How do Women Learn they Are Pregnant? The Introduction of Clinics and Pregnancy Uncertainty in Nepal

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Abstract

The earlier a woman learns about her pregnancy state, the sooner she is able to make decisions that can affect her own and infant's health. This paper examines how women learn about their pregnancy status and measures how access to pregnancy tests affect pregnancy knowledge. Using ten-years of individual-level monthly panel data in Nepal, we find that on average, women learn they are pregnant in their 5.4th month of pregnancy. Living closer to a clinic offering pregnancy tests increases the time they know they are pregnant by 1.5 weeks (a 7 percent increase), and increases the likelihood of knowing in the first trimester by 7 percentage points (an 18 percent increase). Our results are concentrated among women with prior pregnancies, who would be able to recognize the signs and symptoms of pregnancy in earlier months.

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1. Introduction

Gestation is a critical period and a large body of literature has linked the in-utero environment with long-term outcomes (Almond and Currie, 2011). A woman can take many measures to increase the likelihood of a healthy pregnancy and improve infant outcomes but can only do so once she has knowledge of her pregnancy. For some decisions (ie., about termination) and some behaviors (ie., taking multi-vitamins, stopping smoking), the timing of the learning matters – earlier action could dramatically affect health outcomes for both woman and infant. While a pregnant woman, will, at some point learn her pregnancy status, correctly inferring this information correct is not trivial and depends on the knowledge of symptoms of pregnancy, prior experiences, and access to technology. In this paper, we examine the process through which women learn they are pregnant and how prior experience with pregnancy and access to pregnancy tests affect the timing of learning.

We use data from the Chitwan Valley Family Survey (CVFS) – ten-years of individual-level monthly panel data of married women living in Nepal. Using each recorded live-birth in the data between 1996 and 2005, we compare our estimate of the month of conception with a woman's own monthly report of her pregnancy status. We examine the determinants of earlier pregnancy identification, including prior pregnancies. We then use the openings and closures of health centers in the area over time to evaluate how changes in access to pregnancy test kits affect the average time women spend not being aware of the pregnancy.

We find a strong negative relationship between distance to clinics with pregnancy tests on earlier knowledge of pregancy status. Living closer to a clinic offering pregnancy tests increases the time they know they are pregnant by 1.5 weeks (a 7 percent increase), and increases the likelihood of knowing in the first trimester by 7 percentage points (an 18 percent increase).

In addition, we find differences across women with and without prior pregnancy experience. For women who had prior pregnancies, the impact of distance is significantly larger in the first months of pregnancy, suggesting experience with symptoms of pregnancy is important to actually utilize clinics with pregnancy tests in earlier months. Among women without prior pregnancy experience, the largest effects are in the second trimester of pregnancy, suggesting that access to pregnancy tests is a binding constraint only after women's beliefs, or symptoms, about being pregnant are strong enough.

2. Conceptual Framework

The Value of Earlier Knowledge of Pregnancy Status

While eventually – sometime between conception and delivery – a woman will learn of her pregnancy status, there are a number of reasons to believe that earlier identification of a positive (or negative) result is valuable.

The medical literature has studied a series of interventions that improve infant and maternal outcomes (Campbell and Graham, 2006).[2] The World Health Organization recommends women receive eight ANC visits prior to delivery, with the first visit within the first trimester. These visits provide an opportunity to screen women for risky factors, put in place treatments to avoid complications during birth, and detect diseases that may affect the baby and educate mothers about the care during and post-delivery.[3] Rigorous evidence of the effects of starting

[2] Carroli et al. (2001) present a survey of the literature of benefits of ANC such as providing iron and folate supplements to prevent anemia or the need for blood transfusion (Campbell and Graham 2006).

[3] Vaccination against tetanus is a common procedure in this setting. It may avoid the contraction of infections by both mother and the child during birth, which could lead to death. One example is rising blood pressure, which may proceed to eclampsia and is one of the main causes of maternal death. Another known intervention is the supplementation of folic acid to avoid neural tube defects, which is recommended before conception and during the first trimester (Czeizel and Dudás, 1992).

ANC early is limited, however, studies suggest that early detection of pregnancy helps when risky symptoms can be identified and intervened upon early.

