The Impact of Federally Qualified Health Centers on Youth Outcomes

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September 2, 2020

Abstract

Health events that occur in youth such as adolescent pregnancy often have a large impact on adult outcomes. Using the large and staggered expansion of Federally Qualified Health Centers (FQHCs) in the last two decades, this paper studies the impact of these community-based providers on teen pregnancy rates and on female educational attainment. Openings are associated with a 5 percent drop in the teen birth rates. Declines are larger among unmarried teens, Black teens and in counties with more than one FQHC opening. The declines in fertility translate into gains in female educational attainment. I find an 8% decline in the share of first-time mothers who have not completed high school and a 4% increase in the share that attended any amount of college. These findings highlight that despite the complex factors behind high teen pregnancy rates, there are gains to contraception provision. Moreover, although adolescents are almost universally insured, supply-side interventions such as FQHC openings do impact health care use - indicating that insurance alone does not guarantee access.

*Email address: monicafarid@g.harvard.edu. I am indebted to my advisers, Tim Layton, Tom McGuire and Bapu Jena for extensive comments and support in writing this paper. I also thank Samantha Burn, Daniel Prinz, Yunan Ji, Alyssa Bilinski, Augustin Bergeron and members of the health economics seminar for helpful comments. This work was funded by the Agency for Healthcare Research and Quality T32 trainee program.

1 Introduction

About 80% of teen pregnancies are unwanted (1; 2). While U.S. teen pregnancy rates have experienced large declines since the 90s, they remain substantially higher than other industrialized nations'. The U.S. teen pregnancy rate is about 50% greater than the rate in England, more than twice the rate in France and about seven times that of Switzerland (3). Adolescent pregnancy has large social costs. It is associated with lower levels of educational attainment among mothers (4), higher pregnancy complication rates and greater incidence of low birth weight babies (5).[1] Early pregnancy impacts not only the mother's opportunities but that of her children. Children of teen mothers are more likely to enter foster care, are less likely to complete high school and are more likely to be come teen mothers themselves (4).

In this paper, I study the impact of federally qualified health center (FQHC) openings on teen birth rates and educational attainment. Subsidized by federal section 330 grants, FQHCs are located federally designated medically underserved areas (MUAs). They provide primary and preventive care and are also required to provide family planning services (7). Many receive Title X funding which requires that they provide a broad range of contraceptive and screening services and follow special confidentiality protections (8; 9).[2] In the last two decades, there has been a large expansion in FQHC delivery sites from 731 in 2000 to over 12,000 in 2018. Today, they represent the largest provider of publicly funded family planning services in terms of number of delivery sites (10).

I study the effects of FQHC openings using event study and difference-in-difference methods. I define the treatment group as counties that experienced an opening early during my study period and the control group as counties where an FQHC opens later. My identification strategy assumes that the timing of an opening is uncorrelated with factors that could themselves influence teen health and education measures. I find no differential trends in the pre period between the treatment and control group for my outcome measures and both groups trend similarly with respect to other economic and insurance coverage measures, providing evidence in support of this assumption. I also run my analysis using the full set of counties that experienced openings in the treatment group with counties that had no openings as the control group.

FQHC openings have a large impact on youth outcomes. The first FQHC opening in a county is associated with a 5% decrease in teen birth rates 3-4 years post an FQHC opening. Analysis using counties where no FQHCs opened as the control group shows very similar results.

[1] Estimating the causal impacts of teen pregnancy is challenging because of selection however some studies approach this question by comparing the outcomes of women who gave birth as teens to those who miscarried as teens (6).

[2] By law, FQHCs may not perform abortions.

I study heterogeneity of effects by race and marital status. FQHC openings may have larger relative effects among minority and low-income populations who are more likely to have experienced provider shortages and other challenges in access. On the other hand, teen pregnancy is a complex issue and low-income youth may be inelastic to these interventions if other drivers of risky behavior are not addressed (11; 12; 13; 14). I find that the declines in birth rates among Black teens is more than three times as large[3] as that amomg White teens 5 or more years post opening.

To the extent that marital status is a loose proxy for unintended pregnancy one might expect larger effects among unmarried teens. About 85% of teens are unmarried, and declines in teen birth rates are primarily among this group; they experience a 6% decline in birth rates 3-4 years post an FQHC opening. I then investigated whether FQHC services primarily target first time births or have an impact on repeat births as well. In 2013, almost one in five teen births was a repeat birth (15); preventing repeat births is an important goal of a number pregnancy prevention initiatives. I find a slightly larger impact on repeat births (6% decline) compared to first-time births (4% decline). Teens who have already given birth may have greater experience with the health care system or may experience higher costs to pregnancy if already caring for a child.

Teen birth rates decline more in counties where more than one FQHC opens, compared to counties where there was one opening. This may reflect a larger impact on birth outcomes in response to a greater intensity of treatment (more than one opening) or it may reflect the impact of county characteristics that attract FQHCs such as local conditions that enable these FQHCs to be more effective on average irrespective of number. Counties with more than one opening tend to have larger populations but other observable county measures such as median income, poverty level, insurance coverage and minority share are do not appear to be predictive of there being more than one opening.

Together, these results have two implications. First, while teen pregnancy is often a marker of a low economic opportunity (16) where access to contraception is not the primary limiting factor, there are marginal pregnancies which are avoided via better access to contraception. Second, health insurance coverage alone does not achieve optimal levels of contraceptive access among teens - who are almost universally insured by either CHIP or private insurance. Supply-side policies in context of insurance result in substantial increases in contraceptive use and declines in pregnancy.

Overall teen birth rates have declined substantially (about 60%) over the last three decades, primarily due to the increased rates of contraceptive use among teens (17). My event-study estimates imply that FQHC openings can roughly explain about 23% of the average decline

[3] in relative terms. In absolute terms, the decline in Black teen birth rates is 4.3 times as large as the decline for White teens 5 or more years post an FQHC opening.

in teen birth rates between 2007 and 2018 in the counties that experienced an opening.

I then turn to the effects of FQHC openings on educational attainment of women. A third of female high school dropouts cite pregnancy or parenthood as the primary reason for not completing high school (18). I explore the impact of openings on the share of first births to women who did not finish high school, who obtained a high school diploma or GED, who attended any amount of college and who obtained a post graduate education. I find an 8% decline in the proportion of births to women who did not complete high school and a 4% increase in the proportion of women who attended any amount of college, 3-4 years post an FQHC opening, with larger inpacts in counties where teen birth rates declined the most.

This paper contributes to a large body of literature on the impacts of contraceptive access. The bulk of this research is focused on the "contraception revolution" of the 1960s and the introduction of the Pill; this work finds large and persistent reductions in fertility rates. For young unmarried women, legal access to the Pill delayed timing of marriage and of births and had broader positive impacts on both men and women's education levels, career investments and lifetime wage earnings. Importantly, prevented teen pregnancies impact not only the mother, but also the outcomes of her children in the future (19; 20; 21; 22; 23; 24; 25) [4] Populations with greater access to oral contraceptives were more likely to enroll and complete college, and women were more likely to work and to pursue nontraditional professions. About thirty percent of the convergence in the gender wage gap in the 1990s has been attributed to the opportunities afforded by access to oral contraceptives (27).

While the literature focused on the contraceptive revolution finds large fertility and economic effects as a result of better access, recent work has been limited and has more tentative findings. In particular, some studies suggest that there may be a limit to how much contraceptive provision can affect youth outcomes today; some teenage mothers may already be on a 'low economic trajectory' (16) possibly indicating less responsiveness to family planning services and less economic benefits to avoided pregnancy. This recent empirical work includes Lovenheim et al., 2016 (28) which studies the impact of school-based health center (SBHC) openings on teen outcomes, and finds a significant decline in county-level teen fertility rates. Conversely, Buckles and Hungerman, 2016 find that distribution of condoms in schools in the 90s (intended to prevent the transmission of HIV) led to increased sexual activity and was associated with a 10% increase in teen birth rates (29). This may indicate that the impact of contraception provision is heterogenous (30) and may vary by type of contraceptive. Long-acting reversible contraceptives (LARCs) may be particularly effective

[4] A related literature studies the impacts of abortion legalization in the 70s and finds a reduction in adverse outcomes for cohorts born in the post period potentially suggesting that the marginal child not born was more likely to be economically disadvantaged (26).

in reducing teen fertility. Title X clinics providing greater access to LARCs achieved larger decreases in teen child bearing than those that did not (31).

Understanding the potential and limitations of family planning interventions targeting adolescent pregnancy is an important policy concern. First, to what extent should state and federal funds be focused on these interventions relative to investing more broadly in economic policies targeting youth? Second, which interventions are most effective in achieving lower pregnancy rates? Recent work indicates there may be heterogenous effects depending on the type of intervention (28; 29; 31). The rest of this paper is organized as follows: Section 2 introduces the institutional background. Section 3 describes the data. Section 4 presents the empirical strategy. Section 5 shows the main results and sensitivity analyses and Section 6 concludes.

2 Background

2.1 Federally Qualified Health Centers

2.1.1 History and Scope

FQHCs are community-based organizations that receive federal funding under Section 330 of the Public Health Service Act to provide comprehensive primary and preventive care regardless of ability to pay or insurance status. They provide care on a sliding fee scale and are located in federally designated medically underserved area. They are also eligible for enhanced payments under Medicare and Medicaid (32).

Launched under the Economic Opportunity Act of 1964 (33), FQHCs have expanded in number steadily over time in large part due to bipartisan support and early studies showing evidence of their effectiveness. In recent years, expansion in the number of FQHCs has been supported by the large financial federal investments in the 2000s; specifically $2 billion dollars under the American Recovery and Reinvestment Act (ARRA) and the $11 billion Community Health Center fund under the 2010 Affordable Care Act (ACA) (34; 35). FQHCs may have multiple delivery sites; the recent expansion in FQHCs has often been through existing centers opening up new sites in other medically underserved areas (36). California has the most delivery sites followed by New York, Texas, Florida and Illinois.

Today FQHCs serve more than 1 in 12 U.S. residents and almost 1 in 6 Medicaid enrollees in almost 12,000 delivery sites (37). FQHCs' patient populations are disproportionately poor and from minority backgrounds; more than two thirds are under the federal poverty line and more than half are Black or Hispanic. On average, half FQHC patients are covered by Medicaid and almost a quarter are uninsured (38). FQHCs are also an important provider of

care for children and teens; a third of FQHC patients are under eighteen (38). Their largest source of revenue is Medicaid (44% of revenue) followed by federal grants (18%) (34). Many centers also received other source of state and federal funding such as Title X grants (9).

2.1.2 Family Planning Services

Since health centers were established, family planning has been a required service (7). These services encompass contraceptive provision, family planning consultations and often collaboration with other entities such as schools. In 2016 almost one third of low-income women of child bearing age relied on a health center for reproductive health services (9). In terms of number of delivery sites, FQHCs are the largest provider of publicly funded family planning services, representing over half the share of all health settings [5] that offer publicly funded family planning programs (10).

The last decade has seen an increase both in access and the types of family planning services available at FQHCs. A 2018 survey found that two thirds of centers offered access to initial contraceptive visits on a same-day and walk-in bases and a rapidly growing proportion offered LARCs on-site. For instance, the share of FQHCs that offered contraceptive implants on site grew from 36% in 2011 to 63% in 2017, as did the share that provided intrauterine devices or IUDs (from 56% in 2011 to 64% in 2017) (9). FQHCs that received Title X funding were even more likey to offer the full range of contraceptive methods (9). LARC methods have a large potential to impact unintended pregnancy as they are more effective that commonly used contraceptive methods (31).[6]

FQHCs have also made efforts to tailor their services to effectively serve the adolescent population. Two thirds of recently surveyed centers reported that staff members received training in adolescent family planning and most centers reported maintaining special confidentiality restrictions for minors. In addition, more than half collaborate with other entities to engage in family planning outreach to adolescents including school-based education and treatment (39). Clinics which received Title X funding were particularly well equipped for effective adolescent family planning service provision.

The importance of these targeted and non-clinical dimensions of contraceptive provision, such as outreach, education, confidentiality protections and drop-in centers, has been illustrated by the experience of recent state and local initiatives targeting teen pregnancy. An evaluation of these initiatives by the Office of Adolescent Health finds there is potentially an important role for education and outreach in conjunction with contraception provision (40; 41).

[5] including health departments, hospitals and planned parenthood clinics

[6] More than third of unplanned pregnancies are to women using contraception (31).

2.2 Teen Pregnancy Rates in the U.S

Over the past 25 years there has been a large decline in teen births, from 61.8 births per 1000 girls between 15 and 19 years in 1991 to 18.8 in 2017 (42; 43). Nonetheless, the U.S teen pregnancy rate remains much higher than other industrialized nations' and is several times higher than most other countries with comparable GDP per capita (3).

80% of teenage pregnancies are unplanned (1; 2) and in 2013 only 60% ended in a live birth; 15% ended in miscarriage and 25% ended in abortion (44). There are also substantial racial and geographic disparities in teen birth rates (45). According estimates in 2013, 16% of Black and Hispanic women will give birth before their 20th birthday compared to 8% of White women (46). Geographic variation exists both across and within states (45); states with the highest teen pregnancy rates tend to be clustered in the South. Massachusetts has the lowest teen birth rate (0.81% of teens) while Arkansas has the highest (3.3%) (47).

