

Household Bargaining and Excess Fertility: An Experimental Study in Zambia

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Abstract

This paper tests the role of spousal discordance in fertility preferences in explaining low rates of contraceptive use and high rates of unwanted births through a field experiment in Zambia. We randomly assigned married women to receive, either alone (“Individual” treatment) or in the presence of their husbands (“Couples” treatment), a voucher that guaranteed ease of access to modern contraceptives. Women in the Individual treatment were 23% more likely to visit a family planning nurse and 28% more likely to receive a concealable form of contraception, leading to a 57% reduction in unwanted births. Meanwhile, providing cheaper and more convenient forms of birth control led to a reduction in unwanted births *only* when women were also given full autonomy over accessing these new methods: although use of modern methods increased by a substantial amount among women in the Couples treatment relative to a control group who received no voucher, they experienced no corresponding reduction in unwanted births. These findings indicate that asymmetric information about use of contraceptives has a strong influence on outcomes in household bargaining over fertility. Furthermore, increasing the supply of contraceptives will have little impact on excess fertility in Africa as long as de facto spousal consent requirements for birth control access remain in place.

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1 Introduction

The ability to control fertility through modern contraception is one of the most important technological developments of the 20th century, with potentially broad social and economic consequences for women and society. Recent evidence suggests that the ability to optimally time births with modern birth control methods results in large increases in female schooling and labor force participation at childbearing ages (Goldin and Katz, 2002; Bailey, 2006; Miller, 2005) and improved outcomes for children (Do and Phung, 2010).

Despite the value to individuals and society of fertility control, there are significant and poorly understood barriers to the adoption of contraceptives in the developing world. Although modern methods of birth control have been around for almost half a century, many countries still report substantial unmet need for contraceptives and high rates of unwanted births.¹ For instance, the overall rate of unmet need in Sub-Saharan Africa was estimated to be 25% in 2001 (Westoff, 2001).

Unmet need and excess fertility are generally attributed to barriers to access to modern contraception such as cost, distance to providers, inconsistent and uncertain availability due to stockouts at clinics, and misinformation about the efficacy or risks of available methods.² Yet high rates of unwanted births are reported in many settings where birth control is readily and cheaply available. Furthermore, since the cost of preventing births using any method must be small relative to the cost of raising a child, others have gone so far as to argue that survey data on unintended pregnancy must reflect systematic mismeasurement of fertility desires (Becker, 1991).

An alternative hypothesis is that birth rates exceeding women's reported ideals reflect the outcome of bargaining between partners with differing demand for fertility control. In particular, data from surveys such as the Demographic and Health Surveys (DHS) indicate that, in many countries, on average men report larger ideal family sizes and lower demand for contraception than their wives (Becker, 1999). Furthermore, qualitative studies and survey data from Zambia

¹ Unmet need is defined by demographers as the difference between the share of women at risk of pregnancy who report wishing to discontinue childbearing or space and the share of women who report currently using a contraceptive method. Unwanted births are defined either, using panel data, as births to women who reported within the past two years that they did not wish to become pregnant within the next two years, or, using cross-section data, as births to women who report ex post that the birth was undesired.

² Excess fertility is defined as residual live births above and beyond a woman's reported ideal family size.

and elsewhere indicate that women frequently hide contraceptive use from their partners (Bidlecom and Fapohunda, 1998; Castle et al., 1999; McCarraher et al., 2005), suggesting strategic behavior within the household in response to spousal disagreement over fertility. The desire for concealability in the face of spousal control has been shown to be strong in intra-household financial decision-making (Ashraf, 2009) and has potentially even greater societal implications for child-bearing.

This paper tests the role of spousal discordance in explaining unmet need for contraception and excess fertility through a field experiment with a large family planning clinic in Lusaka, Zambia. In our study, 1031 married women were randomly chosen to receive a voucher guaranteeing free and immediate access to a range of modern contraceptives through a private appointment with a family planning nurse, while a control group of 768 women received nothing. This amounted to a sudden and unexpected improvement in access to long-term and relatively concealable forms of contraception, including injectables and contraceptive implants. To isolate the role of discordance, our experiment involved randomizing women in the treatment group to either receive information about this opportunity in private (“Individual” treatment) or in the presence of their husbands (“Couples” treatment). This gave a randomly selected set of treatment women the choice to withhold information from their husbands about the change in access to contraception.

By introducing random variation in the degree of asymmetric information between spouses about contraceptive availability, our experiment isolates the role of private information about contraception in family planning decisions and quantifies its influence on fertility. Providing information in private increases a woman’s autonomy in the decision to use and conceal contraception but would only alter outcomes in the face of spousal discordance. Thus, by comparing rates of take-up of contraceptives and birth across women with different levels of opportunity to act in private, we can determine whether intra-household disagreement over family planning lowers take-up of modern contraceptive methods and increases unwanted births. Meanwhile, differences in contraceptive use and birth outcomes in the control group relative to each of the two treatment arms estimate the impact of lowering the cost of contraception in settings without full female autonomy over family planning services.

Our results suggest that intra-household discordance over family planning plays a significant role in contraceptive use and fertility outcomes. When women were given greater opportunity

to make decisions alone, they were 23% more likely to respond to changes in contraceptive access by visiting a family planning nurse and 28% more likely to choose a relatively concealable form of contraception (injectable contraceptives or contraceptive implants), leading to a 57% reduction in unwanted births. In fact, when men wanted more children than their wives, sharing information about contraceptive availability with husbands reduced utilization of the most effective and cheapest methods of birth control by 66% even when *both* spouses wished to postpone childbearing by at least two years. This indicates that men are willing to trade off efficacy of contraceptive technologies, and hence optimal timing of children, in order to maintain control over contraception, which suggests an overall welfare loss stemming from couples' inability to form binding agreements over fertility outcomes.

In this manner, results from our experiment shed light on whether intra-household decision-making leads to efficient outcomes in a particularly important type of household production – reproduction. Standard unitary or collective models of the household imply that fertility should not respond to who in the household is given nominal control over access to contraceptives. The fact that, according to our results, varying the degree of asymmetric information characterizing the bargaining process has significant effects on outcomes implies that standard bargaining models that ignore asymmetric information are poor approximations of household decision-making over fertility. Our findings suggest that, instead, decision-making over fertility is characterized by incomplete contracts with sunk investments.³ Previous empirical evidence in support of this framework comes from Rangel (2005), Rasul (2004) and Field (2003). For instance, Field (2003) finds that the partial inclusion of women on formal land titles in Peru lead to significantly fewer pregnancies in the year following the titling program, consistent with a bargaining model in which threat points influence fertility outcomes. Our experimental approach improves on this literature by circumventing the endogeneity concerns inherent in non-experimental studies.

In addition to contributing rigorous evidence to our understanding of household decision-making over fertility, our findings have a number of implications for family planning policy. First, the results indicate that rates of contraceptive use would increase in response to simple changes in institutional or technological features that increase women's autonomy over birth

³ Furthermore, fertility possesses features which make an incomplete contracts approach, such as Rasul (2004), a particularly attractive way to model bargaining over this outcome: fertility investments are sunk in the sense that children are not liquid, investments in fertility are relationship-specific, and it is difficult for couples to write contracts that condition division of marital surplus on number of children.

control, at least in the short run.

The results also help explain why improvements in contraceptive availability have failed to bring about significant reductions in unwanted births in many parts of the world: Women in our experiment who were given access to significantly cheaper and more convenient forms of birth control *only* experienced a reduction in unwanted births relative to a control group when they were also given full autonomy over accessing these new methods. Although usage rates increased among women in the Couples treatment relative to women who received no voucher, the rate of unintended births one year later was identical across these two arms, indicating that those on the margin of taking up new methods when spousal consent is required are women who already have reasonable control over fertility with existing methods. This suggests that increasing the supply of contraceptives while maintaining formal or informal spousal consent requirements for accessing hormonal contraception, as has been the case in much of Africa, will make birth control more convenient for existing users but have little influence on preventing unwanted births.

2 Context

Our study took place in Lusaka, Zambia, a setting in which contraceptives are readily available from public and private providers, but excess fertility is nonetheless high. According to the 2001/2002 Zambia DHS (ZDHS), 51% of currently pregnant women in the sample report that the pregnancy was not wanted at the time of conception. In Lusaka, contraceptives – including pills, condoms and injectables – can be obtained through public clinics, private clinics, or pharmacies. In principle, all three methods, along with contraceptive implants and intra-uterine devices (IUDs), are available for free through public clinics, although severe public resource constraints result in frequent stockouts of many methods. According to a comprehensive assessment of stockouts conducted by USAID, between October and December 2007, 53% of hospitals and health clinics in Zambia were stocked out of injectables for an average of 54 days and 28% were stocked out of contraceptive pills for an average of 35 days (Ali et al., 2008).

Other barriers to access are also high: Wait times at clinics are typically several hours, and for certain methods such as contraceptive implants, women are required to supply some of the materials necessary for the procedure such as surgical gloves and disinfectant. Though

spousal consent was required by law until 2005, women are no longer officially required to have their husband’s approval in order to obtain contraceptives through public clinics in Zambia. Anecdotally, however, health care providers in rural Zambia, as in other parts of rural Africa, still commonly refuse to give contraceptives to women without the explicit consent of their husbands. For long-term methods such as implants and IUDs, this practice has been reported in urban areas as well. In sum, it is a setting in which the price of contraceptives is continuously in flux and costly to verify prior to seeking services.

With respect to spousal discordance over fertility, in data from a nationally representative 2002 survey of men’s family planning attitudes, on average Zambian men want 0.8 more children than their wives (Salem, 2004). Correspondingly, data from our baseline survey indicate that a high fraction of women hide contraceptive use from their husbands: among the 23% of men who claim they are currently “not doing anything to prevent pregnancy”, 59% have wives who separately report using some method of birth control, including 18% who are on the pill and 12% who are using injectables. Finally, maternal mortality is high relative to other countries in the region, which might contribute to women’s lower demand for children: According to the 2007 ZDHS, a woman’s lifetime risk of maternal death is 1 in 27.⁴

3 Experimental Design

3.1 Sample recruitment

The timeline in Figure 1 illustrates the stages of our experiment. We recruited subjects from the catchment area of Chipata Clinic, a large government clinic that serves low-income “compound” neighborhoods of Lusaka. Community health workers (CHWs) from the clinic were hired to recruit subjects through home visits. Married women of childbearing age (18-40) were invited to participate in the study if they: (1) currently lived with their husband; (2) had last given birth between January 2004 and December 2006; (3) were not currently pregnant; (4) had neither been sterilized nor had a hysterectomy; (5) were not known to have health conditions for which hormonal contraceptives are contraindicated; and (6) agreed to participate in a survey and information session about family planning together with their husband.⁵ Although the

⁴ Calculated using the Zambian total fertility rate (TFR) of 6.1.

⁵ Each of these inclusion criteria was screened by the CHW during recruitment visits. In addition, women were thoroughly screened for health conditions in criteria 3 and 5 if and when they visited the family planning nurse

intervention only required the husband's presence in the Couples treatment, criteria (6) was imposed on all subjects in order to prevent higher rates of attrition among those assigned to the Couples or control arms relative to those in the Individual arm.

Recruitment was conducted in two stages using two different sampling frames. In the first stage, which took place in July and August of 2006, subjects were recruited from the roster of women who, according to clinic obstetric records, met inclusion criteria (2) and (5), and who resided at the address listed in the records. Only around 50% of those women could be located, largely because of false or missing addresses and high rates of mobility within the city.⁶ Therefore, women were also invited to participate in the study if they resided at the house number listed for the intended respondent and met all six inclusion criteria.⁷ To expand the sample, from August 2006 to April 2007, women were recruited by randomly sampling house numbers in the neighborhoods that comprise the catchment area of the clinic.⁸ Women residing at sampled house numbers were invited to participate if they met all six inclusion criteria.

3.2 Baseline Survey

Our baseline survey and intervention took place between March and June 2007. Among all those recruited for the study, a baseline survey visit ("First Visit", Figure 1) was made by a team of one survey enumerator and one CHW. During this visit, CHWs first re-screened women to ensure that they continued to meet all of the inclusion criteria and still agreed to participate. In total, 1799 eligible women gave consent to participate and were administered a one-hour survey in their homes that collected detailed information about marriage and childbearing, fertility preferences, decision-making in the household, and contraceptive use.

Immediately following the survey, CHWs were responsible for delivering health information about the prevention of sexually transmitted diseases (STDs) and condom use and distributing

at Chipata clinic. Disqualifying health conditions included diabetes, heart disease and high blood pressure.

⁶ Clinic staff reported that false addresses were often given by women who resided outside of the catchment area in order to obtain obstetric services at Chipata clinic, which is larger and much better equipped than other clinics in Lusaka. To the extent that this is true, women who were found are a representative sample from the catchment area.

⁷ Of the women recruited in the first stage, 74% were taken from obstetrics records and 26% were alternates residing at the addresses listed in the records. At both stages, if more than one eligible woman resided at a sampled address, only the one whose first name came first in alphabetical order was invited to participate.

⁸ The catchment area is approximately 8 square kilometers and densely populated, encompassing an estimated 107,107 people.

a three-pack of condoms.⁹ In addition, CHWs gave participants information about the benefits of family planning, the range of family planning methods available at Chipata clinic, specific information about injectable contraceptives and contraceptive implants including contraindications and side effects, and counseling about dual protection. Husbands were not present during either the survey or the information session of the first visit.

3.3 Experimental Intervention

Prior to the first visit, recruited women were randomized into treatment (N=1031) and control (N=768) groups.¹⁰ The key experimental manipulation took place during a second visit made to all those assigned to the treatment group in which women and their husband were visited concurrently. On that occasion, all women assigned to the treatment group received a voucher that could be redeemed for free and immediate access to a menu of modern contraceptives through an appointment with a dedicated family planning nurse at Chipata clinic. This voucher guaranteed a maximum wait time of one hour and access to two methods - injectable contraceptives and contraceptive implants - that had been regularly out of stock at the clinic prior to our study. According to clinic personnel, in 2006 injectable contraceptives were out of stock more than half of the time and contraceptive implants were almost never available.¹¹ Although patients could purchase these outside of the clinic and bring them in to be administered, according to nurses at Chipata, average wait times for family planning visits were typically more than two hours.

In order to provide wait-free appointments with guaranteed access, we hired a dedicated nurse for the study and purchased sufficient stocks of injectable contraceptives (Depo-Provera) and contraceptive implants (Jadelle) to treat all women in the sample for at least one year.¹² These stocks and the nurse were reserved exclusively for women in our study. Hence, the voucher significantly reduced barriers to accessing all forms of contraception, but in particular long-acting methods. The voucher, a copy of which appears in Appendix B, was valid for one month from

⁹ CHWs all had previous experience working with the clinic to implement information campaigns and homecare programs. The script containing the information covered in this visit is provided in Appendix A.

¹⁰ Randomization was done using the minmax t statistic method (Bruhn and McKenzie, Bruhn and McKenzie), with treatment assignment balanced on the following variables collected at the time of recruitment: compound, community health worker, number of children, whether currently using any family planning method, whether currently using the pill, whether currently using injectables, and months since last birth.

¹¹ Interview, Nurse Grace Daka, Chipata Clinic, July 2009.

¹² Sufficient stocks of condoms, pills, and IUDs were already available at the clinic. To keep waiting lines short we spaced the intervention over 4 months, distributing approximately 50 vouchers per week.

the day it was issued.¹³ To ensure that vouchers were not used by individuals outside of our sample, the wife’s name and national ID numbers were written on the voucher by enumerators, and women were instructed to bring their ID cards to the clinic at the time of the visit for the nurse to verify. Responses to the debriefing survey were also used to verify the identities of women using the voucher.

Our key experimental manipulation involved varying the manner in which the voucher was distributed. Prior to the second visit, all women in the treatment sample were randomly assigned to either Individual or Couples treatment arms, which determined whether they were given the voucher alone (Individual) or in the presence of their husband (Couples). Treatment group was assigned dynamically within batches of surveys collected from enumerators approximately each day and balanced on the following variables collected in the baseline: wife’s age, wife’s education, current number of living children, reported desired number of children, reported differential in fertility desires between the woman and her husband, whether the woman was currently using injectables, and whether the woman was currently using the pill.¹⁴

The experimental protocol was as follows: When the field team arrived at the participants’ home for the second visit, the couple was told that the team would be conducting short surveys of both the husband and wife. To ensure confidentiality, they were surveyed separately and in private. The husband’s survey, which was kept very short to minimize refusals, gathered information on fertility preferences and income. The wife’s survey during this visit was also extremely brief given that a large amount of information from the wife had been collected during the first visit, and contained only questions about whether she had visited a clinic since the previous visit and whether she had seen or heard about the voucher.¹⁵

Treatment assignment was revealed to the survey team when they removed the survey instrument from the pre-labeled envelope at the start of the interview.¹⁶ In the case of women

¹³To minimize confusion over the offer period, the expiration date was written clearly on each voucher by the CHW on the day of the second visit.

¹⁴As with assignment to treatment versus control, randomization was done using the minmax t-statistic method.

