0	20000
Cash payment work for pay	201.0872	1762.861	130	0	20000
Employed by a private household	.5347932	.4989094	2055	0	1
Hrs last week primary job	45.71046	30.33016	2055	0	133
More than 1 econ activity	.0722892	.2590311	1992	0	1
Would have liked to work more last wk	.3051095	.4605659	2055	0	1
Observations	2055				

Table 8: Summary Statistics for Baseline- Male Labor

	Mean	Standard Deviation	N	Min	Max
Hrs lst wk collecting firewood	2.394124	6.539049	1804	0	120
Hrs lst wk fetching water	4.999448	8.638293	1812	0	140
In the last 7 days, how much time in hou	.1049505	.8766834	2020	0	12
Hrs lst wk repairing	1.934493	3.851015	1954	0	65
Hrs lst wk processing food	3.124035	5.881647	1943	0	60
Hrs lst wk making handicrafts for HH	.1477663	2.394997	2037	0	80
Hrs lst wk agriculture	.1553589	2.451789	2034	0	98
Hrs lst wk fishing/hunting	.0279686	.4686572	2038	0	8
Observations	2042				

Table 9: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Woman's weight (kg)	59.945	10.76888	1720	7.4	166.9
Woman's height (cm)	154.933	11.82537	1695	3	206.4
Woman's hemoglobin g/dl	11.04685	2.015741	1554	2.5	51
Observations	1745				

Table 10: Summary Statistics for Baseline- Wave 1 and Wave 2

Variable	Treated Mean	Control Mean	b	SE	Treated N	Control N
Age	24.682	24.477	-0.205	0.2037	985	1069
Education level	1.438	1.453	0.015	0.0241	973	1054
Total births	1.898	1.824	-0.075	0.0638	984	1066
Pregnancy status	0.513	0.515	0.002	0.0221	984	1066
No. sons in house	0.949	0.954	0.005	0.0438	787	843
No. daughters in house	0.997	0.943	-0.054	0.0450	787	843
No. sons died	0.709	0.622	-0.087	0.0805	103	111
No. Daughters died	0.427	0.541	0.113	0.0790	103	111
Wanted child	0.286	0.292	0.005	0.0200	985	1070
Currently using contraceptives	0.494	0.497	0.003	0.0318	478	515
Current use male sterlilize	0.004	0.000	-0.004	0.0041	236	256
Current use IUD	0.004	0.008	0.004	0.0070	236	256
Current use Injectables	0.792	0.789	-0.003	0.0368	236	256
Current use Implants	0.131	0.133	0.001	0.0306	236	256
Current use Pills	0.017	0.023	0.006	0.0128	236	256
Current use Condoms	0.025	0.020	-0.006	0.0134	236	256
Current use Lactational Amenorrhea Method	0.004	0.000	-0.004	0.0041	236	256
Current use Withdrawal	0.000	0.004	0.004	0.0041	236	256
Current use Other modern	0.021	0.012	-0.009	0.0114	236	256
Current use Other traditional	0.000	0.012	0.012*	0.0070	236	256
Counseled public sector	0.036	0.058	0.022**	0.0094	985	1070
Counseled private sector	0.006	0.007	0.000	0.0035	985	1070
Distance to service provider (km)	3.811	3.372	-0.439	0.6585	74	86
Time to service (min)	35.798	28.924	-6.874	5.0668	188	211
Transport cost (MK)	316.864	186.573	-130.292**	61.5586	214	227
Wait at service provider (min)	38.299	37.837	-0.462	5.7090	201	227
Alternative methods from health worker	0.111	0.177	0.066	0.0601	63	79
Counseled during last pregnancy	0.044	0.068	0.024**	0.0102	982	1062
Visited by fp fieldworker last 12 mo	0.016	0.015	-0.001	0.0055	982	1062
Visited a health facility last 12 mo	0.803	0.786	-0.017	0.0179	982	1062
Staff at facility mentioned fp	0.494	0.525	0.030	0.0248	789	835
Wanted last pregnancy	0.567	0.580	0.013	0.0314	478	517
Later=1,never=2	1.164	1.184	0.020	0.0370	207	217
Ever breastfeed	0.992	0.996	0.004	0.0049	478	517
Currently married/partnered	1.000	1.000	0.000	0.0000	985	1070
Husband/partner lives with you	0.976	0.969	-0.007	0.0073	983	1063
Husband has other wives	0.040	0.036	-0.003	0.0084	985	1070
Married once	0.846	0.865	0.018	0.0155	983	1063
Age at first cohabitation	18.910	18.797	-0.114	0.1236	983	1063
Age at first intercourse	17.688	17.582	-0.106	0.1129	980	1059
Want another child	0.267	0.282	0.015	0.0197	985	1070
Plan to use contraceptives	0.980	0.986	0.006	0.0066	739	787
Husband knows you use contraceptives	0.949	0.961	0.012	0.0188	234	254
Fertility related (no more births)	0.293	0.295	0.002	0.0385	263	302
Opposition to use (no more births)	0.004	0.003	-0.000	0.0050	263	302
Lack of knowledge (no more births)	0.000	0.003	0.003	0.0035	263	302
Method-related reason (no more births)	0.030	0.013	-0.017	0.0122	263	302
Heard on radio	0.405	0.381	-0.024	0.0216	983	1060
On television	0.128	0.122	-0.006	0.0146	983	1060
Newspaper/magazine	0.135	0.132	-0.003	0.0151	983	1060
Poster	0.334	0.336	0.002	0.0209	983	1060
Clothing	0.356	0.351	-0.005	0.0212	983	1060
Drama	0.296	0.273	-0.023	0.0200	983	1060
Other	0.356	0.358	0.002	0.0212	983	1060
Husband wants same number of kids	0.587	0.618	0.031	0.0216	985	1070
Observations	2055					