The declines in teen pregnancy in recent years is almost entirely attributed to increased use of contraception (48). Despite this, many teens today still don't use the most effective methods or use them incorrectly or inconsistently. Condoms which are sold over the counter are the most frequently used contraceptives by teens but these have the highest failure rates.[7] In many states, however, teens may have difficulty accessing more effective contraceptives; only half of states explicitly allow minors to consent to contraceptive services (50).[8] Parental consent may play an important role teen's uptake of contraceptives; a fifth of teens report they would have unsafe sex if a parent had to be notified when they received birth control (51).[9] Despite state laws, clinics that are recipients of federal funding from sources like Title X are required to offer confidential family planning services irrespective of age (53). Moreover, services that are paid for by Medicaid are subject to the same confidentiality requirements. These confidentiality requirements highlight the potentially important role of Title X clinics and FQHCs in facilitating access to contraceptives.

Teen pregnancy is among one of the primary cited reasons for high school dropout; nearly a third of female teenage drop outs report pregnancy or parenthood as the key reason (18) and only 53% of teenage mothers complete high school compared to 90% of women who did not give birth as teens (54). Moreover, children of teenage mothers are more likely to have lower educational attainment, drop out of high school, and face unemployment as

[7] Condoms have a 13% failure rate compared to 7% for the pill and less than 1% for LARC methods (49).

[8] Other states only allow certain categories of minors to consent to contraceptive services without parental consent. Examples of these categories include teens who are already mothers, or who are high school graduates, have reached a minimum age, have obtained a referral from a specified professional such as a physician or member of the clergy (50).

[9] In addition, data from the National Survey of Family Growth (NSFG) show that teens who had the opportunity to spend time alone with a health care provider were more likely to receive reproductive health services, however less than half of teens had a private visit with a health care provider in the past year (52).

a young adult (4). Thus reducing teenage pregnancy rates may have potential 'multiplier effects'. The economic impacts of reducing pregnancy may be more pronounced in recent years as the premium on higher levels of educational attainment has risen (55).

3 Data

This paper relies on several sources of data described below.

3.1 FQHC Openings

I use the 2018 provider of services (POS) file from the Centers for Medicare and Medicaid Services (CMS) to identify FQHCs. These are publicly available files which describe health care facilities certified to serve Medicare patients. A provider type category code identifies FQHC sites. The data includes location zip code, a unique Medicare provider number and the date at which FQHC began participating in Medicare or Medicaid. Newly certified FQHCs appear in the POS when they apply for Medicare and Medicaid payment. I define the opening year as the year in which the provider is first approved to provide Medicare and/or Medicaid services (obtained from the participation date in the POS file).

There are two kinds of FQHC openings; an organization may become a newly certified program grantee and open up their first delivery site or an existing FQHC may open new delivery sites. Organizations applying for grantee status for the first time are usually health care providers that would like to convert their practices into an FQHC. However, these are the small minority (about 6%) of new openings between 2007 and 2018. For the most part, new openings are existing FQHCs opening up new delivery sites by repurposing office space or other building space or buying up small practices (such as a small pediatric practice). Because the requirements surrounding service provision, the composition of the board [10] and the populations served are extensive, acquisitions of existing health care practices almost always represent a substantial change in the practice; usually in terms of an expansion of the services provided and the population served (56).[11] An FQHC opening therefore represents an opening of a new health care delivery site where none existed or a substantive conversion of an existing practice to include more services and serve a different population.

I construct a county-level file that includes the year of the first health center opening in

[10] There are several board requirements : a majority of the board members have to patients served by the health center, non-patient members must be representative of the community served and less than half can derive 10% or more of their income from the health care industry, among other requirements.

[11] Information regarding the characteristics of new delivery sites before opening are based on conversation with a consulting company that helps organizations apply for grantee status and existing grantees to open delivery sites.

that county as well as the number of health centers that eventually opened in that county. My results are identified off openings after 2007 since my panel data sources containing information on teen reproductive outcomes begin in 2007. Between 2007 and 2018, 1,503 counties experienced a first opening. Figure 1 shows the locations of FQHCs over time.

I obtain yearly county level information on income, and poverty levels the Small Area Income and Poverty Estimates (SAIPE) data, and information on public and private insurance coverage overall and by FPL levels from Small Area Health Insurance Estimates (SAHIE) data. Finally I obtain counts of women by age and race from the Surveillance Epidemiology and End Results (SEER) population data.[12]

3.2 Teen Birth Rates

I obtain data on teen birth rates from the Centers of Disease Control (CDC) National Vital Statistics System (NVSS) natality micro data (2007 to 2018). These are based on birth certificate data received from states. For each birth, the data contain an extensive set of background characteristics on the mother including the mother's age, race, county or residence, marital status, whether the birth is the mother's first, second, third etc and the mother's level of educational attainment at the time of birth among other variables. The CDC definition of live births does not include miscarriages.

I collapse these into counts of teen births at the county level and obtain counts of teens in each county from the SEER population data. Birth rates are county-year level counts of live births to teens divided by the number of teens in the county year. I calculated the birth rates by race, marital status and by first or repeat births. The denominator for White teen birth rates and Black teen birth rates is the number of female Black or White teens living in the county; for all other measures, the denominator is the county-year counts of all female teens.

3.3 Educational Attainment of Mothers.

The NVSS natality micro data contains information of the mother's educational attainment at the time of birth. I construct education measures by calculating the share of all births to mothers who had not completed high school, who had a high school diploma or equivalent, who had attended any amount of college and who had had a post graduate education.

[12] A more extensive set of county characteristics can be obtained from yearly American Community Survey files however the 1-year files are limited to counties that have populations above the median.

4 Empirical Strategy

I study the effects of health center openings using an event study framework with time and county fixed effects. The event is defined as the year the FQHC opened in the county. If the county experienced multiple FQHC openings during the study period (2007-2018) the event year is the year the first FQHC opened in the county.

Counties where an FQHC opened may be different from those with no FQHCs; in particular, they may less underserved. For this reason, I use counties with 'late openings' as a control group for relatively earlier openings in my study period and my results are therefore identified off the timing rather than the occurrence of an opening. The identifying assumption is that the timing of openings are uncorrelated with factors that could affect the outcomes of study. In particular, if there were no FQHC opening, teen birth outcomes would have trended similarly in counties currently experiencing an opening compared to counties that have an opening in the future.

There are several potential challenges to this assumption. FQHCs may open in locations of greater need first. If these areas experience very different trends in teen birth rates, the teen birth rate trend in locations of later openings may not be a valid counterfactual. In balance tests across early and late opening counties, I find no significant differences in age, sex, income, and educational attainment between the two sets of counties.[13] This aligns with recent empirical work (36) investigating the location characteristics of new FQHC delivery site openings. Contrary perhaps to program goals, the authors find that new delivery sites do not always open in areas of highest poverty, rather urban status or large populations and proximity to other FQHC sites are important predictors of opening.[14] As Medicaid is the main source of FQHC revenue it is likely that a combination of health care need, population density and insurance coverage are important determinants of FQHC openings. High poverty areas may not always experience early openings if other factors are not favorable. From an empirical perspective, my main specifications are fully saturated in event years allowing me to observe pre-trends. Treatment and control groups that trend similarly before the event provide some evidence in support of the appropriateness of the control group.

A related concern is that the timing of health center openings may be endogenous to local initiatives or changes in local economic conditions; for instance health center openings may occur as part of a local push to improve health outcomes or may occur in response to insurance coverage expansions, changing demographics or changing economic conditions. To empirically determine the appropriateness of this empirical strategy, I run placebo analysis

[13] Discussed further in the next section.

[14] A conversation with a consultant for FQHCs seeking to open new delivery sites confirms much of this; FQHCs value dense populations, the ability to share a local administrative infrastructure and benefit from other economies of scale.

using measures of insurance coverage, income, poverty levels and demographic shares as dependent variables in an event study comparing counties that experienced an early opening to those who experience a late opening. As discussed further in Section 5, I find that the treatment and control counties trend similarly both before and after the FQHC opening suggesting that the timing of openings is uncorrelated with area level trends that may themselves affect youth outcomes.

As a secondary control group, I use counties where no FQHC opened. This enables the use of all cohorts of openings in the treatment group (rather than early openings only), potentially allowing for better identification although the control group may be less suitable. All event-study regressions are fully saturated in event-years allowing me to check for the existence of pre-trends.

4.1 Empirical Model

My empirical strategy is a stacked difference-in-difference with time and county fixed effects.[15] For each cohort of openings, I use a control group of counties that opened more than four years later. For instance, for counties whose first FQHC opening was in 2007, I use counties that opened between 2012 and 2018 as the control group and for the 2008 set of openings I use counties with first openings in 2013 through 2018 as the control. Event-study years that are more than four years post opening are dropped.[16] I create this dataset for each cohort and append them. My empirical strategy is outlined below.

$$Y_{it} = \alpha_i + Treated_i + \sum_c C_i + \sum_\tau \beta_\tau [D_t \times Treated_i] + \gamma_i + \delta_t + \epsilon_{it} \quad (1)$$

Y_{it} is the outcome (e.g teen birth rates) for county i in year t. $Treated_i$ is a dummy that equals one if the county is in the treatment group. The C_i are indicators equal to 1 if the county is in cohort c of openings. The γ_i are county fixed effects which control for time-invariant county features such as size, urban or rural status and time invariant aspects of the population and policy environment. The δ_t are state by year fixed effects; these are important for controlling for secular trends in teen birth rates and any changes in relevant state level policies such as Medicaid waivers for family planning coverage and the Medicaid insurance coverage expansion. The D_t are indicators equal to 1 if year t is τ years after or before the first opening at the county level and 0 otherwise. The coefficients of interest are β_τ; this describes how outcomes diverge with relation to the control group and pre and post the FQHC opening. If the treatment and control groups are trending similarly pre-opening

[15] Similar approaches have been used by Deshpande, 2019 (57) and others (58; 59).

[16] since at five years post an opening in the treatment group, there will be some counties in the control group that experience an opening.

we expect β_τ to be close to 0 for all event years pre the opening. I run pooled versions of this analysis with two periods: the short-term (0-2 years post opening) and the longer term (more than 2 years post opening). Standard errors are clustered at the county level.

There are several advantages to this approach compared to a standard event study. First, the treatment effect estimates represent an average across cohort specific treatment effects. Recent literature has highlighted that in a standard event study set up with two-way fixed effects, treatment effects on a given event year may be contaminated by effects from other relative periods if there is treatment effect heterogeneity (58; 60; 61; 62). Among proposed solutions in the literature, Abraham and Sun suggest estimating cohort specific treatment effects then taking a weighted average across cohorts.[17]

Secondly, the panel is balanced post event; for instance, the coefficient on event year 4 is estimated for all cohorts in the treatment group. In other words, all post event years are estimated for all cohorts in the treatment group,

As an alternative control group, I use counties that never experienced an opening during the study period and I estimate the following standard event study equation:

$$Y_{it} = \alpha_i + \sum_{\tau} \beta_\tau [D_t \times Treated_i] + \gamma_i + \delta_t + \epsilon_{it} \tag{2}$$

While this specification suffers from the issues described in Abraham and Sun 2020 (58), the presence of a large never treated control group mitigates against these.

4.2 Sensitivity Analysis

As sensitivity analysis I vary the length of the lookout period from four years to three years; this mechanically changes the cohorts included in the treatment group and the control group thus exploring whether treatment effects are sensitive to which cohorts are included in the treatment group and if they are robust to different control groups. I also run a version of my main specification excluding counties with fewer than 200 teens on average across the study period (14% of counties). Teen birth is a rare event and a robustness check excluding counties with few teens will verify that my results are not driven by noisy estimates of teen birth rates over time.

[17] Abraham and Sun 2020 propose an interaction weighted estimator in which the regression is saturated in event year and cohort indicators then cohort specific treatment effects are averaged across cohorts for a given relative period. This is a different approach to the stacked difference in difference described but of the same flavor.

5 Results

5.1 Summary Statistics

Table 1A shows summary statistics of counties with early openings and those with late openings. Early openings in this table are defined as counties where an FQHC opened before 2012 and late openings are those that opened post 2012. In practice, for each cohort of openings from 2007 onward, the control group is the set of counties that open at least four years later.[18] The last cohort that appears in my treatment group are counties that opened in 2013 for which the cohort of counties that opened in 2018 is the control group.[19] [20] Counties where FQHCs opened early versus late are similar in terms of demographics, income and educational levels; however, they have a slightly lower share of White residents (80.3% vs 83.7%), are less rural (10% vs 14%) and much more dense (663 residents per square mile vs 168). The population density across counties however is right skewed and this difference is much smaller when excluding the top 5% of counties (154 residents per square mile vs 112). In sensitivity analysis, I run my specification controlling for density and higher order polynomials of density.

Table 1B shows summary characteristics of counties that experienced an opening during the study period and those that did not. The two sets of counties are similar with respect to income and educational attainment. The differences are similar to those in Table 1A (comparing early to late openings) but are more pronounced; counties that experienced an opening have a lower share of Whites (81.7% vs 87.5%), are less rural (11% rural counties compared to 29%) and have a higher population density (458 residents per square mile compared to 90.7). When excluding the top 5% of counties this difference lessens to 171 vs 89 residents per county. These differences may well translate into differences in teen birth rate trends across the two sets of counties. In the section below I check for differential trends in the treatment group pre or post opening with regard to various economic and demographic indicators. If the treatment group is trending differently from the control counties with respect to these measures either before or after the FQHC opening, the control group is likely not appropriate.

[18] In sensitivity analysis, I run a version of my specification using a three-year lookout period.

[19] The 2012 cohort and 2013 cohort appear both in the treatment and control group.

[20] Although 1,503 counties experienced an opening 2007 and 2018 only 1,332 are represented in Table 1 as a few counties were not represented in the 2010 5 year ACS files from which county characteristics were obtained.