Using US data from the Pregnancy Risk Assessment and Monitoring System, Ayoola et al. (2009) finds that premature births positively correlated with later recognition of pregnancy – on average 27 percent of their sample recognize pregnancy prior to 6 weeks after their last menstrual period. Using the same data, Ayoola et al. (2010) find a relationship between pregnancy recognition and ANC initiation, but no effect of ANC on birth outcomes when controlled for time of detection. Using cross-sectional data among military women in Israel, (Hochman et al., 2012) find that access to urine pregnancy tests was associated with a reduction of 7.4 days in the gestational age at diagnosis compared to the time of detection at gynecology secondary care clinics. Although our context is different, it emphasizes that having easier access to tests is related to women detecting the pregnancy earlier.

Knowing about pregnancy may induce mothers to adopt healthier behaviors. The effects of drinking and smoking during pregnancy are well documented in the medical literature. (Bradford, 2003) uses retrospective information about how many cigarettes a woman smoked before knowing about, during, and after her pregnancy and finds evidence that women reduce smoking during pregnancy, varying by characteristics of the pregnancy, her level of education, the intensity of the habit prior to the pregnancy, and the number of kids the woman already had.

Another effect of learning on the woman's health regards the decision of getting an abortion. If the woman decides not to keep the pregnancy, seeking for care early is crucial. In this situation, the timing of discovery of the pregnancy is important for a woman's health.[4]

[4] Abortion is largely performed under unsafe conditions around the world, being responsible for an estimate of 13 percent of maternal death according to the WHO. (Drey et al., 2006) present evidences of the risks associated with abortion in the second trimester, which are costlier for women considering the financial aspects, the emotional burden, and the medical complications. (Lawson et al., 1994) studied abortions in the United States from 1972 to 1987, and

The early discovery of pregnancy give women more time to prepare for the birth, such as saving money, obtaining items required for the delivery itself, and creating a birthplan. (Moran et al., 2006) define birth-preparedness as a series of procedures, such as the knowledge about danger signs during gestation, planning for where to give birth, planning for a birth attendant, planning for transportation, and planning for saving money. All these factors are especially important in a developing-country context in which households have less savings and are more credit constrained.[5]

Pregnancy and Learning

Most of the literature in Economics, Public Health, and Medicine, discuss how the woman and the fetus are affected by factors once the woman knows she is pregnant. The literature that dialogs more with this paper, however, investigates the process that affects women's learning of their pregnancy state. This literature is still scarce.

The process of pregnancy discovery is not straightforward. Symptoms that lead to the suspicion of pregnancy, such as missing periods, may not be accurate - especially in developing countries, malnutrition may hide such signs. In addition, woman's lack of knowledge and education about reproduction may lead her to misread the signs. In a qualitative study, Peacock et al. (2001) show that women from different cultural backgrounds interpret possible signs of

concluded that abortions performed after or at 16 weeks of gestation are associated with a risk of death of almost 15 times greater than abortion performed within the first 12 weeks. One of the reasons is that, early in the gestational period, abortion can be performed with medication, while later the procedure is subject to more complications, such as infection and anesthesia complications. (Bartlett et al., 2004), also using data for the United States, from 1988 the 1997, find similar results that emphasize the importance of getting an abortion early on in pregnancy. They estimate that 87 percent of deaths of women after 8 weeks of gestation could have been avoided if abortion was accessed within the first 8 weeks.

[5] Women interviewed in (Moran et al., 2006) reported being worried about saving money after learning about their pregnancy. The study also found positive correlations between savings and giving birth with assistance of a skilled-provider using the DHS in Burkina Faso.

pregnancy differently, such as mood changes, and that most of the times the first missed menstrual period is not enough to persuade women about their pregnancy.

Access to clinics has also been explored in a larger literature, that looks at the distance as a constraint to the access to health services and to the improvement of health outcomes. (Yao Lu et al., 2016) explore the closure of women's health clinics in the U.S. and find that an increase in the distance to the nearest clinic decreases preventive care utilization. (Rossin-Slater, 2013) explores the closure and openings of Women, Infants and Children clinic in Texas. Women who lived close to a WIC clinic during their pregnancy present a higher take-up of the Supplemental Nutrition Program for Women, Infants and Children program, and an increase on the average birth weight. (Bailey, 2012) explores county-level variation of US family planning programs on fertility rates, and find its existence decreases fertility, at the short and long terms. The author emphasizes that the result is driven by the poorest part of the population, who would not have access to contraception out of the program.

2.2 Background: Pregnancy Care in Nepal

In 1996, Nepal had one of the highest maternal mortality ratio (MMR) in the world (631 per 100,000 live births).[6] In 2006, the MMR had been reduced to 425 per 100,000 live births (WHO and the United Nations Population Division, 2015). Although it is hard to pin down the cause of this downward trend in the MMR, government programs that affected family planning and maternal health may be among important factors.

