Is Direct Access to OB/GYNs Effective at Improving Maternal Health Behaviors?

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Abstract

This study examines the effects of state legislation mandating direct access to obstetricians and gynecologists (OB/GYNs) on maternal health behaviors and infant health outcomes. These mandates can take the form of direct access to OB/GYNs without a referral or by allowing an OB/GYN to serve as a patient's primary care provider. To date, 42 states have implemented direct access legislation to OB/GYNs. Moreover, direct access to OB/GYNs will now be mandated by federal health care reform. Although these changes are motivated by the belief that access improves health outcomes, there is little evidence to support this claim. Direct access legislation could lead to improved infant health outcomes, possibly through earlier initiation of prenatal care. Using plausibly exogenous variation in state policy over time, we use individual-level birth certificate data from two data sources to consider the effects of direct access legislation on prenatal care utilization, maternal health behaviors during pregnancy, and infant health outcomes. Our results suggest that there is little evidence that direct access laws are effective at improving prenatal care access or conferring benefits to mothers and infants. These results are consistent across two data sets, a variety of specifications, and specific subgroups of women who are most likely to be affected by direct access legislation.

Keywords
direct access, mandates, maternal & infant health, state policy, health outcomes, pregnancy, managed care

I. Introduction

The growth in managed care has affected many aspects of women's health care. Managed care attempts to contain costs by limiting access to specialists and designating a primary care physician (PCP) or gatekeeper. Because women's health care services are typically shared between the PCP and the obstetrician/gynecologist (OB/GYNs), health care for women may have been particularly affected by the changes resulting from managed care. According to the 1996-97 Community Tracking Survey, primary care physicians responded that they serve as gatekeepers to specialists for approximately 36 percent of their patients. In response to this concern, states have moved to require health insurance plans to permit *direct access to OB/GYNs* (hereafter "*direct access"* laws).[1] These mandates can take the form of direct access without a referral or by allowing an OB/GYN to serve as the patient's primary care provider. As many women's health issues are time sensitive, direct access laws permit this doctor-patient relationship directly without the need for referrals from the PCP. Currently, 42 states mandate direct access to OB/GYNs.[2]

Moreover, direct access to OB/GYNs will be mandated at a national level with the passage of federal health care reform. The Patient Protection and Affordable Care Act (HR 3590) expressly states:

> "(A) DIRECT ACCESS.—A group health plan, or health insurance issuer offering group or individual health insurance coverage, described in paragraph (2) may not require authorization or referral by the plan, issuer, or any person (including a primary care provider described in paragraph, (2)(B)) in the case of a female participant, beneficiary,

[1] At the federal level, the Newborns' and Mothers' Health Protection Act (NMHPA) of 1996 requires all health insurance plans to cover at least 48 hours for a vaginal delivery and 96 hours for a C-section with no complications. State level mandates also exist in areas such as mandated maternity benefits, the inclusion of mammograms, drug and alcohol abuse treatments, infertility treatments, and many others. States have also required coverage of certain providers such as nurse midwives, chiropractors, podiatrists, physical therapists, and massage therapists.

[2] Baker & Chan (2007); Council on Affordable Health Insurance (2007).

> or enrollee who seeks coverage for obstetrical or gynecological care provided by a participating health care professional who specializes in obstetrics or gynecology."[3]

Additionally, the American College of Obstetricians and Gynecologists (ACOG), a proponent of women's health reforms, argues that direct access to OB/GYNs can "greatly improve women's health" [ACOG, 2010].[4] Given the federal and state attention to direct access legislation combined with the suggested motivations for improved health outcomes, an understanding of the potential benefits of these insurance mandates is warranted.