5.2 Placebo Analysis

Even if there are few cross-sectional differences between early and late openings, the timing of an opening may be correlated with changes in factors that themselves affect youth outcomes. To check for this, I run my main event study specification using both control groups with various economic and coverage measures as the dependent variable (Figures 2 and 3, Appendix Tables 1 and 2). The dependent variables are: the fraction of the county population under 250 percent of the Federal Poverty Line (FPL), the fraction that are uninsured, the fraction that are under 250 FPL and uninsured, the share of residents that are Black, the share that are teenagers and finally the median income in the county.[21] While FQHCs may be expected to impact some of these measures- for instance they may enroll individuals in Medicaid or they may prevent pregnancies which may then affect economic outcomes- these effects are likely to be concentrated in a small subset of the population or materialize in the long-term.

The graphs in Figure 2 have relatively flat pre and post trends, implying that counties with early openings are not trending differently to the control group before the opening of an FQHC with respect to the selected variables and moreover, the timing of openings do not appear to coincide with an observable change in economic conditions. Appendix Table 1 shows the pooled results (that is, pooling all the post years together) of these regressions. Using late openings as the control, there are no statistically significant effects on poverty measures or demographic shares and a very small statistically significant increase in the share of uninsured opening, about a 0.7% increase.

Using no openings as the control group, the treatment group does not appear to be trending differently to the control group (Figure 3), though there appear to be very small differences for a few measures. A pooled version of this analysis (Appendix Table 2) shows post period coefficients across these measures that are either not statistically different from 0 or are significant but represent a change of less than 1% off the base (the mean of the measure across the study period), providing suggestive evidence that the control group is trending similarly enough to the treatment group such that the parallel trends assumption is plausible.

5.3 Impacts on Overall Teen Birth Rates

I start by looking at overall teen birth rates (obtained from the NVSS micro data which is based on birth certificates) and find that a health center opening is associated with clear

[21] Information on insurance coverage is obtained from the Small Area Health Insurance Estimates File (SAHIE); the methodology for data collection changed between 2007 and 2008 and hence only data post 2008 is included.

declines in teen birth rates. The left panel in Figure 4 plots the event-study interaction coefficients using late openings as the control group. Since the control group experiences openings four or more years after the treatment group, event years that are after four years post the treatment group's FQHC opening are dropped. The right panel plots the coefficients from using counties that had no openings as the control group. Teen birth rates start to decline three years post opening and then continue to fall. The magnitude of the decline is very similar across both control groups; decreasing by 0.18 and 0.19 percentage points 3-4 years post opening using a control group of late openings and a control group of no openings, respectively. This represents a 5-6% decline in teen birth rates 3-4 years after an FQHC opens.

The impact on teen birth rates is heterogenous by marital status and by race. About 85% of teen births are to unmarried teens. To the extent that marital status is a rough proxy for unintended pregnancy one might expect larger effects among unmarried teens. I find larger absolute declines in the unmarried teen birth rate (0.18 vs no effect among married teens) using late openings as a control (Figure 5, Table 2). This represents a 6.0% decrease in the unmarried teen birth rate 3-4 years post opening. Using the alternative control group gives very similar results (5.9% decline in the unmarried birth rate 3-4 years post openings, Figure 5, Table 3).

Minorities may be more likely to be impacted by FQHC services; birth rates are much higher among Black and Hispanic teens compared to Whites (63) and moreover, minorities are more likely to live in health care provider shortage areas potentially making it more difficult to access effective reproductive health care (64; 65; 66). However, low-income minorities may be inelastic to better access to contraception if other factors that are predictive of risky behavior are not addressed (11; 12; 13; 14). The Black and White teen birth rates are calculated using female Black teens and female White teens in the county as the denominator. However, about 25% of counties have 6 or less female non-Hispanic Black teens between 15 to 19 years of age in the county, resulting noisy estimates of the teen birth rate in counties where there are very few female Black teens. In sensitivity analysis I run a version of this analysis using counts of births to White teens and births to Black teens. While difficult to interpret, using births counts as the outcome may shed a clearer light on the trend in births by race controlling for time and county fixed effects.

Among the treatment counties, the average of the county level Black teen birth rates pre-opening is 30 - 37% higher than the average for Whites and the overall decline in teen birth rates appears to be almost entirely driven by the decline in birth rates among Black teens. Using a control group of late openings, there is no effect on both White and Black teen birth rates though the standard errors for the latter are large. However, under the alternative specification using the full set of openings (and no openings as the control group) there is

a clear monotonic decline in Black teen birth rates (Figure 5); about a 0.3 percentage point (or 7.4 percent decline) 3-4 years post opening [22] and a 19% decline 5 or more years post opening.[23] Conversely, there is no statistically significant impact on White teen birth rates in the four years post opening and a 5% decline in birth rates 5 or more years post opening (Table 3).

I then investigated heterogeneity of effects on first time versus repeat births. Almost 20% of teen births are repeat births (15) and preventing repeat pregnancies is an important goal of a number of pregnancy prevention initiatives. The cost of a marginal pregnancy as well as the perceived probability of pregnancy may be different for teens who have already given birth and for teens who have not (67). I find a slightly larger impact on repeat births (6% decline) compared to first-time births (4.1% decline, Table 2, Figure 6). Results are similar using the alternative control group showing a 5% and 7.8% decline in the first-time birth rate and repeat birth rate respectively (Table 3, Figure 6).

In which counties did teen birth rates decline the most? There are few observable county characteristics that predict large treatment effects on teen birth rates, however counties that experienced at least one subsequent opening after the first opening (about 60% of counties) consistently saw larger declines in their teen birth rates compared to counties where only one opening occurred during the study period (5-6% decline vs no decline among counties with only one opening, Tables 2 and 3).[24] This may reflect a larger impact on birth outcomes in response to a greater intensity of treatment (more than one opening) or it may reflect county characteristics that attract FQHCs, for instance local government support that enable these FQHCs to be more effective on average irrespective of number. Counties with more than one opening tend to have larger populations but other observable county measures such as median income, poverty level, insurance coverage and minority share are not predictive of there being more than one opening.

Between 2007 and 2018, teen birth rates declined by 2.2 percentage points or 55.4% in counties that experienced an opening (from 3.96% to 1.76%). A rough calculation indicates that FQHCs can explain about 23% of the decline in teen birth rates over this time period.(A 2.2 percentage point decline in overall teen birth rates over 11 years implies a roughly 0.8 percentage point decline over four years. FQHCs are associated with a 0.18 percentage point decline in birth rates over four years, or 23% of the overall decline.)

[22] significant at the 12% level

[23] significant at the 0.1% level

[24] 6% among counties with more than 1 FQHC vs no decline in counties with one opening using the alternative control group of no openings.

5.4 Educational Attainment of Young Women

A third of female high school dropouts cite pregnancy or parenthood as the primary reason for not completing high school (18). Therefore, a decrease in teen fertility rate might be expected to translate into higher graduation rates. On the other hand, teenagers at risk of being pregnant today may experience different treatment effects to contraception provision compared to estimates based on the contraception revolution literature. Perhaps they would have dropped out high school anyway, or they dropped out before becoming pregnant. Recent descriptive literature suggests that some teens today may already be on a 'low economic trajectory' (16) implying modest economic returns to contraception provision.

I study the impact of FQHC openings on the educational attainment of all first-time mothers (not restricted to any age group). In particular, I investigate whether openings had an effect on the share of mothers giving birth to their first baby who at the time of birth had not finished high school, the share that had finished high school, the share that had attended any amount of college and the share that had received post-graduate education. The left column of Figure 7 shows the impact on these shares using late openings as a control and using no openings as a control. In both analyses, FQHC openings lead to drop in the share of first-time mothers who have not completed high school and a small increase in the share that attended college. Pooled results are very similar across both analyses showing about a 8% drop (1-1.3 percentage point drop) in the share of first-time mothers who had not completed high school and a 4% increase in the share who had attended college (1.3 to 1.4 percentage point increase), 3-4 years post an opening (Tables 4 and 5). However, these are only significant using no openings as the control group. Surprisingly FQHCs also affect the share of first-time mothers who have received post-graduate education leading to a 0.8 percentage point or 20 percent increase in this share. This perhaps indicates that preventing unwanted pregnancies at older ages also impacts women's education, and moreover, that incomplete access to effective contraceptives may extend beyond teenage girls. Overall, these results indicate that delaying pregnancy does in fact lead to gains in educational attainment.

I next investigate whether gains in educational attainment are larger in areas where teen birth rates decline the most, that is, in counties with more than one FQHC. Restricting to counties where multiple FQHCs opened during the study period; that is, after the first opening (based on which event time is defined) there was at least one subsequent opening, I find larger changes in the distribution of education levels of first-time mothers. Counties with more than one opening experience about a 12-15% reduction in the share of first-time mothers who have not completed high school (compared to 8% overall) and a 6-8% increase in the share of first-time mothers who attended college (compared to 4% overall), 3-4 years post opening. These results are similar and significant across both control groups (Tables 4 and

5, Figure 7).[25] and provide suggestive evidence that gains in educational attainment among first-time mothers are primarily through reductions in fertility.

5.5 Sensitivity Analysis

Counties where FHQCs opened early are more dense than counties where they opened later or where they did not open. Placebo regressions using a range of economic, demographic and insurance coverage variables show relatively flat pre and post trends, indicating that despite the difference in density, treatment and control counties appear to be trending similarly.[26] As an additional check I run a version of my specification controlling for density and higher order polynomials of density up to the 4th power. In practice, county density does not change much over time and county fixed effects account control for time invariant county features. Appendix Table 5 shows the results of these regressions on teen birth rates overall and by subgroups and Appendix Table 6 shows the results for educational attainment. Treatment effects persist but are attenuated by a small amount for the teen birth rate outcomes; by about 16% and increase by a small amount for the educational attainment outcomes, about 6%.[27]

Treatment effects may be heterogenous across cohorts of openings. In my main analysis I use early openings as the treatment group when using late openings as the control, and all openings in the treatment group when no openings are the control. The similar effect-sizes across control groups suggests that treatment effects are not driven entirely by early openings. As another robustness check I change the length of the lookout period from four to three years. This affects both the cohorts included in the treatment group and in the control group thus allowing me to test if the treatment effects are sensitive to the inclusion or exclusion of particular cohorts. I find similar trends and event study point estimates in teen birth rates and education outcomes using a look-out period of 3 years (Appendix Figures 1 and 2, Tables 3 and 4). Since it takes about three years for openings to begin to influence teen birth rates the pooled results are smaller and do not always reach significance below the 10% level.

In a similar vein, I run a version of my specification comparing early openings counties to late openings using a standard event-study (rather than a stacked set-up). I create a treat-

[25] In absolute terms, there is about 2 percentage point decline in the share of first-time mothers who had not graduated high school and a 2 percentage point increase in the share that attended college.

[26] This may be partly because county total population and population density are right skewed and the treatment group average is driven up some very highly populated and dense counties.

[27] If FQHC openings and increased contraceptive provision have very large impacts on fertility overall over the 12-year study period this could influence changes in county density over time especially in small counties; for this reason, population density and functions of population density are not included in the main specification. County fixed effects control for differences in time-invariant levels of population density across counties.

ment dummy that equals 1 for all counties that opened before 2014 and is zero for counties that opened in 2014 or later. Each county is represented only once. I then estimate the equation below.[28] Similar results using this specification would suggest that the main treatment effects are not sensitive to weighting across cohorts differently.

$$Y_{it} = \alpha_i + \sum_{\tau} \beta_\tau [D_t \times Treated_i] + \gamma_i + \delta_t + \epsilon_{it} \tag{3}$$

As before, Y_{it} is the outcome (e.g teen birth rates) for county i in year t. $Treated_i$ is a dummy that equals one if the county is in the treatment group. The γ_i are county fixed effects and the δ_t are state by year fixed effects. The D_t are indicators equal to 1 if year t is τ years after or before the first opening at the county level and 0 otherwise and the coefficients of interest are β_τ; which describe how outcomes diverge with relation to the control group of late openings pre and post the FQHC opening. I find similar trends using this specification (Appendix Figures 3 and 4) for the teen birth rate and educational attainment results, suggesting that the results are robust to a different weighting of treatment effects across cohorts.

Teen births, while much higher in the U.S than other OECD countries, are nevertheless a rare event. During my study period the teen birth rate across all counties is 2.5%. In counties where teen populations are low, yearly measures of teen birth rates may be noisy. I run a version of my specification excluding counties with less than 200 teens on average across the study period (about 14% of counties) to check if any of the treatment effects are sensitive to the exclusion of these counties (Appendix Tables 7 and 8). The results of these are almost identical to the main analysis.

Similarly, yearly teen birth rates are particularly imprecise among subgroups of female 15 to 19 year old teens within counties, such as among Black teens. Half of counties have less than 35 female Black teens between 15 to 19 years of age. As a robustness check, I run my specifications using the count of births to White and Black teens as the outcome. Though changes in birth counts as a result of an FQHC opening are hard to interpret, similar effects here would indicate that the treatment effects are not sensitive to the denominator (Appendix Table 9). In the period before the FQHC opening there is an average of about 66 births to White teens and 32 births to Black teens across counties. There are large statistically significant declines in births to White and Black teens post opening which are larger for Blacks in relative terms.

[28] Effect sizes for event years after event year 6 may be biased downwards as the first cohort in the control group opens in 2014, 7 years after the first cohort (2007 cohort) in the treatment group opens. That is, seven years post openings in 2007 some of the control group counties have opened.

