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Does Public Health Insurance Cause Crowding Into Public Facilities and Informality? The Case of Seguro Popular

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ABSTRACT

Many low and middle-income countries are working to expand health insurance to previously uncovered people by creating health insurance programs intended for low-income people who would otherwise lack insurance coverage. Two concerns have been raised about these programs. First, people may be "crowded out" of private facilities and into public ones, increasing public expense and possibly degrading care through crowding. Second, public insurance could encourage informality by reducing the gap in compensation between formal sector and informal sector workers. We examine these questions in the context of Mexico's Seguro Popular (SP) using longitudinal administrative data on childbirth. We focus on women with more than one observed birth and ask how SP affects the choice of provider for those whose first observed birth was in a public hospital, a private hospital, or a separate system of hospitals serving formal sector workers. We also look at how SP affects the utilization of care and newborn health. Because SP enrollment is endogenous, we instrument it using the rollout of a second program, SMSXXI, that provided health care for young children and enrolled other family members in SP. We find that the expansion of SMSXXI increased SP coverage of pregnant women. This in turn led to a higher probability of delivering in a public hospital, especially among those who had previously delivered in a private hospital. We find little impact of SP enrollment on the utilization of care or newborn health, with the notable exception that women who previously delivered in a private hospital were more likely to start prenatal care in the first trimester when they switched to SP, indicating a greater willingness to seek preventive care when it is free.

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Introduction

Many low and middle-income countries are currently working to expand health insurance to previously uncovered people. One popular approach is to create a public option—a health insurance program intended for low-income people who would otherwise lack insurance coverage. There is some possibility however, that people previously receiving healthcare at private facilities—covering the costs through either private insurance or out-of-pocket—will find the new program attractive and be "crowded-out" of their previous arrangements and "crowded in" to the new lower cost (perhaps free) option. These responses can increase the government's cost of providing health care, making it more difficult to achieve full coverage (Cutler and Gruber 1996). They can also affect the delivery of health care, by increasing congestion in public facilities. Finally, there is concern that public health insurance could crowd people out of formal sector employment by reducing the gap in compensation between insured formal sector work and informal work.

In their review of the large literature on the crowd-out caused by expansions of health insurance to low income people in the United States, Gruber and Simon (2008) concluded that expansions of the U.S. Medicaid program prior to the implementation of the Affordable Care Act in 2010, led to substantial crowd-out from private health insurance plans, though the exact magnitudes are still debated. There is much less evidence about the scope of crowd-out in low and middle-income countries like Mexico.

We study these effects within the context of Mexico's *Seguro Popular* (SP) a public, noncontributory, health insurance program created in the early 2000s to achieve universal health coverage, ease the financial burden associated with health care costs, and improve health outcomes. SP offered free access to primary, secondary, and tertiary health services to all individuals who were not covered by the social security (formal sector) system. This was about half the population in

2003.[1] Before the creation of SP, uninsured individuals had to pay for care out of pocket at private facilities or pay to use public facilities. The latter charged a means-tested progressive fee (*cuota de recuperación*) and often asked patients to cover the costs of medications out of pocket (Frenk et al., 2006). While monetary costs were in general lower at public than at private facilities, waiting times were substantially lower in private settings (a mean of 46.9 minutes vs 26.3 minutes for outpatient care) and quality was in general perceived to be better (National Health Survey, ENSA 2000).

We ask two questions about SP: First, did the program lead to people being crowded out of private providers and into public facilities affiliated with SP? Second, did SP encourage people to exit the formal sector? We examine these questions in the context of childbirth, which is one of the most common reasons for adults to visit the hospital. In Mexico, all but 1.6 percent of births occur in hospitals.

Much of the Mexican population receives care in private, rather than public institutions: *Mexico's National Health and Nutrition Survey*, ENSANUT, reports that in 2012, 39 percent of the population received outpatient care and 17 percent received inpatient care from a private provider (ENSANUT 2012). Thus there is scope for people to be crowded out of private facilities and into public ones.

In a setting where only 55 percent of all workers were in the formal sector in 2010 (World Bank, 2012), a second question that arises in Mexico and other low and middle-income countries is whether the provision of a public health insurance option that does not depend on formal sector employment will encourage the growth of informality by reducing the total gap in compensation between the formal and informal sectors, as originally suggested by Levy (2010). In Mexico, formal sector workers and their dependents are covered by a separate system with its own health care facilities and providers. The largest component of this system is the Mexican Social Security

[1] Services were free to those enrolled. In principal, some participants were required to pay a fee, but less than 1% paid the annual quota (Pfutze 2014). Approximately 99.9 percent of pregnant women covered by SP were exempted from paying the annual SP quota. However, the program was discontinued in 2020 and replaced with a new program called *Instituto de Salud para el Bienestar* (INSABI).

Institute (*Instituto Mexicano del Seguro Social* or IMSS).[2]

The existing evidence about whether SP led to crowding into informality is mixed. Some studies such as Bosch and Campos-Vazquez (2014), Aterido, Hallward-Driemeier and Pagés (2011), and Conti, Ginja, and Narita (2018), find that SP caused a significant reallocation of employment away from the formal economy and into the informal one, especially among the less educated. Others, like Barros (2008) and Azuara and Marinescu (2013), find no evidence of such shifts into the informal sector for the overall population.

A large literature documents positive effects of the SP program in terms of reducing the financial burden of health care expenditures on health (Knaul et al. 2012, Barros, 2008, King et al., 2009, Galárraga et al. 2010, Grogger et al. 2015). And several previous studies have examined the effect of SP on infant and child health outcomes, finding positive effects among the poor (Conti and Ginja, 2020; Pfutze 2014; Strouse et al., 2016; Urquieta-Salomon et al., 2020).

However, we believe we are the first to use large scale administrative data and to focus on how the SP program changed the delivery of services for women who would otherwise have used either private facilities or facilities set aside for formal sector workers. Because these data include a maternal identifier, the same woman can be followed over time. Thus, unlike most previous studies of crowd out/crowding in, we can see whether the same person switched providers between births as a way of assessing the impact of the public option.

We focus on women with more than one observed birth and ask how SP affects the choice of provider for delivery for those whose first observed birth was in a public hospital, a private hospital, or an IMSS hospital serving formal sector workers. We also look at how SP affects the use of prenatal and obstetrical services and newborn health for each of these groups. In addition to studying the full

[2] In addition, the Institute for Social Security and Services for State Workers (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* or ISSSTE) provides similar coverage to civil servants and Mexican Petroleum (*Petroleos Mexicanos* or PEMEX) covers employees in the state-owned oil company. These workers generally use their own ISSSTE or PEMEX facilities, but they account for a very small share of all births (2.6 percent of ISSSTE and 0.28 percent for PEMEX so we ignore these facilities here).

sample of women who are observed to have more than one birth over the sample period, we divide women into those whose first observed delivery was via Cesarean section, and those who had a normal delivery. Women who have had a Cesarean are very likely to deliver subsequent births by Cesarean. Hence, these women know prior to the delivery that they are likely to need more medical care and that they will face higher costs if they must pay out of pocket. For example, a 2016 report by Mexico's Federal Consumer Protection Agency cited costs for a vaginal delivery in a private hospital of MXN $22,868--$50,499 and costs of MXN $28,560--$67,099 for a C-section.[3]

Ordinary Least Squares (OLS) estimates of the effects of becoming covered by SP are likely to be biased: Women choosing to enroll in SP are likely to have low incomes and may therefore be likely to use public hospitals in any case. They may also have worse health care utilization patterns and infant health outcomes on average. Moreover, an individual pregnant woman's take up of SP might be affected by factors such as the projected cost of maternity care services (due to repeated Cesarean sections, for example) or the type of hospital she wishes to deliver in. A third issue we face is that the initial roll out of SP had already begun before the start of the confidential administrative birth data we analyze.

Hence, we turn to the roll out of a second related program that was complimentary to SP, Medical Insurance Century XXI (SMSXXI), and use measures of this rollout as an instrumental variable for individual maternal SP take up. SMSXXI began in December 2006 and provided additional enhanced insurance coverage for children under 5 years of age who were born after Dec. 1, 2006. When children

[3] The report is available at: https://www.gob.mx/profeco/articulos/el-embarazo-la-espera-tiene-un-costo-34555?idiom=es). Discounted to 2010, these costs were: MXN$2010: $16,712-36,904 for vaginal and $20,871-49,035 using the deflator available at: https://fundar.org.mx/calculadora-deflactor/) SP's Policy Report (2017) cites lower costs for a vaginal delivery of $8,171MXN (~$400USD) compared to $14,393MXN (~$720USD) for a Cesarean. The cost of prenatal care to SP is only $778MXN (~$39USD). In the ENSA 2000, the mean out-of-pocket expenditure for the latest hospitalization was $MXN 1,411 for SSA users (it was $MXN 6,974 for private care and only $MXN 228 for IMSS users). Discounted to 2010, these costs were: MXN$2010: $2,487, $12,296, and $402. In terms of the cost specific to childbirth, an example of the fees charged in 2024 at an SSA hospital (*Instituto Nacional de Perinatología Isidro Espinosa De Los Reyes*), which is likely to be informative about fees at SSA before SP, reached up to $MXN 11,868 for a vaginal delivery and $MXN 25,617 for a C-section, for the highest income population ($6,173 and $13,326 in MXN$2010, respectively).

were enrolled in SMSXXI, they and their family members were automatically enrolled in SP. SMSXXI expanded rapidly: in 2007 only 20% of the population was living in an area where SMSXXI was available, whereas this share was 80% by 2009 (Celhay et al., 2019). More than 80% of the eligible population was enrolled by 2011 (see Figure 1).

The rationale behind this instrument is that some mothers who had not previously enrolled in SP for their first births might have been induced to enroll by the generosity of SMSXXI program coverage for their infants, as well as by the ease of enrolling in SMSXXI. The only requirement for SMSXXI was that the child be less than five and not covered by formal sector insurance while SP enrollment had additional requirements as described further below. A large literature documents the fact that administrative burdens reduce enrollment in social programs, and that easing such burdens increases enrollment (Nichols and Zeckhauser, 1982; Currie and Gahvari, 2008). Furthermore, SMSXXI rolled out well after SP's initial rollout which started in 2002, so its expansion is less likely to be correlated with the changes in hospital supply and overall quality that occurred in the early phases of SP. This timing makes the exclusion restriction, which requires that SMSXXI rollout only affects infant health through changes in insurance, more likely to hold.[4]

We find that the expansion of SMSXXI did increase the probability that a birthing woman was covered by SP. This in turn led to a higher probability of delivering in a public hospital, especially among those who had previously delivered in a private hospital. However, we find only weak evidence of exit from formal sector facilities (crowding into informality) in this time period. We also find little impact of SP enrollment on the utilization of antenatal care or on newborn health, with the notable exception that women who had previously delivered in a private hospital were more likely to start prenatal care in the first trimester when they switched to SP, indicating a greater willingness to seek care preventive care when it was free.

[4] For instance, Sosa-Rubi et al. (2009) document that the Mexican government invested heavily in improving hospital care in the early years of the SP rollout.

The rest of the paper is laid out as follows. Section 2 provides useful background about the previous literature. Section 3 introduces the data and Section 4 presents our empirical strategy. Section 5 shows the results and Section 6 offers a discussion and conclusion.