¹⁵The primary purpose of re-surveying wives in this visit was to get women alone so that those assigned to the Individual treatment could be given the information session and voucher while away from their husbands. Compensation for participation was given to the husband and wife separately, i.e. after their respective interviews. Initially, women were given a choice between two compensations of similar value: cash and a piece of printed cloth known as a chitenge that can be used as a skirt or a wrap. Later in the study, women were only offered chitenges as compensation due to concerns over enumerators carrying too much cash. Men were given the choice of compensation in cash or in cell phone minutes of equal value. Compensation was described to participants as an “appreciation of their time”.

¹⁶This was done by prior stapling of the voucher to either the husband (indicating Couples assignment) or the

assigned to the Individual treatment, first the husband was surveyed alone, then the voucher and information session were administered to the wife in private, and then a brief survey was administered to the wife in private. In the case of women assigned to the Couples treatment, first the husband was surveyed alone, then the husband and wife were brought back together to receive the information session and voucher, and then the wife was given the short survey.¹⁷ Appendix C describes the protocol in depth. Based on responses to debriefing surveys conducted among 48% of women in our study, we estimated a 1.1% rate of non-compliance with treatment assignment.¹⁸ Throughout the paper we consider only treatment assignment rather than treatment received.

In total, 503 women in our study were assigned to the Couples treatment arm and 528 women were assigned to the Individual treatment arm.¹⁹ Table 1a presents summary statistics on a wide range of variables available in the baseline broken down by treatment assignment. Variables 2 through 9 in the table were those used to balance assignment across the two treatment arms, hence, means of these variables are predictably very similar across the two treatment groups. Out of 44 variables not used to balance the sample, there are no differences in means that are statistically significant (column 10), indicating that treatment assignment was balanced. Column 11 shows that the sample is also balanced across control and treatment groups: None of the mean differences between the Control and Couples arms are significant at the 5% level, and a Chi-squared test of joint significance indicates that the sample is balanced.²⁰ To minimize the influence of any potential imbalance on unobservables, we present all results with and without a large set of controls.

wife (indicating Individual assignment) survey sheet).

¹⁷CHWs and surveyors were responsible for ensuring adherence to the experimental protocol, monitored daily by supervisors.

¹⁸Mistakes were caught through debriefing surveys conducted at the clinic in which supervisors asked women to describe their protocol. If it did not match the treatment assignment, they would probe, and report the non-compliance to the project manager. In each reported case of non-compliance, the project manager then spoke to the CHW/enumerator team to confirm it was noncompliance. In a few instances, the project manager also visited respondents in the field to probe further and confirm whether they were given a faulty treatment. In total, 9 cases were discovered this way.

¹⁹The Individuals arm is slightly bigger than the Couples arm due to the fact that random assignment was done in more than 100 small batches, and the computer program automatically assigned Individual treatment status to more than half of the observations when the batch size was odd.

²⁰Although the sample sizes are larger, differences in mean characteristics are generally greater across treatment versus control groups compared to differences across the two treatment arms since fewer baseline characteristics – in particular, only those available in the recruitment survey – were used to balance experimental assignment to treatment versus control groups. As a result, while there are no statistically significant differences across Couples and Individuals treatments even at the 10% level, three out of 39 variables are significantly different at a 10% level between Couples and Control groups.

3.4 Sample attrition

Not all 1031 treatment women who were administered a baseline survey participated in the experiment.²¹ In total, 282 women attrited from the study between the first (baseline survey) and second (treatment) visit for two reasons: First, 6% either chose to drop out or became ineligible.²² Second, since fieldwork had to be completed by a set date (May 24, 2007) due to personnel and resource constraints, 21% could not be located to complete the second visit by the deadline.²³ Hence, our sample of final participants includes 749 treatment women, 378 assigned to the Individual treatment and 371 assigned to the Couples treatment.

Given that attrition occurred before assignment was revealed to subjects, it is safe to assume that factors determining attrition were orthogonal to treatment assignment.²⁴ Although enumerators were potentially aware of treatment assignment, since recruitment procedures were identical across study arms there is no reason to anticipate attrition to be correlated with treatment assignment on account of enumerator behavior.²⁵ In addition, rates of attrition were almost identical across treatment arms: attrition was 28.4% in the Couples treatment arm and 26.2% in the Individual treatment arm. Table 1b, which reveals that treatment arms in the final sample (post attrition) remained balanced on all observables, provides further evidence that attrition was independent of treatment assignment.

In terms of external validity, it is worth keeping in mind that some amount of attrition may reflect subjects' tacit unwillingness to participate in the study. However, the direction of bias due to this type of sample selection is unclear. Wives with husbands who are most unwilling to participate in a family planning survey may be the most likely to hide contraception when given the opportunity, in which case our experimental results underestimate the average effect of the intervention on the population of eligible women. Alternatively, attrition may be driven

²¹On-the-spot randomization at the time of the second visit would have circumvented this problem, but our choice to balance treatment assignment on baseline characteristics prevented us from randomizing on the spot. The control group faced no analogous attrition since they were visited only once.

²²Although these two visits were usually close together (on average, 9.6 days), in a few cases husbands and wives could not be reached together for several weeks after the baseline survey.

²³These cases were disproportionately women recruited near the end of the study. In the majority of cases, although women could be located for a second visit, enumerators were unable to carry out the intervention after multiple attempts because husbands' work schedules made it extremely difficult for the enumerator to schedule and keep appointments with men.

²⁴Importantly, no subjects dropped out of the study mid-way through the second visit, which was when treatment assignment was revealed

²⁵In particular, enumerators were required to locate and interview both the husband and wife in all cases, a protocol feature added intentionally to minimize this concern.

by women with no interest in family planning who would be little influenced by treatment assignment, in which case our estimates overstate the average population effect.

Comparing observables in our sample with those of married women in Lusaka from the 2007 ZDHS sheds some light on the representativeness of our sample (Appendix D). In many respects, such as education and desired fertility, our sample is very similar to the random sample from the ZDHS. However, the means indicate that our sample is composed of a disproportionate number of couples with discordant fertility preferences and relatively frequent intercourse. These differences suggest that our experimental sample is at greater risk of an unwanted birth than the average woman in urban Zambia. Furthermore, women in our sample also have significantly more experience using modern contraceptives than the average woman in urban Zambia, likely due to their proximity to the clinic. Both differences are consistent with the case in which the most important source of selection into our study is interest in modern family planning methods. Although this suggests that our expected treatment effect may be larger than what we would anticipate were the experiment conducted on a random sample of women from the same population (although not definitively), we are arguably still capturing the estimate of interest for policy purposes by implicitly restricting the sample to women with a demand for family planning services and relatively good access to public services since this is the group that would be influenced by policy measure such as increasing access to injectable contraceptives.

4 Empirical Analysis

4.1 Experimental Outcomes

To study the role of spousal discordance in family planning, we examine differences between the two treatment arms in three main outcomes of interest: use of the voucher, choice of contraception, and childbearing. Outcome data come from two sources: administrative data from clinic records on family planning visits and contraceptive use during the period in which vouchers were redeemed (short-run outcomes), and data from a follow-up survey of women conducted two years after the intervention.

To keep track of visits women made to the family planning clinic to redeem their voucher, the nurse hired for the study, who oversaw the daily management of the experiment with the assistance of medical interns, kept daily visit logs. For each woman who came to the clinic

to redeem a voucher, the nurse verified that their identity corresponded to the information written on the voucher, discussed family planning alternatives with the women and prescribed her desired method after thoroughly screening for contraindications. Detailed logs of each visit recorded the date and time of visit, the name and NRC number of the woman, the ID number of the voucher, and the desired, prescribed and received family planning method. In cases in which women could not be prescribed a certain family planning method on account of a temporary condition such as menstruation, current use of a contraceptive method, or illness, their prescribed method was recorded along with their reason for not receiving it, and follow-up appointments were set. Subsequent visits by women in treatment arms were also recorded in the nurse's log for approximately one month after the last participant's voucher expired in order to capture contraceptive choices for women who required follow-up appointments. Official expiry date of the last voucher was June 23, 2007.²⁶

From these data, we construct a variable indicating whether a study woman redeemed her voucher.²⁷ Based on values recorded in the nurses' logs, we also construct a variable indicating an individual's take-up of concealable contraceptives. In particular, we construct an indicator variable equal to one if the woman received either injectable contraceptives, a contraceptive implant, or an IUD at the time of her family planning visit, all of which are considered relatively concealable methods because they are administered infrequently and only in the clinic in the privacy of the nurse's office.²⁸

To study the long-run impact of birth control access provided through our study - particularly, the effects on fertility -, we conducted a follow-up survey approximately two years after the baseline. Women who moved were tracked to other parts of the country, and only 1% of study subjects were not located at follow up. In total we re-interviewed 94% of individuals in the final study phase, leaving a final sample of 706.²⁹ The follow-up survey contained detailed

²⁶According to clinic staff, a handful of women with expired vouchers came into the clinic until August 2007 but did not redeem their voucher with the study nurse, who was no longer available.

²⁷These data were also cross-checked with two additional sources: First, all of the vouchers that were redeemed were physically collected from the clinic by the investigators to verify that all women who redeemed a voucher were reported in the nurse's logs. In addition, enumerators conducted a short debriefing survey with each woman in the study as she exited the clinic after her family planning visit. We found no vouchers nor women who completed debriefing surveys who were not recorded in the nurse's log.

²⁸To elicit this information, the study nurse was instructed to, after describing the range of available contraceptives at the clinic, ask each woman her preferred method of contraception based on the available choices.

²⁹Of those 6% that could not be interviewed, 3% had passed away, 2% refused, and 1% could not be found. There were no significant differences in follow-up rates across treatment arms

questions on reproductive histories over the past two years, in addition to extensive qualitative data on factors influencing a respondent’s decision to redeem the voucher and choose a particular contraceptive method, intended to shed light on mechanisms underlying differences in use of the voucher across treatment arms.

From these data we construct four measures of family planning behavior between baseline and follow-up: whether the respondent gave birth 9-13 months after she received a voucher, whether she gave birth 14-24 months after the intervention, whether she tried a new form of contraception between baseline and follow-up, and whether she was using a concealable contraceptive method at the time of follow-up (on average, 24 months after the intervention).

4.2 Regression Estimates

We test the following null hypotheses:

1. Voucher redemption is no higher for women who receive the voucher alone than for those who receive it with their husband
2. Women who receive the voucher alone are no more likely to prefer or to use “concealable” contraceptives such as injectables and implants than women who receive the voucher with their husbands
3. Women who receive the voucher alone are no more likely to give birth 9-24 months later than women who receive the voucher with their husbands
4. Women who receive the voucher with their husbands are no more likely to use new contraceptive methods and no less likely to give birth 9-24 months later than women did not receive a voucher

with the following ordinary least squares (OLS) regression model:

$$Y_i = a + \beta I_{individual} + \omega v X_i + e \tag{1}$$

where Y_i is the binary outcome variable of interest; $I_{individual}$ is an indicator for assignment to the Individual treatment; and X_i is a vector of controls from both the husband’s and wife’s baseline surveys, including: husband’s and wife’s age, husband’s and wife’s education, husband’s

and wife’s income, husband’s and wife’s existing and ideal number of children, whether wife was using contraception at baseline, whether wife over 40, whether wife desires to become pregnant within the next two years, whether wife was aware of most fertile period of the month, and dummy indicators for compound of residence within the catchment area.³⁰

5 Results

5.1 Voucher Redemption

In total, 48% of women given a voucher for family planning services redeemed the voucher and had an appointment with a family planning nurse and the free and immediate opportunity to receive a range of contraceptives. The first two columns of Figure 2 show the difference in take-up rates by treatment arm. While only 43% of women in the Couples treatment redeemed the voucher, the rate was 53% in the Individual treatment arm, which indicates that giving women the opportunity to hide information from their husbands about the reduced price of contraceptive services increased the rate of voucher redemption by 23%. Table 2 presents corresponding regression estimates of the effect of private information on voucher redemption, which verify that the difference is significant at the 5% level with and without controls (columns 1-2).

In Table 2 we also explore heterogeneity in the treatment effect according to the husband’s and wife’s demand for children by dividing the sample according to whether the husband desires more or fewer children than his wife (according to the wife).³¹ If spousal disagreement over fertility is driving the difference in redemption rates between treatment arms, the ability to conceal should have a larger effect on the wife’s take-up of family planning services when her husband desires more children than she does. Indeed, the pattern of coefficient estimates in Table 2 suggests that voucher redemption is only significantly higher for women who are given private information when the husband desires more children (columns 3-4). In this subsample, which encompasses a mere 26% of the sample, women are 42% more likely to use the voucher when they are not required to share information about the opportunity with their husbands. Meanwhile, the effect of private information is half as large and significant only with controls

³⁰In regressions that include the control group, for whom husband survey data are unavailable, husband characteristics are taken from the wife survey.

³¹Since we are interested in how the wife responds to private information, we use her beliefs about her husband’s preferences rather than his stated preferences since the former would dictate her behavior.

when the couple has concordant fertility preferences, and close to zero and insignificant when the wife desires more children than her husband (columns 3-8).³² However, due to small sample sizes, the estimates are too noisy to make precise comparisons across subgroups, and the differences in treatment effects across columns are not statistically significant.

In columns 9-10 of Table 2, we divide the sample according to the wife’s fertility desires as a means of isolating the effect of our intervention on unmet need for contraception.³³ According to the standard definition used by demographers, a woman is considered to have an unmet need for contraception if she: (1) is married or in a consensual union; (2) is of reproductive age; (3) is capable of becoming pregnant; and (4) wants to have no more children or to postpone childbearing by at least two years. Based on the sampling frame, all women in our study meet the first three criteria. We use baseline survey data to identify women who meet the fourth criteria at the time of the intervention.³⁴ For obvious reasons, we should see little impact of greater opportunity to conceal birth control access among women who desire to conceive. Indeed, according to the estimates in Table 2, the effect is concentrated among the 73% of women in our sample with some demand for birth control, among whom we see a 26% increase in voucher redemption.

5.2 Take-up of Concealable Contraceptives

We next turn to the effect of private information on take-up of concealable contraceptives. While our voucher results in Table 2 indicate that husbands’ disapproval is a significant barrier to the utilization of family planning services, there are two important reasons for examining the direct effect of the intervention on take-up of birth control. First, doing so provides a consistency check on our interpretation of the difference across treatment arms. According to our analytical framework, the higher rate of voucher redemption among women in the private information treatment derives from greater ability to conceal contraceptives. Hence, we should expect to

³²While one might expect voucher redemption to be *lower* in the private information treatment when women demand *more* children than their husbands, given that husbands are always excluded from family planning appointments, a man who wishes to avoid pregnancy has little to gain by pushing his wife to go to the clinic when he has no control over the outcome of the visit.

³³Appendix E verifies that the treatment arms remain balanced on observables among the subsample of women who do not want to get pregnant.

³⁴We use two questions to identify this subsample: “If it were completely up to you, would you like to have another child within the next two years, after two years or not at all?” and “If it were completely up to you, how long would you like to wait until the birth of another child?” A respondent is reported as desiring to conceive if she reports wanting to give birth within two years for either of these questions.

see disproportionate take-up of relatively *concealable* methods among women in the Individual treatment who were encouraged by greater privacy to redeem the voucher. Second, the effect on contraceptive use is important for drawing policy conclusions from our results on voucher redemption. In particular, while the results on voucher redemption indicate that husbands discourage women from using family planning services, it is possible that differences in family planning visits do not translate into differences in the prevention of unwanted births.

Results from these regressions are presented in Table 3. Here we see that take-up rates of concealable contraceptives are 28% higher among women in the Individual treatment arm and the difference is statistically significant at the 5% level. As before, the effect is concentrated among women who wish to avoid pregnancy. Furthermore, a back of the envelope calculation provides evidence that women on the margin of influence for redeeming the voucher were indeed those who sought relatively concealable methods: While only half (50%) of women redeeming the voucher in the Couples arm received injectables, implants, or IUDs, the ratio of treatment effect estimates in Tables 2 (column 9) and 3 (column 5) indicate that 73% of women on the margin of influence received long-term concealable methods.³⁵ This pattern provides further evidence that higher voucher use when information was given to women alone is driven by disagreement over contraception rather than more general non-cooperative decision-making over consumption that is not directly related to family planning.³⁶

5.3 Fertility

We next turn to the effect of our intervention on fertility and the prevention of unwanted births. Since we know that our intervention increased take-up of long-term contraceptive methods in the short run, but do not have reliable data on continuation rates (which were reportedly low), we first look at birth rates 9-13 months after an individual woman received a voucher. Since the largest difference in birth control patterns between treatment arms is use of injectables,

³⁵In total, 56% of women in the Individual treatment at risk of an unwanted birth who redeemed the voucher received a concealable method. Using Couples' rate of take-up as the counterfactual (50%), this implies that, among the additional 26% of women who were encouraged by the Individuals treatment to redeem, the rate of concealables is 73%. A comparison of observable characteristics between women in the Individual and Couples treatments who redeemed the voucher provides some suggestive evidence of the reasons behind their higher demand for concealables: women who redeem in the Individuals treatment are more likely to have been physically threatened by their husbands or been pressured to have sex (unreported), although the differences are not statistically significant.