6 Discussion

The location of an individual's childhood years has large causal effects on future outcomes, as highlighted by recent literature (68; 69). In fact place can account for at least half of the variation in inter-generational mobility across counties. Neighborhoods predictive of greater mobility share common observable features such as better schools and less concentrated poverty, however many place predictors are less well understood and are not captured by location rents (68; 69). Institutions such as FQHCs that impact childhood environment may play a substantial role in driving adult outcomes.

In this paper, I study the effect of a first FQHC opening on teen birth rates and educational attainment. I find that openings lead to a 5% decline in teen birth rates with larger effects among Black teens, unmarried teens and in counties where more than one FQHC opened. There are also slightly larger impacts on repeat births compared to first-time births to teens. The last three decades have seen large declines in teen birth rates and recent survey data attribute this change largely to an increase in contraceptive use. Between 2007 and 2018, teen birth rates declined by 2.2 percentage points in counties that experienced an opening between 2007 and 2018. Given that FHQC openings lead to a 0.18 percentage point reduction in the teen birth rate 3-4 years post opening, a rough back of the envelope calculation implies that FHQC openings between 2007 and 2018 accounted for 23% of the decline in teen birth rates in an average four year period in these counties.[29]

These results have several implications for policy. First, they shed light on some of the institutional drivers of the declines in teen birth rates in the U.S. over the last two decades. Second, they highlight that coverage alone does not guarantee access. While almost all adolescents are insured, only 25% of sexually active students in 2013 reported that either they or their partner had used any of the following effective forms of contraception; birth control pills, an IUD, an implant, a patch or birth control ring, before last sexual intercourse (70).[30] Health centers with same day consultations, easy access to contraceptives and confidentiality protections for minors may facilitate more frequent use of contraceptives. Third, the heterogeneity of effects by one vs more than one FQHC imply there may be a multiplier effects to safety-net providers co-locating; perhaps due to capacity constraints or in cases where the providers are part of the same organization, due to size and infrastructure requirements for effective service provision. Although further work is needed to disentangle the effects of more service provision from endogenous factors that may lead safety providers

[29]This proportion does not account for the continued and increasing effects on teen birth rates beyond five years post opening, i.e. openings in 2007 are likely to have achieved greater than a 0.18 percentage point decline by 2018.

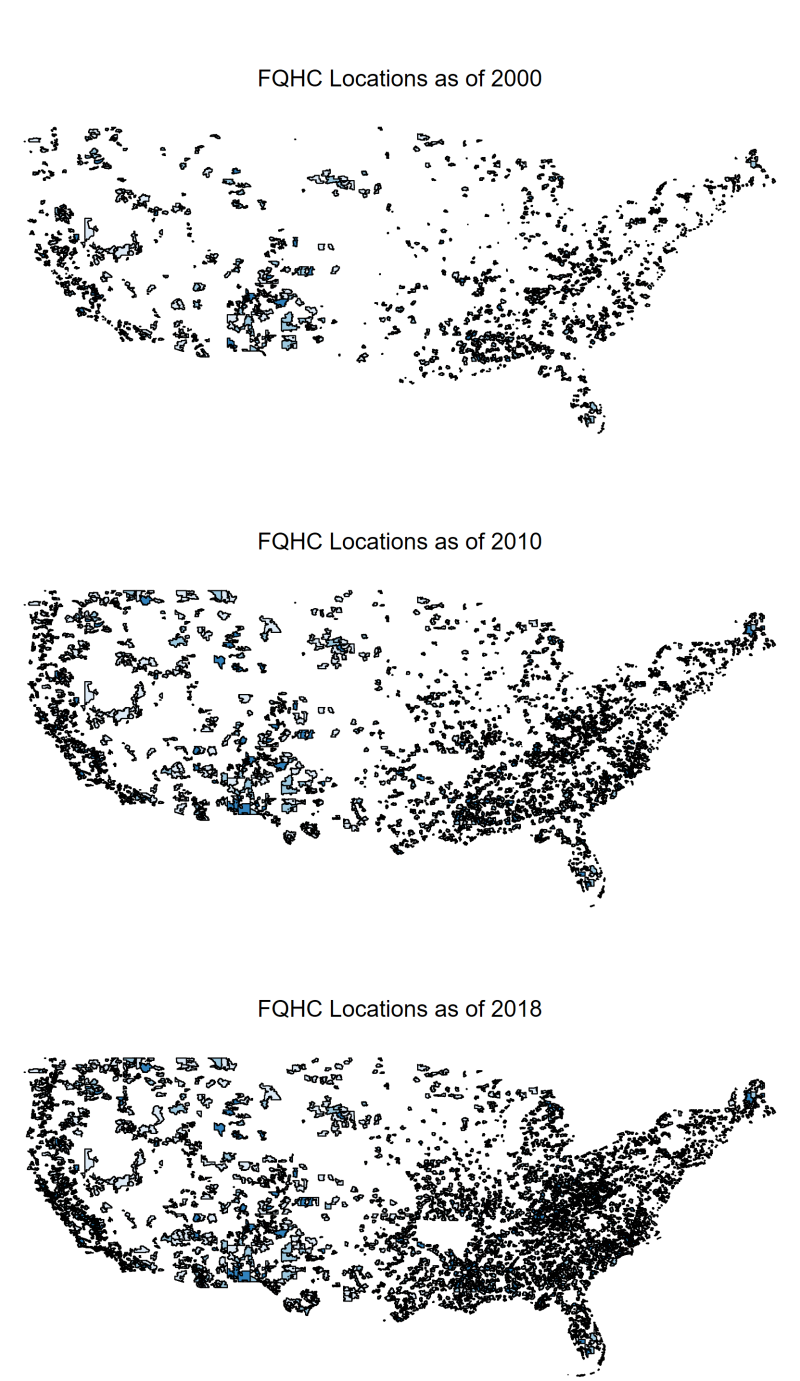
[30]Condom use is high; almost 60% report that they or their partner used a condom during last sexual intercourse, however, condoms have relatively higher failure rates.

to colocate.

Differential declines and large disparities in teen birth rates by race and state are also a persistent concern, especially given potential inter-generational impacts. Gaining a deeper understanding of the factors behind incomplete contraceptive use and the characteristics of the marginal teen impacted by greater access is a natural avenue for future work.

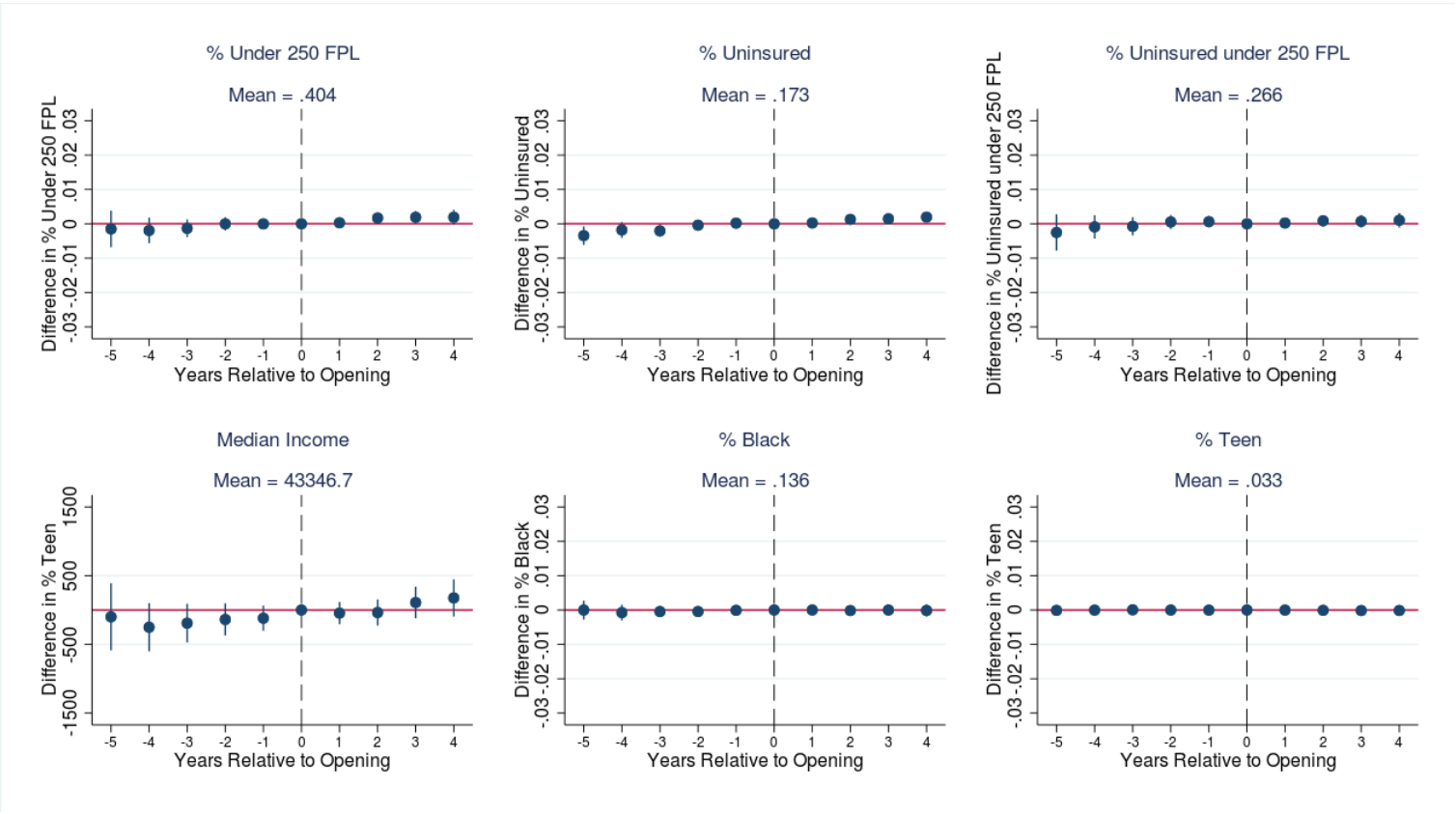
Tables and Figures

Figure 1: Number and Locations of FQHCs as of 2000, 2010 and 2018



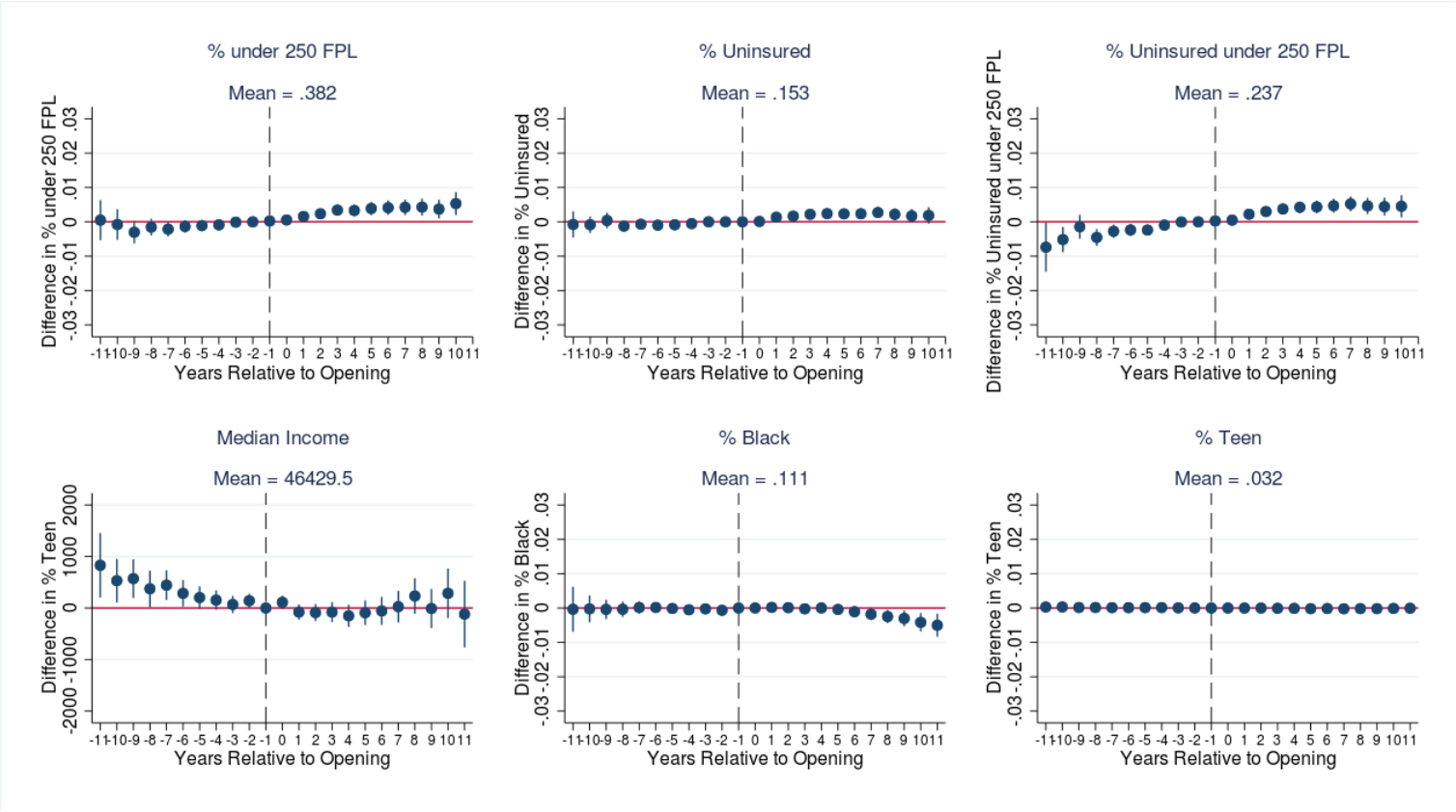
Notes: These figures show the zips in which at least one FQHC was open as of 2000, 2010 and 2018. FQHC addresses and open dates were obtained from the 2018 Provider of Service File.