2. Background

2.1 The healthcare system in Mexico

People eligible for Seguro Popular were those who were not covered by social security, that is, individuals not formally employed or without a family member (spouse or parent) in formal sector employment. Workers in these families were self-employed, unemployed, out of the workforce, employed by informal firms, or hired "informally" by formal-sector firms. Formal sector workers and their families pay into a system run by the Mexican Social Security Institute (IMSS) which provides medication and medical services free of charge through its own facilities. Workers covered by the IMSS system must pay insurance premiums whether they use IMSS facilities or not and their contribution is automatically deducted from their paychecks.

To receive medical care under SP, individuals had to formally join the program. Enrollment procedures including going to an SP affiliation module in person and presenting specific documents.[5] Applicants also needed to fill in a survey used to determine whether they needed to pay a fee, even though in practice fewer than one percent of families were charged (Knaul et al., 2012). For pregnant women and children under 5, affiliation rules were more flexible (e.g. documents that were incomplete or expired could be accepted, and the questionnaire could be waived as no fee was required.

SP consistently covered medical services related to prenatal, obstetric, and perinatal care. These

[5] The documentation required included an official ID card, national identification number (CURP), and proof of residence. The socioeconomic survey was the *Cédula de Características Socioeconómicas del Hogar.* Children under 5 requiring emergency care were also allowed to register to SP ex post after receiving the required healthcare. https://www.gob.mx/cms/uploads/attachment/file/384970/Gu_a_Gu_a_de_Afiliaci_n.pdf

services were delivered in Ministry of Health (*Secretaría de Salud* or SSA) hospitals and clinics. The government worked to expand and increase the quality of care in the early years of SP (Sosa-Rubi et al., 2009). Between 2001 and 2011, 15 high-specialty centers, 200 hospitals, and about 2,000 clinics were built, and many more were renovated. The physician to population ratio grew by 54% between 2004 and 2010. But after this period of initial expansion, improvement slowed and became more challenging (Knaul et al. 2012).

SSA hospitals are part of a completely separate network from that of the contributory IMSS system. Therefore, we can infer that if a woman delivers in an IMSS hospital she is in the contributory system and covered by the formal sector,[6] whereas if she delivered in an SSA hospital she is likely to have been outside the formal sector. To switch from IMSS to SP a woman or her family member who provided insurance coverage would have had to switch from formal sector employment to the informal sector.

By early 2005, at least some areas in all 32 Mexican states had joined SP. By 2006, it was the second largest health insurance scheme in the country after IMSS (Frenk et al., 2006). One thing that contributed to the rapid growth of SP was the automatic enrollment of the beneficiaries of Mexico's federal conditional cash-transfer poverty alleviation program, *Prospera* (originally named *Progresa*, and later, *Oportunidades*), although as King et al. (2007) point out, some of these people might have been unaware of their new insurance status. By the start of our sample period in 2008, pregnant women were allowed to enroll in SP immediately on the confirmation of their pregnancies.

In addition to the two types of publicly provided care, private healthcare was also widely available (Frenk et al., 2006). Private care was used by people outside of the formal sector, a small number of people with private insurance[7], and people who already had IMSS coverage but preferred to be seen

[6] IMSS facilities are legally required to provide care for obstetric emergencies which is why we there is a small number of women covered by SP who deliver in IMSS facilities. This was formalized in an agreement signed by SSA, IMSS, and ISSSTE in May 2009.

[7] Private health insurance is sometimes offered as an attractive employment benefit for formal sector workers (even though both employers and employees would still need to pay IMSS contributions). However, ENSANUT (2012) indicated that only 1 percent had private health insurance.

in separate private health facilities and pay out of pocket. As noted above, private facilities have shorter waiting times and are generally believed to be of higher quality than either public or IMSS hospitals.[8] The share of IMSS beneficiaries receiving inpatient care from private providers (12.7 percent in 2012, ENSANUT 2012) was lower than the national average, but 30.9 percent had used outpatient services in private medical institutions.

As for whether SP would be attractive to people who initially had other types of insurance, ENSANUT reports only 4.1 percent of people covered by IMSS had sought care in a public institution other than IMSS. Among women covered by SP, 31.1 percent had sought care at a private institution, but only 3 percent had sought care in a different public institution (ENSANUT 2012). It is notable that from 2006 to 2012, the share of births that took place in SSA hospitals increased from 29.6 percent to 43.1%, with the largest declines being in the share of births in private facilities. While SP provided both prenatal and obstetric care free of charge, it is worth noting that women could chose to receive one type of care from SP and the other from private providers.[9]

As discussed above, the SMSXXI program began on December 1, 2006, providing additional coverage to children under five. By 2018, over 150 separate interventions (diagnostic procedures, hospitalizations, surgeries, or medications) were covered, up from 108 in 2006 (Celhay et al., 2019).

[8] ENSANUT (2012) indicates that SSA hospitals had the longest waiting times, with an average of 102 minutes of waiting time compared to 93 minutes in IMSS and 67 minutes in private clinics. However, SSA hospitals had a higher share of users reporting good or very good quality of services than IMSS users (83 percent vs. 77 percent), though private clinics had the highest share with 93 percent. Private clinics also had a lower share of reports of bad or very bad service compared to IMSS (4 percent vs. 6 percent). The overwhelming majority of IMSS users report using that hospital because of their insurance (92%). Sixty percent of SSA hospital users report insurance as the main reason, 22 percent, and 25 percent cite nearby location. Only 5 percent and 8 percent of IMSS and SSA patients reported using these facilities because they liked the serve, while 28 percent of private clinic patients gave this reason.

[9] Prenatal and obstetric care within SP usually occur in different facilities (clinics vs hospitals) and women's pregnancies are not assigned to a specific physician for follow up. With SP coverage, women could deliver in any SP/SSA hospital of their choice, and physician selection to hospitals is probably a less relevant channel in this setting (with the probable exception of very high-risk pregnancies which could be referred to highly specialized hospitals). Some women might be willing to pay out-of-pocket for prenatal care to avoid longer waiting times at SSA facilities, but choose to deliver with SP to avoid the heavier financial burden of childbirth. Other women could choose to receive free prenatal care but choose a private clinic with higher perceived quality for delivery (Sosa-Rubí et al., 2009; Gómez and Carrasco, 2020).

SMSXXI provided a one-time transfer to state governments for each child enrolled, as well as additional reimbursements to health care providers for covered interventions.

Figure 1 shows that both SMSXXI affiliation rates and individual SP enrollments trend upwards throughout the period. Figure 2 shows however, that gains in SMSXXI affiliation were quite uneven throughout the country, with some places experiencing relatively small gains, while others experienced gains of up to 72 percentage points. We will show below that SMSXXI enrollments at the municipio level are predictive of an individual mother's SP enrollment in models that include municipio fixed effects and therefore only exploit variation in the penetration of SMSXXI.[10]

Figure 3 provides some additional motivation for splitting the sample by the type of hospital where the first delivery occurred as well as by whether that birth was by Cesarean section. The figure shows that women who deliver in private hospitals have much higher rates of C-section than other mothers (over 80 percent), while those who deliver in SSA hospitals have much lower rates (a little over 30 percent). Hence, women who previously delivered in a private hospital are much more likely to have C-section delivery of the second observed birth, which may influence their subsequent choice of facility and complicate the analysis of crowd out if the previous method of delivery is not accounted for.

2.2 Effects of Health Insurance Expansions on Infant and Child Health

A growing literature follows Currie and Gruber (1996) who found that increases in Medicaid eligibility for pregnant women in the United States were associated with improved birth outcomes. Some of this literature focuses on the effects of expansions of public health insurance on birth outcomes in

[10] Municipios are the second smallest administrative unit in Mexico after states. They are distinct from cities in the sense that some cities are composed of several municipios (e.g., 16 municipios in Mexico City), and municipios are also defined to include rural areas. Because the English word "municipality" means an urban area, we retain the Spanish word here, keeping in mind that municipios can be large or small (both in terms of geographic area and population-wise). There are 2,454 municipios in Mexico.

middle-income countries.

Among the most relevant papers for our work is Gruber, Hendren, and Townsend (2014) who analyze Thailand's 2001 healthcare reform. They find that the program increased the utilization of health services for the previously uninsured and led to a switch in utilization from private to public facilities. The net effect was a significant reduction in infant mortality rates. The biggest advantage of our work relative to theirs is they rely on cross-sectional survey data whereas we are able to use administrative panel data in which women can be followed over time and changes can be observed in insurance coverage, the types of providers and services received, and infant health outcomes.[11]

Camacho and Conover (2013) find that an expansion of health insurance in Colombia in the 1990s led to a reduction in the prevalence of low birth weight. They use administrative data and a regression discontinuity design exploiting the income eligibility cutoff for subsidized health insurance coverage. Chou, Grossman, and Liu (2014) analyze the effects of the introduction of Taiwan's National Health Insurance program during the mid-1990s and find substantial reductions in post-neonatal mortality using a difference-in-differences strategy leveraging the differential impact of the program on government workers compared to other workers. Bhalotra, Rocha, and Soares (2016) exploit a reorganization of the health system in Brazil and find that greater access to healthcare led to increases in prenatal visits and hospital births, and reductions in maternal and neonatal mortality as well as in fertility.

Not all studies find positive effects of health insurance expansions, however. Dow and Schmeer (2003) examine Costa Rica's national expansion of children's insurance in the 1970sand early 1980s using a county fixed-effects model. They conclude that the insurance expansion explains at most a small part of the changes in infant and child mortality observed during that time period. Chen and Jin (2012) exploit expansions of health insurance coverage in rural China using a difference-in-difference

[11] For mortality, they use vital statistics data aggregated at the year/province level. They use a variable that intended to capture the pre-reform share of Eligible Beneficiaries at the province level as the treatment variable.

propensity score approach and find null effects.

Studies that focus on SP examine its effects on a diverse set of health outcomes as well as on health-related expenditures, with mixed findings (King et al. 2009; Barros 2008; Conti and Ginja 2020; Parker,Saenz and Wong 2018; Grogger et al. 2015; Pfutze, 2014; Sosa-Rubi, Galárraga and Harris 2009; Urquieta-Salomon et al., 2020).

Sosa-Rubi, Galárraga and Harris (2009) use individual-level 2006 survey data from ENSANUT and look at the choice of an SP facility for delivery. They instrument self-reported SP enrollment with indicators for whether the woman's area had officially joined SP and find that SP enrollment had a strong effect on the use of obstetrical services at SP-sponsored clinics, particularly for poor women. However, because they had no information about people's prior health insurance status or utilization patterns, they do not look at the issue of whether women switch facilities or enter the informal sector as a result of the SP roll out.

Looking at more general effects of SP and also using individual-level data, Barros (2008) focuses on health expenditure and health outcomes, such as hypertension, self-reported health, and having experienced a health problem in the past two weeks. He finds that SP reduced out-of-pocket health care expenditures for beneficiary households but had little effect on these health outcomes. This outcome is possible if SP delivers similar care but at a lower cost than other providers.

Similarly, the experimental study of King et al. (2009) uses random assignment within the phased rollout of SP and finds no effects on utilization of health procedures or preventive services, and no effect on health outcomes at the individual level. However, Parker, Saenz and Wong (2018), who use individual-level survey data, find that SP increased the utilization of care and the use of diagnostic testing in the population 50 and older, particularly in poor rural areas with relatively more health services available. Bleichet al. (2007) find that the expansion of SP led to greater use of therapeutic treatment for hypertension and better blood pressure control at the individual level, which might be important for pregnant women as high blood pressure is a leading cause of maternal

morbidity and complications of labor and delivery.