* p<.10, ** p<.05, *** p<.01

Variable	Treated Mean	Control Mean	b	SE	Treated N	Control N
Husband attended school	0.975	0.976	0.002	0.0068	983	1062
Reason not go-permission	0.036	0.033	-0.003	0.0081	981	1059
Reason not go-money	0.272	0.260	-0.012	0.0196	981	1059
Reason not go-distance	0.239	0.226	-0.013	0.0187	981	1059
Reason not go-alone	0.148	0.127	-0.020	0.0152	981	1059
Reason not go-no time	0.152	0.113	-0.039**	0.0150	981	1059
Have health insurance	0.021	0.024	0.003	0.0067	956	1030
Composite of next 3 categories	0.237	0.245	0.008	0.0190	980	1062
Work for pay last wk	0.043	0.037	-0.006	0.0086	980	1062
Biz activity last wk	0.190	0.204	0.015	0.0176	980	1062
Unpaid HH biz work last wk	0.040	0.043	0.004	0.0089	980	1062
Household farm work last wk	0.750	0.750	0.000	0.2905	8	4
Unpaid job to return to	0.176	0.177	0.001	0.0194	744	798
Cash payment main job	7.977	38.270	30.292	20.1388	56	56
Employer by a private household	0.306	0.292	-0.014	0.0202	985	1070
Hrs last week primary job	20.834	23.055	2.222	3.8358	985	1070
More than 1 econ activity	0.038	0.030	-0.009	0.0130	367	405
Would have liked to work more last wk	0.197	0.184	-0.013	0.0173	985	1070
Hrs lst wk collecting firewood	2.525	2.275	-0.250	0.3083	859	945
Hrs lst wk fetching water	5.324	4.708	-0.617	0.4063	857	955
Hrs lst wk repairing	1.956	1.915	-0.040	0.1745	925	1029
Hrs lst wk processing food	2.995	3.241	0.247	0.2672	924	1019
Hrs lst wk making handicrafts for HH	0.051	0.237	0.186*	0.1062	977	1060
Hrs lst wk agriculture	0.112	0.196	0.084	0.1088	976	1058
Hrs lst wk fishing/hunting	0.042	0.015	-0.027	0.0208	978	1060
Woman's weight (kg)	59.527	60.322	0.794	0.5198	816	904
Woman's height (cm)	154.509	155.314	0.804	0.5751	802	893
Woman's hemoglobin (g/dl)	11.060	11.035	-0.024	0.1024	742	812
Observations	2055					