Figure 2: Placebo Analysis: Effects of Openings on Economic, Demographic and Insurance Coverage Measures, Early vs Late Openings



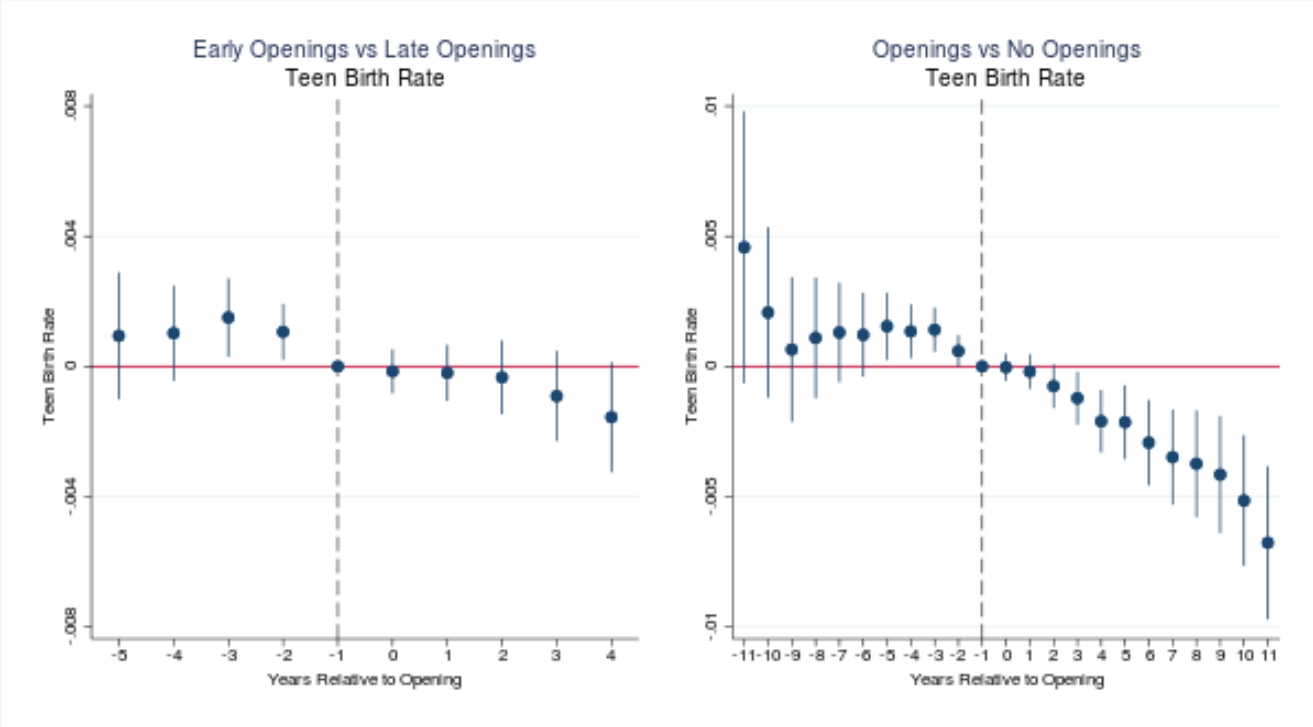
Notes: These figures plot estimates of the effect of openings on various placebo measures: i) the proportion of the county population under 250% of the FPL, ii) the proportion that are uninsured, iii) the proportion that are under 250% of the FPL and uninsured iv) the proportion that are Black, v) the proportion that are teenagers and vi) the median income of the county population. Counties whose first opening was early in the study period are compared to counties where FQHCs opened more than four years later, specifically the figures plot β_τ from equation (1), the stacked event-study regression. Since measures of insurance coverage were not available in the Small Area Health Insurance Estimates File (SAHIE) in 2007, data from 2007 is excluded from this analysis. The left-out category is the year preceding the opening year.

Figure 3: Placebo Analysis: Effects of Openings on Economic, Demographic and Insurance Coverage Measures, Openings vs No Openings



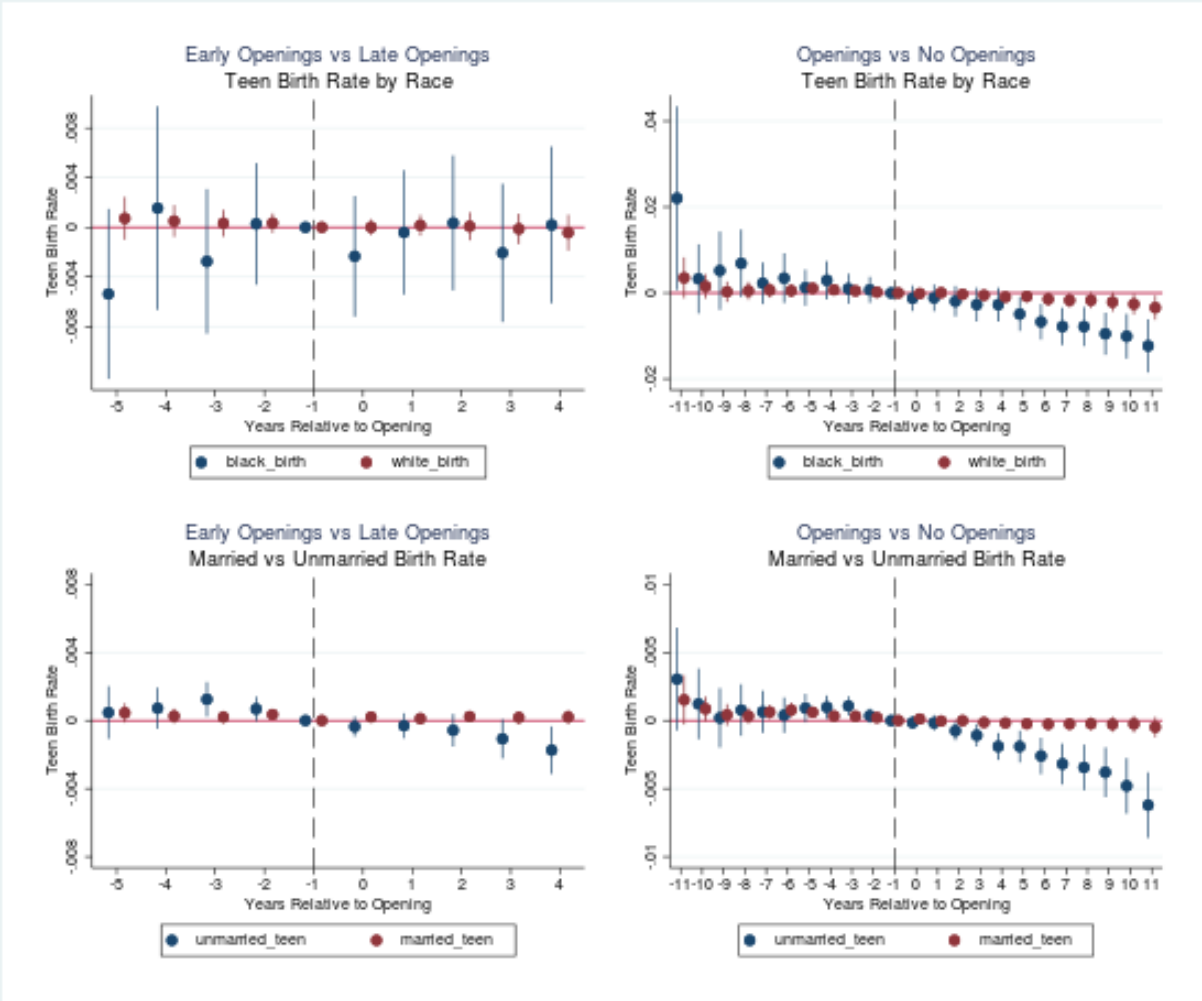
Notes: These figures plot estimates of the effect of openings on various placebo measures: i) the proportion of the county population under 250% of the FPL, ii) the proportion that are uninsured, iii) the proportion that are under 250% of the FPL and uninsured iv) the proportion that are Black, v) the proportion that are teenagers and vi) the median income of the county population. Counties where an FQHC opened are compared to counties where no FQHC opened, specifically the figures plot β_τ from equation (2), Since measures of insurance coverage were not available in the Small Area Health Insurance Estimates File (SAHIE) in 2007, data from 2007 is excluded from this analysis. The left-out category is the year preceding the opening year.

Figure 4: Effect of Openings on Teen Birth Rates



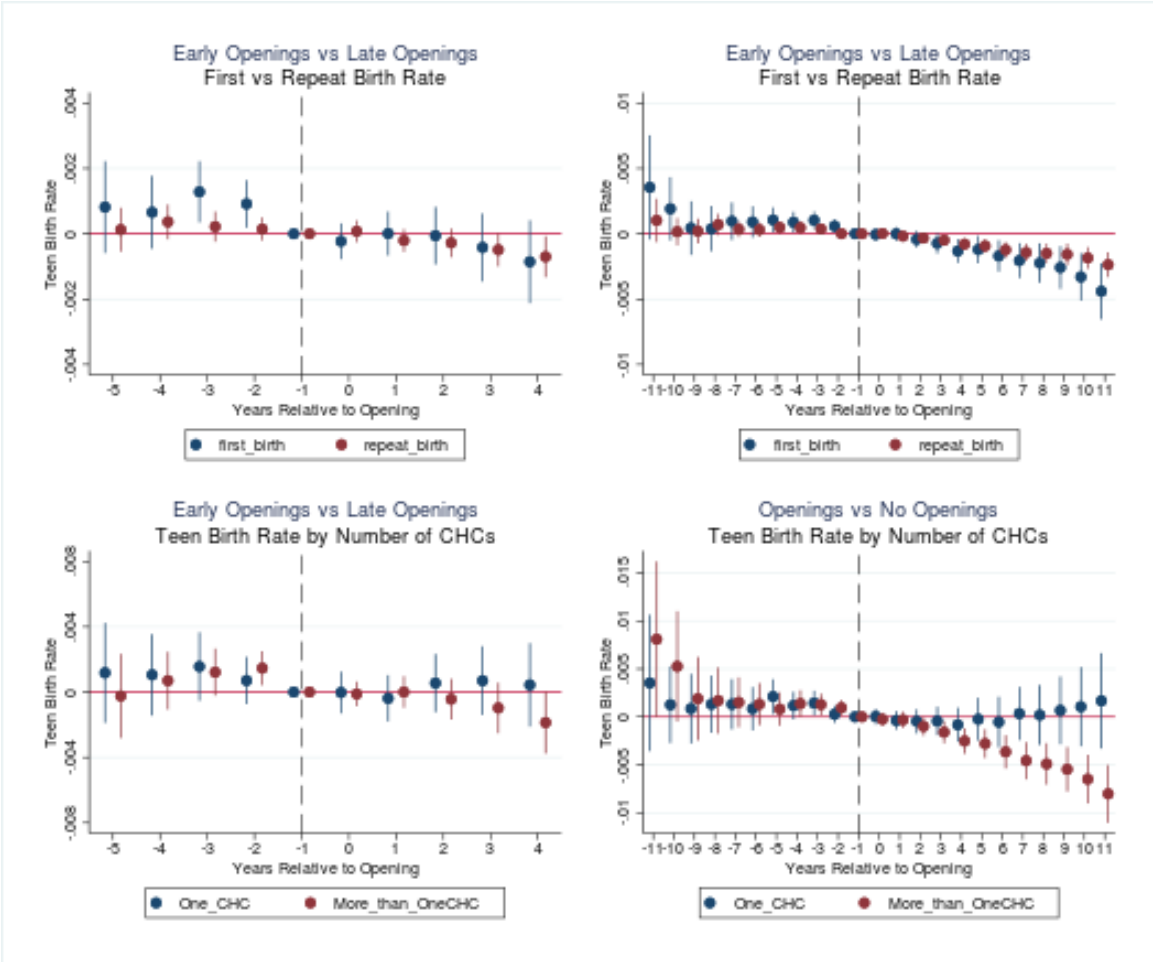
Notes: These figures plot estimates of the effect of openings on birth rates among women between 15-19 years of age for two control groups using data from the National Vistal Statistics System Natality microdata based on birth certificates. The figure on the left compares counties whose first opening was early in the study period to counties where FQHCs opened more than four years later while the figure on the right compares counties where an FQHC opened to those where an FQHC never opened. Specifically the the figure on the left plots β_τ from equation (1), the stacked event-study regression. The figure on the right plots β_τ from equation (2) which is a standard event study regression of teen birth rates on county and calendar year fixed effects. The left-out category is the year preceding the opening year.