Celhay et al. (2019) examine SMSXXI, the complementary child program that we utilize as an instrumental variable to predict individual maternal SP take up. As discussed above, this program spread rapidly after its introduction in 2007, and covered infant and child services in addition to those covered by SP. Celhay et al. (2019) exploit the geographic expansion as well as the sharp cutoff for eligibility (only children born after December 1, 2006, were covered by SMSXXI). They estimate models looking at cohorts of children defined by location and year of birth. They find that SMSXXI reduced infant mortality by about 5 percent with stronger effects found in places with higher baseline infant mortality. They also find longer-term effects of the program on height, health status, and out of pocket health expenditures for exposed cohorts of children.

Pfutze (2014) uses data from the 2010 Mexican Census, which has information about the last birth to each woman (the only one that is tracked) and whether that child was still alive as of the Census. He uses weighted exogenous sampling maximum likelihood estimators to address the problem that complete information is more likely to be available if the last child survived. Another issue is that the Census has few other measures of health outcomes (e.g. whether the baby was low birth weight). He finds that SP exposure at the municipio-month level led to a significant reduction in infant mortality.

Conti and Ginja (2020) exploit the staggered initial introduction of SP at the municipio-year level and find that it reduced child mortality by approximately 10 percent in poor areas, though they find no overall effect on infant mortality and no effects in richer areas. The decline in aggregate mortality in poor places is mostly driven by preventable and communicable conditions (intestinal and respiratory infections) as well as conditions originating in the perinatal period and from congenital malformations. As noted above, this period coincided with rapid improvement in medical facilities and physician-patient ratios, and so studies of the rollout likely capture an overall effect of SP rather than an effect of individual insurance coverage per se.

Urquieta-Salomon et al. (2020) use data aggregated to the municipio-year level to estimate

models that assess the expansion of SMSXXI using two-way fixed effects models. They find that in this aggregate data, higher SMSXXI penetration is associated with significant reductions in both neonatal and infant mortality in the population without access to social security.

In summary, the previous literature would lead us to expect increases in the utilization of care and some positive effects of SP on birth outcomes at least for the poor. It is less clear what one would expect for other segments of the population or for those who switch to SP from other health insurance schemes where care was likely to be as good or better than that delivered in SSA facilities. Individual natality data is difficult to link to mortality data in Mexico, so most studies of infant mortality must rely on analyzing changes in aggregate mortality variables (most often at the municipio-year level). Since infant mortality has shown an overall downwards trend over the past couple of decades and since SP only experienced expansions (and no contractions) over its rollout period, estimates based on aggregate mortality changes may be biased if they also reflect overall municipio-level trends in mortality. We do not repeat these analyses of aggregate-level infant mortality here.

Studies without individual data on insurance history and SP affiliation are unable to provide direct estimates about crowding out of private facilities or crowding into informality. To the best of our knowledge, our paper is the first using administrative data to directly instrument SP individual affiliation, which allows us to estimate LATEs, i.e., the local average treatment effects, or the treatment on the population that was induced to adopt SP due to SMSXXI rollout. Moreover, we do so over a time period when other changes in the medical system were less extreme, so arguably we can better identify the effects of insurance coverage under SP rather than the effects of the many changes that took place with the introduction of SP. We use these models to focus on the effects of SP on possible crowding out of private facilities and/or into informality, as well as to examine the consequences of these changes for measures of health care utilization and health at birth.

2.3 Crowd-out of private insurance

Cutler and Gruber (1996) focused on expansions of the U.S. Medicaid program to additionalgroups of low-income pregnant women and children. They argued that since Medicaid is lessexpensive and often more comprehensive than many private insurance plans, people who became eligible might find it attractive to switch from private health insurance to the public plan.

However, if there is a large enough gap in the quality of services provided under private and public health insurance, then this could deter people from switching. In the U.S., many providers are unwilling to serve Medicaid patients because of low Medicaid reimbursementsso that there is a potential gap in quality. Any stigma associated with the public plan could also deter switching. In the U.S. context, employers might encourage workers to adopt the public option by reducing the amount that they pay for health insurance or eliminating health insurance benefits altogether, which would increase take up of the public option.

While some crowd-out is clearly possible and even likely, its magnitude has been hotly debated. The fundamental problem is that eligibility is affected by the same factors that determine health insurance coverage. For example, poor families are both more likely to be eligible and more likely to have been initially uninsured. They are also more likely to have bad health outcomes for reasons that may have little to do with insurance. A solution that has been widely adopted is to create instrumental variables that capture increases in the generosity of insurance over time but are independent of individual predictors of take up.

Using this strategy, the initial Cutler and Gruber (1996) paper found crowd out effects of up to 50%. That is, for every two children gaining public insurance, one child lost private insurance. This finding was followed by a large number of papers examining the same initial expansions of health insurance. Some of these studies found that the effects were either much smaller or non-existent (e.g. Blumberg, Dubay and Norton (2000); Card and Shore- Sheppard (2004); Ham and Shore-Sheppard (2005)). However, others found large crowd-out effects (Hudson, Selden and Banthin

(2005); LoSasso and Buchmueller(2004)).

One of the difficulties in the U.S. crowd-out literature is that data sets with information about insurance coverage are typically not very precise about the timing of coverage. This is not a problem in our data because we can infer the type of insurance coverage (or lack thereof) at the exact time of the birth. A second limitation of the U.S. Current Population Survey, which is used in many of the U.S. studies, is that it does not follow individuals over time. In contrast we can follow the same woman and see how her choices change with SP enrollment, instrumenting individual enrollment with the roll out of the complementary SMSXXI program for children.

While a few of the papers discussed in the previous section address crowd out (e.g. Gruber, Hendren, and Townsend, 2014; Sosa-Rubi, Galárraga and Harris, 2009) an important caveat to the existing research is that to the best of our knowledge, none of the papers analyzing the effects of public health insurance expansion in low or middle-income countries use administrative individual-level panel data. The use of such data allows us to look for changes in individual mothers' behaviors and treatment with SP take up. In addition, the use of administrative birth records allows the analysis of a wide variety of utilization and birth outcomes in the same framework. We are similarly unaware of other papers that examine the important issue of whether providing public health insurance for low-income people encourages informality by breaking the link between formal sector employment and health coverage using individual-level panel data.

2.4 Crowding into informality

Since the creation of SP in the early 2000s, much of the policy and academic debate has focused on whether, by subsidizing healthcare for the informal, uninsured population, the program might have distorted the labor market. As discussed above, the evidence to date is inconclusive. The findings of positive effects of SP on informality tend to depend largely on the period considered, with

studies focusing on the early years finding fewer effects. Any effects that are found seem to be concentrated among poorer individuals, as might be expected.

With the exception of Bosch and Campos-Vazquez (2014), these studies rely on survey data, with most using Mexico's national employment survey (ENOE).[12] These data are only representative at the state and urban/non-urban levels and not representative at the municipio level which may lead to noisy estimates. An advantage of our data for studying informality is that we can directly observe women's current insurance status and infer from it whether she or a member of her direct family (spouse or parents for women under 25) are formally employed and covered by IMSS.

3. Data

Data on individual SP enrollment, type of hospital, and birth outcomes comes from confidential births data provided to the authors by the *Secretaria de Salud*. These data only include births if the mother's national identification code (CURP) was recorded (though the data we received was de-identified and did not include CURP). In principle, all mothers born after 1996 should have a national ID number, but some mothers may not have gone through the paperwork to get it. Moreover, since the number is not used day-to-day, not everyone may know it, and hospitals may not systematically collect it.

Where it is present for two-plus births to the same mother, the inclusion of the (scrambled) national identification number in the confidential data allows different births to the same mother to be matched. In addition to the mother ID and SP status, these data include information on the type of hospital, utilization of care (Cesarean section delivery, use of prenatal care[13]), birth outcomes

[12] Bosch and Campos-Vazquez (2014) use detailed social security data from IMSS on the number of formal employers and employees. Their data includes information on 1,392 of the approximately 2,500 municipalities (about 98 percent of private employment). Their paper estimates effects on total employment at the municipio level, but they do not have individual worker histories.

[13] While the births data include information on type of institution where the birth occurred and information on prenatal care (number of appointments, trimester of first appointment), it does not provide information on the type of institution where prenatal care was received, and it may or may not be with the same type of healthcare provider (SP, IMSS, private) as the delivery itself.

(birth weight, Apgar score, gestational age, birth order), and maternal characteristics (education, marital status). Unfortunately, no further information about mothers' health before or after delivery is available, for example we do not know whether mothers suffered from hypertension or diabetes as is noted on U.S. birth records. As we will show below, births with national identification numbers appear to be very similar on average to births without, suggesting that the missing values are approximately random.

Importantly, the confidential data do not include the mothers' *municipio* of residence. To recover the municipio of residence, which is needed for our identification strategy, the confidential data was merged to the universe of birth certificates (*certificados de nacimientos*) which have been compiled by the SSA since 2008 (this is the public use Mexican natality data or SINAC data). This step allows the recovery of municipio for 94 percent of the mothers with a mother ID. These mothers represent 55 percent of the births recorded in SINAC. The estimation sample is further limited to mothers who have at least two (singleton) births and have all variables observed.

Finally, administrative data about the share of eligible children who are covered by SMSXXI is merged in at the municipio level. This coverage variable is obtained by dividing the number of beneficiaries by Census estimates of the population of 0-4-year-olds without access to social security (the target population), truncated at 100%, as in Urquieta-Salomon et al. (2020).

Because the birth sample is not necessarily a random subset of all births over the period 2008-2014, the means in our analytical sample are benchmarked against the public use SINAC. Column 1 of Table 1 shows means from the SINAC data, while column 2 shows means from the confidential data set. This comparison suggests that the confidential data is close to being a random sample, since the means of all observables are very similar. In what follows observations in the analytical sample are weighted by their inverse probability of appearing in the full SINAC sample of births.

The third column of Table 1 shows means for mothers who are observed to have two or

more births over the sample period in the confidential data. This sample is slightly different from that in the full confidential sample. Mothers with 2+ births observed are somewhat less likely to have completed middle or high school, are about a year younger, are more likely to have previously delivered in an SSA hospital, are less likely to have received a Cesarean section, and they received fewer prenatal visits. However, their babies are less likely to be low birthweight.

The remainder of Table 1 divides mothers from the confidential sample with 2+ births into six categories depending on where their first observed birth was delivered and whether that birth was delivered by Cesarean section. The means in these columns are taken only over the second observed births for these mothers, since these are the deliveries of interest. The number of births including the index birth ranges from 2.39 from mothers who previously delivered in an IMSS hospital by C-section to 2.94 for mothers who previously delivered in an SSA hospital vaginally. These numbers suggest that most of these second observed births are actual second or third births, consistent with overall Mexican total fertility of about 2.34 births per women in 2010. That is, there are not a lot of higher order births.

Comparing these columns shows that mothers who previously delivered in SSA hospitals are less educated, younger than other mothers, and more likely to be rural.[14] They receive fewer prenatal care visits and are less likely to deliver by Cesarean section (regardless of whether they previously had a Cesarean or not). However, there are no meaningful differences in the health of their babies as measured by birthweight, gestational age, or Apgar scores. Mothers who previously delivered in private hospitals have the highest rates of Cesarean section (again whether they previously had a Cesarean or not).

Comparing mothers who previously delivered by Cesarean section to those who did not, the most striking difference is in the probability that the index birth is delivered by Cesarean. For example, in SSA hospitals, 76 percent of mothers who previously had a C-section, have a

[14] We define a rural municipio as one in which none of the localities that make up the municipio have more than 10,000 people. This definition gives us a fraction rural that is comparable to that reported by Mexican statistical agencies.

repeat C-section, while only 13 percent of mothers without a previous C-section have one. The comparable rates of C-section in private hospitals are 89 percent and 24 percent. On average, there are no meaningful differences in health outcomes between the babies delivered by C-section and others.