³⁶The Table 3 results are inconsistent with this explanation since, in this case, women on the margin of influence would not be disproportionately those seeking concealable methods of birth control.

this time period reflects the period over which most women were protected by the birth control they received as a direct result of treatment. Hence, as long as there was little substitution towards contraceptives outside of the clinic among women in the Individual treatment who did not redeem their vouchers, the difference in the likelihood of giving birth 9 to 13 months after receiving a voucher measures the increased efficacy of concealable methods relative to birth control methods those women would otherwise have used.

Table 4 presents these results. We first look at the total sample of treatment women with follow-up data. In total, 29% of women gave birth in the two years following our intervention, and 6.8% of women gave birth 9-13 months after they received a voucher. Although the point estimates in columns 1-2 indicate that this rate was substantially lower (-34%) among women who were offered access to family planning services in private, the difference is not statistically significant at conventional levels ($t=1.48$). However, when we isolate the treatment effect on *unwanted* births by restricting our sample to the 73% of women who desire to limit fertility, we observe a large and significant effect of our intervention.³⁷ The point estimates indicate that excess fertility falls by 57% when women are told about free family planning services in private, and thereby given greater opportunity to hide their use of these services from their husbands (columns 3-4). These results imply that small changes in concealability of contraception have a major impact on women’s ability to meet their own fertility desires in this setting, at least as long as there remains some uncertainty among men as to the exact cost of accessing long-acting methods.³⁸

While the estimated effects are large, they are not unreasonable given the effect of our intervention on use of highly effective contraceptive methods among women at risk of an unwanted pregnancy, which we estimate to be somewhere between 14 and 67%.³⁹ Furthermore, the reduc-

³⁷As before, we define a birth as unwanted if at baseline a woman stated that she did not want to have another child for at least two years, consistent with the standard definition of unmet need for contraception. According to this definition, a remarkable 65% of births in this interval were unwanted. While this is higher than the DHS estimate (52%) of excess fertility in Zambia, the discrepancy is consistent with the fact that, due to ex-post rationalization, ex-post measures of birth “wantedness” are generally much higher than ex-ante measures.

³⁸That is, it is possible that, once injectables have become widely and consistently available, spouses will renegotiate family planning choices taking into account the new environment. However, given the volatility of family planning policies, this is unlikely to happen quickly, if at all. In terms of men finding out that injectables are available through our study, it is safe to assume that since this method was introduced more than two decades ago and the majority of women have experience using injectables, the vast majority of men know that they are possible for women to obtain. What is uncertain and particularly difficult for men to verify is the month-to-month cost of accessing these methods, which fluctuates constantly.

³⁹A reasonable estimate of the anticipated magnitude is the following: Based on reported use of contraceptives in the baseline survey (Appendix E), between 12 and 50% of women were at risk of an unintended pregnancy at

tion in unwanted births would presumably exceed the overall increase in protection among the same sub-group if women who were encouraged to contracept by the ability to conceal were at higher underlying risk of an unwanted pregnancy, as one would expect.⁴⁰ The fact that birth rates are substantially different between treatment groups also confirms that substitution among the Couples group towards other, equally effective sources of birth control offered outside of the clinic was limited.⁴¹ Hence, the fertility results validate our previous findings on take-up of contraception since they measure the effect of contraceptives obtained from all possible sources.

5.4 Long-term Effects

Our intervention increased overall use of injectable contraception in the month following the intervention by 17 percentage points, the rate of use rising from 20% at baseline to 37% after vouchers were redeemed.⁴² However, our intervention did not have a lasting impact on birth control: at follow-up only 13% of women reported that they were still using injectables, well below the levels observed even before our study.

While these discontinuation rates are striking, the primary reason for the sharp decline in use of injectables to levels below baseline was not a generalizable phenomenon but rather the result of a large unanticipated shock to contraceptive availability that occurred several months after our intervention. In particular, for several weeks between December 2007 and March 2008, injectable contraceptives were pulled from the shelves of all public and private clinics in Zambia, triggered when a box of Depo-Provera reportedly tested positive for HIV at Lusaka international airport. Although the test conducted was invalid, the news was quickly broadcasted in the media, and on January 27, 2008, the Ministry of Health imposed a national ban on the distribution of injectable contraceptives until further tests could be conducted. After local investigations and international pressure to remove the ban, on March 16 the Zambian government officially

baseline (depending on whether one considers all forms of contraception reported or only modern methods), and treatment effects estimated on this subsample indicate that we reduced the sample at risk by 7 - 8 percentage points (unreported), or between 14 and 67%.

⁴⁰That is, women most concerned about becoming pregnant against their will (for instance, because their husbands are trying harder to have a baby, insist on frequent intercourse, or are for other reasons unwilling to use any form of fertility regulation) should be the most willing to risk hiding contraception when given the opportunity.

⁴¹In general, the rate of access to concealable methods outside of public clinics is low: According to data in the baseline survey, approximately 10% of women who had ever used injectables had *ever* obtained them outside of the clinic. Nonetheless, with available data on contraceptive use we cannot completely rule out substitution among women who did not use the clinic services.

⁴²This is assuming that those who were using at baseline and did not redeem vouchers continued to use, and that the number of subjects obtaining injectables outside of the clinic was negligible.

instructed its healthcare providers to resume distribution of injectable contraceptives. However, as of mid-April, the message had yet to reach most health district facilities, the product was still unavailable in several areas, and trust of injectables among both health providers and community members remained low. By mid-July, injectables had returned to clinics and demand appeared to rebound gradually.

Unfortunately, due to the policy shock, we are unable to trace out the full effect of our intervention from baseline to follow-up, and hence we cannot draw conclusions about potential influence of hiding on birth postponement nor on total fertility rates. Given the eight-month ban on injectables and general contraceptive scare that interrupted our study, the influence of the intervention was necessarily short-lived, and the differential use of concealable contraceptives across treatment arms has disappeared by Year 2: In regression estimates we see no effect of the intervention on long-term use of concealable contraceptives nor on childbearing 14-24 months after the intervention (Table 5), although the point estimates on the latter remain large. Not surprisingly given the overall trend away from these methods, the . Hence, while our treatment is unlikely to have lead to differences in completed fertility, we cannot rule out the possibility that our intervention would have generated long-term differences in birth control use and completed fertility in the absence of the injectables scare.

Fertility patterns over the entire 24 months following the intervention are presented in Figure 3. Here we see a divergence in birth rates between the two treatment arms beginning at month 8 (the first possible month that births could be influenced by the treatment), that lasts for about 5 months. Between months 14 and 18, the pattern switches, and births in the Couples treatment arm are significantly lower. This pattern indicates that our intervention essentially postponed births in the Individual arm by 3-5 months (or on average slightly more than the duration of one shot of injectable contraceptives).

Although less than what we would have observed in the absence of the scare, this degree of postponement is still a significant welfare benefit for women and children in a setting in which the average pregnancy interval is 26 months and an estimated 20% of birth intervals are under 15 months.⁴³ In terms of child health, a number of studies document that neonatal and

⁴³Maternal mortality, risk of bleeding in the third trimester or premature rupture of membranes, and risk of high blood pressure, pre-eclampsia and labor dystocia are considerably higher for women with who conceive less than 15 months after a birth relative to those with pregnancy intervals of 18-21 months even after conditioning on a wide range of observable characteristics (CondeAgudelo and Belizan, 2000).

infant mortality as well as chronic and general undernutrition are decreasing functions of birth interval until 36 months (Rustein, 2005). Hence, even though we see fertility catching up among those in the Individual treatment soon after injectables were banned, Individual treatment is also likely to be associated with significant improvements in maternal and child health that are unobservable in our data.⁴⁴

6 Channels of Influence

Thus far we have attributed higher take-up of family planning services when women are given private information about reductions in the cost of contraception to an increase in the ability of women who desire to limit fertility against husbands' wishes to conceal birth control. There are, however, a number of alternative explanations for our findings that must be considered.

First, it is possible that - by bringing husbands and wives together to receive the voucher - the Couples treatment encouraged spouses to discuss family planning. In this case, women in the Couples treatment may have been less likely to use the voucher not because they could not hide as easily, but because they updated their priors on their husbands' preferences over contraception or fertility. While 87% of women report at baseline that they have discussed family planning with their partner in the past year and 78% have discussed desired family size, the baseline data also indicate that there is room for spousal communication to improve: More than half of women (54%) incorrectly predict their husband's fertility desires, although only 25% are off by more than one.⁴⁵ A different potential effect of treatment assignment on voucher redemption relates to the fact that women were physically handed the voucher in the Individual treatment whereas men were handed the voucher in the Couples treatment, which could have triggered a psychological "endowment effect" response that encouraged women to use the voucher.

Since these and other stories are difficult to address directly with survey data, to rule out the possibility that our treatment effects are driven by alternative channels such as the above two,

⁴⁴Because infant and maternal mortality are low frequency events, our sample is too small to pick up a difference between treatment arms. For instance, there were only 3 maternal deaths in our sample between baseline and follow-up. Unfortunately, we did not collect detailed follow-up data on maternal or child morbidity that would allow us to measure more subtle improvements in reproductive health.

⁴⁵While this is a legitimate concern, it is worth noting that there is no evidence of changes in spousal dialogue between baseline and follow-up as measured by whether the couple disagrees about number of children or contraception, whether they discuss contraception, and the accuracy of the wife's perception of her husband's desired fertility (Appendices F and H). Unfortunately due to space constraints the follow-up survey did not ask whether the couple had discussed desired family size.

we instead look for direct evidence that our results operated through changing women’s ability to hide contraceptive use from their husbands using in-depth interviews conducted with women at follow-up about their experiences with the intervention. A major objective of the follow-up survey was to obtain detailed information from women about what they did with the voucher after receiving it, including whether and why or why not they spoke to their husbands about the voucher, why they did or did not use the voucher, and whether their husbands encouraged or discouraged them from using it.⁴⁶

We use these responses to identify individually-treated respondents who used the voucher without their husband’s knowledge because they believed he would otherwise not have let them use it. Identifying these respondents allows us to directly estimate the fraction of the treatment effect of private information on voucher redemption that can be accounted for by greater reported ability to conceal. That is, according to our analytical framework, the difference in rate of voucher redemption between the two treatment arms is equal to the number of individually-treated women who used the voucher but whose husbands would not have let them go had they been made aware of the opportunity (or, symmetrically, the number of Couples-treated women who did not use the voucher because their husband did not permit them to - but who would have hidden the voucher from their husbands and used it had they received it alone, which is harder to identify). Note that neither the communications story nor the endowment effect story implies any such pattern. We hand-code each observation making use of all responses to questions in this section, and classify respondents’ motives conservatively such that we only report a woman as hiding from her husband when she makes explicit reference to hiding.

To give an example, the following woman who was in the Individual treatment and used the voucher described her experience as follows: “I put [the voucher] in the bag for my children’s clothes to hide it from my husband. I did not show him the voucher because he does not know that I am using contraceptives.” In addition, the enumerator made the following comments on this respondent: “The respondent did not tell the husband about the survey or the voucher because the husband does not allow her to use any contraceptives. ... It seems the husband

⁴⁶Specific questions included: “What did you do with the voucher just after you received it?”, “At any point in time, did you talk about the voucher with your husband?”, “What did you tell him (relating to the voucher, FP, contraceptives, ...)?”, “How did he react to what you said? What did he say or do?”, “Did you show the voucher to your husband?”, “How did your husband react when you showed him the voucher? What did he say or do?”, “What did you and/or your husband do with the voucher just after you received it?”, and “Did you tell your husband beforehand that you were going for a family planning visit at Chipata clinic?”.

wants the wife to get pregnant that is why he's not allowing the wife to use contraceptives.” In another instance, the respondent gave the following description: “I kept [the voucher] in the house and hid it because I didn't want my husband to see it. He didn't know I [went] to the clinic for family planning.” In this case, the enumerator commented that, “Her partner doesn't allow her to use family planning so she does it without his consent.” Both of these women were classified as an Individually-treated woman who would not have been able to use the voucher had they been assigned to the Couples treatment.⁴⁷

Since it is also possible that, in addition to these unambiguous cases of hiding, giving the woman private information allowed her to more easily persuade her husband to let her use the voucher by either presenting partial information about the services available or framing the opportunity in a misleading way, we also look through the detailed descriptions for this type of scenario. In particular, we attempt to identify women in the Individual treatment who used the voucher but appear to have partially hidden or misrepresented information about the voucher when discussing it with their husbands so that they would be able to redeem it. For example, in one case a woman initially tells her husband about the voucher and seeks his permission to switch from the pill to injectables, but does not mention the opportunity to get contraceptive implants: “When I went home [from the clinic], my husband asked me how it went and if they gave me injections and I told him it went well but I didn't get injections, I got implants instead, they last longer, they last for 5 years. My husband became angry, asking me how I could do something so long term without talking to him.”

In total, among individually-treated women who used the voucher, 11% admit that they did so behind their husband's back because he would not have let them redeem it (N=24), and another 5% appear to have misrepresented the voucher offer in order to convince their husbands to let them use it. Cases in the first category alone imply a 6 percentage point difference in voucher redemption across treatment arms. If we also include cases of misrepresentation, this accounts for a 7.5 percentage point difference in voucher use. These numbers imply that confessions of hiding from disapproving husbands can alone explain 60-75% of our estimated treatment effect. It is important to note that, not only have we likely underestimated such

⁴⁷In contrast, although ambiguous, the following Individually-treated woman who used the voucher but did not tell her husband was not considered to be hiding. According to this woman, “I kept the voucher in my handbag. I did not talk about the voucher with my husband.” Meanwhile, the enumerator noted that, “Respondent could not recall most information because it has been long, although we probed.”

cases by classifying responses conservatively (e.g. not counting cases in which the women hides the voucher from her husband but gives no reason, or gives a different reason), but we are also underestimating if women were reluctant to admit concealing the voucher. Moreover, only 92% of women were administered this section of the survey so it is also the case that in expectation we will not observe a corresponding fraction of relevant cases.⁴⁸

7 Welfare Considerations

Our results indicate that couples with discordant fertility preferences are unable to reach mutually satisfying agreements over the household’s realized number of children, and instead form agreements over the use of birth control.⁴⁹ This is likely to be associated with inefficiencies in the bargaining process since birth control use, in contrast to fertility, is subject to moral hazard since it can be hidden. Furthermore, because of this feature, both parties will, *ceteris paribus*, have a preference for utilizing male- or female controlled reproductive technologies, which could drive a wedge between contraceptive choices that arise from bargaining outcomes and a household’s welfare-maximizing choice of contraception according to price and efficacy.

Since it is complicated to draw conclusions about the overall welfare effects of imperfections in the contracting environment without imposing more structure on the bargaining process, the last section of the paper considers unambiguous evidence that household bargaining over contraception leads to some degree of inefficiency in utilization of reproductive technologies. To do so, we restrict the sample to households in our study in which *both* the husband and wife wish to avoid childbirth over the two years between baseline and follow-up, and test whether, among this subset, assignment to the Individuals treatment is associated with reductions in unmet need for contraception and unwanted children according to both male and female preferences.⁵⁰ These results are presented in Table 7. Here we see that, even among Couples in which neither partner wishes to have a child in the near future, take-up of contraceptive services is significantly higher and unwanted births are significantly lower when women are given greater ability to hide. As

⁴⁸Of these, 6% did not participate in the follow-up survey, and an additional 2% of respondents did not answer this section.

⁴⁹If spouses could bargain over birth outcomes, and men and women had similar preferences over birth control itself, a woman would have no incentive to secretly use birth control since fewer or later children would simply reduce her expected transfer.

⁵⁰Questions regarding the optimal timing of the next birth were asked of both husband and wife in the baseline surveys administered during the first and second visits.

predicted, among this subset of couples, the effects are driven entirely by households in which the husband desires more children than his wife (although he still prefers to space them). Strikingly, among these couples, women are twice as likely to redeem the voucher and three times as likely to choose long-acting hormonal methods when they are assigned to the Individuals treatment, despite the fact that neither spouse wants to become pregnant. In contrast, when spouses agree on both the number and timing of children, there is no effect on take-up of hormonal methods, suggesting that the pattern reflects disagreement over number of children and not disagreement over contraception more generally.

We take this pattern as strong evidence of an underlying inefficiency in household bargaining over fertility. If hormonal methods were also more costly (as they are in many settings), observing that men who wish to avoid pregnancy exhibit a stronger preference than women for non-hormonal methods could simply reflect a gender difference in the degree of disutility from suboptimal timing of births. However, in the context of our experiment, in which we unambiguously lowered the cost per unit of protection of hormonal methods relative to traditional methods of birth control, men’s reluctance to adopt the cheaper *and* more effective technology can be interpreted as a price they are willing to pay to maintain control over reproductive outcomes in order to circumvent moral hazard issues inherent in utilization of methods that they cannot perfectly observe. In other words, in our study, welfare-maximizing households should always shift to the more efficient technology to stay on the Pareto frontier of child production (i.e. help them optimally time offspring and thereby maximize child quality). Since we instead observe that men prevent women from taking up cheaper and more effective contraceptive methods when given the ability to influence their utilization, we can conclude that the inability to form binding agreements over fertility outcomes has welfare costs for both men and women.