In 1997, the government of Nepal launched the National Safer Motherhood Program, focused on improving the quality of obstetric care and access to it. The focus on increasing skilled

[6] For comparison, in the same period the MMR in the US was 12 per 100,000 live births.

birth attendance included enabling nurses and others to perform emergency care, and some community- based emergency transportation. Another important government program, although out of the period covered in this study, was the Safe Delivery Incentive Programme. Introduced in 2005, it focused on the demand side of maternity care, and provided payments for women giving birth in health facilities. The main goal was to pay for transportation costs, which enlightens the relevance of distance to a health facility for a safe delivery in Nepal. The SDIP later gave origin to the Aama Surakchhya Programme, implemented in 2009, which abolished fees to deliver at public facilities, but kept cash incentives for women to access ANC, delivery in a facility and postnatal care (Ministry of Health and Population Nepal et al., 2014). However, the impact of these programs is mixed, and access to them may also depend on the actual supply of public facilities and on the woman's knowledge of the program (Powell-Jackson and Hanson, 2012).[7]

Another significant policy was the legalization of abortion in 2002 for procedures performed within the first twelve weeks of pregnancy (Thapa, 2004).[8] The roll-out of this law has been slow, and government abortion services began only in 2004. In the 2011 DHS, almost a decade after the legalization of the procedure, less than 38 percent of women believed abortion was legal in Nepal.

3. Research Design

[7] Incentives for delivery, for example, equal approximately NRs. 500 - or US$ 5 for women living in Terai districts, as the Chitwan Valley. This seems to be an important incentive, if reached the target: Nepal had a gross domestic product (GDP) per capita of US$ 1276 in 2012, using purchasing power parity (PPP) of 2005.

[8] In this case, the woman request is enough - permission of the husband or guardian is not required if the woman is above 16 years old. Abortion is also legal within the first 18 weeks in cases of rape and incest, and at any time if the mother's or fetus' health are endangered.

Data

The data used in this study comes from the Chitwan Valley Family Study (CVFS), conducted in the western valley of Chitwan District, located in the south-central part of the Nepal (Axinn et al., 2007). The original sample were selected to be part of the study in 1996 and included 1,582 households (4,646 individuals) in 151 neighborhoods, split into three strata.[9] All residents of the sampled neighborhoods between the ages of 15 and 59, and their spouses, were interviewed in 1996 and 2008.

We use data from 1996 to 2005. [10] During this time, enumerators visited each household to record any major changes in the household's structure, such as pregnancies, births, marriages, divorces and living arrangements. These data also contain a record of the neighborhood where each member of the household was living.

In addition to collecting general household information each month, the study team also collected individual data from each woman of reproductive age (18-49) about her use of family planning (if any), pregnancy status, and any pregnancy-related events such as miscarriages, abortions, still-births, or live-births. These data were collected directly from each woman in the household, if she was available for the interview. Table 1, Panel A present the total sample of women. On average, 3356 women were interviewed each year.

At the beginning of the study, household visits were made each month. Table 1, Panel A report the average number of times a woman was interviewed each year. Between 1996 and 199, women were interviewed directly approximately ten times per year. Starting in 2000, and on through 2005, survey budget constraints and civil conflict resulted in fewer household visits –

[9] The three strata correspond to three regions in the CVFS with similar characteristics.
[10] The timing of the survey is identified by the Bikram Samvat calendar, which is the official Hindu calendar era of Nepal. In the Bikram Samvat calendar, the sample goes from 2053 to 2062. It is approximately 56.7 years ahead of the Gregorian calendar.

ranging from about seven visits per year in 2000, to only one visit in 2003. In months in which a household was not visited, information such as marriages, deaths, and living arrangements were imputed retrospectively.

In addition to household and individual-level information, we have neighborhood-level information detailing all health service providers in the 151 neighborhoods from 1996 to 2004. Specifically, the data contain the geographical location of each provider, its year of opening and closure, and information on infrastructure, personnel and services. We utilize the information in these health service provider data on availability of family planning and availability of pregnancy test kits. Geographical locations are only available for proviers within in the 151 neighborhoods. For respondents living outside of these areas, we do not know the distance to health providers in their vicinity.