4. Empirical Strategy

Our empirical approach exploits the fact that the same women are observed over time by selecting mothers who had more than one birth and asking whether SP affiliation affects the place where a woman delivers the second observed birth, conditional on the location of the first birth. We also distinguish between women whose first observed birth was by C-section and those whose first observed births were vaginal, since these women face quite different expected costs of delivery for the second observed birth given the high probability of having a repeat C-section.

Because SP affiliation is endogenous and correlated with maternal characteristics, we exploit the relationship between SMSXXI and SP by using SMSXXI enrollments at the municipio level as an instrumental variable for individual SP enrollment. As discussed above, the rationale for doing this is that the rollout of SMSXXI likely incentivized mothers who already had a young child to take up SP, because enrolling the child in SMSXXI resulted in automatic enrollment of the mother in SP. As we have shown, SMSXXI was not available uniformly throughout the country, so there is an exogenous element affecting the mother's ability to enroll her child in the program. Furthermore, focusing on a period after the initial rollout of SP is an advantage in terms of the exclusion restriction. While SP's early rollout was correlated with expansions of healthcare infrastructure and quality improvements (Sosa-Rubi et al., 2009; Knaul et al., 2012), this is less likely to be true of SMSXXI, providing support for the assumption that SMSXXI affects infant health through changes in insurance. We do however also provide reduced form estimates that do not depend on this identification assumption. Moreover, the marginal people who are induced to enroll by SMSXXI's expansion are likely to be different than in the SP rollout which aimed to cover the

poorest, most financially constrained individuals. Those induced to enroll by SMSXXI were eligible for SP but had chosen not to enroll previously, suggesting that they were not the population at greatest need.

The estimates are presented in a 2SLS framework. The first stage involves estimation of the effect of municipio-level enrollment in SMSXXI on a mothers' individual probability of being enrolled in SP. This estimation is presented for the whole sample and for each of the six groups defined by type of hospital and type of delivery of the first observed birth. These equations take the form:

$$(1)\ SP_{imnst} = \alpha_1 + \alpha_2 \%SMSXXI_{nst} + \alpha_3 X_{it} + \mu_m + \omega_t + \phi_s * t + \varepsilon_{imnst},$$

where SP_{imnst} indicates SP affiliation for woman i, whose first birth occurred in municipio n, who is now living in municipio m of state s. Because women might move to places that had greater SMSXXI penetration between the births, we measure a mother's municipio-level SMSXXI exposure in the place of the first observed birth (n) irrespective of whether she later moved. The measure of municipio-level SMSXXI exposure is therefore $\%SMSXXI_{nst}$, the share of eligible children under 5 enrolled in SMSXXI in the municipio of the first observed birth in year t. In practice, 87 percent of women stay in the same location between births, so in most cases m and n are the same and $\%SMSXXI_{nst}$ is therefore highly predictive of a woman's actual exposure to SMSXXI at time t.[15] The vector X_{it} includes controls for mother's age, schooling levels, marital status, number of births (including the index birth), and the sex of the newborn.

Fixed effects for the municipio where the birth occurs, μ_m, are included in order to capture factors such as the quality of available medical services in the municipio of delivery and the average health of the municipio's residents. Fixed effects are also included for the year of delivery and month of delivery, ω_t, to capture aggregate national changes, such as changes in the number of interventions covered by SMSXII, and for state-specific linear time trends, $\phi_s * t$, to capture differences in the trends affecting different states.

[15] This also means that it is not practical to include fixed effects for both the municipio of the first observed birth and fixed effects for the municipio of the second observed birth.

Standard errors ε_{inmst} are clustered at the municipio of birth, m, level to allow for factors that affect all births within a municipio. These regressions are weighted by the inverse probability of appearing in the full SINAC sample.

Crowding out/crowding in is first examined by estimating the following reduced form equation:

$$(2)\ HospType_{imnst} = \beta_1 + \beta_2 \%SMSXXI_{nst} + \beta_3 X_{it} + \mu_m + \omega_t + \phi_s * t + \varpi_{imnst},$$

where $HospType_{imnst}$ is the type of hospital where the mother delivered, focusing on SSA, and private. We then estimate instrumental variables (IV) models as follows:

$$(3)\ HospType_{imnst} = \gamma_1 + \gamma_2 PredSP_{imnst} + \gamma_3 X_{it} + \mu_m + \omega_t + \phi_s * t + \zeta_{imnst},$$

where $PredSP_{imnst}$ is calculated using equation (1). Evidently $\gamma_2 = \beta_2 / \alpha_2$, but the reduced from coefficient β_2 is valid even if $\%SMSXXI_{nst}$ does not satisfy the exclusion restriction for IV, which might be the case if factors that increase SMSXXI enrollments in a municipio are related to improvements in the quality of care.

Finally, we estimate IV models of the impact of individual maternal SP enrollment on utilization of care and health outcomes. These regressions take the form:

$$(4)\ Outcome_{imnst} = \delta_1 + \delta_2 PredSP_{imnst} + \delta_3 X_{it} + \mu_m + \omega_t + \phi_s * t + \psi_{imnst},$$

where $Outcome_{imnst}$ includes the following measures of utilization of care: the number of prenatal appointments, whether the first appointment occurred in the first trimester, an indicator for whether the mother had 12 or more prenatal appointments, and whether the delivery was by Cesarean section.

Measures of health outcomes include indicators for low birth weight (LBW, birth weight <2,500 grams), very low birth weight (VLBW, birth weight <1,500 grams), whether the baby was preterm (born before 36 weeks of gestation), indicators for a low APGAR score (a measure of health at birth, we focus on an indicator for whether it was <7 out of a possible 10), and macrosomia (birth weight>4,000 grams). We include macrosomia because it can lead to complications of labor and delivery (Júnior et al., 2017). Large size at birth has also been related to future obesity of both mothers and children (Ludwig and Currie 2010).

In addition to the models discussed above, we estimate models that exclude mothers in the smallest 5 percent of municipios, defined in terms of their population. The rationale for this robustness check is that the SMSXXI enrollment rate may be measured with more error in small places. As a second robustness check, mothers who had more than 12 prenatal care visits are excluded. Table 1 showed that it is quite unusual for Mexican mothers to have more than 12 visits, so these mothers may have unobservable health problems that necessitate more care and could also affect their choice of provider. In a similarly motivated robustness check, models are estimated excluding mothers whose first observed delivery was premature. Finally, we estimated models for rural areas only and for low-schooling mothers—defined as those with middle-school or less, since previous work has suggested that women in these areas may experience the largest gains from SP enrollment, although as we focus on a later period than that of the initial SP rollout estimated effects are not necessarily concentrated among the poorest individuals, as these were among the earlier SP-adopters.

5. Estimates

5.1 Is there crowd out of private sector care or crowding into informality?

First stage estimates of equation (1) are shown in Table 2. Table 2 indicates that municipio-level SMSXXI enrollment at the time of the second observed child's birth is predictive of an individual mother's enrollment in SP in the full analytic sample, with a first-stage F-statistic of 9.40,

as shown in the first panel. The remaining panels of the table break the sample down by where the mother delivered the first observed child. Not surprisingly, changes in SMSXXI enrollment have little impact on mothers who originally delivered in an SSA hospital, as shown in Panel 2. These mothers were already likely to be enrolled in SP.

Panel 3 shows that mothers who originally gave birth in private hospitals are however strongly affected. Places with a typical increase in SMSXXI enrollments of about 50 percentage points would have seen a 60 percent increase in SP enrollment (=0.5*(0.194/0.161)). The first stage F-statistic is 24.8. Splitting the sample by whether the mother initially had a C-section or not produces estimated coefficients that are very similar. This finding may provide some support for the idea behind our instrument because it suggests that women who became enrolled in SP because of the SMSXXI rollout were likely enrolling because of the benefits their child would receive and were no more likely to enroll if they anticipated a more costly future labor and delivery.

Panel 4 suggests that there was smaller (though not insignificant) effect on mothers who initially delivered in IMSS hospitals. The first column shows that in the full IMSS sample, a 50 percent increase in SMSXXI enrollments would increase the probability of SP enrollment by 0.035 percentage points, which is a large increase relative to the baseline SP enrollment rate of 0.024 for these mothers. Note that these results do not imply that SP *caused* people to lose IMSS coverage (e.g., leave the formal sector) but rather shows that a former IMSS-mother who loses IMSS coverage *for any reason* is more likely to affiliate to SP as SMSXXI expands.

Splitting the sample by whether the first birth was by C-section indicates that increases in SP enrollment occur only among IMSS mothers who did not have a C-section for the 1st birth, suggesting that those who anticipate a future C-section may be more reluctant to lose formal sector coverage. The fact that SP enrollment is also initially non-zero for mothers delivering in IMSS hospitals likely reflects the requirement that IMSS facilities must deal with medical emergencies. Unfortunately, the first-stage F-statistics is quite weak for women who delivered their first birth in an IMSS hospital,

which will limit what we can infer from IV models.

We also attempted to break out the small number of first observed births that took place at home. Perhaps surprisingly, these mothers had an SP enrollment rate of 44 percent at the time of the first observed birth, which is only slightly lower than the overall average in the comprehensive SINAC national data. However, the first stage F-statistic is quite weak for these mothers. Given the small number of mothers and the weak first stage, we do not attempt to estimate models for the subset of mothers who initially gave birth at home in what follows.

Reduced form estimates of the effect of municipio-level SMSXXI enrollments on whether the second observed birth was in an SSA hospital are shown in the Panel A of Table 3. The estimates for the overall sample suggest that an increase in SMSXXI enrollments of 50 percent would increase the probability that the second observed birth took place in an SSA hospital by 6.8 percent overall. Breaking the sample up by where the first delivery took place, the estimates indicate that a 50 percent increase in SMSXXI enrollments would increase the probability of delivering the second observed birth in an SSA hospital by 4.8 percent among mothers who first delivered in an SSA hospital and by 36.9 percent among mothers who first delivered in a private hospital. [16]

Among mothers who first delivered in IMSS hospitals, the reduced form estimate is small and statistically insignificant. Furthermore, we find suggestive evidence that women who were induced to take up SP by SMSXXI rollout and first delivered at IMSS *and* did not have a c-section were, if anything, more likely to deliver at a private hospital.[17] In combination with Table 2, these results suggests that although SMSXXI induced some mothers who initially delivered in IMSS hospitals to enroll in SP (perhaps by automatically covering them), it did not induce these mothers to switch to public hospitals, suggesting that they preferred to deliver in private hospitals—especially when

[16] All percent effects are calculated using the mean outcomes from first births from Table 2.
[17] Table A1 in the Appendix shows equivalent results to Table 3 but using private hospital delivery as the dependent variable (reduced form estimates in Panel A and TSLS in Panel B). It shows (marginally) significant positive reduced form estimates (but not TSLS—consistent with SMSXXI being a weak instrument for this subgroup) for women whose first observed birth was at IMSS and did not have a c-section.

expected delivery costs were lower because they expected a vaginal delivery.[18]

Sections 2 and 3 of Panel A break the sample up by whether the mother's first observed birth was by C-section or not. The estimates are no bigger for mothers who initially had C-sections and therefore should anticipate repeat C-sections and higher costs. This finding is suggestive that mothers are not signing up for SP due to their own anticipated labor and delivery costs, but because of SMSXXI's additional coverage for their young children.