Figure 5: Effect of Openings on Teen Birth Rates by Race and Marital Status



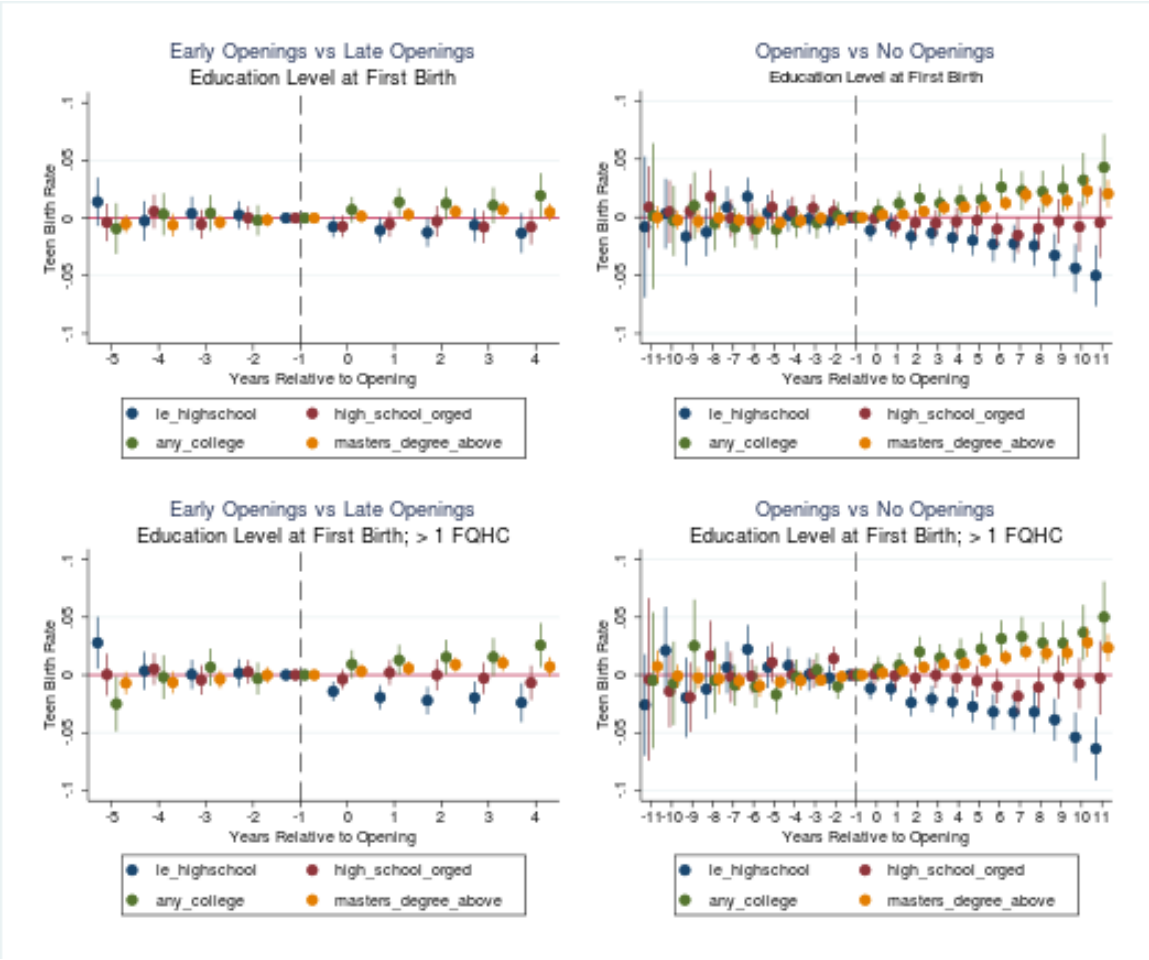
Notes: These figures plot estimates of the effect of openings on birth rates among women between 15-19 years of age for two control groups using NVSS natality microdata based on birth certificates. The denominator for births to married teens and births to unmarried teens is the number of female teens in the county. , The figures on the left compares counties whose first opening was early in the study period to counties where FQHCs opened more than four years later while the figure on the right compares counties where an FQHC opened to those where an FQHC never opened. Specifically the the figure on the left plots β_τ from equation (1), the stacked event-study regression. The figure on the right plots β_τ from equation (2) which is a standard event study regression of teen birth rates on county and calendar year fixed effects. The left-out category is the year preceding the opening year.

Figure 6: Effect of Openings on Teen Birth Rate, by First vs Repeat Births and by Number of FQHCs in the County



Notes: These figures plot estimates of the effect of openings on birth rates among women between 15-19 years of age for two control groups using NVSS natality microdata based on birth certificates. First births are births to women who did not give birth to before and repeat births are births to women who had at least one birth previously. Counties with more than one FQHC are those who experienced at least one other opening after the first FQHC opening. (Event years are defined based on the first FQHC opening in the study period.). The figures on the left compares counties whose first opening was early in the study period to counties where FQHCs opened more than four years later while the figure on the right compares counties where an FQHC opened to those where an FQHC never opened. Specifically the the figure on the left plots β_τ from equation (1), the stacked event-study regression. The figure on the right plots β_τ from equation (2) which is a standard event study regression of teen birth rates on county and calendar year fixed effects. The left-out category is the year preceding the opening year.

Figure 7: Effect of Openings on Educational Attainment of First-time Mothers



Notes: This figure plots estimates of the effect of openings on the educational attainment of first-time mothers, that is, the impact on the maximum education level achieved by women giving birth to their first child. The numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education. The figures on the left compares counties whose first opening was early in the study period to counties where FQHCs opened more than four years later while the figure on the right compares counties where an FQHC opened to those where an FQHC never opened. Specifically the the figure on the left plots β_τ from equation (1), the stacked event-study regression. The figure on the right plots β_τ from equation (2) which is a standard event study regression of teen birth rates on county and calendar year fixed effects. The left-out category is the year preceding the opening year.

Table 1A: Balance Table: Counties with Early Openings vs Counties with Late Openings

	Early Openings (N=780)		Late Openings (N=552)		
County Characteristics	Mean	SD	Mean	SD	Difference
Age and Sex					
Male	49.51	1.91	49.92	2.28	-0.405
< 19 years old	26.75	3.39	26.77	3.23	-0.022
20-44 years old	31.93	4.50	31.13	4.24	0.792
45-64 years old	26.97	3.18	27.24	2.97	-0.269
> 65 years old	14.36	3.71	14.86	3.56	-0.501
Race					
White	80.28	16.90	83.72	15.72	-3.440
Black	11.53	14.78	9.96	14.92	1.574
Asian	1.72	3.10	0.99	1.49	0.725
Other	6.47	8.53	5.33	7.19	1.142
Income					
Income <= 25k	28.57	8.79	29.58	8.27	-1.015
Income 25k−50k	26.94	3.91	27.93	3.85	-0.993
Income 50k−75k	18.60	2.73	18.91	2.89	-0.309
Income > 75k	25.89	10.10	23.57	8.77	2.315
Less than HS	16.94	7.60	17.17	7.03	-0.229
Maximum Education Attainment					
HS graduate	34.04	7.29	36.51	6.80	-2.470
Any collge	41.20	8.10	40.34	7.73	0.860
College graduate	13.56	5.92	12.04	5.18	1.519
More than college	7.53	4.36	6.73	4.08	0.796
Land Features and Density					
Rural	0.10	0.30	0.14	0.35	-0.042
Area (sq mi)	883.84	999.03	863.17	1156.96	20.669
Density	662.85	3316.77	168.36	389.29	494.490
Density (exc top 5%)	153.69	185.46	111.96	148.74	41.728

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents summary statistics for counties where the first FQHC opening was before or during 2012 (Early Openings) and those where the first FQHC opening was post 2012. The last column presents the results of a t test between counties that experienced early versus late openings. This analysis is limited to counties that are identified in the 2010 ACS 5 year data.

Table 1B: Balance Table: Counties with No Openings vs Counties with Openings

	Had an Opening (N=1,332)		Had No Openings (N=1,474)		
County Characteristics	Mean	SD	Mean	SD	Difference
Age and Sex					
Male	49.68	2.08	50.08	2.26	-0.405
< 19 years old	26.75	3.32	26.35	3.70	0.405
20-44 years old	31.60	4.41	28.98	4.44	2.622
45-64 years old	27.08	3.10	28.02	3.19	-0.939
> 65 years old	14.57	3.66	16.66	4.36	-2.088
Race					
White	81.70	16.50	87.50	15.12	-5.804
Black	10.88	14.85	6.66	13.38	4.219
Asian	1.42	2.59	0.65	1.38	0.765
Other	6.00	8.02	5.18	8.27	0.820
Income					
Income <= 25k	28.99	8.59	28.71	8.19	0.274
Income 25k−50k	27.35	3.91	28.36	4.07	-1.002
Income 50k−75k	18.73	2.80	19.49	3.35	-0.759
Income > 75k	24.93	9.64	23.45	8.67	1.483
Maximum Education Attainment					
Less than HS	17.03	7.37	16.51	7.27	0.528
HS graduate	35.06	7.19	36.94	6.25	-1.878
Any collge	40.84	7.95	42.22	7.92	-1.381
College graduate	12.93	5.68	12.11	4.58	0.825
More than college	7.20	4.26	5.66	3.21	1.537
Land Features and Density					
Rural	0.11	0.32	0.29	0.45	-0.171
Area (sq mi)	875.28	1066.95	887.84	1154.96	-12.567
Density	457.93	2561.39	90.69	332.22	367.243
Density (exc top 5%)	135.34	171.48	57.52	88.87	77.819

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents summary statistics for counties where an FQHC opened between 2007 to 2018 and those where no FQHC opened. The last column presents the results of a t test between counties that experienced an opening versus those with no openings. Information on insurance coverage is obtained from the Small Area Health Insurance Estimates File; the methodology for data collection changed between 2007 and 2008 and hence only data post 2008 is included.

Table 2: Pooled Results for Teen Birth Rates, Early vs Late Openings

	(1) All	(2) Married	(3) Unmarried	(4) White	(5) Black	(6) Firt Birth	(7) Repeat Birth	(8) > 1 FQHC
0-2 years	-0.0009	0.0000	-0.0009*	-0.0002	-0.0004	-0.0006	-0.0002	-0.0007
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0018**	0.0000	-0.0018**	-0.0005	-0.0009	-0.0011*	-0.0006**	-0.0019**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.0371***	0.0068**	0.0303***	0.0304***	0.0486*	0.0275***	0.0096***	0.0364***
	(0.01)	(0.00)	(0.01)	(0.01)	(0.03)	(0.01)	(0.00)	(0.01)
Pre-opening mean	0.036	0.006	0.030	0.030	0.041	0.027	0.010	0.039
Observations	22705	22705	22705	22705	22441	22705	22705	20873

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents estimates from the pooled regression comparing counties where an FQHC before 2014 to counties where an FQHC opened at least four years later. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise. The , The last column (the 8th column) is restricted to counties where at least one other FQHC opened after the first FHQC opening. The "Treated pre-opening mean" is the mean teen birth rate for the event years pre the first FQHC opening.

Table 3: Pooled Results for Teen Birth Rates, Openings vs No Openings

	(1) All	(2) Married	(3) Unmarried	(4) White	(5) Black	(6) Firt Birth	(7) Repeat Birth	(8) > 1 FQHC
0-2 years	-0.0008*	-0.0002*	-0.0006	-0.0003	-0.0020*	-0.0005*	-0.0003*	-0.0010*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0019**	-0.0003**	-0.0016**	-0.0008	-0.0026	-0.0012**	-0.0007***	-0.0023***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
5+ years	-0.0032***	-0.0004*	-0.0029***	-0.0015*	-0.0065***	-0.0020**	-0.0013***	-0.0044***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.0200***	0.0052***	0.0148***	0.0154**	0.0301**	0.0156***	0.0044**	0.0243***
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Pre-opening mean	0.033	0.005	0.027	0.027	0.035	0.024	0.009	0.036
Observations	31007	31007	31007	31007	30344	31007	31007	25280

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened during the study period compared to counties where no FQHC opened. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are at least five years post opening and is zero otherwise. The , The last column (the 8th column) is restricted to counties where at least one other FQHC opened after the first FHQC opening. The "Treated pre-opening mean" is the mean teen birth rate for the event years pre the first FQHC opening.

Table 4: Pooled Results for Educational Attainment, Early vs Late Openings

	All				Counties with > 1 Opening			
	(1) < HS	(2) HS or GED	(3) Any College	(4) Masters +	(5) < HS	(6) HS or GED	(7) Any College	(8) Masters +
0-2 years	-0.0118**	-0.0048	0.0109*	0.0051**	-0.0209***	-0.0012	0.0138**	0.0075***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
3-4 years	-0.0103	-0.0076	0.0142	0.0075**	-0.0232**	-0.0053	0.0209**	0.0100**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	0.1356	0.3436***	0.3425**	-0.0358	0.1113	0.3743***	0.3471**	-0.0335
	(0.11)	(0.09)	(0.11)	(0.04)	(0.12)	(0.10)	(0.11)	(0.04)
Pre-opening mean	0.157	0.188	0.251	0.033	0.157	0.187	0.267	0.037
Observations	18590	18590	18590	18590	17147	17147	17147	17147

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC before 2014 to counties where an FQHC opened at least four years later, The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise. For each of the educational measures, the numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education.