Proponents argue that direct access legislation can improve access to care and outcomes, possibly through earlier initiation of prenatal care through an OB/GYN. Policies promoting prenatal care can identify a range of prenatal problems, prevent delayed treatment for complications or delayed prenatal care utilization, or promote healthy behavior. The earlier expectant mothers initiate prenatal care, the earlier that positive health behaviors can be initiated (or reinforced) including vitamin use,[5] reduction or elimination of smoking, alcohol, or drugs. Many of these risk factors can contribute to increased risk of prematurity and other negative health outcomes. Additionally, direct access legislation may encourage preconception appointments, which has the ability to address maternal behavior or identify risk factors before a pregnancy occurs (Atrash et al, 2006; Kost et al, 1998) These considerations may improve maternal health as well as birth outcomes, in addition to possibly reducing negative health behaviors during pregnancy (e.g., tobacco or alcohol use).

On the other hand, insurance mandates like direct access to OB/GYNs may have a limited effect on pregnancy-related care and outcomes. It is possible that the number of women

[3] Patient Protection and Affordable Health Care Act, HR 3590, Sec. 2719A, Patient Protections, signed into law on March 23, 2010.
[4] The idea that OB/GYNs provide higher quality care to their female patients is supported by Henderson et al (2002).
[5] In fact, use of folic acid and other healthy behaviors should be initiated preconception.

who are impacted by direct access legislation is quite small. For example, firms that choose to self-insure are protected from state-level mandates by the federal Employee's Retirement Income Security Act (ERISA). Because of the ERISA exemption, state mandates mainly affect individuals with private insurance plans (HMOs and PPOs), but not self-funded plans. Additionally, approximately 40 percent of US births are funded through Medicaid,[6] which are also not subject to insurance mandates. Even within the population of women potentially effected (women with private insurance -- HMOs or PPOs), direct access to OB/GYNs for pregnancy-related care may not have been restricted. In other words, women in these groups may have always had high access to specialized care during pregnancy. Our investigation, therefore, targets the potential effects on women who were most likely affected by state legislation for direct access.

Critics of state health insurance mandates typically cite the *costs* of providing mandated benefits (Udom & Betley, 1998; Gabel & Jensen, 1989; Jensen & Gabel, 1992). The Council on Affordable Health Insurance (CAHI) reported that mandated health benefits are associated with increased health care costs of between 20 and 50 percent. Additionally, prior literature has devoted considerable attention to the labor market effects of mandates on wages and employment (Gruber, 1994; Baum, 2003; Waldfogel, 1999; Cutler & Madrian, 1998). Although direct access laws are motivated by the belief that access improves health outcomes, there is surprisingly little research on the potential health *benefits* of mandates (and those that relate to women's health, pregnancy, maternity, and family planning) in particular.

[6] Births Financed by Medicaid as a Percent of Total Births, 2003, Kaiser State Health Facts.

Generally, the literature has considered an array of mandated health benefits including mammography mandates, infertility mandates, and mental health mandates. Infertility mandates are associated small negative effects on birthweight, gestation, and Apgar score (Bitler, 2008) and an increase in first birth rates for women over 35 (Schmidt, 2007). Additionally, nurse midwifery mandates are associated with a decrease in neonatal deaths and an increase in midwife-attended births (Miller, 2006), Other studies have considered the effects of parental leave laws on births and health outcomes finding that more generous parental leave policies are associated with reductions in infant deaths (Ruhm, 2000), increased births (Averett & Whittington, 2001), and fewer post-partum depressive symptoms (Chatterji & Markowitz, 2005).

In other work, mammography mandates were demonstrated to increase the mammography screenings (Bitler and Carpenter, 2010). Direct access mandates, however, have been found to be unrelated to breast and cervical cancer screenings (Baker & Chan, 2007). In contrast, women who use both generalists and OB/GYN specialists are more likely to receive a higher level of recommended preventative services (Henderson et al, 2002). Whether this leads to improved health outcomes, however, is an open question.