Panel B of Table 3 shows the IV estimates (i.e. the reduced forms scaled by the first stage estimates). These estimates suggest that women who were automatically enrolled in SP because of the SMSXXI rollout (i.e. because they were able to enroll their young children in SMSXXI) were much more likely to have their second observed birth in an SSA hospital. The overall estimate of 59.7 percentage points, implies that most people enrolled in SP because of SMSXXI use an SSA hospital. Breaking the sample by the first place of delivery indicates a more nuanced story. While there are large estimated coefficients for mothers who initially gave birth in SSA hospitals, these coefficients are only statistically significant at the 10 percent level of confidence (recall that the first stage was very weak for this subgroup suggesting that the IV estimates are not reliable). The most significant estimated effects are for mothers who initially gave birth in private hospitals, who see a more than 200 percent increase in the probability of delivering in an SSA hospital. However, the coefficient of 0.611 is still significantly less than one which suggests that even women induced to enroll in SP by SMSXXI do not deliver at an SSA hospital with certainty. Instead, some SP-affiliated women (up to about 20%, considering two standard deviations around the coefficient) may prefer to incur out-of-pocket expenses to deliver at a private hospital, likely due to higher perceived quality, travel costs, or congestion at the public facility.[19] Turning to mothers who initially gave birth in an

[18] This could be the case if they (or their spouse) left the formal sector, for reasons not necessarily related to SP. In this case they would no longer have been eligible to deliver in an IMSS hospital. Some mothers might have nonetheless utilized SP for prenatal care but delivered in a private hospital for reasons of convenience or concerns about quality at the SSA hospital.
[19] These women may still be receiving prenatal care from SP and benefitting from the program. Place where prenatal care was received is not available in the data.

IMSS facility, the effects are wrong-signed and not statistically significant, consistent with the reduced form estimates discussed above and with having a weak instrument.

For completeness, naïve OLS estimates showing the relationship between individual SP affiliation and using an SSA hospital are presented in Appendix Table A2. These estimates show that being enrolled in SP is strongly predictive of having an SSA delivery, independent of whether the first birth was by C-section or where it occurred. These results suggest, not surprisingly, that women who endogenously remain in SP or newly enroll in SP after their first observed birth are more likely to subsequently use SSA services.

5.2 Effects of individual SP enrollment on utilization of care and infant health

OLS estimates of the relationship between individual maternal SP enrollment and utilization of care are shown in Appendix Table A3. These estimates suggest that SP is negatively related to all the measures regardless of where the first observed birth took place and whether it was by C-section. These results suggest that women enrolling in SP prior to their second observed birth are selected in a way that is predictive of lower utilization of care which is perhaps to be expected.

In contrast, the IV estimates shown in Table 4 suggest that individual SP enrollment has little impact on prenatal care or the probability of a C-section. The sole exception is that women whose first observed birth was in a private hospital are more likely to start receiving prenatal care in the first trimester if they are enrolled in SP. This effect is larger among women whose first observed birth was vaginal, which may reflect the fact that these women are more likely to delay the commencement of prenatal care than mothers who previously delivered via C-section, especially if they had to bear the cost of these appointments before they were covered by SP. The estimates imply that women with a previous C-section increase first trimester initiation of prenatal care by 36 percent, compared to an increase of 80 percent among women without a previous C-section. An obvious interpretation of these results is that women who were paying for their own care, initiate prenatal care earlier when the

care is free under SP. The estimates are very similar if we drop mothers in the smallest municipios, mothers with over 12 prenatal care visits, mothers with a previous premature delivery, and mothers with a middle-school education or less. These estimates are shown in Appendix Tables A4, A5, A6, and A7. They are also similar when we focus only on rural municipios (results not shown).

Appendix Table A8 shows OLS estimates of the relationship between individual maternal SP enrollment and infant health outcomes. These estimates follow different patterns for mothers who initially gave birth in SSA or IMSS hospitals and those who gave birth in private hospitals. While those initially giving birth in SSA hospitals had second babies who were slightly less likely to be low birthweight when they were enrolled in SP, mothers who initially delivered in private hospitals are more likely to have low birthweight or very low birth weight second infants when they were enrolled in SP. These effects are large relative to the overall means, implying a 15 percent higher probability of low birthweight and a 33 percent higher probability of very low birthweight. The probability of a preterm delivery is also significantly higher among these mothers. Moreover, mothers initially delivering in private hospitals by C-section who are enrolled in SP at the time of the second birth are also more likely to have large (macrosomic) babies second time around.

These estimates suggest that mothers initially delivering in private hospitals are more likely to have infants with health problems. However, the IV estimates shown in Table 5 imply that this relationship is not causal. There are no statistically significant effects on low birth weight, very low birthweight, or prematurity among any group of mothers. Only one coefficient (on macrosomic for all mothers) is statistically significant out of 60 estimated, suggesting that there are no effects of SP enrollment on infant health in this sample.

Appendix Tables A9, A10, A11, and A12 show models excluding mothers in the smallest municipios, mothers with over 12 prenatal care visits, mothers whose previous infant was preterm, and mothers with middle-school or lower education, respectively. All of the estimates are very similar to those in Table 5. We also obtained similar estimates using mothers in poor municipios only (results

not shown). The lack of statistically significant effects for this population, which has often been one where the strongest effects of SP have been found (Conti and Ginja, 2020; Barros 2008), is likely due to our study period, as the marginal people being induced to enroll by SMSXXI's expansion are less likely to be the poorest, most vulnerable individuals.

6. **Discussion and Conclusions**

We use novel administrative birth data from Mexico that allows us to track births to the same mother in a large, national, sample to investigate the extent to which enrollment in the Seguro Popular health insurance program causes crowd out from private health services, as well as crowding into the informal sector. Focusing on mothers who are observed to have at least two births in the data, we then ask whether SP enrollment has effects on health care utilization and infant health outcomes. We distinguish between mothers who initially delivered by C-section and those who did not, since these two groups of women face quite different expected costs of the second delivery.

Because enrollment in SP is not random, we instrument it using the roll out of SMSXXI, a program that offered easy enrollment and enhanced coverage of children under 5 and also automatically enrolled all family members in SP. The availability of this program varied considerably across time and space. We show that municipio-level enrollments in SMSXXI are strongly predictive of individual maternal enrollment in SP, especially among women who initially delivered in private hospitals.

We find evidence of significant crowd-out from private hospitals: Mothers who initially gave birth in private hospitals see a more than 200 percent increase in the probability of delivering in an SSA hospital when they are enrolled in SP. This represents a significant shifting of health care costs from private payers (mostly families paying out-of-pocket) to the public sector, which is consistent with SP's goal of relieving financial burdens due to health care costs, though it also increases the cost of the public program. While we find some evidence suggesting that SP enrollment increased for

mothers who initially gave birth in IMSS facilities, we do not see these women shifting to SSA hospitals for delivery. Hence, while they may have been crowded out of formal sector insurance, they do not seem to be crowding into public facilities.

These changes in where mothers give birth and who pays for it appear to have little effect on the utilization of prenatal care, the use of C-section, or on infant health outcomes. Patterns that appear in OLS regressions are largely driven by selection into the different facilities and there is little causal effect of delivering in different types of facilities on outcomes. The sole exception is that women who initially delivered in a private hospital start prenatal care earlier when they are induced to join SP by SMSXXI. This result is consistent with the lower cost of care under SP.

Pregnancy and delivery services are costly compared to the average income of families in Mexico: A private sector vaginal delivery at the low end of the price distribution was equivalent to about 12.0 percent of the average yearly household income of MXN $139,744 in 2010, while a C-section cost about 15 percent of annual household income, (ENIGH, 2010). SP coverage of these services therefore represents a sizeable transfer to families at the lower end of the income distribution. However, obstetrical healthcare costs may be relatively more manageable for workers transitioning from the formal to the informal section if these workers are relatively highly paid. This might explain why some women who were insured by IMSS at the time of the first birth but enrolled in SP at the time of the second birth nevertheless deliver in private hospitals. Even for these women, however, SP could offer some protection against catastrophic medical costs.

For poorer households, the benefits of expanding SP may have important benefits for the newly insured population which extend beyond access to healthcare—health insurance for the poor benefits recipients, but also reduces financial burdens on the recipient's network, friends and family, who might otherwise be called on to help pay for financial emergencies (Nikolov and Bonci, 2020; Orraca-Romano, 2015; Geng et al., 2018, Strupat and Klohn, 2018). Together these benefits may improve their welfare considerably, even in the absence of effects on utilization of care or health outcomes.

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Tables and Figures

Table 1: Summary statistics for second births

	Public Use	Confidential data with mother ID		Confidential data, 2+ births, 1st=CS			Confidential data, 2+ births, 1st not CS		
Means for:	All births	All with mother ID	Mothers with 2+ births only	1st in SSA hospital	1st in private hospital	1st in IMSS hospital	1st in SSA hospital	1st in private hospital	1st in IMSS hospital
Received prenatal care	1.00	1.00	0.97	0.97	0.99	0.99	0.96	0.97	0.98
# prenatal appts.	7.49	7.52	7.01	6.58	8.12	8.09	6.03	7.15	7.62
> 12 appointments	0.05	0.05	0.04	0.03	0.06	0.07	0.02	0.04	0.05
Birth weight (g)	3160.96	3148.28	3189.71	3190.12	3140.19	3212.83	3211.38	3191.14	3233.75
LBW	0.06	0.07	0.04	0.04	0.04	0.04	0.04	0.04	0.04
VLBW	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Macrosomic	0.03	0.03	0.03	0.04	0.02	0.04	0.04	0.03	0.04
Apgar score	8.88	8.88	8.89	8.91	8.98	8.91	8.90	8.95	8.92
Apgar < 7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Weeks gestation	38.83	38.80	38.90	38.76	38.43	38.59	39.00	38.85	38.89
Cesarean	0.47	0.48	0.41	0.76	0.89	0.83	0.13	0.24	0.18
Private hosp.	0.22	0.24	0.23	0.08	0.70	0.11	0.05	0.62	0.07
SSA hosp.	0.48	0.49	0.53	0.78	0.18	0.16	0.83	0.27	0.21
IMSS, other public hosp.	0.28	0.26	0.22	0.14	0.11	0.72	0.11	0.10	0.72
Home birth	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Baby is female	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Mother's age	25.33	25.17	23.93	24.20	27.01	27.04	24.45	26.57	26.31
# births	2.07	2.02	2.10	2.41	2.40	2.39	2.94	2.89	2.77
Completed primary	0.92	0.93	0.93	0.93	0.97	0.98	0.90	0.94	0.97
Completed secondary	0.72	0.74	0.71	0.69	0.84	0.88	0.62	0.73	0.83
Completed high school	0.33	0.34	0.30	0.22	0.52	0.51	0.16	0.37	0.40
Rural municipality	0.19	0.20	0.21	0.24	0.12	0.18	0.25	0.16	0.18
Observations	11,602,838	6,385,631	1,712,761	105,544	135,320	64,776	303,910	55,767	90,035

Notes: Public use data includes all births. Confidential data includes only births with a mother ID. Columns 2 and 3 include all births with ID. Columns 4-9 show means for the second observed birth only (i.e. first observed birth is excluded). Variables: Proportion of women with prenatal care, number of prenatal appointments, an indicator if more than 12 prenatal appointments, weight at birth (g.), low birth weight (LBW=less than 2500 g.), very low birth weight (VLBW =less than 1500g.), macrosomic (birth weight above 4,000g.), APGAR score, Apgar<7, gestational age in weeks, C-section, private, SSA, or IMSS (including other public contributory schemes) hospital, female child, mother's age, number of births including the index birth, completed primary school, completed middle school (known as secondary in Mexico), completed high school.