t statistics in parentheses

* p<.10, ** p<.05, *** p<.01

Table 12: 2

	Mean	Standard Deviation	N	Min	Max
Age	25.65392	4.508051	523	18	35
Education level	1.488571	.5563046	1750	1	3
Total births	.4903955	.5232507	1770	0	3
Pregnancy status	.0152801	.1226995	1767	0	1
No. sons in house	.5251799	.5091848	834	0	2
No. daughters in house	.4928058	.5097569	834	0	2
No. sons died	.5555556	.51131	18	0	1
No. Daughters died	.4444444	.51131	18	0	1
Wanted child	.0101523	.1002741	1773	0	1
Observations	1773				

Table 1: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Currently using contraceptives	.8426192	.3642641	1741	0	1
Counseled public sector	.1156232	.3198628	1773	0	1
Counseled private sector	.0180485	.1331644	1773	0	1
Distance to service provider (km)	1.583802	2.196949	889	0	30
Time to service (min)	30.05616	34.08673	1193	0	315
Transport cost (MK)	386.7864	1048.05	1292	0	30000
Wait at service provider (min)	43.21527	71.12507	1231	0	600
Alternative methods from health worker	.2424242	.4293635	264	0	1
Counseled during last pregnancy	.1790684	.3835256	1653	0	1
Visited by fp fieldworker last 12 mo	.3569268	.4792379	1653	0	1
Visited a health facility last 12 mo	.7447066	.436158	1653	0	1
Staff at facility mentioned fp	.6246954	.4843983	1231	0	1
Wanted last pregnancy	.6144431	.4870247	817	0	1
Later=1,never=2	1.152381	.3599616	315	1	2
Ever breastfeed	.99388	.0780381	817	0	1
Current use male sterlilize	.0279482	.1648806	1467	0	1
Current use IUD	.0102249	.1006345	1467	0	1
Current use Injectables	.6918882	.4618705	1467	0	1
Current use Implants	.1860941	.3893153	1467	0	1
Current use Pills	.0395365	.1949339	1467	0	1
Current use Condoms	.0190866	.136876	1467	0	1
Current use Lactational Amenorrhea Method	.0068166	.0823091	1467	0	1
Current use Withdrawal	.0034083	.0583011	1467	0	1
Current use Other modern	.002045	.0451907	1467	0	1
Current use Other traditional	.0074983	.0862969	1467	0	1
Observations	1773				

Table 2: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Currently married/partnered	1	0	1773	1	1
Husband/partner lives with you	.9546269	.2081833	1675	0	1
Husband has other wives	.0451213	.2076286	1773	0	1
Married once	.8610323	.3460109	1763	0	1
Age at first cohabitation	19.12762	2.780086	1763	12	34
Age at first intercourse	17.78571	2.61873	1652	2	29
Want another child	.5882685	.4922859	1773	0	1
Plan to use contraceptives	.9187279	.2737366	283	0	1
Husband knows you use contraceptives	.96875	.1740545	1408	0	1
Husband wants same number of kids	.5679639	.4954991	1773	0	1
Husband attended school	.974026	.1591027	1771	0	1
Observations	1773				

Table 3: Summary Statistics for Baseline- Wave 1 and Wave 2

Delay births	Mean	Standard Deviation	N	Min	Max
Fertility related	.0623202	.2418522	1043	0	1
Opposition to use	.0028763	.0535798	1043	0	1
Lack of knowledge	0	0	1043	0	0
Method-related reason	.0162991	.1266841	1043	0	1
Observations	1043				

No more births	Mean	Standard Deviation	N	Min	Max
Fertility related	.1356674	.3428103	457	0	1
Opposition to use	.0043764	.0660815	457	0	1
Lack of knowledge	0	0	457	0	0
Method-related reason	.0262582	.1600774	457	0	1
Observations	457				