Table 1 Panel B presents the number, and characteristics of, health providers offering family planning services or pregnancy tests from 1996 to 2005. Out of a total of 94 health clinics in the area in 1996, 82 provided modern family planning and 24 offered pregnancy tests. In 1997, this number grew to a total of 103 providers in 2061. The distance to the closest provider declines significantly over time, from 1.13 miles, on average, in 2053, to 0.48, in 2004.

Sample

Our sample includes monthly data from 1996 to 2005, amongst married women who ever have a live birth during our study period (we discuss identification of pregnancy below).[11] We restrict our sample to women who were living in CVFS area at some point during pregnancy. We

[11] For 2005, we use information only of women who were already pregnant in 2004. As the distance to a clinic data is available only until 2004, we then extrapolate for these women the distance in the year they were not pregnant. Results do not change significantly when we exclude these women from the sample.

also restrict the months of analysis to months in which the woman was interviewed. This avoids measurement errors caused by imputation or restrospective reports.

In addition to these restrictions, over the ten years of study the sample of women interviewed - who can potentially have a live birth - also changes. Table 1 in the Appendix shows that, in 1996, we start with 2,667 women with an obsersed pregnancy state. Of these, 53 percent are still observed in the last year of analysis – 2005 – when we observe a total of 2,781 women. This means that in the ten years of analysis, there are several women entering and leaving the sample of women with observed pregnancy state. The reasons for this are enlisted in the next section.

Pregnancy and Pregnancy Status

To determine a woman's true pregnancy status we use the monthly data that asked each woman about her pregnancy state. We observe following possible states in the data: not pregnant, pregnant, uncertain, had a live birth, had a stillbirth, had a miscarriage, had an abortion.

Table 2 Panel A shows the observed pregnancy states over time, by women. Across all years, we observe, on average, the reported pregnancy state of 82 percent of women, although this varies from almost 88 percent in 1996 to 79 percent in 2005. Over a year, on average 97 percent of women report not being pregnant at least once, while 9 percent report being pregnant at least once. A live birth is also reported, on average, by 9 percent of women. The next most common state is uncertain, which is reported at least once by 4 percent of women. The remaining states of having a miscarriage, a stillbirth or an abortion is reported by less than 1 percent. Similar statistics are found in Panel B, but considering the distribution of pregnancy states over the months women were interviewed.[12]

For any month in which a woman experiences a live-birth, we code each of the prior nine months (including the one when the birth was reported) as that the woman is pregnant.[13] We compare these months – months in which we code as a true pregnancy – with the woman's reported pregnancy state in the corresponding month if she was interviewed. Note that we do not have reported pregnancy status data for each month of a woman's true pregnancy because either 1) the woman was away, 2) the woman was not interviewed; 3) the woman had undergone sterilization; or 4) the woman was not living in the study area.

Empirical Strategy

We have two main estimation approaches to understand the effects the access to pregnancy tests on knowledge of pregnancy status. Our first approach is to estimate the following using observations at the woman level, where each observation is a pregnancy:

$$Learned_{ihp} = \alpha_2 + \beta_2\ Distance_{hm} + X'_{ihp}\theta + \eta_{ihp} + \gamma_{sy} + u_{ihp} \quad (1)$$

$Learned_{ihp}$ is a variable capturing when the woman learned about her pregnancy. We use two different measures, either the month when the woman learned she was pregnant, ranging from 1 to 9, or a binary variable indicating if she knew she was pregnant in her first trimester. This second outcome restricts the sample to women who were interviewed during tha trimester.

[12] The percentage of time a pregnancy state is reported in relation to a live birth is lower than what would be otherwise expected (8/9 of the time) for two reasons: 1) interviews do not happen in every month of gestation, and 2) a live birth is always registered at the time it was reported, independently of coinciding with a month of interview.

[13] The delivery date is calculated as 280 days after the beginning of the last menstrual period, what corresponds to 280 days or 9.2 months. However, this is not the gestational age at birth of all women. Women's characteristics, such as age, smoking habits and body mass index may influence the length of pregnancy. (Jukic et al., 2013), using US data and the precise day of ovulation, find that the length of gestation varies considerably: 37 days of difference in health pregnancies, with a median duration of 268 days (38 weeks and 2 days).

$Distance_{hm}$ is a measure of distace from neighborhood h to the nearest health center that offers pregnancy tests during pregnancy p of woman i. If, during a woman's pregnancy, the distance changes because a new clinic opened or because the woman moved, we assume the shortest distance for the entire pregnancy. Distance is an indicator variable of above the median distance, where the median is calculated as the median distance over the whole period in our sample by woman-month.[14] X'_{ihm} are age fixed effects. ρ_{ihm} are month-of-pregnancy fixed effects (from one to nine), which account for which month of gestation was woman *i* in month *m* she was interviewed. η_{ihp} are fixed effects for the number of interviews during pregnacy. γs are strata-by-year fixed effects.