Table 2: First stage, Municipio SSMXXI share and SP enrollment

	All births	1st birth CS	1st birth not CS
1. All births	0.108***	0.130***	0.095**
	(0.035)	(0.033)	(0.039)
N. observations	772,702	306,447	466,065
Mean SP affil: 1st births	0.464	0.341	0.548
First-stage F	9.407	15.084	5.769
2. First birth in SSA	0.080	0.080	0.081
	(0.051)	(0.059)	(0.052)
N. observations	409,699	105,544	303,904
Mean SP affil: 1st births	0.773	0.779	0.771
First-stage F	2.463	1.878	2.478
3. First birth in private	0.194***	0.201***	0.186**
	(0.039)	(0.033)	(0.073)
N. observations	191,329	135,318	55,726
Mean SP affil: 1st births	0.161	0.150	0.189
First-stage F	24.892	37.557	6.567
4. First birth in IMSS	0.071**	0.037	0.098***
	(0.030)	(0.034)	(0.035)
N. observations	155,090	64,772	89,974
Mean SP affil: 1st births	0.024	0.022	0.025
First-stage F	5.391	1.197	7.672

Notes: The outcome in all estimates is an indicator for individual mother's affiliation with SP. The first-stage F statistic reported is the excluded F statistic from an IV regression. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence and year and month fixed effects. All regressions include fixed effects for mother's age, number of pregnancies, years of schooling, and control for the baby's sex, an indicator for if the mother is married, and state time trends. SMSXXI affiliation is that of the municipio of first birth. Regressions are weighted by the inverse probability of appearing in the mother population sample. Standard errors clustered at the *municipio* level.

Table 3: Reduced form and TSLS estimates of the impact of SMSXXI expansion on the probability that the second birth was in an SSA hospital

A. Reduced form estimates	All	1st birth SSA	1st birth private	1st birth IMSS
1. All	0.064**	0.074***	0.119***	-0.017
	(0.025)	(0.022)	(0.028)	(0.027)
N	772,702	409,699	191,329	155,090
Mean Y, 2nd births	0.533	0.818	0.208	0.190
2. 1st birth CS	0.089***	0.087***	0.118***	-0.010
	(0.030)	(0.029)	(0.028)	(0.031)
N	306,447	105,544	135,318	64,772
Mean Y, 2nd births	0.386	0.783	0.182	0.165
3. 1st birth not CS	0.052**	0.070***	0.129***	-0.019
	(0.024)	(0.024)	(0.046)	(0.090)
N	466,065	303,904	55,726	12,261
Mean Y, 2nd births	0.630	0.831	0.270	0.430
B. TSLS				
4. All	0.597***	0.930*	0.611***	-0.242
	(0.207)	(0.524)	(0.093)	(0.452)
N	772,702	409,699	191,329	155,090
Mean Y, 2nd births	0.533	0.818	0.208	0.190
5. 1st birth CS	0.685***	1.082	0.588***	-0.283
	(0.172)	(0.709)	(0.100)	(1.047)
N	306,447	105,544	135,318	64,772
Mean Y, 2nd births	0.386	0.783	0.182	0.165
6. 1st birth not CS	0.545***	0.859*	0.692***	-0.190
	(0.252)	(0.481)	(0.192)	(0.372)
N	466,065	303,904	55,726	89,974
Mean Y, 2nd births	0.630	0.831	0.270	0.207

Notes: The outcome in all estimates is an indicator for the second birth occurring in an SSA hospital; the explanatory variable is the municipio enrollment in SMSXXI in Panel A; municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth in Panel B. Each column limits the sample to women whose first birth was in the institution type listed. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence and year fixed effects. All regressions include fixed effects for mother's age, number of pregnancies, years of schooling, and month, and control for the baby's sex, an indicator for if the mother is married, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Standard errors clustered at the municipio level. *p<0.10. **p<0.05. ***p<0.01.

Table 4: IV Estimates of Effect of SP on Health Care Utilization

	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.	CS
A. Overall						
Full sample	772,702	0.046	1.266	0.421	-0.048	-0.071
		(0.061)	(1.143)	(0.272)	(0.056)	(0.163)
First birth in	409,699	0.012	1.839	0.729	-0.021	0.082
SSA clinic		(0.149)	(2.056)	(0.596)	(0.062)	(0.243)
First birth in	191,329	0.039	0.726	0.358***	-0.021	-0.099
private		(0.039)	(0.836)	(0.118)	(0.059)	(0.119)
First birth in	155,090	0.069	2.875	-0.445	-0.016	0.075
IMSS		(0.110)	(3.186)	(0.417)	(0.174)	(0.405)
Mean Y		0.973	7.100	0.720	0.038	0.408
B. First birth Cesarean						
All	306,447	0.011	0.796	0.265	-0.035	-0.092
		(0.041)	(0.992)	(0.179)	(0.071)	(0.121)
First birth in	105,544	-0.011	1.675	0.483	0.218	-0.173
SSA clinic		(0.150)	(2.840)	(0.640)	(0.250)	(0.368)
First birth in	135,318	0.027	0.665	0.281**	-0.057	-0.045
private		(0.029)	(0.830)	(0.113)	(0.075)	(0.090)
First birth in	64,772	-0.245	4.587	-0.634	-0.081	-0.386
IMSS		(0.282)	(9.808)	(1.063)	(0.487)	(0.920)
Mean Y		0.984	7.848	0.785	0.056	1.000
C. First birth not Cesarean						
All	466,065	0.080	1.677	0.540	-0.053	-0.086
		(0.102)	(1.692)	(0.398)	(0.066)	(0.139)
First birth in	303,904	0.024	1.748	0.788	-0.099	-0.072
SSA clinic		(0.174)	(2.093)	(0.632)	(0.094)	(0.193)
First birth in	55,726	0.058	1.056	0.562*	0.066	-0.256
private		(0.106)	(1.701)	(0.304)	(0.094)	(0.212)
First birth in	89,974	0.149	2.456	-0.400	0.007	0.066
IMSS		(0.135)	(2.650)	(0.357)	(0.156)	(0.253)
Mean Y		0.964	6.586	0.676	0.025	0.000

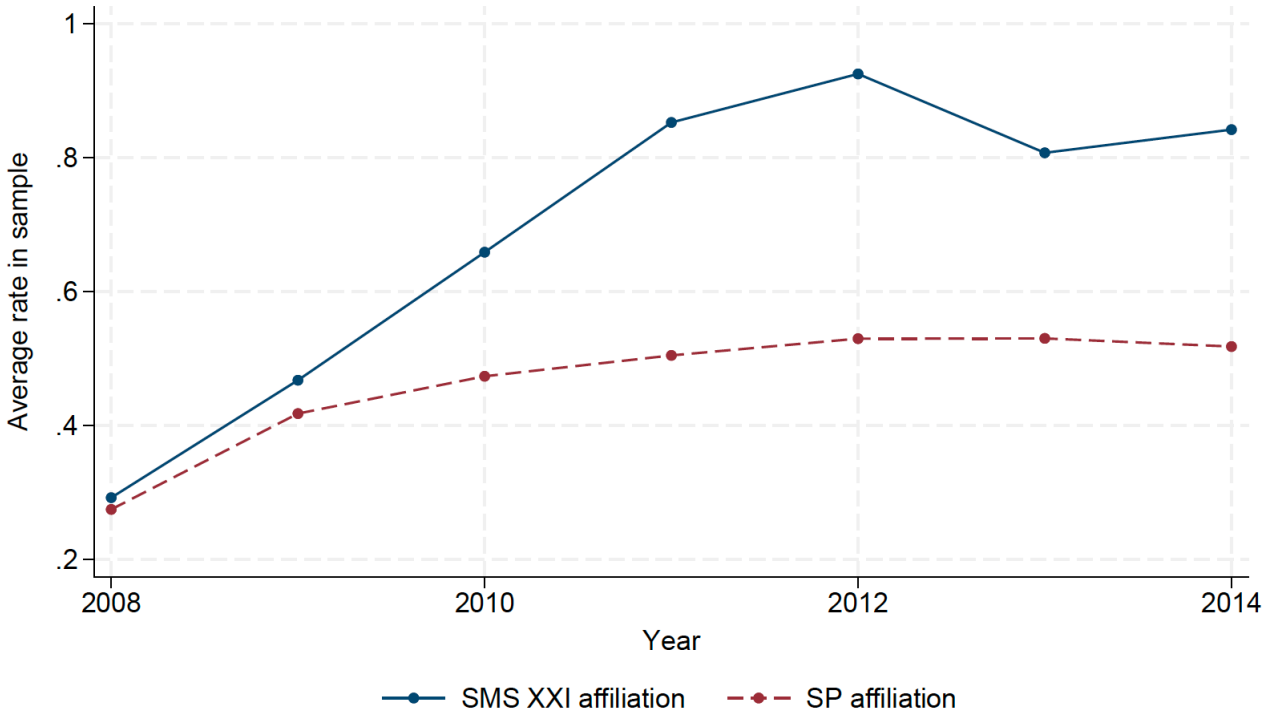
Notes: Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, mother's age, number of pregnancies, years of schooling, and month fixed effects, and control for the baby's sex, an indicator for ifthe mother is married, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table 5: IV estimates of effect of SP enrollment on infant health

	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
Full sample	772,702	-0.022	0.010	0.093*	0.017	-0.016
		(0.042)	(0.011)	(0.056)	(0.032)	(0.034)
First birth in	409,699	0.019	0.019	0.136	0.018	-0.050
SSA clinic		(0.079)	(0.024)	(0.117)	(0.051)	(0.075)
First birth in	191,329	-0.067	0.012	0.018	-0.010	-0.048
private		(0.055)	(0.012)	(0.056)	(0.026)	(0.040)
First birth in	155,090	-0.001	-0.019	0.204	0.051	0.133
IMSS		(0.141)	(0.036)	(0.157)	(0.083)	(0.124)
Mean Y		0.039	0.003	0.031	0.011	0.021
B. First birth Cesarean						
All	306,447	-0.024	0.003	0.135**	0.007	-0.056
		(0.055)	(0.013)	(0.066)	(0.039)	(0.049)
First birth in	105,544	-0.021	-0.044	0.193	-0.031	-0.338
SSA clinic		(0.157)	(0.054)	(0.205)	(0.073)	(0.295)
First birth in	135,318	-0.029	0.013	0.052	-0.005	-0.042
private		(0.057)	(0.012)	(0.055)	(0.030)	(0.041)
First birth in	64,772	-0.236	-0.006	0.811	0.119	0.400
IMSS		(0.460)	(0.106)	(0.800)	(0.310)	(0.524)
Mean Y		0.048	0.004	0.038	0.009	0.029
C. First birth not Cesarean						
All	466,065	-0.026	0.019	0.054	0.034	0.013
		(0.062)	(0.018)	(0.065)	(0.046)	(0.043)
First birth in	303,904	0.014	0.040	0.110	0.033	0.036
SSA clinic		(0.087)	(0.034)	(0.113)	(0.063)	(0.071)
First birth in	55,726	-0.174	0.008	-0.064	-0.011	-0.057
private		(0.119)	(0.028)	(0.096)	(0.056)	(0.078)
First birth in	89,974	0.027	-0.029	0.016	0.027	0.045
IMSS		(0.124)	(0.034)	(0.124)	(0.053)	(0.096)
Mean Y		0.033	0.002	0.026	0.012	0.016