The objectives of this research are to develop a clearer understanding of the relationship between direct access laws and the potential benefits for pregnancy-related care and outcomes.[7] In light of both state and federal laws targeting this issue, it is important for policymakers to understand the potential health benefits direct access can provide. To estimate the potential effects of direct access laws, we consider the effects of the legislation on maternal health

[7] Direct access to OB/GYNs may serve other women's health purposes, but we restrict our attention to prenatal care and pregnancy-related outcomes.

behaviors during pregnancy, including prenatal care utilization, maternal alcohol use, and tobacco use. Using the introduction of the laws over time, we employ a difference-in-difference analysis using two data sets, the Natality Detail File and the Pregnancy Risk Assessment and Monitoring Survey. Our results suggest that there is little evidence that direct access laws are effective at changing prenatal care initiation or maternal health behaviors during pregnancy. Given this null effect in the so-called "first stage," we then test the effect of direct access legislation on infant health outcomes, confirming again no identifiable relationship. This finding is consistent across two data sets, a variety of specifications, and subgroups of women who are most likely to be affected by direct access laws. These results coincide with previous findings (Baker & Chan, 2007) which suggest that direct access laws have little, if any, effect on health behaviors.

II. Methodology and Data

Empirical Methodology

Direct access mandates may directly affect preconception and prenatal care, and may also in turn affect maternal and infant health. This methodology exploits changes within states over time on mandated direct access policy using a difference-in-difference framework. We ask whether maternal health behaviors during pregnancy improve in states that adopt direct access legislation relative to those states who have not yet adopted direct access. It is reasonable to assume that direct access legislation is an exogenous policy with respect to maternal health behavior and infant health outcomes. Most direct access legislation was passed between 1995 and 1999, indicating a general trend in health policy change. It is unlikely that mandate policy is enacted as a response to poor maternal health behaviors or poor infant health outcomes, but

rather as part of a political process and agenda or as a reaction to changes in managed care, and therefore is treated as exogenous.

Using ordinary least squares regression (OLS), the proposed model will estimate the effects of direct access legislation on maternal health behaviors during pregnancy:

$$\boldsymbol{Y_{ist} = \beta_0 + \beta_1 X_{ist} + \delta POLICY_{st} + \theta_s + \tau_t + \varepsilon_{ist}} \quad (1)$$

where i indexes the individual mother, s indexes the state where the birth occurred during year t; Y_{ist} is the maternal health behavior measure of interest; X_{ist} represents a vector of control characteristics, including mother's age, education, race, and marital status; and $POLICY_{st}$ indicates the presence of state-level direct access legislation in state s at time t. This equation also includes state fixed effects (θ_s), which control for any time-invariant unobserved state characteristics, and year fixed effects (τ_t). Standard errors are adjusted for clustering at the state-level. We also use this model to consider the relationship between direct access and birth outcomes as Y_{ist}.

Data

We use two data sets to estimate Equation (1). In what follows, we describe the two data sets, and the respective strengths each data set offers to answer our research questions.

Birth Certificate Data

First, we employ the birth certificate data from the Natality Detail File. These data are publicly available at the individual level, report information for the mother, infant(s), and birth, and are used for the years 1992 to 2002.[8] These data comprise almost all births in the United

[8] Before 1992, not all states collected the data we require. Data after 2002 exist, but the birth certification data collection process was updated and was not used in all states making comparisons across states problematic. This

States and are nationally representative. The primary *maternal health behavior* measures we employ include early initiation of prenatal care (beginning in first trimester)[9] as well as measures of any tobacco and alcohol use during pregnancy.[10,11]

If mandate policy impacts maternal health behaviors during pregnancy, then we may also realize some changes in *infant health outcomes* such as prematurity or low birthweight. A premature (preterm) infant is defined as one who is born at less than 37 weeks. Low birthweight is defined as a baby born weighing less than 2,500 grams.