8 Treatment versus Control Group

In our study, women in both the Couples and Individuals arms of the study received access to cheaper and more convenient forms of contraception than were previously available, along with detailed information on how to use those new methods. In this sense, we simultaneously reduced several commonly cited barriers to access even among women in the Couples treatment, including direct and indirect costs, uncertainty in availability, limited mix of methods, and

misinformation on side effects or efficacy of existing methods. The difference between the two treatment arms presented in the previous sections isolates the effect of greater female autonomy when other barriers to access are relatively low. We next make use of the control group in order to estimate the impact of lowering barriers to birth control access through our intervention by comparing unwanted births 9-13 months after the intervention among women in the Couples treatment arm relative to women in the control arm of the study who were not given a voucher and did not have access to the family planning services provided through our study. This comparison approximates the impact of lowering barriers to accessing modern contraceptives while maintaining family planning policies that limit women's autonomy over these methods, such as de facto spousal consent requirements that are still in place in much of the continent.

We first show that lowering these commonly cited barriers to access, had a visible impact on utilization of new contraception methods even when women were not given full autonomy. As shown in columns 7 and 8 of Table 6, among women who sought to avoid pregnancy, improving access to injectable contraceptives increased the likelihood that a woman tried a new form of contraception between baseline and follow-up by 15 percentage points. Strikingly, only one woman in the control group tried *any* new form of contraception within this two-year interval, whereas 15% of women assigned to the Couples treatment experimented with a new birth control method, almost half of which was injectable contraception and about half contraceptive pills. In sum, lowering the cost of contraceptives through our voucher intervention succeeded in improving rates of utilization of both short- and long-acting methods.

However, although women in this group reported significantly higher rates of utilization, the large change in use of modern methods was *not* associated with a reduction in unwanted births, as seen in columns 7-10 of Table 4. The point estimate on being randomly assigned to the Couples as opposed to the control group is close to zero and statistically insignificant. This implies that women positioned to take advantage of the more convenient and affordable method were those who were already fairly successful in preventing unwanted births. In contrast, women at risk of an unwanted birth appear to have responded little to the change in contraceptive access offered through our voucher.

This contrasts sharply with the estimated effect on unwanted births of increasing women's control over birth control, shown in columns 5-6 of Table 4.⁵¹ As already discussed, simply

⁵¹Because there was no attrition between visits among women assigned to the control group (who were visited only

increasing women’s ability to keep contraceptive use private, holding price and availability of contraception constant, had a large and significant effect on preventing unwanted pregnancies.⁵² The policy implications of this comparison are straightforward. Increasing access while requiring spousal consent will not reduce excess fertility in settings like urban Zambia where modern contraceptives are already reasonably though by no means freely available. Though doing so is likely to change patterns of utilization towards more convenient and reliable long-acting methods, those positioned to take advantage of better access will be couples already in control of fertility through existing - and perhaps even traditional - methods. In sum, it appears that excess fertility in these settings is *not* driven by the high cost of birth control given that reducing direct and indirect costs had no impact on unwanted births. In contrast, evidence from our experiment indicates that technologies or policies that shift control of fertility from men to women are likely to reduce excess fertility and unwanted births, though with a welfare cost to men that is difficult to measure or predict.

9 Conclusions

This paper uses a novel experimental design to understand the nature of household bargaining over fertility and the role that it plays in accounting for excess fertility. Our experimental manipulation changed the concealability of contraceptive use by varying whether a woman received information about new family planning opportunities alone or in the presence of her spouse. In the simplest household bargaining models, couples with discordant preferences should be able to bargain efficiently and, therefore, should have no incentive to hide contraceptive use. In contrast, we find that when women are provided with greater opportunity to hide birth control from

once at baseline), rather than limiting our treatment group sample to those who received a voucher as in the previous estimates, our Couples versus Control estimates include *all* subjects who completed the baseline survey in an intent-to-treat analysis. For comparison purposes, columns 5 and 6 of Table 4 replicate the columns 3 and 4 results among the intent-to-treat sample. As expected, the point estimates fall slightly but remain statistically significant.

⁵²Interestingly, however, as shown in columns 1-6 of Table 6, privacy had no effect on women’s likelihood of trying new methods for the first time between baseline and follow-up. This implies that the individuals who responded to an increase in privacy were by and large those who had already used concealable methods in the past. Since injectables are arguably the easiest available contraceptive method to conceal, it makes sense that women who responded to the privacy intervention were those with a strong enough demand for this particular method that they had tried to access it before through the clinic, which kept injectables on hand an estimated 50% of the time. Meanwhile, since women in the Couples treatment who responded to the price change were necessarily those with little interest in concealing contraception, they were likely to be those for whom oral contraceptives and condoms are closer substitutes for injectables, and hence they are less likely to have tried injectables in the past.

their husbands, they are 23% more likely to visit a family planning nurse and 28% more likely to use a relatively concealable form of contraception, suggesting that in a significant fraction of households, women do have incentives to hide contraception. Further evidence for our interpretation of concealment comes from the concentration of our treatment effect in households in which women want fewer children than their husbands, and from in-depth interviews with women after the intervention, in which a significant fraction admitted to hiding their visits from disapproving husbands. Our study shows that this strategic behavior has major consequences for female economic wellbeing: the opportunity to conceal leads to a 57% reduction in unwanted births in our sample.

The results suggest significant inefficiencies in intra-household bargaining over fertility, which contribute to excess fertility. With respect to family planning policy, our results suggest that some fraction of women can be made better off by increasing their opportunities to make private choices over birth control, such as by promoting access to relatively concealable longer-term methods (implants, IUDs and injectables), conducting family planning outreach efforts among women in private, or by eliminating spousal consent requirements at many clinics in the developing world. However, before drawing any general welfare conclusions, and especially because some fraction of men may be made worse off with such opportunities, more needs to be understood about the channels through which bargaining inefficiencies arise: for instance, credit constraints may prevent fully transferable utilities, or a weak contracting environment may limit households' ability to bargain over long-range fertility plans.

Our results reveal a potential negative effect of male involvement among couples with conflicting fertility preferences that may offset any positive influence of providing family planning education to men. This helps explain why results from previous studies on male involvement in family planning have been mixed, and why concealable contraceptives such as injectables have proven to be so popular in cultural contexts in which men dominate family planning decisions.⁵³ In a policy environment with increasing emphasis on male involvement in family planning, our results suggest caution: male involvement that is simply making men aware of family planning opportunities may actually decrease opportunities for women, depending on the distribution of discordant households in the population. Involving males in a way that influences their

⁵³Over the past 40 years, only three randomized studies – Fisek and Sumbuloglu (1978), Terefe and Larson (1993), and Wang et al. (1998) – have found any evidence that providing education about family planning to husbands raised adoption of contraception, and one very large study (Freedman and Takeshira, 1969) found no effect.

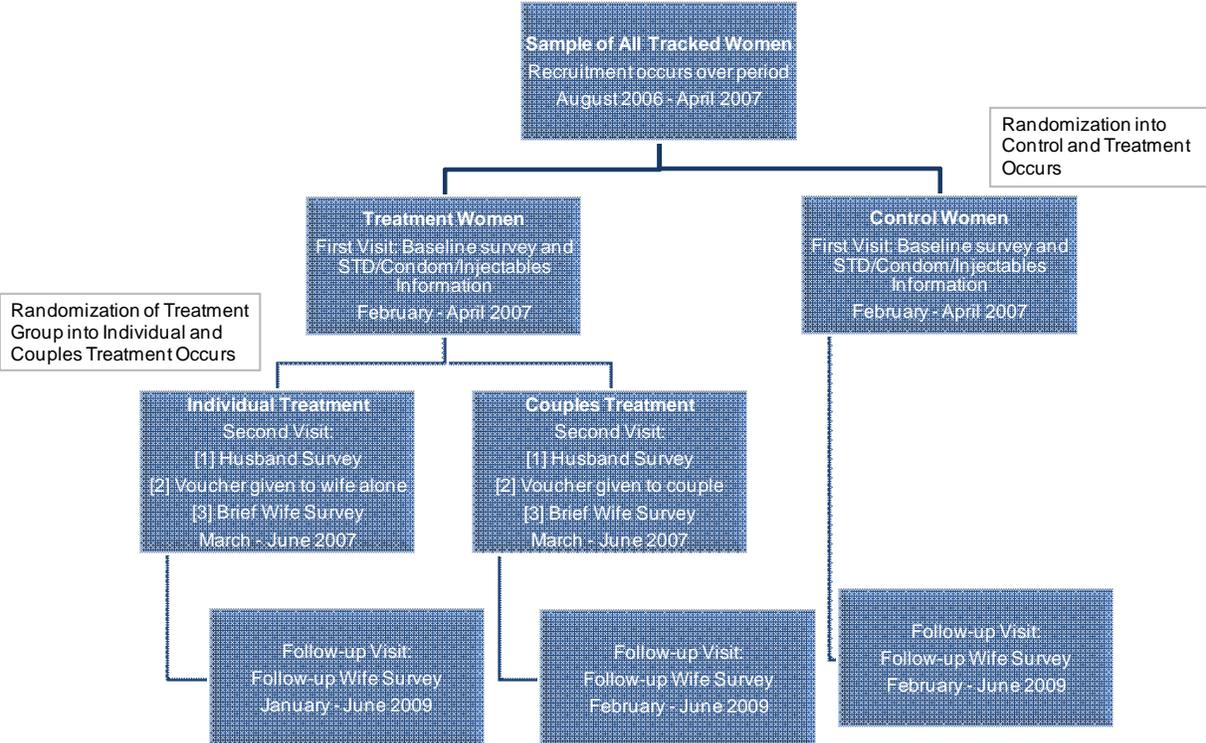
preferences over number of children or helps them to better internalize the costs to women of childbearing and child-raising are likely to be more promising strategies.

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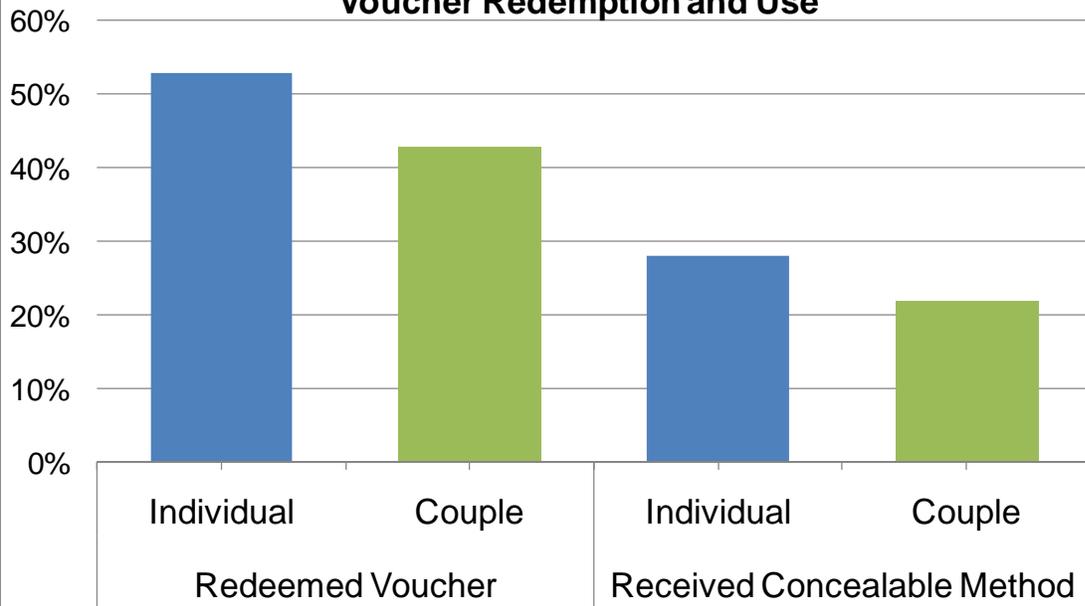
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Figure 1: Experimental Design



**Figure 2
Voucher Redemption and Use**

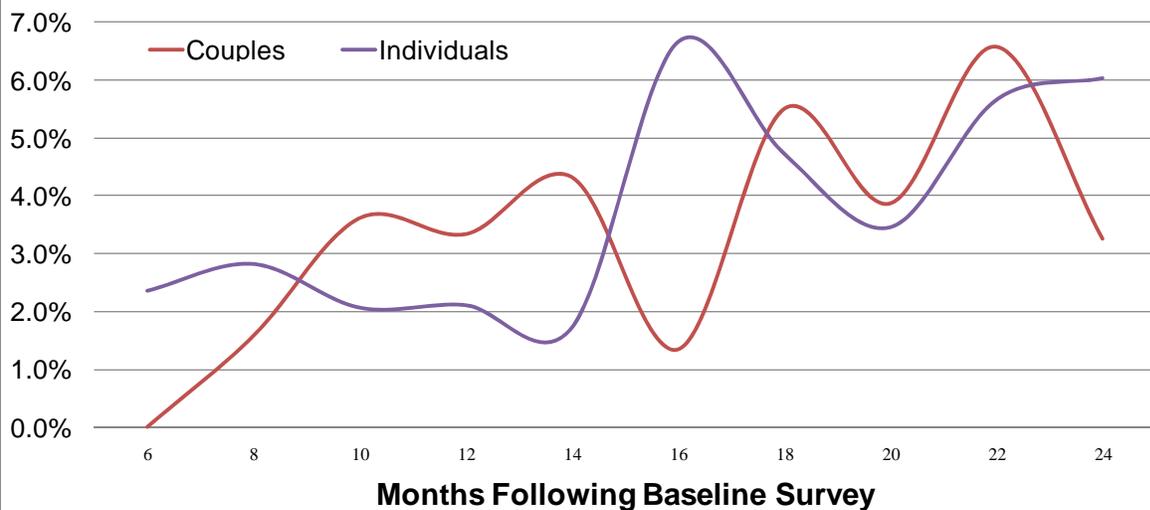


Notes:

[1] The denominator for the Individuals category is total number of women in the Individuals arm. Likewise, the denominator for the Couples category is total number of women in the Couples arm. There were 371 couples treated and 378 individuals treated.

[2] Concealable methods include: IUD, implant and injectable.

**Figure 3
Frequency of Births by Treatment Arm
(Women Who Did Not Want Child in 2 Years Following
Baseline)**



Notes:

[1] Sample includes all women who received a voucher ("Final sample") and completed the follow-up survey and said that they did not want a child in the next 2 years at baseline. Month and year of birth are reported in the follow-up survey.

[2] Women were defined as not wanting children in next 2 years if they wanted children after 24 months or not at all, or did not know when they next wanted children. All values are normalized for number of women in the sample in a given month.