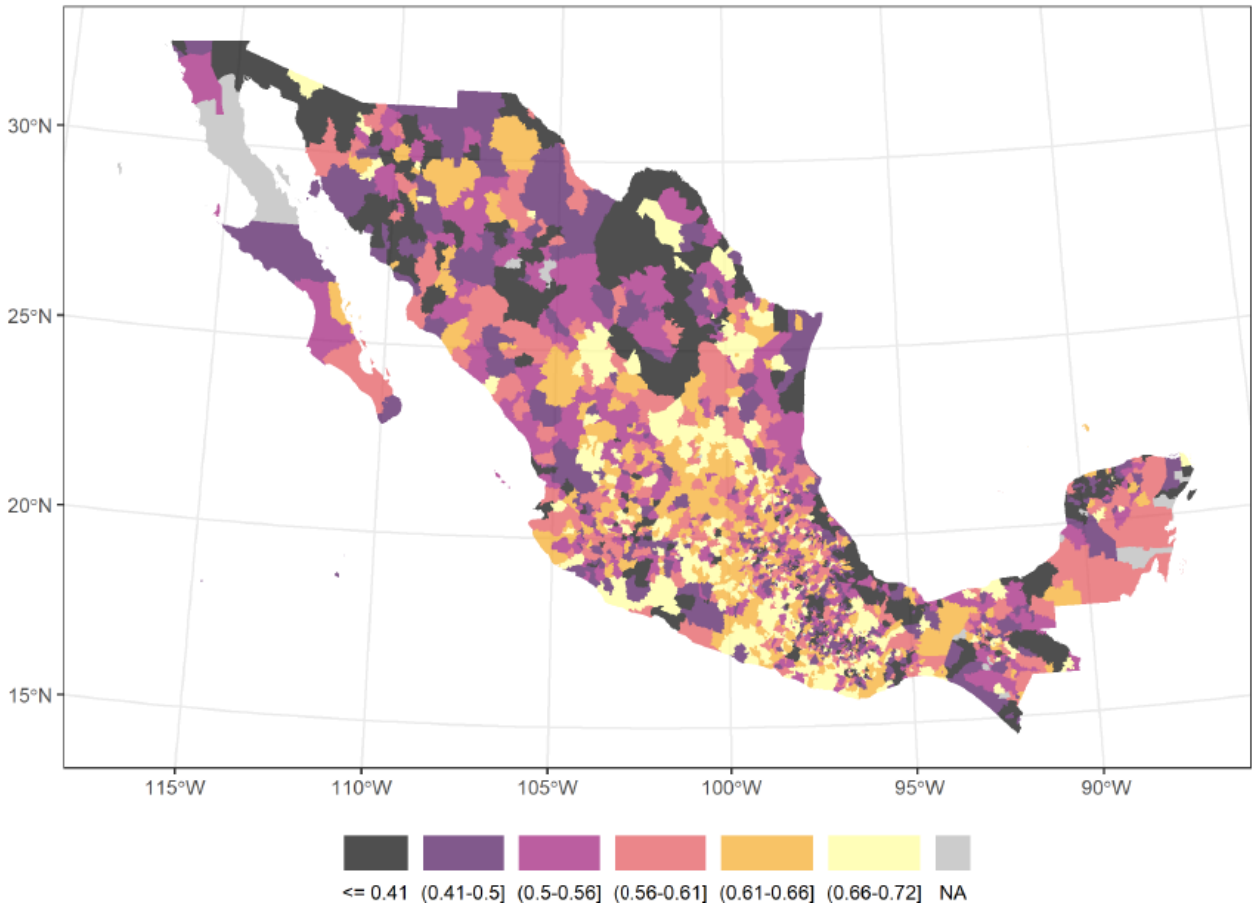
Notes: Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies, years of schooling, a control for the baby's sex, an indicator for marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Figure 1: Roll-out of public health insurance schemes



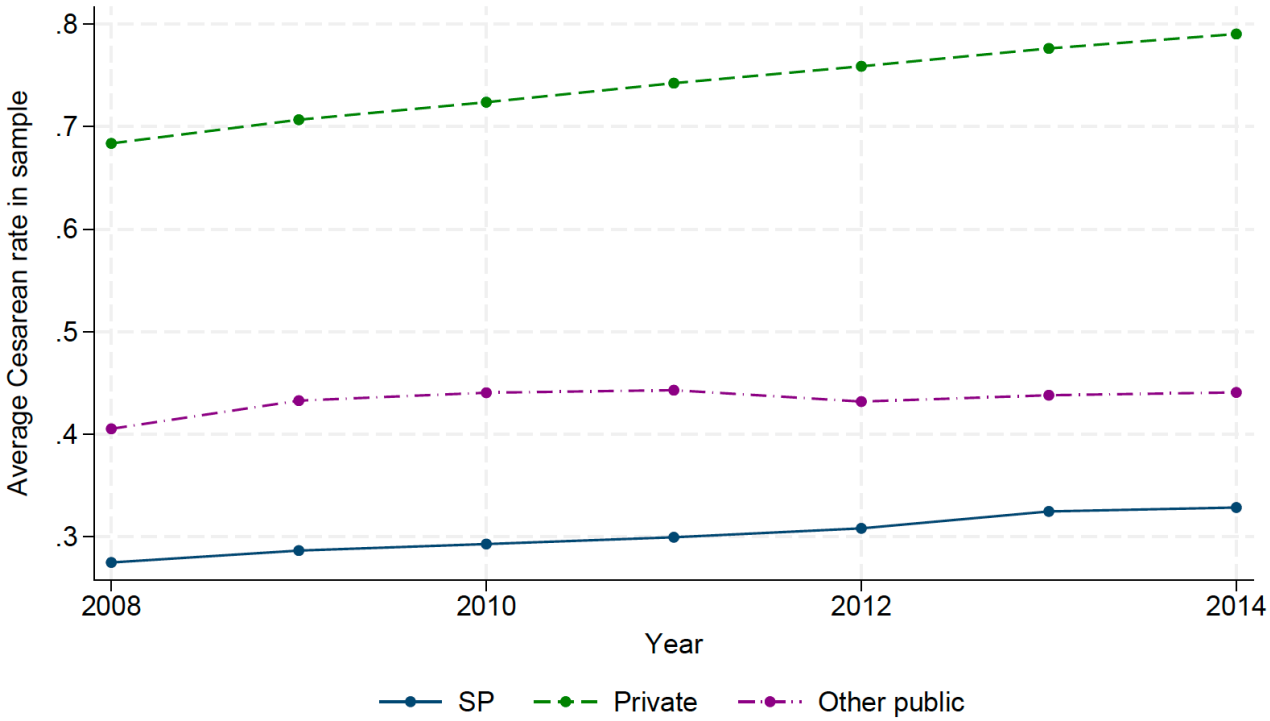
Notes: Each point represents the affiliation rate among births in the estimation sample by year. Averages calculated using sample weights that weight observations by the probability of appearing in the sample. Points in blue with solid line depict the SMSXXI affiliation rate of the *municipio* of residents of the mother during the first birth. Points in red connected by the red dashed line represent the SP affiliation ofthe birth.

Figure 2: Roll-out of SMSXXI program



Notes: Colors represent the change in the SMSXXI affiliation rate from 2008 to 2014. Bin divisions are determined by six quantile bins of the change in affiliation.

Figure 3: Cesarean rates by institution of birth



Notes: Each point represents the rate of Cesarean in the estimation sample by year and institution of birth. Averages calculated using sample weights that weight observations by the probability of appearing in the sample. "Other public" includes IMSS, ISSSTE, and all military hospitals, though IMSS is by far the largest group of hospitals in this category.

Appendix Tables and Figures

Table A1: Reduced form and TSLS estimates of the impact of SMSXXI expansion on the probability that the second birth was in private hospital

A. Reduced form estimates	All	1st birth SSA	1st birth private	1st birth IMSS
All	-0.050**	-0.006	-0.087***	-0.002
	(0.025)	(0.010)	(0.033)	(0.017)
N	772,702	409,699	191,329	155,090
Mean Y, 2nd births	0.218	0.056	0.679	0.088
1st birth CS	-0.095***	-0.021	-0.097***	-0.051**
	(0.035)	(0.018)	(0.033)	(0.025)
N	306,447	105,544	135,318	64,772
Mean Y, 2nd births	0.362	0.079	0.703	0.111
1st birth not CS	-0.022	0.000	-0.067	0.031*
	(0.019)	(0.010)	(0.054)	(0.018)
N	466,065	303,904	55,726	89,974
Mean Y, 2nd births	0.123	0.048	0.622	0.071

B. TSLS	All	1st birth SSA	1st birth private	1st birth IMSS
All	-0.466*	-0.072	-0.448***	-0.022
	(0.242)	(0.133)	(0.125)	(0.240)
N	772,702	409,699	191,329	155,090
Mean Y, 2nd births	0.218	0.056	0.679	0.088
1st birth CS	-0.728***	-0.258	-0.484***	-1.367
	(0.275)	(0.309)	(0.130)	(1.588)
N	306,447	105,544	135,318	64,772
Mean Y, 2nd births	0.362	0.079	0.703	0.111
1st birth not CS	-0.232	0.000	-0.359	0.317
	(0.201)	(0.124)	(0.229)	(0.204)
N	466,065	303,904	55,726	89,974
Mean Y, 2nd births	0.123	0.048	0.622	0.071

Notes: The outcome in all estimates is an indicator for the second birth occurring in a private hospital; the explanatory variable is the municipio enrollment in SMSXXI in Panel A; municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth in Panel B. Each column limits the sample to women whose first birth was in the institution type listed. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence and year fixed effects. All regressions include fixed effects for mother's age, number of pregnancies, years of schooling, and month, and control for the baby's sex, an indicator for if the mother is married, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Standard errors clustered at the municipio level.
*p<0.10. **p<0.05. ***p<0.01.

Table A2: OLS estimates: SP and the probability of giving birth in an SSA hospital

	All	1st birth SSA	1st birth private	1st birth IMSS
All	0.690***	0.591***	0.536***	0.799***
	(0.011)	(0.016)	(0.010)	(0.021)
N	772,706	409,699	191,330	155,093
Mean Y, 2nd births	0.533	0.818	0.208	0.190
1st birth CS	0.684***	0.636***	0.530***	0.779***
	(0.011)	(0.016)	(0.010)	(0.025)
N	306,448	105,544	135,318	64,773
Mean Y, 2nd births	0.386	0.783	0.182	0.165
1st birth not CS	0.685***	0.574***	0.544***	0.810***
	(0.012)	(0.017)	(0.013)	(0.020)
N	466,068	303,904	55,727	89,976
Mean Y, 2nd births	0.630	0.831	0.270	0.207

Notes: Coefficients for individual SP affiliation are shown. The dependent variable is whether the delivery occurred at an SSA hospital. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01."