Strata-by-year fixed effects are included to account for possible changes specific to each area over time that coud be correlated with pregnancy uncertainty or the access to clinics. This includes trends in the infrastructure of a strata - such as the impoved roads and opening of new schools - and in demographic aspects of a strata - such as changes in the typical families size and age of first birth.

We also estimate equation (1) at the woman-month level:

$$KnewPregnancy_{ihm} = \alpha_1 + \beta_1\ Distance_{hm} + X'_{ihm}\theta + \rho_{ihm} + \eta_{ihp} + \gamma_{sy} + u_{ihm} \qquad (2)$$

where $KnewPregnancy_{ihm}$, as in Equation 1, is a variable capturing when the woman learned about her pregnancy. We also use two different measures: the first is a binary variable indicating whether woman *i* living in neighborhood *h* knew she was pregnant in month *m*. In other words, this variable equals zero if in month *m*, woman *i* reports not being pregnant, when her true status is pregnant. The second measure is a binary variable of knowing about pregnancy in the first

[14] The median distance from a neighborhood to a pregnancy-testing clinic is 0.88 miles. This variable has a mean of 1.16 miles and the smallest distance is 0.01 miles, while the largest is 4.81 miles.

trimester; here we also restrict our sample to women interviewed during that trimester. $Distance_{hm}$ is a measure of distace as defined above, but in this case allowed to vary monthly. The remaining variables are constructed as described for equation X; age and time of marriage refer to these values at the beginning of pregnancy.

The standard errors of all estimations are clustered at the neighborhood level, since this is the source of variation in the distance to the nearest health center.

4. Results – Earlier Pregnancy Knowledge

Earlier Pregnancy Knowledge – by Woman-Pregnancy

Tables 3 presents the estimates from equation 1, showing the effects of distance to a clinic with pregnancy tests on the month a woman learned she was pregnant. As described above, we present the results using an indicator variable of distance above the median, and with distance as logarithmic. On average, going from below to above the median distance to a clinic with a pregnancy test increases the month that she learns her status by about 0.34, or, about one and a half week. This is a 6 percent delay in learning ones pregnancy status off of a base of 5.4 months.

While the estimate in this first column of the average effect of distance is moderately large and statistically significant, the magnitude of the coefficients masks important heterogeneity across pregnancy term (ie. first, second, or third trimester) and prior experience with pregnancy.

We examine this further in the remaining columns of Table 3. We see the effect of distance to pregnancy tests on knowledge about pregnancy is coming mainly from women who have previous experiences with pregnancy. Moving above the median of distance to clinics with pregnancy tests increases by 0.5 months the time women learn about their pregnant state, or by two weeks. The effect is positive but not significant for women in their first birth.

We find even larger effects when we measure the effect of distance on knowing in the first trimester. Living in a neighborhood above the median distance to a pregnancy-testing clinic decreases by 7.8 percentage points the likelihood that women know they are pregnant early on. Considering the average of 42.8 percent women who know this early of their pregnant status, this represents a decrease of 18 percent in that average.

In column 5, restricting the sample to women who have experience with previous pregnancies, the effect is the largest: a 11.8 decrease in the probability of knowing in the first trimester if the woman lives above the median distance to a pregnancy-testing clinic.

Earlier Pregnancy Knowledge – by Woman-Month

Table 4 presents the estimates from equation 2, which shows the effects of distance to a clinic with a pregnancy test on the probability of knowledge of being pregnant in a given month. In column 1, we see that going from below to above the median distance to access pregnancy tests decreases the likelihood of knowing one's true status by 4.9 percentage points, or 6.9 percent.

We find similar heterogeneities across pregnancy terms and prior experience with pregnancy, as reported at the pregnancy level. Columns 2 and 5 show that the effect of distance is negative on knowledge for women with previous experience with pregnancies. The effect is stronger in the first trimester, where living at a neighborhood above the median of distance to a pregnancy-testing clinic decreases by 9.6 percentage points the probability that a woman knows she is pregnant in the first trimester, if the woman has previous experience with pregnancy. Off of a base of probability of being aware of pregnacy of 24.7 percent in this population, this means an increase of 38.8 percent.