We include a number of maternal characteristics available from the vital statistics data, including maternal age, education, race (African American), and marital status (married) as covariates in this analysis. We also use these demographic characteristics (married and high education) as subgroup tests in what follows. These subgroups characteristics are likely to be positively correlated with private health insurance coverage. This is important because Medicaid women and women who are covered by firms that self-insure are not affected by direct access legislation. Women with private health insurance, therefore, are the group most likely to be affected by direct access. Because the Natality data do not contain information on health insurance status, nor does it distinguish between Medicaid and non-Medicaid births,[12] in some

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provides us with 11 years of birth observations. The use of only these years is not a concern since the first mandate was passed in 1995 and the last in 2001.

[9] We focus on initiation of prenatal care rather than frequency because direct access should only affect health care utilization from the initiation of prenatal care and not repeatedly throughout a pregnancy.

[10] These measures are self-reported tobacco and alcohol use, which are typically assumed to be underreports of such behavior.

[11] The vital statistics data report average number of cigarettes smoked and number of drinks per week, but these measures are likely subject to some measurement error. The vast majority of pregnant women do not smoke or drink during their pregnancy, so we rely on the changes in these indicators within states.

[12] Medicaid recipients appear to be affected by a 1998 executive order by President Clinton. The order required direct access to at least one gynecological visit per year. Medicaid programs have not been able, however, to fully

models we include the percentage of employees in the state who are employed in firms with over 100 employees as a measure of the percentage of firms that are considered "large" and that may find it economically beneficial to self-fund employee health plans.[13] Additionally, we include a measure of the percent of the population covered by private health insurance.[14]

Pregnancy Risk Assessment and Monitoring Survey

While the Natality data is a national dataset on births in the US and includes all states that enacted mandates in the 1990s, we also utilize a second data set, the Pregnancy Risk Assessment and Monitoring Survey (PRAMS). PRAMS is a subsample of births from state birth certificate files that contains most of the same measures as the birth certificate data (Analytic Data File), but also collects more detailed information about pregnancy risk and behavior (including the insurance status of the mother during pregnancy and at birth) as surveyed in the Core questions asked in each participating state. We base our use of the survey on Phase 2 as the basis for the variables employed in the analysis.[15] Each year, participating states survey approximately 1,300 - 3,400 women who gave birth in that year.[16] PRAMS data contain sample weights that make the data representative to each state's population. Not all states participate in PRAMS each year and therefore we are not able to consider the full coverage of direct access laws as we are in the Natality data. We are, however, able to consider the effect for non-Medicaid mothers who were most likely affected by direct access legislation. For the participating states, we employ PRAMS

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comply with this order without changes in legislation at the federal level (See Direct Access for Women in Managed Care Plans, Guttmacher Report, June 1998).

[13] Census Bureau, US Small Business Administration.

[14] Census Bureau, Historical Health Insurance tables.

[15] We use Phases 2 through 5 of the PRAMS survey. Additional phases of the survey added and changed available measures, therefore, we are limited to the base information contained in Phase 2 and each subsequent survey.

[16] Not all states participate in PRAMS. Most direct access reforms occurred in the mid to late 1990s, so we are limited to the use of AK, AL, FL, ME, NY, OK, SC, WA, WV for the years 1994 – 2002.

data to estimate Equation (1) for all mothers and non-Medicaid mothers using the similar outcome measures and control variables as in the Natality data.[17]

Direct Access to OB/GYNs

State legislation on direct access laws varies by state and time.[18] These data were compiled from secondary sources and identify the effective date of a state law mandating direct access. To date, 42 states have direct access legislation in place. The 1990s saw a flurry of activity with respect to the passing of direct access mandates. The earliest mandates were passed in 1995 (in Connecticut, Louisiana, Maine, Mississippi, North Carolina, and Washington) while the most recent was passed in 2001 in Kansas). In Equation (1), we employ an indicator for whether state *s* has a direct access mandate in year *t*.