TABLE Ia
Summary Statistics for Recruited Sample

Variable	Couples			Individuals			Controls			P-value for Difference of Means Couples and Individuals	P-value for Difference of Means Couples and Controls
	Mean	SD	N	Mean	SD	N	Mean	SD	N		
Variables Used to Balance Sample											
1 Using any method at baseline	0.86	0.35	498	0.84	0.36	527	0.85	0.35	756	0.622	0.560
2 Number of living children	2.90	1.84	497	2.92	1.74	527	2.77	1.67	756	0.867	0.251
3 Using injectable at baseline	0.22	0.41	498	0.19	0.40	527	0.19	0.40	756	0.317	0.144
4 Using pill at baseline	0.28	0.45	498	0.29	0.46	527	0.30	0.46	756	0.643	0.504
5 Using a hormonal contraceptive at baseline	0.51	0.50	498	0.49	0.50	527	0.49	0.50	756	0.557	0.351
6 Months since last birth (at recruitment)	15.30	6.14	498	15.46	5.94	527	15.54	6.58	756	0.653	0.399
7 Highest schooling attained	6.52	2.89	460	6.67	2.91	472	6.26	3.08	681	0.437	0.164
8 Husband's highest schooling attained (reported by wife)	9.41	2.79	455	9.62	2.56	475	9.30	2.63	694	0.228	0.492
9 Ideal number of children	3.96	1.59	503	3.94	1.56	528	3.93	1.50	766	0.800	0.616
10 Difference in husband's ideal and wife's ideal number of children (reported by wife)	0.30	1.38	464	0.29	1.31	490	0.44	1.35	708	0.874	0.076
Other Observable Characteristics											
11 Age	27.51	6.29	499	27.47	5.88	528	27.08	5.96	763	0.918	0.301
12 Husband's age (reported by wife)	34.26	7.04	442	34.31	6.66	461	33.49	7.17	662	0.909	0.125
13 Husband's age (reported by husband)	34.21	8.18	375	33.89	7.22	380				0.561	
14 Husband's highest schooling attained (reported by husband)	8.70	2.89	375	8.81	2.92	382				0.584	
15 Husband's ideal number of children (reported by wife)	4.24	1.95	464	4.23	1.83	490	4.35	1.73	708	0.929	0.332
16 Husband's ideal number of children (reported by husband)	4.43	2.11	372	4.20	1.94	378				0.123	
17 Number of children in the household	2.85	1.51	503	2.98	1.59	528	2.85	1.47	768	0.165	0.776
18 Has ever used a modern contraceptive method	0.82	0.38	503	0.84	0.37	528	0.79	0.40	768	0.549	0.232
19 Wife's average monthly income (1,000 USD)	0.07	0.89	503	0.03	0.08	528	0.02	0.05	768	0.302	0.259
20 Husband's average monthly income (1,000 USD) (reported by husband)	0.15	0.26	375	0.13	0.16	382				0.161	
21 Wife earned money in previous month	0.45	0.50	498	0.40	0.49	525	0.42	0.49	766	0.123	0.417
22 Husband works 40+ hours	0.55	0.50	473	0.59	0.49	505	0.62	0.49	722	0.281	0.058
23 Wife knows when she is most fertile	0.12	0.33	460	0.16	0.36	482	0.14	0.34	713	0.136	0.756
24 Wife wants to become pregnant in following 2 years	0.26	0.44	503	0.25	0.43	528	0.25	0.43	768	0.647	0.607
25 Formally married	0.88	0.33	503	0.87	0.34	527	0.85	0.36	764	0.583	0.135
26 Age wife married	19.15	4.21	497	19.42	4.16	521	19.04	3.72	755	0.301	0.685
27 Catholic	0.23	0.42	503	0.23	0.42	528	0.22	0.41	768	0.987	0.652
28 Comparison of happiness with other women in region (1=very unhappy, 5=very happy)	3.56	0.86	503	3.58	0.91	528	3.52	0.86	768	0.756	0.356
29 Comparison of health with other women in region (1=very poor, 5=excellent)	3.65	0.79	502	3.62	0.74	528	3.61	0.72	768	0.502	0.222
30 Number of years respondent lived in Lusaka	18.06	10.78	501	18.24	10.84	528	18.93	10.52	763	0.790	0.131
31 Couple has electricity	0.39	0.49	503	0.38	0.49	528	0.38	0.49	768	0.916	0.821
Intimacy and Violence Measures											
32 Difference in wife's perception of husband's ideal and actual husband's ideal number of children	-0.08	1.86	347	0.00	1.91	358				0.598	
33 Wife wants more children	0.62	0.49	503	0.63	0.48	528	0.63	0.48	768	0.829	0.982
34 Number of days in past 7 days couple has sex	2.00	1.65	501	2.02	1.62	523	2.08	1.75	765	0.867	0.576
35 Number of days in past month couple has sex	7.89	5.47	496	7.93	5.29	523	8.23	5.88	752	0.910	0.515
36 Number of children husband has with other women	0.65	1.33	494	0.61	1.18	510	0.57	1.30	754	0.581	0.348
37 Frequency at which couple has talked about contraception in last year	1.68	1.07	503	1.72	1.08	528	1.70	1.06	764	0.555	0.977
38 Couple has ever disagreed on number of children	0.14	0.34	503	0.14	0.34	528	0.16	0.36	765	0.970	0.127
39 Couple has ever disagreed on contraception use	0.13	0.33	503	0.12	0.32	527	0.10	0.29	763	0.780	0.283
40 Have used contraceptive method without husband's knowledge	0.15	0.36	501	0.16	0.37	526	0.12	0.32	758	0.724	0.201
41 Wife would hide money from husband if given 5000 kwacha	0.27	0.44	503	0.30	0.46	527	0.29	0.45	768	0.211	0.368
42 Husband would hide money from wife if given 5000 kwacha	0.32	0.47	419	0.35	0.48	448	0.30	0.46	656	0.269	0.861
43 Husband drinks at least 2 to 3 times a week	0.42	0.49	503	0.43	0.50	528	0.41	0.49	768	0.786	0.621
44 Husband has ever threatened physical violence	0.56	0.50	503	0.54	0.50	528	0.55	0.50	765	0.543	0.983
45 Husband has ever been physically violent conditional on having threatened violence	0.66	0.47	278	0.68	0.47	285	0.64	0.48	440	0.635	0.728
46 Wife ever pressured to have sex	0.54	0.50	503	0.55	0.50	527	0.58	0.49	768	0.904	0.114
47 Wife ever pressured violently to have sex	0.15	0.36	501	0.14	0.34	524	0.14	0.35	767	0.576	0.768
Financial Decision Making Measures											
48 Husband decides savings	0.63	0.48	500	0.62	0.49	528	0.65	0.48	766	0.727	0.659
49 Husband holds the money	0.17	0.37	499	0.16	0.37	521	0.13	0.34	761	0.762	0.097
50 Husband does budgeting	0.14	0.35	502	0.14	0.35	527	0.14	0.34	763	0.890	0.815
51 Husband decides major purchases	0.65	0.48	503	0.65	0.48	525	0.61	0.49	767	0.962	0.236
										Chi2	32.74
										Probability < Chi2	0.972

Notes:

[1] Sample includes all women that participated in the baseline survey ("Recruited sample").

[2] Variables 1-6 come from the tracking data not the baseline survey data. The tracking data was used to balance the samples. All other data come from husband and wife baseline surveys. If not specified, data come from wife's baseline survey.

[3] Variable "Couple has talked about contraception in the last year" takes on the following values: 0 = never, 1 = once or twice, 2 = three or four times, 3 = five or more times.

[4] Variables 47 through 50 equal 0 if the respondent said the wife or both of them was in charge of the respective task.

[5] Modern contraception includes pill, IUD, implant, injectable, diaphragm, female and male sterilization.

[6] Concealable methods include: IUDs, implants and injectables.

TABLE Ib
Summary Statistics for Final Sample

Variable	Couples			Individuals			P-value for Difference of Means Couples and Individuals	
	Mean	SD	N	Mean	SD	N		
Variables Used to Balance Sample								
1 Using any method at baseline	0.87	0.34	366	0.84	0.37	377	0.279	
2 Number of living children	2.99	1.86	366	2.95	1.74	377	0.781	
3 Using injectable at baseline	0.22	0.42	366	0.20	0.40	377	0.511	
4 Using pill at baseline	0.31	0.46	366	0.30	0.46	377	0.791	
5 Using a hormonal contraceptive at baseline	0.54	0.50	366	0.50	0.50	377	0.352	
6 Months sine last birth (at recruitment)	15.30	6.19	366	15.57	5.93	377	0.536	
7 Highest schooling attained	6.49	2.84	339	6.67	3.01	339	0.409	
8 Husband's highest schooling attained (reported by wife)	9.38	2.75	337	9.54	2.59	343	0.436	
9 Ideal number of children	4.00	1.59	371	3.92	1.55	378	0.476	
Difference in husband's ideal and wife's ideal number of 10 children (reported by wife)	0.32	1.39	346	0.26	1.26	359	0.576	
Other Observable Characteristics								
11 Age	27.65	6.37	368	27.58	6.07	378	0.873	
12 Husband's age (reported by wife)	34.46	7.35	327	34.50	6.76	339	0.938	
13 Husband's age (reported by husband)	34.24	8.21	371	33.80	7.16	376	0.439	
Husband's highest schooling attained (reported by 14 husband)	8.68	2.89	371	8.83	2.93	378	0.485	
15 Husband's ideal number of children (reported by wife)	4.29	1.98	346	4.18	1.79	359	0.472	
16 Husband's ideal number of children (reported by husband)	4.43	2.12	368	4.17	1.90	374	0.072	
17 Number of children in the household	2.91	1.52	371	2.99	1.55	378	0.469	
18 Have ever used a modern contraceptive method	0.82	0.38	371	0.84	0.37	378	0.614	
19 Wife's average monthly income (1,000 USD)	0.03	0.06	371	0.03	0.08	378	0.959	
Husband's average monthly income (1,000 USD) (reported 20 by husband)	0.15	0.26	371	0.13	0.16	378	0.164	
21 Wife earned money in previous month	0.45	0.50	369	0.40	0.49	375	0.194	
22 Husband works 40+ hours	0.55	0.50	346	0.58	0.50	360	0.442	
23 Wife knows when she is most fertile	0.10	0.30	339	0.14	0.35	346	0.126	
24 Wife wants to become pregnant in following 2 years	0.27	0.45	371	0.26	0.44	378	0.688	
25 Formally married	0.88	0.33	371	0.89	0.32	378	0.749	
26 Age wife married	19.03	4.02	366	19.39	4.24	373	0.238	
27 Catholic	0.23	0.42	371	0.22	0.41	378	0.755	
Comparison of happiness with other women in region 28 (1=very unhappy, 5=very happy)	3.56	0.87	371	3.58	0.92	378	0.806	
Comparison of health with other women in region (1=very 29 poor, 5=excellent)	3.66	0.80	370	3.62	0.74	378	0.503	
30 Number of years respondent lived in Lusaka	17.88	10.70	369	18.33	10.84	378	0.562	
31 Couple has electricity	0.39	0.49	371	0.41	0.49	378	0.592	
Intimacy and Violence Measures								
Difference in wife's perception of husband's ideal and actual 32 husband's ideal number of children	-0.08	1.87	344	-0.01	1.91	356	0.611	
33 Wife wants more children	0.60	0.49	371	0.62	0.49	378	0.467	
34 Number of days in past 7 days couple has sex	2.07	1.68	369	2.07	1.62	373	0.995	
35 Number of days in past month couple has sex	8.18	5.55	367	7.92	5.19	374	0.510	
36 Number of children husband has with other women	0.61	1.25	364	0.53	1.06	367	0.361	
Frequency at which couple has talked about contraception 37 in last year	1.70	1.05	371	1.78	1.05	378	0.334	
38 Couple has ever disagreed on number of children	0.13	0.33	371	0.14	0.34	378	0.661	
39 Couple has ever disagreed on contraception use	0.12	0.32	371	0.11	0.31	378	0.661	
Have used contraceptive method without husband's 40 knowledge	0.14	0.35	370	0.14	0.35	377	0.997	
41 Wife would hide money from husband if given 5000 kwacha	0.25	0.43	371	0.28	0.45	377	0.306	
42 Husband would hide money from wife if given 5000 kwacha	0.30	0.46	313	0.34	0.47	311	0.319	
43 Husband drinks at least 2 to 3 times a week	0.42	0.49	371	0.41	0.49	378	0.830	
44 Husband has ever threatened physical violence	0.57	0.50	371	0.52	0.50	378	0.169	
Husband has ever been physically violent conditional on 45 having threatened violence	0.66	0.48	207	0.68	0.47	195	0.595	
46 Wife ever pressured to have sex	0.52	0.50	371	0.50	0.50	378	0.632	
47 Wife ever pressured violently to have sex	0.15	0.36	370	0.13	0.33	375	0.415	
Financial Decision Making Measures								
48 Husband decides savings	0.62	0.49	368	0.61	0.49	378	0.811	
49 Husband holds the money	0.17	0.38	368	0.16	0.37	372	0.793	
50 Husband does budgeting	0.16	0.36	370	0.14	0.35	378	0.595	
51 Husband decides major purchases	0.65	0.48	371	0.66	0.48	377	0.813	
							Chi2	37.94
							Probability < Chi2	0.903

Notes:

[1] Sample includes all households in which the woman or couple received a voucher ("Final sample").

[2] See notes to Table 1a.

TABLE II
Effect of Private Information Treatment on Voucher Use

Variable	Voucher Redeemed		Redeemed [Husband Desires Larger Family than Wife]		Voucher Redeemed [Husband Desires Same as Wife]		Redeemed [Wife Desires Larger Family than Husband]		Redeemed Voucher [Wife Wants Child Next 2 Years]		Voucher [Wife Does Not Want Child Next 2 Years]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Assigned to Individual Treatment	0.101*** (0.036)	0.090** (0.037)	0.177** (0.071)	0.197** (0.077)	0.076 (0.047)	0.088* (0.048)	0.058 (0.104)	-0.036 (0.127)	0.062 (0.070)	0.040 (0.079)	0.113*** (0.043)	0.092** (0.044)
Age		0.002 (0.006)		-0.013 (0.012)		0.004 (0.008)		0.025 (0.021)		0.018 (0.014)		-0.003 (0.007)
Husband's age		0.003 (0.004)		-0.002 (0.008)		0.005 (0.005)		-0.012 (0.017)		0.005 (0.010)		0.002 (0.005)
Highest schooling completed		0.008 (0.007)		0.019 (0.018)		0.010 (0.009)		0.015 (0.024)		0.026* (0.016)		-0.001 (0.009)
Husband's highest schooling		-0.006 (0.007)		-0.017 (0.014)		-0.002 (0.009)		-0.019 (0.024)		-0.004 (0.013)		-0.010 (0.008)
Number of living children		0.014 (0.018)		0.060 (0.037)		-0.000 (0.024)		0.058 (0.077)		-0.049 (0.044)		0.022 (0.021)
Difference between husband's and wife's total number of children		0.011 (0.022)		0.026 (0.044)		0.000 (0.028)		0.054 (0.099)		0.016 (0.055)		0.007 (0.025)
Wife's ideal number of children		-0.004 (0.015)		-0.015 (0.033)		0.006 (0.020)		-0.058 (0.059)		0.021 (0.032)		-0.007 (0.018)
Husband's ideal number of children		-0.006 (0.012)		-0.027 (0.021)		0.006 (0.016)		0.004 (0.058)		0.006 (0.025)		-0.012 (0.014)
Using an injectable at tracking		0.078 (0.052)		-0.123 (0.111)		0.115* (0.066)		0.245 (0.221)		-0.025 (0.109)		0.093 (0.061)
Using a pill at tracking		-0.034 (0.047)		-0.030 (0.094)		-0.042 (0.063)		0.008 (0.161)		-0.236** (0.097)		0.027 (0.055)
Using any modern method at baseline		0.028 (0.059)		-0.100 (0.131)		0.022 (0.074)		0.119 (0.232)		0.112 (0.130)		0.033 (0.070)
Average monthly income (in 1000 kwacha)		-0.536** (0.263)		-0.029 (0.800)		-0.813* (0.415)		-0.326 (0.504)		-0.582 (0.642)		-0.589** (0.296)
Husband's monthly income (in 1000 kwacha)		-0.081 (0.085)		-0.087 (0.136)		-0.089 (0.120)		-0.170 (0.440)		0.110 (0.177)		-0.124 (0.101)
Wife understands when she is most fertile		0.014 (0.015)		0.007 (0.125)		-0.044 (0.085)		0.014 (0.173)		0.011 (0.029)		0.012 (0.019)
Husband larger ideal family size than wife		-0.027 (0.061)								-0.026 (0.121)		-0.015 (0.073)
Wife age 40 or older		-0.104 (0.097)		0.065 (0.214)		-0.200* (0.120)		-0.334 (0.540)		-0.059 (0.345)		-0.074 (0.106)
Months since last birth		0.002 (0.003)		0.011 (0.007)		0.001 (0.004)		-0.003 (0.013)		0.003 (0.007)		0.003 (0.004)
Constant	0.429*** (0.026)	0.716 (0.517)	0.421*** (0.051)	1.035** (0.461)	0.431*** (0.033)	-0.615 (0.418)	0.432*** (0.076)	-0.214 (0.812)	0.392*** (0.049)	0.087 (0.618)	0.442*** (0.030)	0.607* (0.348)
Observations	749	749	197	197	457	457	95	95	201	201	548	548

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] Missing values were replaced with a zero and dummy variables flagging missing values of each variable were included

[2] Sample includes all households in which the woman or couple received a voucher ("Final sample").

[3] Husband demographic and fertility preference information is gathered from the husband's survey.

[4] Wife demographic and fertility preference information is gathered from the baseline survey.

[5] A wife understands when she is most fertile if she says she is most fertile half-way between periods.

[6] The difference between the husband's and wife's total number of children captures the number of children from other marriages.

[7] The husband's ideal family size is the wife's reported perception of her husband's ideal family size. The difference between that perception and her ideal is used to define whether they have concordant or discordant ideal family sizes.

[8] A voucher was "redeemed" if there is a record of a voucher use by a woman in the study at the Chiapata Clinic.

TABLE III
Effect of Private Information Treatment on Voucher Use and Take-up of Concealable Methods

Variable	Received a Concealable Method [All households]		Received a Concealable Method [Wife Wants Child in Next 2 Years]		Received a Concealable Method [Wife Does Not Want Child in Next 2 Years]	
	[1]	[2]	[3]	[4]	[5]	[6]
Assigned to Individual Treatment	0.062** (0.032)	0.060* (0.032)	-0.014 (0.057)	0.016 (0.063)	0.089** (0.038)	0.075* (0.038)
Age		-0.004 (0.005)		0.001 (0.011)		-0.007 (0.006)
Husband's age		0.003 (0.003)		0.007 (0.008)		0.001 (0.004)
Highest schooling completed		0.002 (0.006)		0.004 (0.013)		0.001 (0.007)
Husband's highest schooling		0.001 (0.006)		0.009 (0.011)		-0.006 (0.007)
Number of living children		0.021 (0.015)		-0.049 (0.035)		0.040** (0.019)
Difference between husband's and wife's total number of children		0.012 (0.019)		0.031 (0.044)		0.000 (0.021)
Ideal number of children		-0.009 (0.013)		-0.005 (0.026)		-0.006 (0.016)
Husband's ideal number of children		-0.002 (0.010)		0.009 (0.020)		-0.010 (0.013)
Using an injectable at tracking		0.237*** (0.045)		0.220** (0.088)		0.236*** (0.053)
Using a pill at tracking		-0.065 (0.040)		-0.026 (0.078)		-0.079 (0.048)
Using any modern method at tracking		-0.020 (0.051)		-0.144 (0.104)		0.019 (0.060)
Average monthly income		-0.207 (0.226)		0.303 (0.515)		-0.351 (0.257)
Husband's monthly income		-0.089 (0.073)		-0.102 (0.142)		-0.054 (0.087)
Wife understands when she is most fertile		0.001 (0.013)		0.009 (0.023)		-0.009 (0.016)
Wife 40 or older		-0.012 (0.052)		-0.007 (0.097)		-0.007 (0.063)
Time since last birth		-0.047 (0.083)		0.073 (0.277)		-0.071 (0.092)
Constant	0.218*** (0.022)	0.933** (0.444)	0.206*** (0.040)	-0.370 (0.496)	0.223*** (0.027)	0.359 (0.301)
Observations	749	749	201	201	548	548

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See Notes to Table 2

[2] In columns 1-4 and 7-10, sample is split into two groups for this analysis based on heterogeneity in wife's preference for timing of the next child. If wife said she wanted to have a child in 24 months or less at the time of baseline, she is included in the group that wants a child in the next two years. All other study participants, who either answered they did not know, did not want any more children, or wanted children after 24 months, were included in the category "Wife Does Not Want Child in Next 2 Years."