To illustrate the differential effects of distance on pregnancy knowledge, figures 1 and 2 graph the coefficient of the indicator variable of above-the-median distance to a clinic with a pregnancy test. Each coefficient of woman's knowledge was estimated in a separate model conditioning on the month of pregnancy the interview was conducted. The regressions follow our main especification in equation 2. We graph these separately by women with and without prior pregnancies.

First, Figure 1, among women who have had a prior pregnancy, shows that the effect of distance on knowing one's pregnancy status is largest in the first month of pregnancy (-0.048 se 0.03), declining almost monotonically with each additional month of pregnancy. In other words, the distance constraint binds the most for these women in earlier months of pregnancy.

In contrast, Figure 2 presents the same estimates among women without prior pregnancy experience. These women would have had less experience with knowing the signs and symptoms of pregnancy in early months, and would be less likely to act upon beliefs to go to a clinic with a pregnancy test. Thus, the effects of distance in the first trimester are statistically insignificant (with wide confidence intervals), and the distance constraint does not bind until the second and third trimesters.

5. Conclusion

This study estimates the effects of access to pregnancy tests on pregnancy uncertainty. Using unique monthly data of pregnant women over ten years in Nepal, we find that women who live in the most distant places are the most affected by the lack of access to pregnancy-testing clinics. By decreasing the distance to a health center from less to more than 0.9 miles (median), women dencrease the month they become aware of their status by 1.5 weeks, and the likelihood of knowing in the first trimester by 7 percentage points.

These effects are different by experience with previous pregnancies and trimester of pregnancy, with distance constraints binding for most women with previous experience in earlier months of pregnancy.

These effects provide important evidences about the process of pregnancy knowledge in Nepal. Access to pregnancy-testing clinics is a relevant constraint in providing women with information about their pregnancy state; when women have access to this technology, they learn earlier and reduce their uncertainty. However, our results suggest that the constraint on access becomes binding only when symptoms or beliefs are stronger enough to motivate women to test for pregnancy.

This study covered a period in Nepal of high maternal mortality ratio, which is still an important issue in many other countries. Although Nepal has a specific context of the conditions under which women usually become pregnant, it presents common constraints with developing countries. The results of this study present evidence that access to clinics that provide pregnancy tests is a relevant constraint in pregnancy awareness. Since pregnancy testing is a relatively costless technology, improving its availability has the potential to affect pregnancy knowledge, and in the end to improve the women and the fetus' conditions during gestation..