Table 5: Pooled Results for Educational Attainment, Openings vs No Openings

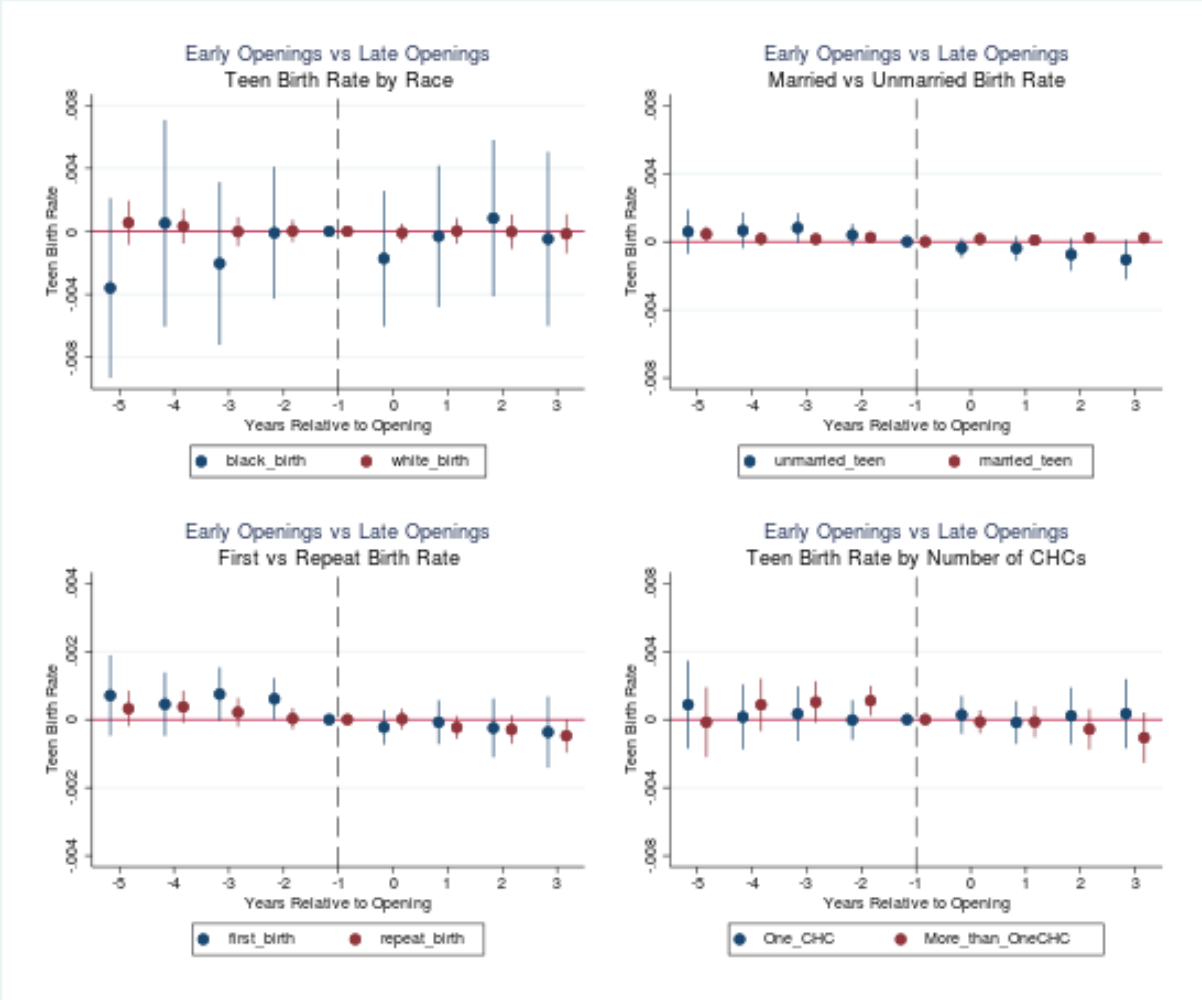
	All				Counties with > 1 Opening			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	< HS	HS or GED	Any College	Masters +	< HS	HS or GED	Any College	Masters +
0-2 years	-0.0098**	-0.0077**	0.0122**	0.0039**	-0.0154***	-0.0051	0.0134**	0.0057**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0130**	-0.0074	0.0131**	0.0087***	-0.0206***	-0.0062	0.0179**	0.0106***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
5+ years	-0.0213***	-0.0105*	0.0208**	0.0134***	-0.0307***	-0.0139**	0.0297***	0.0173***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	0.1220**	0.4115***	0.3450***	-0.0500**	0.1501***	0.4109***	0.3160***	-0.0438*
	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)	(0.05)	(0.02)
Pre-opening mean	0.172	0.220	0.300	0.040	0.167	0.209	0.299	0.043
Observations	24161	24161	24161	24161	19807	19807	19807	19807

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened during the study period compared to counties where no FQHC opened, The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are at least five years post opening and is zero otherwise. For each of the educational measures, the numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education.

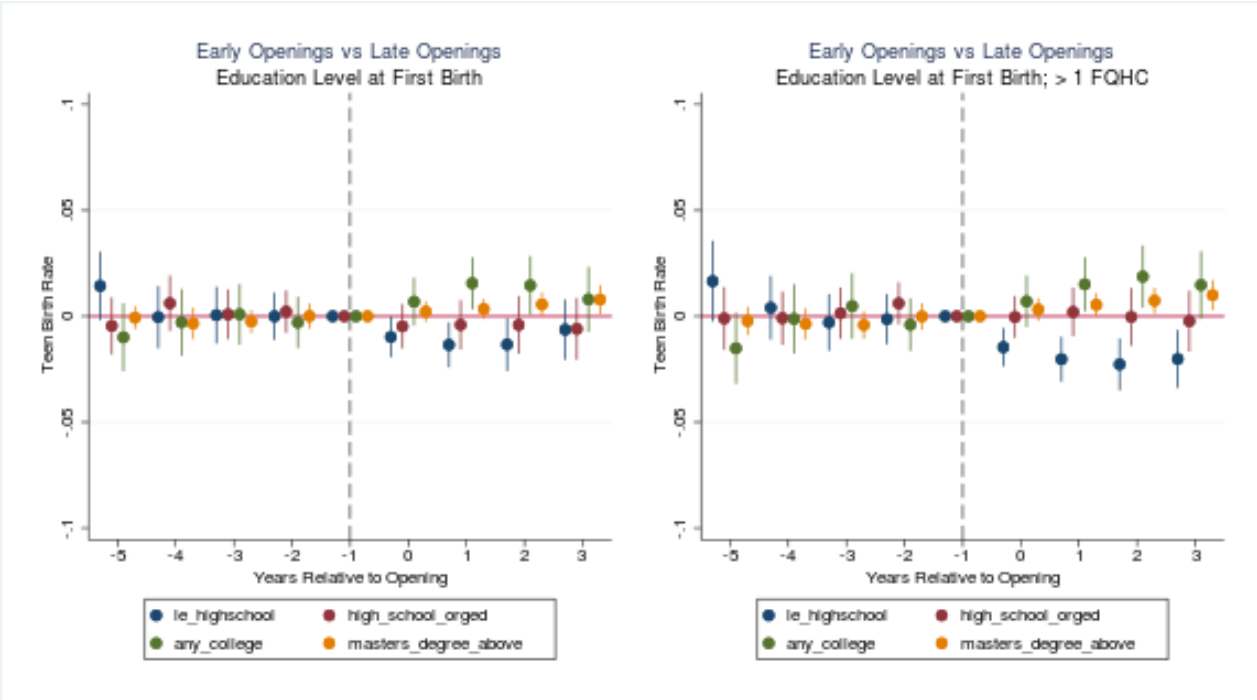
Appendix

Figure 1: Effect of Openings on Teen Birth Rates Using a 3 year Look-out period



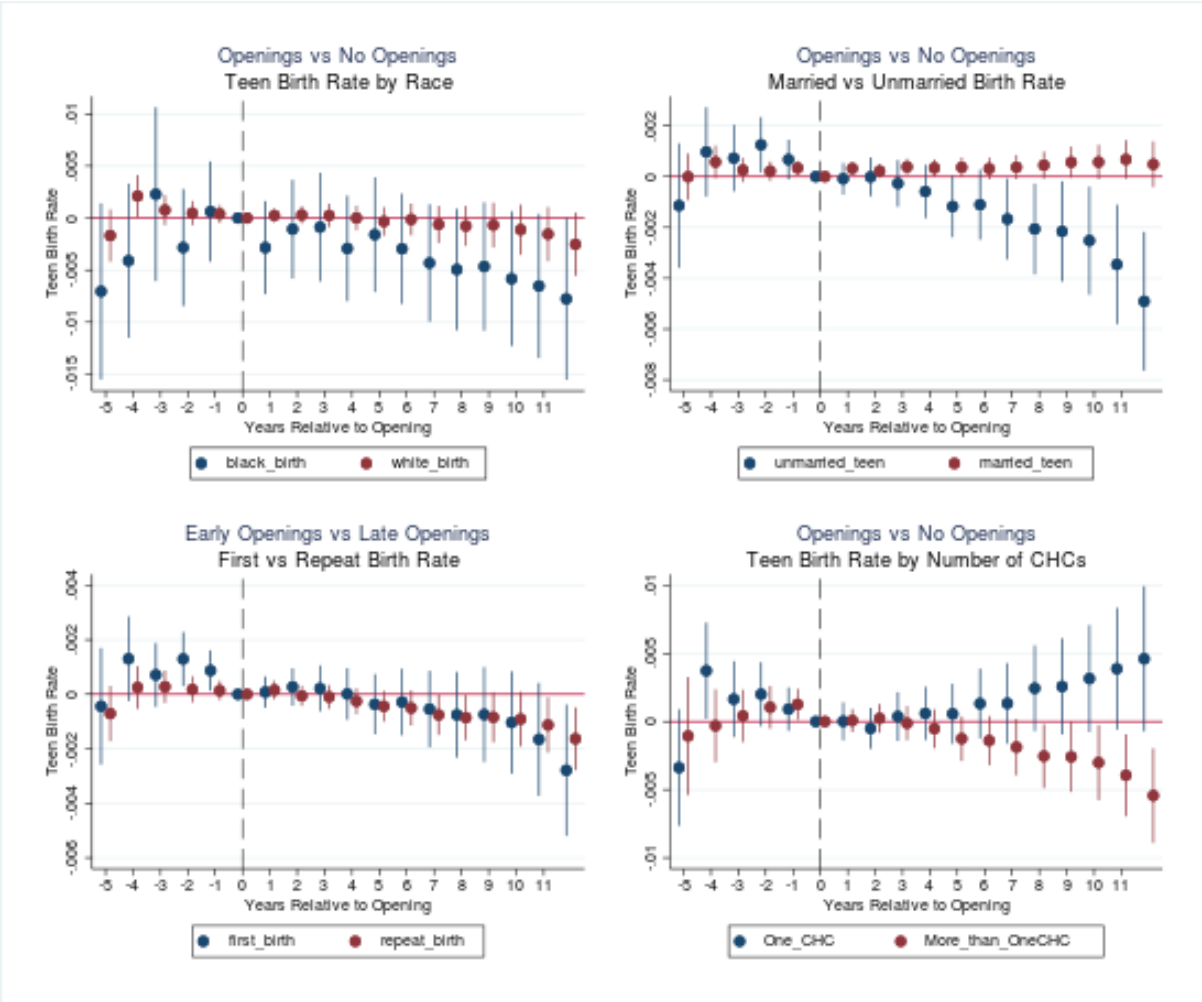
Notes: These figures plot estimates of the effect of openings on birth rates among women between 15-19 years of age using the NVSS natality microdata based on birth certificates. Counties whose first opening was early in the study period are compared to counties where FQHCs opened more than three years later Specifically the graphs represent β_τ from equation (1), the stacked event-study regression using counties that opened more than three years later as the control group. The left-out category is the year preceding the opening year.

Figure 2: Effect of Openings on Educational Attainment Using a 3 year Look-out period



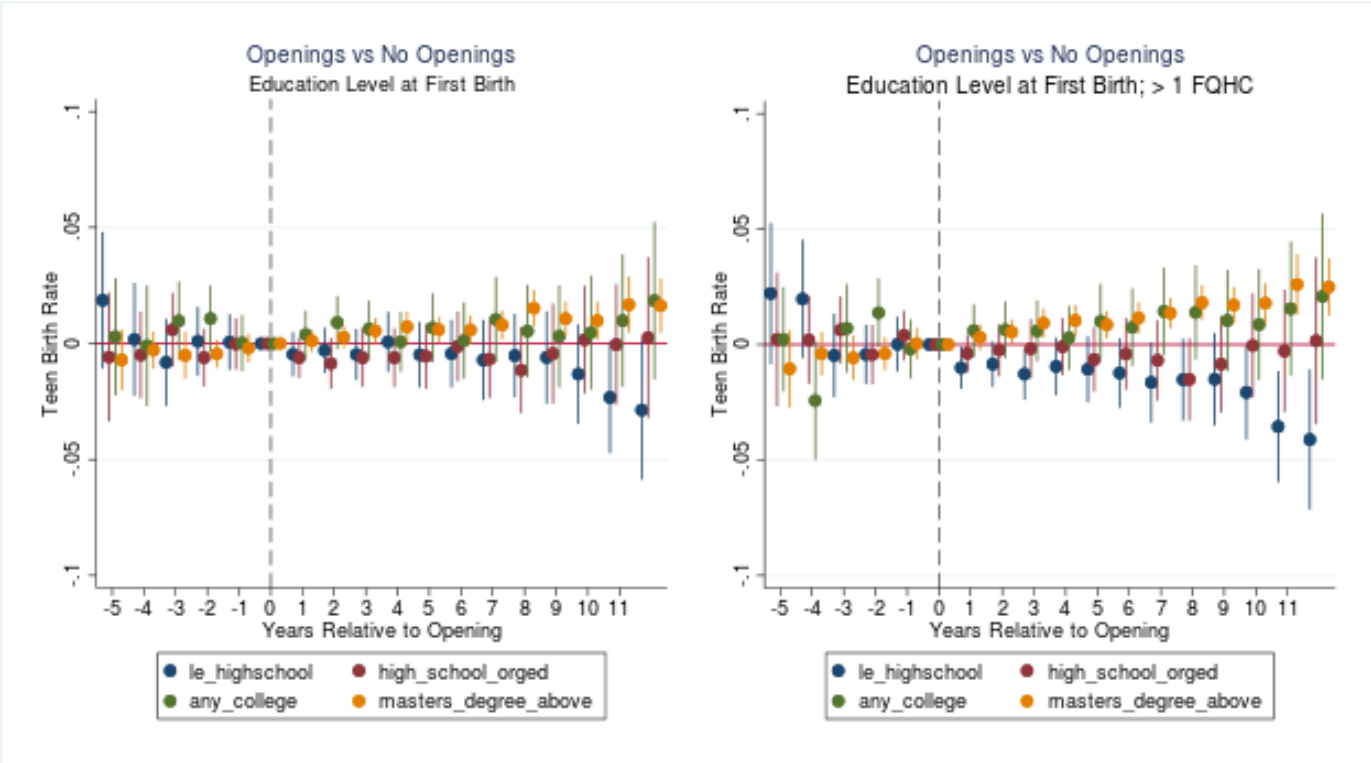
Notes: Notes: This figure plots estimates of the effect of openings on the educational attainment of first-time mothers, that is, the impact on the maximum education level achieved by women giving birth to their first child. The numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education. Counties whose first opening was early in the study period are compared to counties where FQHCs opened more than three years later Specifically the graphs represent β_τ from equation (1), the stacked event-study regression using counties that opened more than three years later as the control group. The left-out category is the year preceding the opening year.