Table 4: Summary Statistics for Baseline-Delay or avoid births

	Mean	Standard Deviation	N	Min	Max
Heard on radio	.3861027	.4870018	1655	0	1
On television	.1619335	.3685012	1655	0	1
Newspaper/magazine	.1601208	.3668289	1655	0	1
Poster	.5909366	.4918096	1655	0	1
Clothing	.4320242	.4955075	1655	0	1
Drama	.2338369	.4233976	1655	0	1
Drama	.2338369	.4233976	1655	0	1
Other	.3770393	.4847914	1655	0	1
Observations	1655				

Table 5: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Heard on radio	.3861027	.4870018	1655	0	1
On television	.1619335	.3685012	1655	0	1
Newspaper/magazine	.1601208	.3668289	1655	0	1
Poster	.5909366	.4918096	1655	0	1
Clothing	.4320242	.4955075	1655	0	1
Drama	.2338369	.4233976	1655	0	1
Drama	.2338369	.4233976	1655	0	1
Other	.3770393	.4847914	1655	0	1
Observations	1655				

Table 6: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Reason not go-permission	.0580762	.2339583	1653	0	1
Reason not go-money	.2081065	.4060763	1653	0	1
Reason not go-distance	.2601331	.4388398	1653	0	1
Reason not go-alone	.0816697	.2739437	1653	0	1
Reason not go-no time	.0725953	.2595495	1653	0	1
Have health insurance	.0165148	.1274807	1756	0	1
Observations	1768				

Table 7: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Composite of next 3 categories	.3836858	.4864298	1655	0	1
Work for pay last wk	.1160121	.3203362	1655	0	1
Biz activity last wk	.2797583	.4490161	1655	0	1
Unpaid HH biz work last wk	.0839879	.2774535	1655	0	1
Household farm work last wk	.7142857	.48795	7	0	1
Unpaid job to return to	.1213018	.3266388	1014	0	1
Cash payment main job	45.6088	251.2577	101	0	2400
Employer by a private household	.3604061	.4802537	1773	0	1
Cash payment work for pay	45.6088	251.2577	101	0	2400
Hrs last week primary job	26.23181	77.56209	1773	0	616
More than 1 econ activity	.0405759	.1974349	764	0	1
Would have liked to work more last wk	.2233503	.4166087	1773	0	1
Observations	1773				

Table 8: Summary Statistics for Baseline- Female Labor

	Mean	Standard Deviation	N	Min	Max
Composite of next 3 categories	.9224412	.2675611	1573	0	1
Work for pay last wk	.6242848	.484461	1573	0	1
Biz activity last wk	.3515575	.4776085	1573	0	1
Unpaid HH biz work last wk	.1036236	.3048686	1573	0	1
Household farm work last wk	.6666667	.492366	12	0	1
Unpaid job to return to	.2321429	.4240972	112	0	1
Cash payment main job	618.3774	4735.953	61	0	37000
Cash payment work for pay	618.3774	4735.953	61	0	37000
Employed by a private household	.5109983	.5000201	1773	0	1
Hrs last week primary job	40.80541	32.4357	1773	0	125
More than 1 econ activity	.062542	.2422189	1487	0	1
Would have liked to work more last wk	.2724196	.4453302	1773	0	1
Observations	1773				

Table 9: Summary Statistics for Baseline- Male Labor

	Mean	Standard Deviation	N	Min	Max
Hrs lst wk collecting firewood	3.606705	5.679964	1551	0	76
Hrs lst wk fetching water	7.310345	7.493689	1566	0	62
In the last 7 days, how much time in hou	.1917366	2.966442	1549	0	83
Hrs lst wk repairing	4.612129	9.708516	1583	0	95
Hrs lst wk processing food	3.632841	7.429165	1626	0	70
Hrs lst wk making handicrafts for HH	.2175758	3.722556	1650	0	120
Hrs lst wk agriculture	.2729483	4.024442	1645	0	120
Hrs lst wk fishing/hunting	.0194293	.3938919	1647	0	8
Observations	1655				