Panel Structure

Using the individual mother as the unit of analysis, we employ the two datasets described above in the analysis. The final Natality dataset includes individual-level observations over 11 years (1992 through 2002) for mothers in 50 states plus the District of Columbia.[19] Our final PRAMS dataset includes individual-level observations for 9 states over 9 years (1994 – 2002). Table 1 includes summary statistics for variables utilized in the analysis from both datasets.

III. Results

[17] PRAMS does not include continuous measures of all variables, but rather grouped variables, therefore we use the closest measures as the Natality data.

[18] These data were collected by Baker & Chan (2007) and graciously made available to us by the authors. See Baker & Chan (2007) for the secondary sources used in the data collection.

[19] Unfortunately, not all states report all variables of interest in every year. This accounts for our changing sample size. Indiana and South Dakota, for example, do not report information on maternal drinking or smoking until 1999 or 2000 respectively.

Tables 2-4 contain the results of our estimation. Table 2 reports the results of the effect of direct access mandates on maternal health behaviors during pregnancy using the Natality data. Specifically, we consider early prenatal care initiation as well as maternal tobacco and alcohol use during pregnancy for all women (in columns 1-3) and for specific subgroups of women: highly educated (BA or higher) women (columns 4-6) and married women (columns 7-9). The results suggest that direct access does not statistically significantly affect tobacco or alcohol use during pregnancy for all women or any subgroup of women. Similarly, there is no effect identified for early initiation of prenatal care.[20] While we do not find any statistically significant effects, it is important to note that these coefficients are extremely small. We conclude from these data that direct access to OB/GYNs does not appear to affect maternal health behaviors during pregnancy.

While the Natality data does not report insurance status, PRAMS data allow us to consider the effects of direct access on all women as well as non-Medicaid women. Table 3 reports similar regressions as Table 2 but using PRAMS data. Columns 1-3 report the regression results for all women and columns 4-6 report the results for non-Medicaid women. We again find no statistically significant effects for tobacco use, alcohol use, or prenatal care initiation. Again, the estimated coefficients are very small.

Our "first stage" results show no evidence of an effect of direct access legislation on maternal health behaviors during pregnancy. We should, therefore, not expect any significant findings with respect to infant health outcomes since health effects are hypothesized to result

from changes in prenatal care. As a test of our lack of findings in the first stage, we estimate equation (1) for infant health outcome measures using both the Natality data and the PRAMS data. Table 4 contains the estimates for the effects of direct access on prematurity and low birthweight for both data sets. In column (1), we find a negative and statistically significant coefficient of access on prematurity for all women. This coefficient implies that the likelihood of a premature infant is reduced by one-tenth of one percentage point in the presence of direct access. This result is economically a zero effect. In the remainder of the columns, we find no evidence of an effect of direct access legislation in this "second stage" on infant birth outcomes. Because direct access laws are hypothesized to influence birth outcomes through pregnancy-related care and through maternal health during pregnancy, these results are not surprising given our lack of findings with respect to maternal health behavior.

To test these findings, we conducted a few robustness checks. First, we consider the possibility that direct access legislation should be lagged in its effect on health care access and outcomes. We re-estimated Equation (1) using one year lagged direct access, and the results were not qualitatively different. Additionally, we estimated the original models with the addition of several state-level covariates. Because of the relationship between insurance mandates and ERISA, we experiment with the inclusion of measures of the percentage of the population covered by private health insurance as well and the percentage of employees in "large" firms, i.e. those with more than 100 employees. The results are fundamentally unchanged with the inclusion of these variables.