TABLE IV
Effect of Private Information Treatment on Fertility

Variable	Birth 9-13 Months After Voucher Given		Unwanted Birth 9-13 Months After Voucher Given [Wife Does Not Want Child in Next 2 Years]				Birth 9-13 Months After Voucher Given		Unwanted Birth 9-13 Months After Voucher Given [Wife Does Not Want Child in Next 2 Years]	
	<i>Sample = Final sample</i>				<i>Sample = Recruited sample (Intent-to-treat)</i>					
	<i>Universe = Individuals and Couples Treatment Arms</i>						<i>Universe = Couples Treatment and Control Arms</i>			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Assigned to Individual Treatment	-0.028 (0.019)	-0.024 (0.020)	-0.051** (0.022)	-0.043* (0.023)	-0.040** (0.018)	-0.035* (0.019)				
Assigned to Couples Treatment							0.006 (0.016)	0.009 (0.016)	0.025 (0.018)	0.027 (0.018)
Age		-0.004 (0.003)		-0.003 (0.004)		-0.001 (0.003)		-0.002 (0.003)		-0.002 (0.003)
Husband's age		0.001 (0.002)		0.002 (0.002)		0.001 (0.002)		-0.001 (0.002)		-0.000 (0.002)
Highest schooling completed		-0.004 (0.004)		-0.006 (0.005)		-0.006 (0.004)		-0.006* (0.004)		-0.007 (0.004)
Husband's highest schooling		-0.003 (0.004)		-0.001 (0.004)		0.002 (0.004)		0.000 (0.003)		-0.001 (0.004)
Difference between husband's and wife's total number of children		0.015 (0.012)		0.022 (0.014)		0.019*** (0.006)		0.002 (0.005)		0.006 (0.005)
Ideal number of children		-0.007 (0.009)		-0.011 (0.010)		-0.038* (0.022)		-0.002 (0.013)		-0.008 (0.016)
Husband's ideal number of children		-0.003 (0.006)		-0.003 (0.007)		0.046* (0.023)		-0.003 (0.014)		0.009 (0.017)
Using an injectable at tracking		-0.023 (0.028)		-0.016 (0.032)		-0.029 (0.027)		-0.037* (0.022)		-0.040* (0.022)
Using a pill at tracking		0.004 (0.025)		0.014 (0.029)		0.004 (0.024)		-0.014 (0.021)		-0.002 (0.023)
Using any modern method at tracking		0.068** (0.031)		0.049 (0.036)		0.040 (0.029)		0.008 (0.028)		0.003 (0.031)
Average monthly income		-0.038 (0.137)		0.085 (0.151)		-0.005 (0.012)		-0.009*** (0.003)		-0.009*** (0.004)
Husband's monthly income		-0.011 (0.044)		-0.017 (0.050)						
Husband larger ideal family size than wife		0.015* (0.008)		0.013 (0.010)		-0.038 (0.024)		0.002 (0.014)		-0.003 (0.017)
Wife understands when she is most fertile		0.034 (0.032)		0.037 (0.037)		-0.003 (0.029)		-0.013 (0.022)		0.012 (0.026)
Wife wants to have child in following 2 years		0.007 (0.024)						0.005 (0.022)		
Wife 40 or older		-0.014 (0.057)		-0.025 (0.061)		-0.061 (0.053)		-0.055 (0.035)		-0.063 (0.039)
Months since last birth		0.002 (0.002)		0.001 (0.002)		0.002 (0.002)		0.003** (0.001)		0.002 (0.001)
Constant	0.082*** (0.013)	0.128 (0.146)	0.090*** (0.015)	0.300 (0.279)	0.084*** (0.013)	0.009 (0.277)	0.058*** (0.010)	0.125 (0.140)	0.071*** (0.010)	0.122 (0.105)
Observations	706	706	513	513	705	705	877	877	1174	1174

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See notes to Table 3

[2] Final sample (columns 1-4) includes all women who received a voucher ("Final sample") and completed the follow-up survey, and Recruited sample (columns 5-10) includes all women who completed the baseline and follow-up surveys. Columns 3-6 and 9-10 additionally restrict the sample to those that said that they did not want a child in the next 24 months at baseline.

[3] Outcome data on births come from the follow-up survey, and controls come from the baseline survey. In the follow-up survey, the wife is asked the month and year of birth of all children born over the past 2 years. If that date is 9 to 13 months after the date she was given a voucher, the variable has a value of 1, otherwise the variable has a value of 0.

[4] All regressions also control for birth parity using a fixed effect for number of children at baseline.

[5] Since husband survey data were unavailable, regressions run on the recruited sample (columns 5-10) used only the respondent's reports of husband information, and do not include husband income which was only reported by the husband.

TABLE V
Effect of Private Information Treatment on Long-term Use of Concealable Contraceptives and Fertility

Variable	Sample = All households				Sample = Wife Does Not Want Child Next 2 Year				Sample = All households				Sample = Wife Does Not Want Child Next 2 Year			
	Using Concealable Method at Time of Follow-up		Had a Child in 14-24 Months Following Baseline		Using Concealable Method at Time of Follow-up		Had a Child in 14-24 Months Following Baseline		Using Concealable Method at Time of Follow-up		Had a Child in 14-24 Months Following Baseline		Using Concealable Method at Time of Follow-up		Had a Child in 14-24 Months Following Baseline	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
	<i>Universe = Individuals and Couples Treatment Arms</i>								<i>Universe = Couples Treatment and Control Arms</i>							
Assigned to Individual Treatment	0.008 (0.031)	0.015 (0.031)	0.017 (0.031)	0.009 (0.032)	0.046 (0.038)	0.057 (0.039)	0.050 (0.036)	0.040 (0.038)								
Assigned to Couples Treatment									0.011 (0.023)	0.001 (0.023)	-0.009 (0.025)	-0.003 (0.025)	-0.003 (0.028)	-0.010 (0.028)	-0.015 (0.027)	-0.001 (0.027)
Age		-0.002 (0.005)		0.000 (0.005)		0.001 (0.006)		-0.002 (0.006)			0.005 (0.004)		-0.006 (0.004)		0.005 (0.004)	-0.011** (0.004)
Husband's age		-0.001 (0.003)		-0.003 (0.003)		-0.001 (0.004)		-0.003 (0.004)		-0.001 (0.003)		0.001 (0.003)		-0.003 (0.003)		0.003 (0.003)
Highest schooling completed		0.007 (0.006)		0.002 (0.006)		0.008 (0.008)		0.001 (0.007)		0.003 (0.004)		0.004 (0.005)		-0.001 (0.005)		0.002 (0.005)
Husband's highest schooling		0.004 (0.006)		-0.005 (0.006)		-0.001 (0.007)		-0.005 (0.007)		0.005 (0.004)		-0.007 (0.005)		0.004 (0.006)		-0.003 (0.005)
Number of living children		0.020 (0.015)		-0.021 (0.016)		0.016 (0.019)		-0.017 (0.019)		-0.003 (0.011)		-0.009 (0.011)		-0.005 (0.013)		-0.004 (0.011)
total number of children		0.008 (0.018)		-0.014 (0.019)		0.010 (0.022)		-0.011 (0.021)		-0.021*** (0.007)		0.006 (0.007)		-0.016* (0.009)		0.002 (0.008)
Ideal number of children		0.001 (0.013)		0.018 (0.013)		-0.002 (0.017)		0.018 (0.016)		-0.002 (0.019)		0.017 (0.020)		-0.001 (0.023)		0.008 (0.022)
Husband's ideal number of children		-0.012 (0.010)		0.002 (0.010)		-0.018 (0.012)		-0.002 (0.012)		-0.017 (0.019)		-0.005 (0.022)		-0.015 (0.023)		-0.000 (0.024)
Using an injectable at tracking		0.137*** (0.044)		0.004 (0.046)		0.138** (0.054)		-0.003 (0.052)		0.202*** (0.036)		-0.022 (0.034)		0.215*** (0.044)		-0.043 (0.037)
Using a pill at tracking		-0.047 (0.039)		-0.009 (0.041)		-0.043 (0.048)		-0.020 (0.047)		0.016 (0.028)		-0.029 (0.031)		0.003 (0.034)		-0.038 (0.033)
Using any modern method at tracking		0.047 (0.049)		-0.041 (0.051)		0.074 (0.060)		-0.054 (0.059)		0.003 (0.032)		-0.051 (0.043)		-0.003 (0.040)		-0.071 (0.048)
Average monthly income		-0.291 (0.218)		0.060 (0.226)		-0.164 (0.257)		0.190 (0.250)		-0.007* (0.004)		-0.006 (0.004)		-0.004 (0.004)		-0.002 (0.004)
Husband's monthly income		0.183*** (0.069)		-0.134* (0.072)		0.143* (0.086)		-0.088 (0.083)								
Husband larger ideal family size than wife		0.011 (0.013)		0.009 (0.013)		-0.006 (0.016)		0.010 (0.016)		0.014 (0.021)		-0.005 (0.023)		0.007 (0.025)		-0.010 (0.025)
Wife understands when she is most fertile		0.084* (0.050)		-0.039 (0.052)		0.112* (0.063)		-0.055 (0.061)		-0.037 (0.034)		-0.035 (0.035)		-0.026 (0.042)		-0.017 (0.040)
Wife age 40 or older		-0.022 (0.081)		-0.084 (0.084)		-0.034 (0.092)		-0.012 (0.090)		-0.077 (0.059)		-0.010 (0.060)		-0.073 (0.064)		0.022 (0.062)
Months since last birth		-0.000 (0.003)		-0.001 (0.003)		0.001 (0.003)		-0.003 (0.003)		-0.002 (0.002)		0.002 (0.002)		-0.001 (0.002)		0.001 (0.002)
Constant	0.207*** (0.022)	0.202 (0.227)	0.212*** (0.022)	0.058 (0.236)	0.219*** (0.027)	0.844* (0.447)	0.184*** (0.025)	0.257 (0.436)	0.180*** (0.015)	0.003 (0.098)	0.214*** (0.016)	1.187*** (0.106)	0.208*** (0.018)	0.040 (0.152)	0.188*** (0.017)	0.337*** (0.155)
Observations	706	706	706	706	513	513	513	513	1174	1174	1174	1174	877	877	877	877

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See Notes to Table 4

TABLE VI
Effect of Private Information Treatment on Adoption of Modern Contraceptive Methods

Variable	Tried a Modern Method for the First Time since Baseline Survey		Tried a Modern Method for the First Time after Baseline Survey [Wife Does Not Want Child Next 2 Years]		Tried a Modern Method for the First Time since Baseline Survey [Wife Does Not Want Child Next 2 Years]		Tried a Modern Method for the First Time since Baseline Survey		Tried a Modern Method for the First Time since Baseline Survey [Wife Does Not Want Child Next 2 Years]	
	<i>Sample = Final sample</i>				<i>Sample = Recruited sample (Intent-to-treat)</i>					
	<i>Universe = Individuals and Couples Treatment Arms</i>						<i>Universe= Couples Treatment and Control Arms</i>			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Assigned to Individual Treatment	-0.017 (0.028)	-0.014 (0.028)	0.023 (0.033)	0.023 (0.034)	0.035 (0.027)	0.044 (0.028)				
Assigned to Couples Treatment							0.149*** (0.016)	0.148*** (0.016)	0.126*** (0.017)	0.124*** (0.017)
Age		-0.006 (0.005)		-0.006 (0.006)		-0.010** (0.005)		-0.004** (0.002)		-0.004** (0.002)
Husband's age		-0.001 (0.003)		-0.001 (0.004)		0.006* (0.003)		0.002 (0.002)		0.003 (0.002)
Highest schooling completed		-0.005 (0.006)		-0.015** (0.007)		-0.008 (0.006)		-0.001 (0.002)		-0.003 (0.002)
Husband's highest schooling		0.005 (0.005)		0.002 (0.006)		-0.005 (0.006)		0.000 (0.002)		0.003 (0.002)
Ideal number of children		-0.010 (0.012)		-0.016 (0.015)		0.039 (0.033)		0.005 (0.006)		0.003 (0.006)
Husband's ideal number of children		0.022** (0.009)		0.016 (0.011)		-0.048 (0.034)		-0.014** (0.007)		-0.013* (0.008)
Using an injectable at tracking		0.095** (0.041)		0.051 (0.048)		0.101** (0.039)		0.038** (0.018)		0.026 (0.020)
Using a pill at tracking		-0.059 (0.036)		-0.041 (0.043)		-0.040 (0.035)		-0.023* (0.012)		-0.025** (0.012)
Using any modern method at tracking		-0.020 (0.046)		-0.006 (0.054)		-0.005 (0.043)		0.003 (0.016)		0.000 (0.017)
Average monthly income		0.116 (0.200)		0.129 (0.227)		0.003 (0.018)		-0.006*** (0.002)		-0.003* (0.002)
Husband's monthly income		-0.122* (0.064)		-0.088 (0.076)						
Husband larger ideal family size than wife		0.010 (0.012)		0.003 (0.014)		0.057 (0.035)		0.011 (0.007)		0.007 (0.008)
Wife understands when she is most fertile		0.002 (0.046)		-0.020 (0.056)		-0.002 (0.043)		-0.014 (0.015)		-0.026* (0.015)
Wife wants to have child in following 2 years		-0.045 (0.034)								
Wife age 40 or older		0.066 (0.083)		0.100 (0.091)		0.105 (0.078)		0.044 (0.034)		0.048 (0.035)
Months since last birth		0.003 (0.002)		0.004 (0.003)		0.001 (0.002)		0.001* (0.001)		0.001 (0.001)
Constant	0.178*** (0.020)	0.551*** (0.212)	0.160*** (0.024)	0.056 (0.419)	0.140*** (0.020)	0.244 (0.406)	-0.000*** (0.000)	-0.035 (0.079)	-0.000*** (0.000)	0.064 (0.061)
Observations	706	706	513	513	705	705	946	946	1270	1270

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See Notes to Table 5

[2] Outcome variable equal to 1 if the respondent had not used a particular modern method at baseline and in the follow-up said that they had used that method in the past 2 years.

TABLE VII
Effect of Private Information among Couples in which Both Husband and Wife Do Not Want Child Next 2 Years

Variable	Redeemed	Received	Unwanted	Redeemed	Received	Unwanted	Redeemed	Received	Unwanted
	Voucher	Concealable	birth	Voucher	Concealable	birth	Voucher	Concealable	birth
	<i>All households</i>			<i>Husband wants more kids than wife</i>			<i>wife</i>		
	[1]	[3]	[5]	[7]	[9]	[11]	[13]	[15]	[17]
Assigned to Individual Treatment	0.103** (0.049)	0.063 (0.043)	-0.041* (0.023)	0.324*** (0.101)	0.288*** (0.087)	-0.061 (0.057)	0.043 (0.055)	0.003 (0.049)	-0.037 (0.025)
Constant	0.427*** (0.035)	0.238*** (0.031)	0.076*** (0.016)	0.357*** (0.074)	0.095 (0.063)	0.105** (0.042)	0.445*** (0.039)	0.274*** (0.035)	0.069*** (0.017)
Observations	419	419	396	89	89	83	330	330	313

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See Notes to Table 5

SCRIPT 1: CONDOM AND FAMILY PLANNING INFORMATION

Information on STDs and Condoms

- Did you know that 1 out of 5 Zambians over the age of 15 is HIV positive?
 - If used correctly and consistently, condoms will protect you from getting sexually transmitted diseases and HIV, the virus that causes AIDS. There is no known cure for AIDS.
 - Condoms will keep you among the 4 out of 5 who can still avoid HIV

- Facts about Sexually Transmitted Diseases
 - Anyone can become infected through sexual intercourse with an infected person.
 - Changing sexual partners adds to the risk of becoming infected.
 - Sometimes, early in the infection, there may be no symptoms, or symptoms may be easily confused with other illnesses.
 - Sexually transmitted diseases can cause:
 - Tubal pregnancies, sometimes fatal to the mother and always fatal to the unborn child
 - Death or severe damage to a baby born to an infected woman
 - Sterility (loss of ability to get pregnant)
 - Cancer of the cervix in women
 - Damage to other parts of the body, including the heart, kidneys, and brain
 - Death to infected individuals
 - See a doctor if you have any of these symptoms of STDs:
 - Discharge from the vagina, penis, and/or rectum
 - Pain or burning during urination and/or intercourse
 - Pain in the abdomen (women), testicles (men), and buttocks and legs (both)
 - Blisters, open sores, warts, rash, and/or swelling in the genital area, sex organs, and/or mouth
 - Flu-like symptoms, including fever, headache, aching muscles, and/or swollen glands

- The surest way to avoid sexually transmitted diseases is to not have sex altogether (abstinence). Another way is to limit sex to one partner who also limits his or her sex in the same way (monogamy). Condoms are not 100% safe, but if used properly, will reduce the risk of sexually transmitted diseases, including AIDS. Protecting yourself against the AIDS virus is of special concern because this disease is fatal and has no cure.