Figure 3: Effect of Openings on Teen Birth Rates, Alternative: Early vs Late Openings



Notes: These figures plot estimates of the effect of openings on birth rates among women between 15-19 years of age using the NVSS natality microdata based on birth certificates. Counties whose first opening was before 2014 are compared to counties that opened in 2014 or later using a standard event study regression set-up. The left-out category is the year preceding the opening year. Effect sizes for event years after event year 6 may be biased downwards as the first cohort in the control group opens in 2014, 7 years after the first cohort (2007 cohort) in the treatment group opens. That is, for the 2007 cohort, at seven years post opening some of the control group counties have opened

Figure 4: Effect of Openings on Educational Attainment, Alternative: Early vs Late Openings



Notes: Notes: This figure plots estimates of the effect of openings on the educational attainment of first-time mothers, that is, the impact on the maximum education level achieved by women giving birth to their first child. The numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education. Counties whose first opening was before 2014 are compared to counties that opened in 2014 or later using a standard event study regression set-up. The left-out category is the year preceding the opening year. Effect sizes for event years after event year 6 may be biased downwards as the first cohort in the control group opens in 2014, 7 years after the first cohort (2007 cohort) in the treatment group opens. That is, for the 2007 cohort, at seven years post opening some of the control group counties have opened

Table 1: Pooled Results for Placebo Analysis, Early vs Late Openings

	(1)	(2)	(3)	(4)	(5)	(6)
	% Under 250 FPL	% Uninsured	% Unins under 250 FPL	% Black	% Teen	Median Income
post_treat	0.0012	0.0012**	0.0002	0.0003	-0.0000	149.8248
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(96.63)
Constant	0.3950***	0.1686***	0.2631***	0.1263***	0.0335***	44183.2995***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(41.90)
Mean	0.404	0.173	0.266	0.136	0.033	43346.732
Observations	16086	16086	16086	16070	16070	16086

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table represents pooled estimates of the effect of openings on various economic, insurance coverage and demographic measures: i) the proportion of the county population under 250% of the FPL, ii) the proportion that are uninsured, iii) the proportion that are under 250% of the FPL and uninsured iv) the proportion that are Black, v) the proportion that are teenagers and vi) the median income of the county population. Counties whose first opening was early in the study period are compared to counties where FQHCs opened more than four years later, Information on insurance coverage is obtained from the Small Area Health Insurance Estimates File; the methodology for data collection changed between 2007 and 2008 and hence only data post 2008 is included.

Table 2: Pooled Results for Placebo Analysis, Openings vs No Openings

	(1)	(2)	(3)	(4)	(5)	(6)
	% under 250 FPL	% Unins	% Unins 250 FPL	% Black	% Teen	Median Income
post_treat	0.0014**	0.0010**	0.0019***	0.0006	-0.0001	-144.6111**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(71.72)
Constant	0.3758***	0.1477***	0.2312***	0.1093***	0.0327***	47412.5806***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(23.54)
Mean	0.382	0.153	0.237	0.111	0.032	46429.534
Observations	28463	28463	28463	31014	31014	31019

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table represents pooled estimates of the effect of openings on various economic, insurance coverage and demographic measures: i) the proportion of the county population under 250% of the FPL, ii) the proportion that are uninsured, iii) the proportion that are under 250% of the FPL and uninsured iv) the proportion that are Black, v) the proportion that are teenagers and vi) the median income of the county population. Counties where an FQHC opened during the study period are compared to counties where no FQHC opened, Information on insurance coverage is obtained from the Small Area Health Insurance Estimates File; the methodology for data collection changed between 2007 and 2008 and hence only data post 2008 is included.

Table 3: Pooled Results for Teen Birth Rates, Early vs Late Openings, 3 year Look-out Period

	(1) All	(2) Married	(3) Unmarried	(4) White	(5) Black	(6) Firt Birth	(7) Repeat Birth	(8) > 1 FQHC
0-2 years	-0.0008	-0.0000	-0.0008*	-0.0001	0.0001	-0.0006	-0.0003	-0.0008
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0013	0.0001	-0.0013**	-0.0002	-0.0002	-0.0007	-0.0005**	-0.0015*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.0447***	0.0085**	0.0362***	0.0378***	0.0684**	0.0329***	0.0118***	0.0405***
	(0.01)	(0.00)	(0.01)	(0.01)	(0.03)	(0.01)	(0.00)	(0.01)
Pre-opening mean	0.035	0.006	0.029	0.029	0.040	0.026	0.009	0.039
Observations	26356	26356	26356	26356	26030	26356	26356	24112

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents estimates from the pooled regression comparing counties where an FQHC before 2015 to counties where an FQHC opened at least three years later. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise. The last column (the 8th column) is restricted to counties where at least one other FQHC opened after the first FQHC opening. The "Treated pre-opening mean" is the mean teen birth rate for the event years before the first FQHC opening.

Table 4: Pooled Results for Educational Attainment, Early vs Late Openings, 3 year Look-out Period

	All				Counties with > 1 Opening			
	(1) < HS	(2) HS or GED	(3) Any College	(4) Masters +	(5) < HS	(6) HS or GED	(7) Any College	(8) Masters +
0-2 years	-0.0134**	-0.0052	0.0137**	0.0042**	-0.0201***	-0.0011	0.0149**	0.0063**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
3-4 years	-0.0066	-0.0071	0.0085	0.0082**	-0.0201**	-0.0039	0.0152*	0.0107**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	0.1420	0.3671***	0.3132**	-0.0278	0.1437	0.3563***	0.3175**	-0.0263
	(0.11)	(0.09)	(0.10)	(0.04)	(0.12)	(0.10)	(0.11)	(0.04)
Pre-opening mean	0.161	0.196	0.259	0.033	0.162	0.195	0.270	0.037
Observations	21605	21605	21605	21605	19845	19845	19845	19845

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC before 2015 to counties where an FQHC opened at least three years later, The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise. For each of the educational measures, the numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education.

Table 5: Pooled Results for Teen Birth Rates, Openings vs No Openings, Controlling for Population Density

	(1) All	(2) Married	(3) Unmarried	(4) White	(5) Black	(6) Firt Birth	(7) Repeat Birth	(8) > 1 FQHC
0-2 years	-0.0007	-0.0002	-0.0005	-0.0003	-0.0018	-0.0005	-0.0002	-0.0007
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0016**	-0.0003**	-0.0013**	-0.0007	-0.0028*	-0.0011**	-0.0005**	-0.0017**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
5+ years	-0.0026**	-0.0003	-0.0023**	-0.0012	-0.0057**	-0.0015**	-0.0011***	-0.0032**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.0233***	0.0053***	0.0180***	0.0157*	0.0332**	0.0184***	0.0048**	0.0297***
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Pre-opening mean	0.033	0.005	0.028	0.027	0.035	0.024	0.009	0.036
Observations	29927	29927	29927	29927	29599	29927	29927	24260

* p<0.10, ** p<0.05, *** p<0.001

* p<0.10, ** p<0.05, *** p<0.001. Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened to counties where no FQHC opened, controlling for population density and higher orders of population density up to the fourth power. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise. The last column (the 8th column) is restricted to counties where at least one other FQHC opened after the first FQHC opening. The "Treated pre-opening mean" is the mean teen birth rate for the event years before the first FQHC opening.

Table 6: Pooled Results for Educational Attainment, Openings vs No Openings, Controlling for Population Density

	All				Counties with > 1 Opening			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	< HS	HS or GED	Any College	Masters +	< HS	HS or GED	Any College	Masters +
0-2 years	-0.0094**	-0.0063*	0.0122**	0.0029*	-0.0149***	-0.0034	0.0134**	0.0044**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0122**	-0.0046	0.0126**	0.0061**	-0.0198***	-0.0028	0.0173**	0.0077***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
5+ years	-0.0198**	-0.0053	0.0192**	0.0079**	-0.0294***	-0.0080	0.0280***	0.0114***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	0.1343***	0.4507***	0.3235***	-0.0910***	0.1593***	0.4507***	0.2952***	-0.0858***
	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)	(0.05)	(0.02)
Pre-opening mean	0.172	0.220	0.300	0.040	0.167	0.209	0.299	0.043
Observations	24161	24161	24161	24161	19807	19807	19807	19807

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened during the study period compared to counties where no FQHC opened, controlling for county population density and higher orders of population density; up to the fourth power. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are at least five years post opening and is zero otherwise. For each of the educational measures, the numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education.

Table 7: Pooled Results for Teen Birth Rates, Openings vs No Openings, Excluding Low Teen Population Counties

	(1) All	(2) Married	(3) Unmarried	(4) White	(5) Black	(6) Firt Birth	(7) Repeat Birth	(8) > 1 FQHC
0-2 years	-0.0007*	-0.0002	-0.0006	-0.0003	-0.0016	-0.0005	-0.0002	-0.0008
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0017**	-0.0003*	-0.0015**	-0.0007	-0.0027*	-0.0011**	-0.0006**	-0.0020**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
5+ years	-0.0031***	-0.0003	-0.0028***	-0.0014*	-0.0059**	-0.0019**	-0.0012***	-0.0039***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.0179***	0.0051***	0.0128**	0.0126	0.0296**	0.0145***	0.0034**	0.0225***
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Pre-opening mean	0.033	0.005	0.028	0.027	0.035	0.024	0.009	0.036
Observations	29019	29019	29019	29019	28808	29019	29019	23496

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened to counties where no FQHC opened, excluding counties with less than 200 teens on average across the study period (about 14% of counties). The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are at least five years post opening and is zero otherwise. The last column (the 8th column) is restricted to counties where at least one other FQHC opened after the first FQHC opening. The "Treated pre-opening mean" is the mean teen birth rate for the event years before the first FQHC opening.

Table 8: Pooled Results for Educational Attainment, Openings vs No Openings, Excluding Low Teen Population Counties

	All				Counties with > 1 Opening			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	< HS	HS or GED	Any College	Masters +	< HS	HS or GED	Any College	Masters +
0-2 years	-0.0095**	-0.0080**	0.0119**	0.0041**	-0.0148***	-0.0055	0.0132**	0.0059***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
3-4 years	-0.0121**	-0.0078	0.0127**	0.0088***	-0.0198***	-0.0065	0.0175**	0.0108***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
5+ years	-0.0204***	-0.0112*	0.0204**	0.0136***	-0.0301***	-0.0143**	0.0293***	0.0175***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	0.1256**	0.4247***	0.3434***	-0.0548**	0.1443***	0.4275***	0.3194***	-0.0479**
	(0.04)	(0.04)	(0.04)	(0.02)	(0.04)	(0.04)	(0.04)	(0.02)
Pre-opening mean	0.172	0.220	0.300	0.040	0.166	0.209	0.299	0.043
Observations	23766	23766	23766	23766	19434	19434	19434	19434

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression comparing counties where an FQHC opened to counties where no FQHC opened, excluding counties with less than 200 teens on average across the study period (about 14% of counties). The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that are at least five years post opening and is zero otherwise. For each of the educational measures, the numerator is the share of first births to mothers in each of the four educational attainment categories and the denominator is the total number of first time births in the county. The four educational attainment categories are i) less than high school, ii) high school completion or equvalent (GED), ii) any amount of college (Associates Degree or Bachelors degree) and finally iv) post graduate education.

Table 9: Pooled Results for Teen Birth Rates, by Race

	Control: Late Openings		Control: No Openings	
	(1)	(2)	(3)	(4)
	White Counts	Black Counts	White Counts	Black Counts
0-2 years	-9.4667***	-6.4348**	-6.9961***	1.2167
	(1.69)	(1.99)	(1.38)	(2.16)
3-4 years	-22.4357***	-21.9902***	-19.5023***	-7.6305**
	(2.59)	(3.03)	(1.93)	(2.49)
5+ years			-39.2466***	-28.2261***
			(2.84)	(3.72)
Constant	54.8836***	-20.3640	75.4651***	-39.2980
	(14.71)	(15.93)	(12.28)	(32.16)
Pre-opening mean	68.436	31.731	66.148	32.186
Observations	22705	22705	31007	31007

* p<0.10, ** p<0.05, *** p<0.001

Notes: This table presents estimates from the pooled regression using both counties with late openings and counties with no openings as the control group. The outcomes are the count of births to White and to Black teens in the county. The first row represents estimates from the interaction of the treated dummy with a short-term post dummy (which equals 1 for in the opening year and up to two years post the opening year and is zero otherwise). The second row represents the interaction of the treated dummy with a post dummy which equals 1 for calendar years that are 3-4 years post opening and is zero otherwise and the third row represents the interaction of the treated dummy with a long-term post dummy which equals 1 for calendar years that at least 5 years post opening and is zero otherwise

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