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Figure 1

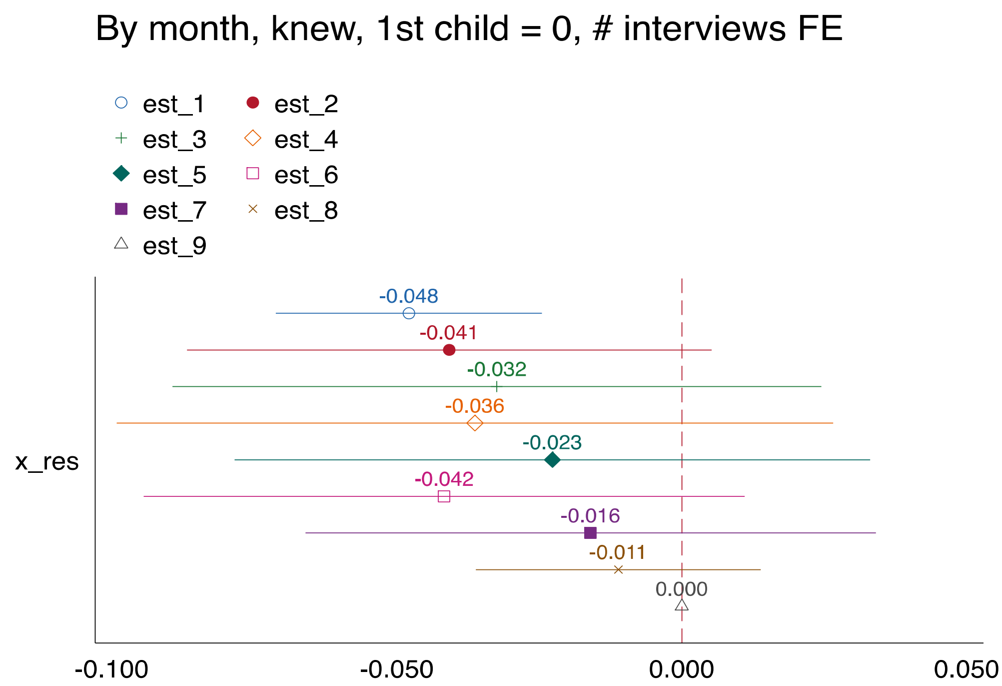

Figure 2

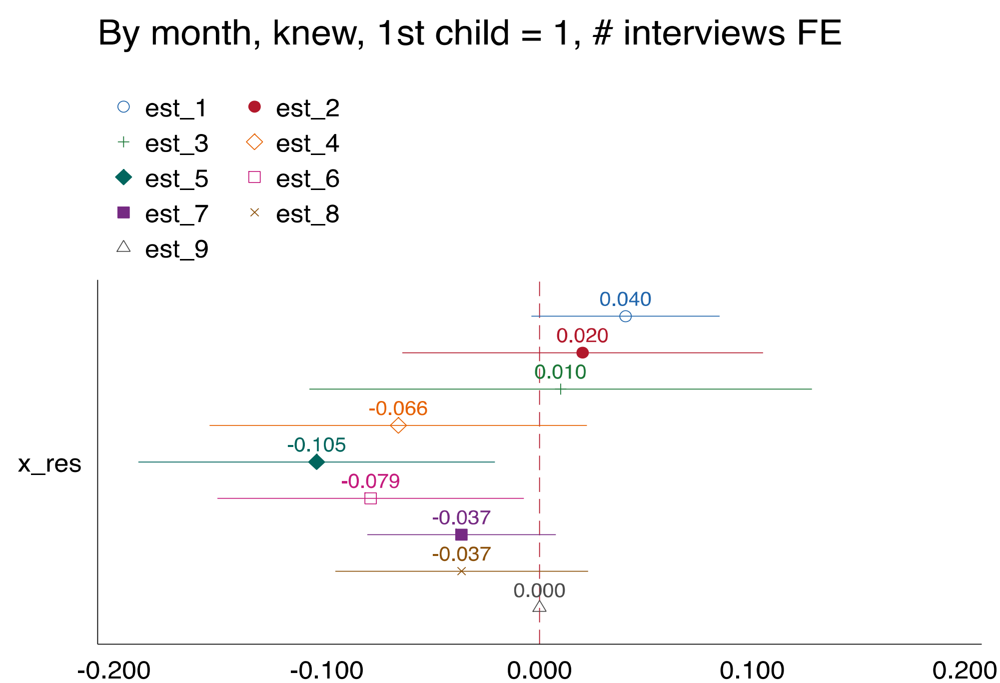

Table 1: Sample of Women and Neighborhoods by Year

	Year									
Panel A: by Woman	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Sample	3033	3296	3278	3364	3402	3558	3590	3024	3486	3535
Number times interviewed per year (avg)	9.84	9.97	10.40	9.59	7.17	3.14	3.67	1.15	2.46	2.63
Percent with observed pregnancy state	0.879	0.912	0.834	0.828	0.829	0.803	0.833	0.752	0.763	0.787
Panel B: by Neighborhood										
Total clinics	94	96	106	108	113	128	133	142	168	
Total clinics with contraceptives	82	84	93	95	102	117	119	129	154	
Percent	0.872	0.875	0.877	0.880	0.903	0.914	0.895	0.908	0.917	
Distance (Miles)	0.599	0.625	0.623	0.624	0.585	0.532	0.505	0.490	0.440	
Total clinics with pregnancy tests	24	27	34	34	43	59	66	78	103	
Percent	0.255	0.281	0.321	0.315	0.381	0.461	0.496	0.549	0.613	
Distance (Miles)	1.128	1.093	1.006	1.016	0.865	0.739	0.711	0.583	0.478	

Notes: The sample of women includes births in 2005 but whose gestation started in 2004. The neighborhood data go only until 2004.