- Condoms will help protect you from having an un-planned pregnancy which could ruin your plans and overburden you with responsibilities you are not ready for. Condoms are used for **both** birth control and reducing the risk of disease. That is why some people think that other forms of birth control -- such as the IUD, injectable, or pill -- will protect them against diseases, too. But that is not true. So if you use any other form of birth control, **you still need a condom in addition to reduce the risk of getting sexually transmitted diseases**. This is called **dual protection**, and it is very important to practice it.

- A condom is especially important when an uninfected pregnant woman has sex, because it can also help protect her and her unborn child from a sexually transmitted disease.

- A condom prevents the transmission of disease. It acts as a barrier or wall to keep blood, or semen, or vaginal fluids from passing from one person to the other during intercourse.

- These fluids can harbor germs such as HIV (the AIDS virus). If no condom is used, the germs can pass from the infected partner to the uninfected partner.

- What is the correct way of using condoms?
 - First ensure that you have them available so that you are ready when you need one.
 - Always check the expiry date of the condoms
 - Keep your condoms away from heat and direct sunlight.
 - Use a new condom for each act of sex.

- Deciding to use condoms is an important choice you make to protect yourself, your partner and your loved ones.

- Do not be embarrassed about protecting yourself and your loved ones. Is it not more embarrassing to end up with an unplanned pregnancy, or an STD which could be HIV when you can avoid all that? Think about the future plans you have made for yourself and for them. Make the right choice of condoms and continue with your plans.
- Remember you are in-charge of your life and the decisions you make. Be responsible to yourself and use condoms!

General Information on Family Planning

A. Definition of family planning

1. Family planning is a decision about:
 - How many children to have, when to start having them, how long to wait in between each one (spacing), and when they will stop

B. Benefits of family planning

1. Benefits to children:
 - Better health, more food and other resources available, greater opportunity for emotional support from parents, better opportunity for education
2. Benefits to women:
 - Better health and possibly protection from certain diseases, freedom to decide when to have children, less physical and emotional strain, no need for unsafe abortions, improved quality of life
3. Benefits to men:
 - Protection from STDs/HIV with some methods (barrier methods), less emotional and financial strain, greater care for each child, improved quality of life

C. Methods of family planning

1. Many different methods out there; some require nurse and some do not:
 - Barrier methods such as male and female condoms
 - IUDs (implants)
 - Surgical sterilization
 - Hormonal methods such as pills, injectables and implants
 - Natural methods such as withdrawal, the rhythm method and abstinence

D. Importance of condoms

1. **ONLY CONDOMS PROVIDE PROTECTION AGAINST STDs and HIV/AIDS.**
2. [*Offer woman pack of 3 condoms*]. Even if you are married, and even if you are using another method of birth control, it may still be appropriate to use condoms as dual protection against both pregnancy and HIV/AIDS.
3. Please keep these condoms provided by the clinic

E. Chipata clinic services

1. Nurse at Chipata Clinic can help you to choose and properly use the method that is best for you
2. For more information, visit the family planning nurse, Grace Daka
3. Clinic is open for family planning services from 13 hours to 17 hours, Mon - Saturday
4. Do you know how to get there?

Additional Information About Family Planning

1. Now I'll tell you about two family planning options that many people don't know about
2. But there are other options, so take time to explore all of the choices to figure out what is best for you

A. Description of injectables (Depo-Provera)

1. Depo Provera is an injection given in arm or rear that prevents pregnancy for 3 months
2. Injection contains same type of medicine as EC and some pills - synthetic progesterone hormone
3. It prevents pregnancy by stopping release of eggs. It also causes cervical mucus to thicken, making it harder for sperm to enter or survive in uterus. These changes prevent fertilization and thus pregnancy

B. Benefits of using

1. **Injectables are very reliable:**

- Of **1,000** women who use it correctly, only **3** become pregnant during first year of use
- After first injection, protection from pregnancy is immediate if you take shot during first 5 days of your period. Otherwise, it begins to work after 1 week (so use backup method of contraception)
- Protection lasts for 12 weeks

2. **Injectables are reversible:**

- Women who want to become pregnant at any time can stop using injectables
- For many women, fertility returns immediately, but for some it may take over 1 year

3. **Injectables very private form of birth control**

- It cannot be seen on body and requires no home supplies
- You do not have to keep any pills at home, which your husband may find
- There is nothing for you or your husband to put in place before intercourse

4. **Injectables very convenient - only requires 1 clinic appointment every 3 months.**

- However, very important to follow the date given to return to the clinic
- If you are late returning to get your shot you will risk getting pregnant!

5. **Injectables can also cause changes to menstrual cycle, including:**

- Less menstrual cramping and pain, fewer periods, and less chance of anemia
- Irregular or no bleeding at all. Many women stop having periods after one year.
- **DON'T WORRY: THIS IS NOT UNHEALTHY!!!** This in no way prevents future pregnancy or harms a woman's reproductive capacity. In fact, many women find this to be a welcome convenience!

6. **For most women Depo Provera is safe and reliable method of postponing pregnancy**

C. I would also like to inform you that Jadelle implants have recently become available at Chipata Clinic.

- Jadelle is for women who are looking for a reliable, reversible long-term method of birth control
- Consist of two small silicone rods containing synthetic hormones
- Rods are inserted under the skin in the arm
- Once inserted, implants very effectively prevent pregnancies for up to five years – you don't have to do anything after the initial insertion for them to work
- The rods are usually barely visible – because the incision from insertion is very small, most women do not have a visible scar.
- The rods can be removed.
- Once removed, contraceptive effects disappear within a few days.
- Need to be inserted and removed by trained health care personnel
- Because the hormone in Jadelle is the same as the hormone in injectables, the contraindications and side effects are similar
- Discuss carefully with the nurse in order to determine whether Jadelle is the right option for you

Before you consider **either** IC or Jadelle, there are three important things to remember:

D. Neither Jadelle nor injectable contraceptives protect against STDs including HIV/AIDS

1. To protect yourself, you should also use a condom - this is called dual protection

E. **Injectables and Jadelle are not safe for women with:**

- Past heart attack or stroke, blood clots in the legs or lungs
- Cancer or epilepsy
- High blood pressure
- Heart, kidney, or liver disease, such as hepatitis
- Are or might be pregnant, want to become pregnant immediately
- Unexplained bleeding from the vagina
- History of severe depression

F. If you had bad experiences with hormonal contraceptives (pills, injectables, or implants) in the past, consult the family planning nurse before trying a hormonal method again as you may have a similar experience if you try them again.

G. Mild side effects are likely with both methods

1. **Most common are temporary and not dangerous, but can be uncomfortable, including:**

- Nausea and/or vomiting
- Breast tenderness, irregular bleeding
- Headache or dizziness

2. Other side effects of injectables only can include:

- Nervousness, mood changes
- Bloating, hot flashes, a decreased interest in sex, acne, hair loss, and back ache
- After last injection, it can take over 6 months for side effects to completely go away

3. More serious problems with injectables are very rare but can include:

- Allergic reactions
- Decrease in bone density, which can lead to osteoporosis (weak bones) when you are older

4. If you use either method, you should **go to the clinic immediately if you have:**

- A new lump in your breast
- Major depression
- Severe pain in the stomach or abdomen
- Unusually heavy or prolonged vaginal bleeding
- Yellowing of skin or eyes

H. Any questions about when and how to use either method, or how these methods work? If you have more questions, you can ask them of the nurse at the family planning clinic and she will help you to choose the method that is best for you.

Appendix B: Voucher

Free, Instant Access to Depo Provera or Jadelle



Name

NRC#

Date



sponsored by

see inside for details

English Translation of Voucher

If you bring this voucher with your NRC card to the Nurse Grace Daka at Chipata Clinic between 13h and 17h on Monday and Saturday, we guarantee that you will receive:

- First class, personalized service, by Grace Daka, your own dedicated family planning nurse**
- You will not wait for more than an hour, and receive a free gift if you wait more than an hour**
- A family planning method Jadelle or an injectable Depo-Provera for one year will be given to you for a year if Nurse Grace Daka finds it suitable for you.**

APPENDIX C: INJECTABLE AND JADELLE SCRIPT AND PROTOCOL VISIT 2

HUSBAND SURVEY AND VOUCHER SCRIPT AND PROTOCOL

STEP 1 (CHW) Hello, my name is _____ and I am representing Chipata Clinic. We are going today to randomly selected households in your area, in order to conduct a survey about families and family planning.

STEP 2 (CHW) Are both you and your husband here?

_____ Yes/ Yes let me go get him. (→Go to **STEP 4**)

_____ No he is not here. (→Go to **STEP 3**)

STEP 3 (CHW) If no, do you know when you both will next be at home? [*Schedule directly with husband if possible.*]

Month

Day

Time

STEP 4 (Enumerator)

[*Once you have found the correct respondent*]

I am a representative of Chipata Clinic. We would like you to participate in our study about family planning. We are administering a survey about women and men's attitudes towards having children, raising children and family planning.

The entire session will take approximately fifteen minutes. Since we really value how you can help us to learn about women and their decisions about children, you will receive a gift of for spending your time with us.

If you choose to participate, all of the session is voluntary, and you may choose not to answer any of the questions I ask if you prefer not to. Also, every piece of information you give will be kept strictly confidential. Your name will be removed from any of the information that you give as soon as it is entered into the computer, and only staff members at the clinic and members of the research team will have access to the information.

STEP 5 (Enumerator and CHW)

First we would like to talk to the husband in private. Is there a quiet place where we can conduct the survey in private? Can we go inside your house to conduct the survey? [*If there is no private setting, arrange to return at a later time, preferably later on the same day.*]

If there is no place to conduct a private interview, write the date and time of the appointment below:

Month

Day

Time

STEP 6a (Enumerator)

[Go to private setting and administer husband survey. Both CHW and enumerator should be present during survey. Note whether there is a voucher attached to the survey. If there is a voucher, go to step 6b. If there is no voucher, go to step 7a. Give husband gift of either 10,000 talk time or kwacha when survey is completed.]

STEP 6b [VOUCHER ATTACHED TO HUSBAND SURVEY] (Enumerator)

[If there is a voucher attached to the survey, then invite woman into the house.]

Your household has also been selected by lottery to be eligible to receive special services from Chipata Clinic's family planning clinic. This voucher entitles you to first-rate care from your own dedicated family planning nurse. It also will enable you to access methods of family planning that are extremely effective, private and easy to use. These methods do not require you to do something every day, or to do something every time you have sex in order to be effective. These methods are not available to all people who come into Chipata Clinic because there are more people who want to use these methods than the clinic is able to serve.

This voucher is especially for you and only you, and it cannot be used by anyone else. In order to ensure that this is only for you, we will write both of your names and NRC numbers on the card.

STEP 7a [NO VOUCHER ATTACHED TO WIFE SURVEY] (Enumerator)

[Go to private setting and administer wife survey. Both CHW and enumerator should be present during survey. Go to step 8.]

STEP 7b [VOUCHER ATTACHED TO WIFE SURVEY] (Enumerator)

[If there is a voucher attached to the survey, then give to woman in private, before completing survey. Make sure no one else is around when she receives the voucher so that her privacy is completely ensured]

You have also been selected by lottery to be eligible to receive special services from Chipata Clinic's family planning clinic. This voucher entitles you to first-rate care from your own dedicated family planning nurse. It also will enable you to access methods of family planning that are extremely effective, private and easy to use. These methods do not require you to do something every day, or to do something every time you have sex in order to be effective. These methods are not available to all people who come into Chipata Clinic because there are more people who want to use these methods than the clinic is able to serve. This gift is for you, the woman, and it is your choice to share this with your husband or to keep it for yourself. If you like, we can keep this card at the clinic for you.

This voucher is especially for you and only you, and it cannot be used by anyone else. In order to ensure that this is only for you, we will write your name and NRC number on the card.

[Administer wife survey part II.]

STEP 8 (Enumerator)

Thank woman for her time, give her chitenge or 10,000 kwacha and say goodbye.

Voucher Talking Points, as Emphasized in Field Worker Training

(These points must be emphasized to women or the couple, depending on the treatment.)

For Couples Women:

1. They are one of the **lucky** couples chosen to receive a **special, limited-time** offer of guaranteed **quick, easy** access to family planning methods like Jadelle and Depo-Provera.
2. The voucher guarantees immediate access to Depo Provera and Jadelle provided these methods are medically appropriate for them. This voucher will also give them access to other family planning methods available at Chipata Clinic.
3. They should ask for our study's dedicated family planning nurse Grace Daka. She is available at Chipata Clinic **Monday through Saturday from 13-17 hours** until the expiration date written on the voucher.
4. This voucher guarantees a wait time of less than an hour.
5. They will be given a free surprise gift if they are one of the first 50 women.
6. They will not be seen without a voucher.
7. The voucher is only for them, not for anyone else. No one else can use this voucher.

For Individual Women:

1. **This voucher guarantees quick, easy, private access to Depo-Provera and Jadelle. The husband does not know about this voucher, and no one will require any husband involvement. It is completely up to the woman whether or not to tell her husband about this voucher.**
2. They are one of the **lucky** women chosen to receive a **special, limited-time** offer of guaranteed **quick, easy** access to family planning methods like Jadelle and Depo-Provera provided these methods are medically appropriate for them.
3. This voucher will also give them access to other family planning methods available at Chipata Clinic.
4. They should ask for our dedicated family planning nurse Grace Daka. She is available at Chipata Clinic **Monday through Saturday from 13-17 hours** until the expiration date written on the voucher.
5. This voucher guarantees a wait time of less than an hour.
6. They will be given a free surprise gift if they visit the clinic if they are one of the first fifty women.
7. They will not be seen without a voucher.
8. The voucher is only for them, not for anyone else. No one else can use this voucher.

APPENDIX D
Final Experimental Sample vs. DHS Summary Statistics

Variable	Final Experimental Sample			DHS 2007 All Women Ages 15 -49 Urban Locations			DHS 2007 All Women Ages 15 -49 All Locations		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Variables Used to Balance Sample									
1 Age	27.61	6.22	746	31.20	0.40	787	30.91	0.13	5,420
2 Highest schooling attained	6.58	2.93	678	7.50	0.36	787	5.95	0.13	5,420
3 Number of living children	2.97	1.80	743	2.96	0.09	787	3.40	0.04	5,420
4 Ideal number of children	3.96	1.57	749	4.28	0.09	771	4.98	0.05	5,068
5 Difference in husband's ideal and wife's ideal number of children (reported by wife)	0.29	1.32	705						
6 Using injectable at baseline	0.24	0.43	749	0.11	0.02	787	0.08	0.01	5,420
7 Using pill at baseline	0.31	0.46	749	0.13	0.02	787	0.10	0.00	5,420
Other Observable Characteristics									
8 Husband's age (reported by wife)	34.48	7.05	666	37.25	0.66	569	37.44	0.19	4,142
9 Husband's age (reported by husband)	34.02	7.70	747						
10 Husband's highest schooling attained (reported by wife)	9.46	2.67	680	12.58	0.85	726	10.39	0.29	4,985
11 Husband's highest schooling attained (reported by husband)	8.76	2.91	749						
12 Husband's ideal number of children (reported by wife)	4.23	1.88	705						
13 Husband's ideal number of children (reported by husband)	4.30	2.02	742						
14 Using any modern contraceptive method at baseline	0.55	0.50	749	0.36	0.02	787	0.31	0.01	5,420
15 Have ever used a modern contraceptive method	0.83	0.37	749	0.81	0.02	787	0.69	0.01	5,420
16 Average wealth quintile (1=poorest)				4.43	0.09	787	3.04	0.07	5,420
17 Average monthly household income (1,000 USD)	0.03	0.07	749						
18 Husband's average monthly income (1,000 USD) (reported by husband)	0.14	0.22	749						
19 Wife knows when she is most fertile	0.12	0.33	685						
20 Wife would like to have a child in following 2 years	0.27	0.44	749	0.15		502	0.13		3751
21 Formally married	0.88	0.32	749						
Intimacy and Violence Measures									
22 Difference in husband's and wife's income	0.30	0.67	743						
23 Difference in husband's and wife's age	6.47	3.95	666	6.12	0.26	569	6.35	0.08	4,142
24 Difference in husband's and wife's education	2.81	2.94	613	5.19	0.70	726	4.59	0.27	4,985
25 Difference in wife's perception of husband's ideal and husband's actual ideal number of children	-0.04	1.89	700						
26 Husband wants more children	0.28	0.45	705	0.16		558	0.23		4,077
27 Husband wants same number of children	0.59	0.49	705	0.48		558	0.36		4,077
28 Husband wants less children	0.13	0.34	705	0.09		558	0.06		4,077
29 Number of days in past 7 days couple had sex	2.07	1.65	742	0.47	0.02	787	0.47	0.01	5,412
30 Number of children husband has with other women	0.57	1.16	731						
31 Frequency at which couple has talked about contraception in last year	1.74	1.05	749						
32 Couple has ever disagreed on number of children	0.13	0.34	749						
33 Couple has ever disagreed on contraception use	0.11	0.31	749						
34 Have used contraceptive method without husband's knowledge	0.14	0.35	747						
35 Husband has ever threatened physical violence	0.54	0.50	749						
36 Husband has ever been physically violent conditional on having threatened violence	0.67	0.47	402						
37 Wife ever pressured to have sex	0.51	0.50	749						
38 Wife ever pressured violently to have sex	0.14	0.35	745						
Financial Decision Making Measures									
39 Husband decides savings	0.62	0.49	746						
40 Husband holds the money	0.17	0.37	740						
41 Husband does budgeting	0.15	0.36	748						
42 Husband decides major purchases	0.65	0.48	748	0.34	0.03	571	0.44	0.01	4,160

Notes:

[1] Final experimental sample includes all households that received a voucher ("Final sample").