IV. Discussion

While we do not find any statistically significant relationships between direct access and our health behavior or outcome measures, the coefficients are very small and the confidence intervals around our estimates imply a small, if any, effect. For example, a coefficient of 0.003 would imply a change of less than one percent (three-tenths of 1 percentage point) in an outcome measure resulting from the presence of direct access laws. Even if these coefficients are scaled to account for the likely proportion of women treated, the coefficients remain very small in magnitude.[21]

We argue that this lack of finding is economically meaningful and conclude that direct access does not contribute to improvements in access to prenatal care, health behaviors, or infant health outcomes. We hypothesize that direct access laws may not have a profound effect on pregnancy-related outcomes for several reasons. First, a large proportion of U.S. births are Medicaid births and, as such, are not subject to the any mandated insurance provisions. Second, insurance mandates are only applicable to individuals with private health insurance. Private health insurance women may already have sufficiently direct access to OB/GYNs without the mandate. Based on these two concerns, we employed PRAMS data to investigate the effects of direct access on the outcomes of non-Medicaid women. We find no evidence of a relationship between direct access legislation and outcomes for non-Medicaid women. Finally, if mandates do not substantially improve access, then there may be no (or small) effects on infant health. Because we find no changes in the propensity for women to engage in smoking, drinking, or

[21] We could scale the coefficients by one over the fraction of treated women (i.e., women that are affected by mandates). Butler (2000) estimates that approximately 30 percent of women are affected by mandates based on their insurance status (although this statistic may be too high as a result of women in private fee for service plans or women receiving direct access as part of their health insurance plans without the mandate). This would mean scaling the coefficient by a factor of 3, which for a coefficient of 0.003, is an effect of approximately one percentage point.

prenatal care behavior, the lack of an effect with respect to maternal and infant health outcomes is not unexpected.

While the PRAMS data improved upon the Natality data by allowing us to focus on non-Medicaid women, only a portion of those non-Medicaid women are likely affected by direct access. Although we conducted a number of analyses to identify the treatment effect on the most appropriate treatment group, our analysis is admittedly unable to precisely identify which women were affected by these laws. It is possible that the number of pregnant women actually affected by direct access laws is very small, and identifying those precise women is very difficult. We note, however, that the Natality and PRAMS data are the best data we know of to consider this important policy question.

V. Conclusion and Policy Implications

In this paper, we investigate the effects of state-level legislation mandating direct access to OB/GYNs on pregnancy-related care and outcomes. Prior literature has reported that mandated health benefits are costly and may not always provide intended benefits to the targeted population. Using birth certificate data from 1992-2002 and PRAMS data from 1994-2002, we estimate the relationship between mandated access legislation and maternal health behaviors as well as infant health outcomes. We are unable to identify a relationship between direct access and any of our health behavior or outcomes measures. While our estimates are not statistically significant, the magnitudes of the coefficients imply that any effect would be small. In addition to the results presented, we explore a range of additional specifications which yield similar findings. We conclude that additional attention should be paid to the necessity of such legislation (both at the state and now federal level) if benefits to the intended population are lacking. If

policymakers are interested in reforms that improve maternal and infant health, we recommend a focus on alternative policies.

Table 1: Summary Statistics

	Natality Data	
Variable	Mean	Observations
Maternal Health Behavior During Pregnancy		
Smoking cigarettes during pregnancy (Indicator)	0.137	33,288,247
Drinking alcohol during pregnancy (Indicator)	0.014	33,195,651
Early initiation of prenatal care (Indicator)	0.797	43,697,441
Infant Health Outcomes		
Premature (Indicator)	0.113	43,697,441
Low birthweight (Indicator)	0.075	43,697,441
Maternal Characteristics		
Mother's Age	26.973	43,697,441
Mother's Education (years)	12.716	43,049,366
Mother's race (black)	0.156	43,697,441
Mother's marital status (married)	0.675	43,697,441
	PRAMS Data	
Variable	Weighted Sample Mean	Observations
Maternal Health Behavior During Pregnancy		
Smoking cigarettes during pregnancy (Indicator)	0.148	131,430
Drinking alcohol during pregnancy (Indicator)	0.056	131,524
Early initiation of prenatal care (Indicator)	0.795	134,598
Infant Health Outcomes		
Premature (Indicator)	0.087	134,598
Low birthweight (Indicator)	0.121	134,598
Maternal Characteristics		
Mother's Age <= 20	0.125	134,544
Mother's Age >= 30	0.358	134,545
Mother's Education <=12 years	0.537	130,674
Mother's Education >=16 years	0.231	130,674
Mother's Race (black)	0.172	133,260
Mother's Marital status (married)	0.326	134,410