Table 10: Summary Statistics for Baseline- Wave 1 and Wave 2

	Mean	Standard Deviation	N	Min	Max
Woman's weight (kg)	59.76342	13.0454	1289	7.8	165.1
Woman's height (cm)	155.2575	12.29005	1206	1.35	208.2
Woman's hemoglobin g/dl	12.55362	1.518832	1216	4	16.3
Observations	1344				

Table 11: Summary Statistics for Baseline- Wave 1 and Wave 2

Variable	Treated Mean	Control Mean	b	SE	Treated N	Control N
Age	25.438	25.861	0.424	0.3943	256	267
Education level	1.491	1.486	-0.005	0.0266	833	917
Total births	0.492	0.489	-0.004	0.0249	841	929
Pregnancy status	0.013	0.017	0.004	0.0058	840	927
No. sons in house	0.513	0.536	0.024	0.0353	394	440
No. daughters in house	0.505	0.482	-0.023	0.0354	394	440
No. sons died	0.615	0.400	-0.215	0.2721	13	5
No. Daughters died	0.385	0.600	0.215	0.2721	13	5
Wanted child	0.010	0.011	0.001	0.0048	842	931
Currently using contraceptives	0.854	0.832	-0.022	0.0175	829	912
Current use male sterlilize	0.032	0.024	-0.009	0.0086	708	759
Current use IUD	0.011	0.009	-0.002	0.0053	708	759
Current use Injectables	0.684	0.700	0.016	0.0241	708	759
Current use Implants	0.186	0.186	-0.001	0.0203	708	759
Current use Pills	0.031	0.047	0.016	0.0102	708	759
Current use Condoms	0.023	0.016	-0.007	0.0072	708	759
Current use Lactational Amenorrhea Method	0.010	0.004	-0.006	0.0043	708	759
Current use Withdrawal	0.003	0.004	0.001	0.0030	708	759
Current use Other modern	0.001	0.003	0.001	0.0024	708	759
Current use Other traditional	0.011	0.004	-0.007	0.0045	708	759
Counseled public sector	0.150	0.085	-0.065***	0.0151	842	931
Counseled private sector	0.027	0.010	-0.018***	0.0063	842	931
Distance to service provider (km)	1.736	1.448	-0.288*	0.1474	420	469
Time to service (min)	28.609	31.358	2.749	1.9757	565	628
Transport cost (MK)	487.167	296.724	-190.443***	58.1824	611	681
Wait at service provider (min)	39.701	46.408	6.706*	4.0562	586	645
Alternative methods from health worker	0.261	0.229	-0.033	0.0536	111	153
Counseled during last pregnancy	0.252	0.114	-0.138***	0.0186	782	871
Visited by fp fieldworker last 12 mo	0.575	0.161	-0.415***	0.0213	782	871
Visited a health facility last 12 mo	0.806	0.690	-0.116***	0.0213	782	871
Staff at facility mentioned fp	0.662	0.586	-0.076***	0.0275	630	601
Wanted last pregnancy	0.619	0.610	-0.009	0.0341	386	431
Later=1,never=2	1.136	1.167	0.031	0.0407	147	168
Ever breastfeed	0.995	0.993	-0.002	0.0055	386	431
Currently married/partnered	1.000	1.000	0.000	0.0000	842	931
Husband/partner lives with you	0.966	0.944	-0.023**	0.0102	803	872
Husband has other wives	0.052	0.039	-0.014	0.0099	842	931
Married once	0.855	0.867	0.012	0.0165	840	923
Age at first cohabitation	19.096	19.156	0.060	0.1326	840	923
Age at first intercourse	17.836	17.740	-0.096	0.1291	782	870
Want another child	0.591	0.585	-0.006	0.0234	842	931
Plan to use contraceptives	0.919	0.918	-0.001	0.0329	124	159
Husband knows you use contraceptives	0.976	0.962	-0.015	0.0093	680	728
Fertility related (no more births)	0.068	0.057	-0.011	0.0150	498	545
Opposition to use (no more births)	0.002	0.004	0.002	0.0033	498	545
Lack of knowledge (no more births)	0.000	0.000	0.000	0.0000	498	545
Method-related reason (no more births)	0.010	0.022	0.012	0.0078	498	545
Heard on radio	0.393	0.380	-0.014	0.0240	783	872
On television	0.156	0.167	0.012	0.0181	783	872
Newspaper/magazine	0.160	0.161	0.001	0.0181	783	872
Poster	0.584	0.597	0.014	0.0242	783	872
Clothing	0.460	0.407	-0.053**	0.0244	783	872
Drama	0.238	0.231	-0.007	0.0209	783	872
Other	0.396	0.360	-0.036	0.0239	783	872
Husband wants same number of kids	0.577	0.560	-0.018	0.0236	842	931
Observations	1773					