[2] See Notes to Table 1a.

[3] Variables 26 through 28 were asked differently across the two surveys. The DHS asked directly "Does your husband want more, fewer, or the same number of kids as you do", whereas in our data these variables were constructed from separate survey questions regarding the wife's ideal number of children and her perception of her husband's ideal number of children. The higher reporting of husbands who want the same number of children in the latter study could also be a result of the ordering of the questions, since the wife was asked what she thinks her husband's ideal number of children is soon after she was asked about her ideal number.

[4] Variable 20, "Wife would like to have a child in 2 years", was also defined differently across the two surveys. In our survey data, a respondent was said to want a child in the next two years if she either answered "within two years" to the question "If it were completely up to you, would you like to have another child within the next two years, after two years or not at all?" or if she answered 0 to 24 months when asked "If it were completely up to you, how long would you like to wait until the birth of another child?", whereas the DHS survey only contains the former question.

APPENDIX E
Summary Statistics for Sub-Sample Who Do Not Want a Child in Next 2 Years

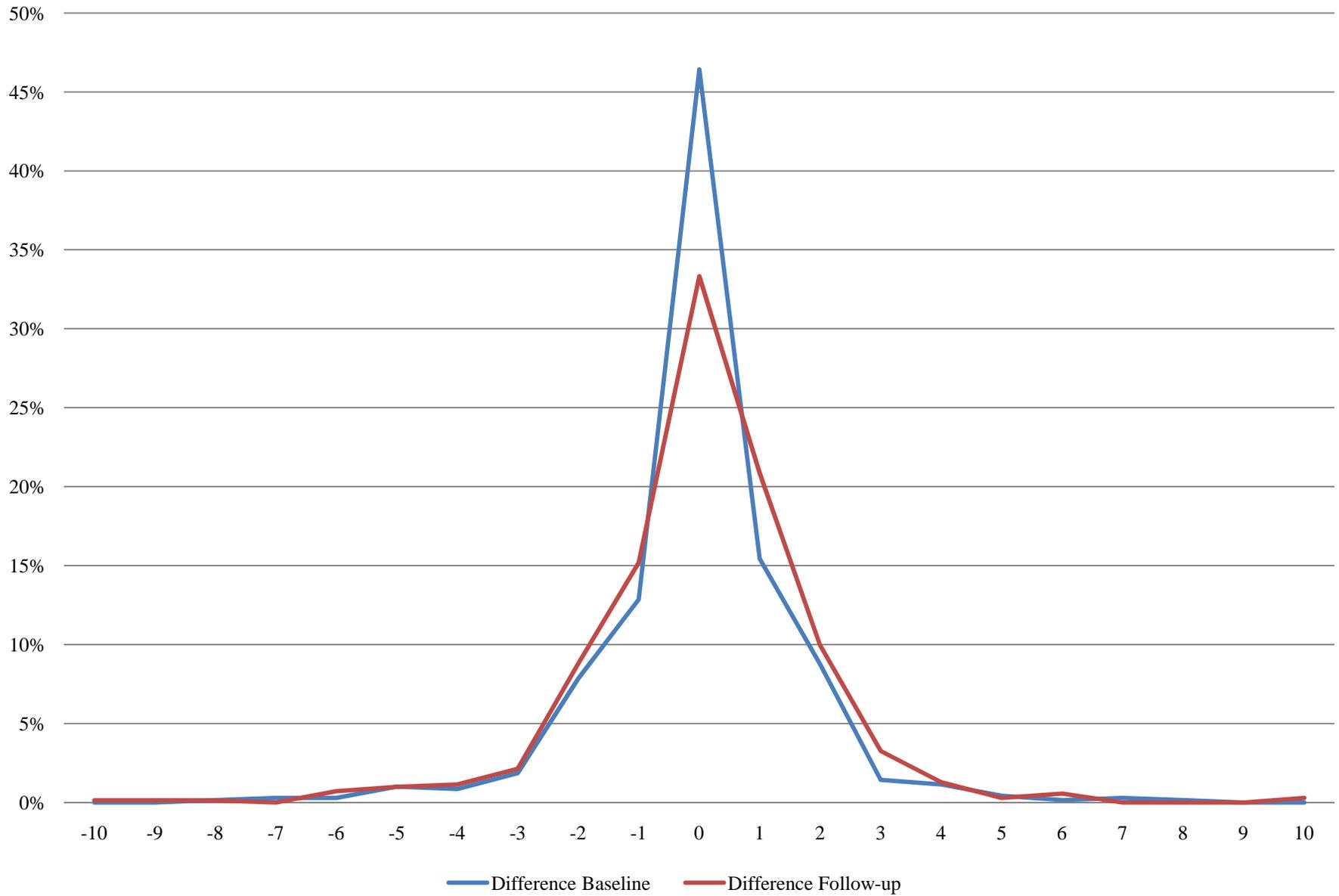
Variable	Couples			Individuals			P-value for Difference of Means Couples and Individuals
	Mean	SD	N	Mean	SD	N	
Variables Used to Balance Sample							
1 Using any modern contraceptive method at baseline	0.88	0.33	265	0.83	0.38	278	0.110
2 Number of living children	3.29	1.97	265	3.20	1.80	278	0.568
3 Using injectable at baseline	0.20	0.40	265	0.21	0.41	278	0.725
4 Using pill at baseline	0.28	0.45	265	0.28	0.45	278	0.976
5 Months since last birth (at recruitment)	14.87	6.47	265	15.46	5.86	278	0.265
6 Highest schooling attained	6.51	2.89	248	6.57	3.12	244	0.820
7 Husband's highest schooling attained (reported by wife)	9.36	2.80	244	9.51	2.70	254	0.540
8 Ideal number of children	4.01	1.66	269	3.82	1.55	279	0.175
9 Difference in husband's ideal and wife's ideal number of children (reported by wife)	0.38	1.42	248	0.26	1.19	268	0.325
Other Observable Characteristics							
10 Age	28.62	6.77	267	28.06	6.13	279	0.315
11 Husband's age (reported by wife)	35.30	7.91	242	34.85	7.02	256	0.499
12 Husband's age (reported by husband)	35.26	8.83	269	34.28	7.47	277	0.162
13 Husband's highest schooling attained (reported by husband)	8.70	2.77	269	8.86	2.94	279	0.508
14 Husband's ideal number of children (reported by wife)	4.35	2.06	248	4.10	1.75	268	0.127
15 Husband's ideal number of children (reported by husband)	4.54	2.23	266	4.19	1.97	278	0.058
16 Number of children in the household	3.17	1.57	269	3.14	1.52	279	0.812
17 Have ever used a modern contraceptive method	0.83	0.38	269	0.86	0.35	279	0.375
18 Wife's average monthly income (1,000 USD)	0.03	0.06	269	0.03	0.09	279	0.974
19 Husband's average monthly income (1,000 USD) (reported by husband)	0.15	0.28	269	0.13	0.14	279	0.321
20 Wife earned money in previous month	0.46	0.50	267	0.43	0.50	277	0.368
21 Husband works 40+ hours	0.55	0.50	253	0.57	0.50	267	0.528
22 Wife knows when she is most fertile	0.10	0.30	245	0.14	0.35	256	0.110
23 Formally married	0.89	0.31	269	0.89	0.32	279	0.798
24 Age wife married	19.13	4.22	266	19.39	4.32	276	0.485
25 Catholic	0.24	0.43	269	0.23	0.42	279	0.738
26 Comparison of happiness with other women in region (1=very unhappy, 5=very happy)	3.60	0.87	269	3.57	0.94	279	0.676
27 Comparison of health with other women in region (1=very poor, 5=excellent)	3.71	0.78	268	3.62	0.74	279	0.174
28 Number of years respondent lived in Lusaka	18.36	11.00	267	18.76	10.83	279	0.670
29 Couple has electricity	0.35	0.48	269	0.39	0.49	279	0.318
Intimacy and Violence Measures							
30 Difference in wife's perception of husband's ideal and actual husband's ideal number of children	-0.09	1.88	246	-0.11	1.81	267	0.908
31 Wife wants more children	0.46	0.50	269	0.51	0.50	279	0.228
32 Number of days in past 7 days couple has sex	1.91	1.57	267	1.90	1.64	274	0.907
33 Number of days in past month couple has sex	7.65	5.35	267	7.43	5.37	276	0.626
34 Number of children husband has with other women	0.65	1.35	266	0.52	1.04	271	0.200
35 Frequency at which couple has talked about contraception in last year	1.74	1.06	269	1.81	1.05	279	0.437
36 Couple has ever disagreed on number of children	0.12	0.32	269	0.14	0.35	279	0.327
37 Couple has ever disagreed on contraception use	0.11	0.32	269	0.09	0.29	279	0.480
38 Have used contraceptive method without husband's knowledge	0.12	0.33	268	0.16	0.37	279	0.165
39 Wife would hide money from husband if given 5000 kwacha	0.22	0.41	269	0.29	0.46	278	0.042
40 Husband would hide money from wife if given 5000 kwacha	0.30	0.46	235	0.35	0.48	230	0.212
41 Husband drinks at least 2 to 3 times a week	0.41	0.49	269	0.43	0.50	279	0.743
42 Husband has ever threatened physical violence	0.55	0.50	269	0.53	0.50	279	0.527
43 Husband has ever been physically violent conditional on having threatened violence	0.66	0.48	146	0.65	0.48	147	0.840
44 Wife ever pressured to have sex	0.52	0.50	269	0.52	0.50	279	0.851
45 Wife ever pressured violently to have sex	0.14	0.35	268	0.11	0.32	277	0.357
Financial Decision Making Measures							
46 Husband decides savings	0.59	0.49	266	0.59	0.49	279	0.975
47 Husband holds the money	0.17	0.38	267	0.15	0.36	274	0.550
48 Husband does budgeting	0.15	0.36	268	0.15	0.35	279	0.940
49 Husband decides major purchases	0.62	0.49	269	0.62	0.49	278	0.969
						Chi2	45.30
						Probability < Chi2	0.624

Notes:

[1] Sample includes only households that received a voucher ("Final sample").

[2] See Notes to Table 1a

APPENDIX F
Histograms of Difference in Wife's Perception and Husband's Actual Ideal Number of Children



APPENDIX G
Effect of Private Information Treatment on Use of Injectable Contraception

Variable	Tried an Injectable for the First Time since Baseline Survey		Tried an Injectable for the First Time after Baseline Survey [Wife Does Not Want Child Next 2 Years]		Tried an Injectable for the First Time since Baseline Survey [Wife Does Not Want Child Next 2 Years]		Tried an Injectable for the First Time since Baseline Survey		Tried an Injectable for the First Time since Baseline Survey [Wife Does Not Want Child Next 2 Years]	
	<i>Sample = Final sample</i>				<i>Sample = Recruited sample (Intent-to-treat)</i>					
	<i>Universe = Individuals and Couples Treatment Arms</i>						<i>Universe = Couples Treatment and Control Arms</i>			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Assigned to Individual Treatment	0.008 (0.024)	0.013 (0.025)	-0.004 (0.028)	0.015 (0.029)	-0.005 (0.022)	0.014 (0.023)				
Assigned to Couples Treatment							0.094*** (0.016)	0.090*** (0.015)	0.093*** (0.013)	0.092*** (0.013)
Age		-0.002 (0.004)		0.000 (0.005)		-0.002 (0.004)			-0.001 (0.001)	-0.001 (0.002)
Husband's age		-0.002 (0.003)		-0.003 (0.003)		-0.001 (0.003)			0.001 (0.001)	0.001 (0.001)
Highest schooling completed		0.001 (0.005)		-0.001 (0.006)		-0.002 (0.005)			-0.001 (0.002)	-0.001 (0.002)
Husband's highest schooling		0.013*** (0.005)		0.011** (0.005)		0.002 (0.005)			0.000 (0.003)	-0.003 (0.003)
Number of living children		-0.124 (0.095)		-0.030 (0.107)		0.002 (0.081)			-0.040 (0.040)	-0.015 (0.046)
total number of children		0.011 (0.015)		-0.001 (0.017)		-0.002 (0.008)			-0.002 (0.002)	-0.003 (0.002)
Ideal number of children		0.000 (0.011)		0.019 (0.013)		0.004 (0.027)			-0.002 (0.003)	-0.003 (0.004)
Husband's ideal number of children		-0.004 (0.008)		-0.007 (0.009)		0.014 (0.028)			0.003 (0.004)	0.006 (0.005)
Using an injectable at tracking		-0.100*** (0.035)		-0.105*** (0.040)		-0.089*** (0.032)			-0.021 (0.013)	-0.026* (0.016)
Using a pill at tracking		-0.007 (0.032)		-0.029 (0.037)		-0.012 (0.029)			-0.008 (0.013)	-0.012 (0.014)
Using any modern method at tracking		0.051 (0.040)		0.074 (0.046)		0.071** (0.035)			0.023* (0.012)	0.027* (0.014)
Average monthly income		0.048 (0.175)		0.049 (0.193)		-0.002 (0.015)			-0.003* (0.002)	-0.003* (0.002)
Husband's monthly income		-0.139** (0.056)		-0.154** (0.064)						
Husband larger ideal family size than wife		0.000 (0.010)		0.008 (0.012)		-0.005 (0.029)			-0.005 (0.005)	-0.008 (0.006)
Wife understands when she is most fertile		-0.039 (0.041)		-0.107** (0.047)		-0.072** (0.035)			-0.013 (0.011)	-0.026** (0.011)
Wife wants to have child in following 2 years		0.023 (0.030)								
Wife age 40 or older		-0.036 (0.072)		-0.032 (0.077)		0.002 (0.064)			0.005 (0.030)	-0.003 (0.030)
Months since last birth		-0.000 (0.002)		-0.000 (0.002)		-0.000 (0.002)			-0.001 (0.001)	-0.001 (0.001)
Constant	0.113*** (0.017)	0.225 (0.185)	0.113*** (0.020)	0.152 (0.356)	0.099*** (0.016)	0.018 (0.333)	-0.000*** (0.000)	0.613** (0.289)	-0.000*** (0.000)	0.060 (0.057)
Observations	706	706	513	513	705	705	946	946	1270	1270

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] See Notes to Table 6

APPENDIX H
Effect of Private Information Treatment on Follow-Up Measures

Variable	Disagreed on Number of Children with Husband in Follow- up Conditional on Having Disagreed on Number of Children at Baseline [1]	Disagreed on Contraception with Husband in Follow-up Conditional on Having Disagreed on Number of Children at Baseline [2]	Disagreed on Number of Children with Husband in Follow-up Conditional on Having Agreed on Number of Children at Baseline [3]	Disagreed on Contraception with Husband in Follow-up Conditional on Having Agreed on Number of Children at Baseline [4]	Change in Difference of Wife's Perception and Husband's Actual Ideal Number of Children from Baseline to Follow- up Conditional on Wife not Knowing Husband's Actual Ideal Number at Baseline [5]	Discuss Family Planning at Follow-up Conditional on Never Discussing Family Planning at Baseline [6]	Discuss Family Planning at Follow-up Conditional on Discussing Family Planning at Baseline [7]
Assigned to Individual Treatment	0.058 (0.090)	-0.009 (0.058)	0.021 (0.036)	0.018 (0.022)	-0.295 (0.238)	0.016 (0.054)	-0.027 (0.027)
Constant	0.222*** (0.065)	0.089** (0.042)	0.253*** (0.025)	0.075*** (0.016)	0.056 (0.168)	0.867*** (0.038)	0.903*** (0.019)
Observations	95	95	611	611	353	152	550

* significant at 10%; ** significant at 5%; *** significant at 1%.

Notes:

[1] Sample includes all households that received a voucher ("Final sample") and participated in the follow-up survey.

[2] The question asked in the baseline and follow-up surveys for regressions 1 and 3 is "Have you ever disagreed [with your partner] on number of children?"

[3] The question asked in the baseline and follow-up surveys for regressions 2 and 4 is "Have you ever disagreed [with your partner] on contraception?"

[3] The question asked in the baseline and follow-up surveys for regressions 6 and 7 is "How often have you and your partner talked about how many children to have or when to have them in the last year?" If they responded with "at least once", they were counted as having discussed family planning.