NOTE: The Natality data are the population of births in the US each year. Not all states report all measures in all years, for example, CA, IN, NY, and SD do not report data on maternal smoking or drinking.
The PRAMS data are a sample of births in specific states each year, weighted to be representative of the true state population.

Table 2: Maternal Health Behaviors During Pregnancy (Natality Data)

Specification	1	2	3	4	5	6	7	8	9
		All Women			High Education			Married	
	Smoke	Drink	Prenatal	Smoke	Drink	Prenatal	Smoke	Drink	Prenatal
Direct Access	0.0011	0.001	-0.0006	0.0022	0.0013	-0.0033	0.0017	0.0013	-0.0022
	(0.0021)	(0.0009)	(0.0032)	(0.0016)	(0.0018)	(0.0026)	(0.0017)	(0.0011)	(0.0032)
Outcome Mean	0.137	0.014	0.797	0.030	0.013	0.902	0.097	0.011	0.860
No. of Observations	32,846,232	32,760,371	43,049,366	7,565,550	7,547,290	9,714,572	22,394,676	22,338,495	29,141,903
State & Year FE	X	X	X	X	X	X	X	X	X

Note: These regressions contain the following variables as additional controls: mother's age, education, race, marital status, state fixed effects, and year fixed effects. Standard errors are clustered at the state-level.

* Significant at the 0.05 level

Table 3: Maternal Health Behaviors During Pregnancy (PRAMS Data)

Specification	1	2	3	4	5	6
	All Women			Non-Medicaid Women		
	Smoke	Drink	Prenatal	Smoke	Drink	Prenatal
Direct Access	-0.0081	0.0016	0.0004	-0.0038	0.0084	0.0007
	(0.0066)	(0.0045)	(0.0069)	(0.0072)	(0.0063)	(0.0074)
Outcome Mean	0.1477	0.0560	0.7946	0.1029	0.0683	0.8648
No. of Observations	126,878	126,984	129,937	70,011	69,804	71,196
State & Year FE	X	X	X	X	X	X

Note: These regressions contain the following variables as additional controls: mother's age, education, race, marital status, state fixed effects, and year fixed effects. Standard errors are clustered at the state-level.

* Significant at the 0.05 level

Table 4: Infant Health Outcomes (Natality & PRAMS)

Specification	1	2	3	4	6	7	8	9	10	11
	Natality Data						PRAMS Data			
	All Women		High Education		Married		All Women		Non-Medicaid Women	
	Premature	Low Birthweight	Premature	Low Birthweight	Premature	Low Birthweight	Premature	Low Birthweight	Premature	Low Birthweight
Direct Access	-0.0015*	0.0001	-0.0009	0.000	-0.0009	0.0002	0.0041	-0.0024	0.0023	0.0000
	(0.0007)	(0.0003)	(0.0006)	(0.0003)	(0.0006)	(0.0003)	(0.0039)	(0.0044)	(0.0051)	(0.0055)
Outcome Mean	0.113	0.075	0.095	0.062	0.098	0.062	0.087	0.121	0.076	0.101
No. of Observations	43,049,366	43,049,366	9,714,572	9,714,572	29,141,903	29,141,903	129,937	129,937	71,196	71,196
State & Year FE	X	X	X	X	X	X	X	X	X	X

Note: These regressions contain the following variables as additional controls: mother's age, education, race, marital status, state fixed effects, and year fixed effects. Standard errors are clustered at the state-level.

* Significant at the 0.05 level

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