* p<.10, ** p<.05, *** p<.01

Variable	Treated Mean	Control Mean	b	SE	Treated N	Control N
Husband attended school	0.976	0.972	-0.004	0.0076	841	930
Reason not go-permission	0.051	0.064	0.013	0.0115	782	871
Reason not go-money	0.206	0.210	0.004	0.0200	782	871
Reason not go-distance	0.266	0.255	-0.011	0.0216	782	871
Reason not go-alone	0.084	0.079	-0.005	0.0135	782	871
Reason not go-no time	0.077	0.069	-0.008	0.0128	782	871
Have health insurance	0.014	0.018	0.004	0.0061	836	920
Composite of next 3 categories	0.384	0.383	-0.001	0.0240	783	872
Work for pay last wk	0.116	0.116	-0.000	0.0158	783	872
Biz activity last wk	0.286	0.274	-0.012	0.0221	783	872
Unpaid HH biz work last wk	0.086	0.083	-0.003	0.0137	783	872
Household farm work last wk	0.750	0.667	-0.083	0.4065	4	3
Unpaid job to return to	0.123	0.120	-0.004	0.0206	479	535
Cash payment main job	57.915	35.720	-22.195	50.5055	45	56
Employer by a private household	0.371	0.351	-0.019	0.0228	842	931
Hrs last week primary job	26.004	26.438	0.435	3.6897	842	931
More than 1 econ activity	0.047	0.035	-0.012	0.0143	363	401
Would have liked to work more last wk	0.226	0.221	-0.004	0.0198	842	931
Hrs lst wk collecting firewood	3.663	3.556	-0.108	0.2889	734	817
Hrs lst wk fetching water	7.325	7.297	-0.028	0.3794	741	825
Hrs lst wk repairing	4.747	4.492	-0.255	0.4890	744	839
Hrs lst wk processing food	3.426	3.816	0.390	0.3691	765	861
Hrs lst wk making handicrafts for HH	0.322	0.124	-0.198	0.1836	780	870
Hrs lst wk agriculture	0.260	0.285	0.025	0.1988	778	867
Hrs lst wk fishing/hunting	0.021	0.018	-0.002	0.0194	779	868
Woman's weight (kg)	58.922	60.489	1.567**	0.7277	597	692
Woman's height (cm)	155.472	155.064	-0.408	0.7090	571	635
Woman's hemoglobin (g/dl)	12.520	12.584	0.063	0.0872	578	638
Observations	1773					

* p<.10, ** p<.05, *** p<.01

Table 13: 2

Outcome: Currently using contraception	(1)	(2)	(3)	(4)
treatment	0.0358**	0.0432***		
	(0.0153)	(0.0153)		
TreatmentxYear			0.0383**	0.0510**
			(0.0189)	(0.0198)
Observations	1701	1692	3712	3690
R^2	0.00	0.05	0.35	0.46
F	5.5	.	464.2	.
Controls	N	Y	N	Y

t statistics in parentheses

* p<.10, ** p<.05, *** p<.01

Note: Columns (1) and (2) are OLS estimates of the treatment effect in 2017. Columns (3) and (4) are DID estimates and use both years of data. Columns (2) and (4) control for area cluster, age, total number of children, age at first sex, education levels and working. Standard errors are clustered at the cluster and area-cluster level for all regressions.

Table 14: ITT Regressions