Table 2: Pregnancy States Over Time

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Panel A: Women										
Total women	3033	3296	3278	3364	3402	3558	3590	3024	3486	3535
Percent with observed pregnancy state	0.879	0.912	0.834	0.828	0.829	0.803	0.833	0.752	0.763	0.787
Total women with live birth	220	323	345	268	286	288	252	191	192	182
Percent living in CVFS during pregnancy	0.909	0.771	0.710	0.724	0.832	0.872	0.889	0.906	0.906	$0.538^{\pm}$
Percent of women with the following birth event:										
Not pregnant	0.988	0.984	0.978	0.967	0.960	0.956	0.958	0.942	0.959	0.998
Pregnant	0.122	0.137	0.145	0.123	0.106	0.089	0.072	0.010	0.062	0.050
Live birth	0.082	0.107	0.126	0.096	0.101	0.100	0.084	0.084	0.072	0.068
Miscarriage	0.005	0.002	0.005	0.002	0.001	0.002	0.001	0.000	0.001	0.000
Stillbirth	0.002	0.002	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Abortion	0.001	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000
Uncertain	0.064	0.088	0.078	0.065	0.050	0.022	0.027	0.010	0.009	0.018
Panel B: Woman-Month										
Not pregnant	0.926	0.912	0.911	0.927	0.940	0.928	0.946	0.908	0.940	0.947
Pregnant	0.047	0.050	0.053	0.042	0.028	0.030	0.021	0.009	0.026	0.019
Live birth	0.008	0.011	0.012	0.010	0.014	0.032	0.023	0.074	0.029	0.025
Miscarriage	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Stillbirth	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Abortion	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uncertain	0.018	0.026	0.022	0.021	0.017	0.009	0.010	0.008	0.004	0.009

Notes: In panel A, women may report more than one state per year, therefore the total is more than one. ± The percentage of women with live births living in CVFS during pregnancy is smaller in 2005 because in this year we consider only live births of women who were already pregnant in 2004. We impose this restriction because our data of distance to clinics go until 2004.

Table 3: Impact of Distance to Clinic with Pregnancy Test on Pregnancy Knowledge (Woman-Pregnancy Level)

	Month learned about pregnancy			Knew in first trimester		
	All women	Had prior pregnancies	No prior pregnancies	All women	Had prior pregnancies	No prior pregnancies
	(1)	(2)	(3)	(4)	(5)	(6)
Median distance to clinic with pregnancy tests	0.364***	0.522***	0.223	-0.078**	-0.118***	0.028
	(0.110)	(0.168)	(0.291)	-0.03	-0.039	-0.086
Log distance to clinic with contraception	-0.030	-0.099	0.001	-0.001	0.02	-0.093**
	(0.047)	(0.102)	(0.138)	-0.014	-0.022	-0.045
Constant	5.858***	9.171***	7.862***	1.392***	1.046***	0.968***
	(0.299)	(0.660)	(0.366)	-0.074	-0.267	-0.183
Observations	2,046	781	427	1336	586	285
Adjusted R-squared	0.411	0.401	0.424	0.123	0.128	0.132
Mean of month learned	5.458	5.343	5.733	0.426	0.381	0.379

Notes: This table reports results from six separate regressions. All columns include strata-year fixed effects, number-of-interviews-during-pregnacy fixed effects, and age fixed effects. Standard errors are clustered at the neighborhood level. We have information of prior pregnancies for 1208 womam-pregnancy, which affects the sample size in columns 2 and 3. Columns 4-6 are conditional on the woman being interviewed in the first trimester.

Table 4: Impact of Distance to Clinic with Pregnancy Test on Pregnancy Knowledge (Woman-Month Level)

	Knew about pregnancy			Knew in first trimester		
	All women	Had prior pregnancies	No prior pregnancies	All women	Had prior pregnancies	No prior pregnancies
	(1)	(2)	(3)	(4)	(5)	(6)
Median distance to clinic with pregnancy tests	-0.049***	-0.079***	-0.013	-0.061***	-0.096***	0.019
	(0.014)	(0.021)	(0.035)	(0.021)	-0.031	-0.058
Log distance to clinic with contraception	0.013*	0.015	0.001	-0.005	0.013	-0.051*
	(0.007)	(0.014)	(0.019)	(0.010)	-0.02	-0.029
Constant	0.234***	0.136	0.368***	0.524***	0.519***	0.799***
	(0.028)	(0.088)	(0.076)	(0.050)	-0.144	-0.132
Observations	9,822	4,436	1,994	2,955	1386	599
Adjusted R-squared	0.486	0.502	0.510	0.205	0.197	0.235
Mean of knew about pregnancy	0.709	0.677	0.701	0.283	0.247	0.264

Notes: This table reports results from six separate regressions. All columns include strata-year fixed effects, number-of-interviews-during-pregnacy fixed effects, and age fixed effects. Standard errors are clustered at the neighborhood level. We have information of prior pregnancies for 6430 woman-months, which affects the sample size in columns 2 and 3. Columns 4-6 are conditional on the woman being interviewed in the first trimester.