Table A3: OLS Estimates of SP and Healthcare

	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.	CS
A. Overall						
Full sample	772,706	-0.005***	-1.250***	-0.086***	-0.033***	-0.119***
		(0.001)	(0.039)	(0.005)	(0.002)	(0.005)
First birth in SSA clinic	409,699	0.002	-0.992***	-0.061***	-0.029***	-0.062***
		(0.001)	(0.040)	(0.005)	(0.002)	(0.004)
First birth in private	191,330	-0.004***	-0.975***	-0.070***	-0.022***	-0.097***
		(0.001)	(0.039)	(0.006)	(0.002)	(0.005)
First birth in IMSS	155,093	-0.016***	-1.683***	-0.121***	-0.047***	-0.048***
		(0.002)	(0.066)	(0.008)	(0.003)	(0.005)
Mean Y		0.973	7.100	0.720	0.038	0.408
B. First birth Cesarean						
All	306,448	-0.007***	-1.273***	-0.086***	-0.033***	-0.073***
		(0.001)	(0.038)	(0.005)	(0.002)	(0.004)
First birth in SSA clinic	105,544	-0.004**	-1.124***	-0.063***	-0.034***	-0.027***
		(0.002)	(0.048)	(0.006)	(0.002)	(0.005)
First birth in private	135,318	-0.006***	-1.054***	-0.078***	-0.023***	-0.092***
		(0.001)	(0.036)	(0.005)	(0.002)	(0.005)
First birth in IMSS	64,773	-0.010***	-1.598***	-0.109***	-0.051***	-0.059***
		(0.002)	(0.076)	(0.009)	(0.004)	(0.006)
Mean Y		0.984	7.848	0.785	0.056	1.000
C. First birth Not Cesarean						
All	466,068	-0.003**	-1.180***	-0.080***	-0.031***	-0.057***
		(0.001)	(0.043)	(0.005)	(0.001)	(0.003)
First birth in SSA clinic	303,904	0.004**	-0.933***	-0.060***	-0.026***	-0.060***
		(0.002)	(0.043)	(0.005)	(0.001)	(0.004)
First birth in private	55,727	-0.002	-0.805***	-0.053***	-0.019***	-0.075***
		(0.002)	(0.060)	(0.009)	(0.002)	(0.006)
First birth in IMSS	89,976	-0.019***	-1.736***	-0.128***	-0.044***	-0.028***
		(0.002)	(0.066)	(0.009)	(0.003)	(0.005)
Mean Y		0.964	6.586	0.676	0.025	0.000

Notes: The first birth is excluded from all regressions. All regressions include (fixed) *municipio* of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the *municipio* of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A4: SP and Healthcare Utilization, Excluding Births in the 5% Most Rural Municipios

	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.	CS
A. Overall						
Full sample	735,951	0.056	1.520	0.440	-0.033	-0.093
		(0.066)	(1.266)	(0.297)	(0.058)	(0.174)
First birth in SSA clinic	384,708	0.043	2.147	0.783	-0.013	0.070
		(0.164)	(2.323)	(0.673)	(0.065)	(0.255)
First birth in private	184,781	0.036	0.717	0.349***	-0.000	-0.120
		(0.040)	(0.868)	(0.122)	(0.060)	(0.121)
First birth in IMSS	151,827	0.055	3.271	-0.467	0.002	0.079
		(0.111)	(3.380)	(0.431)	(0.178)	(0.414)
Mean Y		0.972	7.107	0.721	0.038	0.411
B. First birth Cesarean						
All	294,451	0.006	0.800	0.296	-0.012	-0.060
		(0.044)	(1.059)	(0.196)	(0.075)	(0.129)
First birth in SSA clinic	99,459	0.007	1.630	0.637	0.252	-0.115
		(0.168)	(3.178)	(0.819)	(0.310)	(0.409)
First birth in private	131,168	0.020	0.575	0.258**	-0.033	-0.032
		(0.029)	(0.844)	(0.115)	(0.074)	(0.092)
First birth in IMSS	63,460	-0.338	5.260	-0.743	-0.063	-0.517
		(0.418)	(12.457)	(1.329)	(0.588)	(1.161)
Mean Y		0.984	7.861	0.785	0.056	1.000
C. First birth Not Cesarean						
All	441,490	0.105	2.133	0.552	-0.047	-0.111
		(0.113)	(1.904)	(0.433)	(0.069)	(0.151)
First birth in SSA clinic	285,217	0.055	2.084	0.792	-0.095	-0.080
		(0.188)	(2.304)	(0.672)	(0.097)	(0.202)
First birth in private	53,490	0.071	1.077	0.617*	0.081	-0.318
		(0.110)	(1.785)	(0.332)	(0.102)	(0.232)
First birth in IMSS	88,232	0.138	2.877	-0.412	0.017	0.117
		(0.132)	(2.694)	(0.354)	(0.154)	(0.253)
Mean Y		0.964	6.580	0.676	0.025	0.000

Notes: The first birth is excluded from all regressions. All regressions include (fixed) *municipio* of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the *municipio* of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A5: SP and Healthcare Utilization, Excluding Births with>12 Prenatal Visits

A. Overall					
	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.
Full sample	745,776	0.049	1.623	0.443	-0.090
		(0.063)	(1.135)	(0.292)	(0.157)
First birth in	402,023	0.020	2.243	0.743	0.046
SSA clinic		(0.154)	(2.186)	(0.624)	(0.237)
First birth in	181,415	0.036	0.717	0.359***	-0.104
private		(0.040)	(0.738)	(0.121)	(0.119)
First birth in	145,927	0.068	2.855	-0.302	0.048
IMSS		(0.108)	(2.773)	(0.412)	(0.379)
Mean Y		0.972	6.747	0.712	0.400
B. First birth Cesarean					
All	291,559	0.012	1.017	0.291	-0.092
		(0.042)	(0.874)	(0.193)	(0.121)
First birth in	102,885	-0.008	-0.291	0.460	-0.191
SSA clinic		(0.147)	(1.763)	(0.595)	(0.364)
First birth in	127,430	0.027	0.931	0.289**	-0.078
private		(0.030)	(0.749)	(0.115)	(0.090)
First birth in	60,431	-0.202	5.667	-0.310	0.033
IMSS		(0.218)	(7.768)	(0.914)	(0.694)
Mean Y		0.984	7.362	0.775	1.000
C. First birth not Cesarean					
All	454,029	0.085	2.130	0.563	-0.116
		(0.106)	(1.727)	(0.424)	(0.141)
First birth in	298,881	0.035	3.026	0.831	-0.075
SSA clinic		(0.184)	(2.711)	(0.701)	(0.196)
First birth in	53,695	0.052	0.329	0.553*	-0.220
private		(0.109)	(1.631)	(0.305)	(0.215)
First birth in	85,160	0.149	2.040	-0.304	-0.059
IMSS		(0.138)	(2.338)	(0.357)	(0.249)
Mean Y		0.964	6.337	0.670	0.000

Notes: The first birth is excluded from all regressions. All regressions include (fixed) *municipio* of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the *municipio* of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A6: SP and Healthcare Utilization, Excluding Births Where 1st Birth Was Premature

	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.	CS
A. Overall						
Full sample	756,422	0.037	1.085	0.392	-0.045	-0.080
		(0.061)	(1.111)	(0.268)	(0.056)	(0.162)
First birth in SSA clinic	400,452	-0.002	1.444	0.708	-0.014	0.047
		(0.144)	(1.868)	(0.575)	(0.062)	(0.233)
First birth in private	188,500	0.038	0.553	0.328***	-0.027	-0.079
		(0.038)	(0.838)	(0.118)	(0.060)	(0.122)
First birth in IMSS	150,958	0.046	2.989	-0.519	-0.004	0.058
		(0.109)	(3.298)	(0.408)	(0.175)	(0.426)
Mean Y		0.973	7.121	0.721	0.038	0.405
B. First birth Cesarean						
All	297,697	-0.005	0.490	0.228	-0.035	-0.065
		(0.039)	(0.944)	(0.174)	(0.070)	(0.120)
First birth in SSA clinic	101,518	-0.060	0.806	0.436	0.213	-0.166
		(0.151)	(2.284)	(0.560)	(0.228)	(0.345)
First birth in private	133,205	0.026	0.361	0.239**	-0.073	-0.026
		(0.028)	(0.817)	(0.110)	(0.074)	(0.090)
First birth in IMSS	62,156	-0.262	4.387	-0.601	-0.008	-0.113
		(0.242)	(8.468)	(0.903)	(0.426)	(0.752)
Mean Y		0.985	7.880	0.785	0.056	1.000
C. First birth not Cesarean						
All	458,529	0.081	1.677	0.530	-0.048	-0.100
		(0.106)	(1.753)	(0.408)	(0.067)	(0.145)
First birth in SSA clinic	298,681	0.024	1.592	0.787	-0.095	-0.075
		(0.175)	(2.087)	(0.642)	(0.093)	(0.195)
First birth in private	55,003	0.062	1.195	0.566*	0.087	-0.244
		(0.107)	(1.802)	(0.316)	(0.103)	(0.220)
First birth in IMSS	88,454	0.146	2.585	-0.492	-0.004	-0.022
		(0.145)	(2.826)	(0.378)	(0.165)	(0.277)
Mean Y		0.965	6.605	0.677	0.025	0.000

Notes: Sample excludes births where the first birth to the mother was premature. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample.Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A7: SP and healthcare utilization, only mothers with middle school education or less

	N	Any prenatal	N appts.	1st appt. in 1st trim.	> 12 appts.	CS
A. Overall						
Full sample	488,372	0.044	0.905	0.452	-0.072	-0.105
		(0.077)	(1.081)	(0.314)	(0.049)	(0.140)
First birth in SSA clinic	310,346	-0.001	1.563	0.734	-0.073	0.092
		(0.176)	(2.030)	(0.590)	(0.078)	(0.236)
First birth in private	88,233	0.004	-0.249	0.325**	-0.053	-0.162
		(0.051)	(0.886)	(0.134)	(0.043)	(0.140)
First birth in IMSS	75,002	0.207	2.644	-0.384	0.018	0.006
		(0.152)	(2.541)	(0.351)	(0.127)	(0.330)
Mean Y		0.963	6.510	0.672	0.022	0.335
B. First birth Cesarean						
All	157,925	-0.001	0.350	0.245	-0.037	-0.088
		(0.050)	(0.953)	(0.183)	(0.053)	(0.129)
First birth in SSA clinic	74,128	-0.093	1.575	0.468	0.147	-0.163
		(0.180)	(2.582)	(0.536)	(0.147)	(0.355)
First birth in private	55,973	0.016	-0.182	0.263*	-0.080	-0.059
		(0.040)	(0.949)	(0.146)	(0.055)	(0.116)
First birth in IMSS	27,048	-0.165	8.695	-1.510	-0.069	-0.083
		(0.421)	(18.982)	(2.342)	(0.702)	(1.228)
Mean Y		0.977	7.095	0.728	0.032	1.000
C. First birth Not Cesarean						
All	330,207	0.095	1.520	0.631	-0.095	-0.129
		(0.128)	(1.760)	(0.480)	(0.070)	(0.153)
First birth in SSA clinic	235,932	0.031	1.365	0.837	-0.145	-0.157
		(0.210)	(2.166)	(0.678)	(0.125)	(0.220)
First birth in private	31,951	-0.021	0.196	0.451	0.017	-0.098
		(0.127)	(1.597)	(0.312)	(0.067)	(0.186)
First birth in IMSS	47,600	0.258	1.856	-0.258	-0.005	-0.084
		(0.172)	(2.328)	(0.298)	(0.110)	(0.239)
Mean Y		0.957	6.216	0.644	0.017	0.000

Notes: Sample excludes births where the first birth to the mother was premature. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index birth, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A8: OLS Estimates of SP and Infant Health Outcomes

A. Overall	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
Full sample	772,706	0.000	0.000	0.002***	-0.002***	0.000
		(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in SSA clinic	409,699	-0.002**	-0.001**	0.000	-0.002***	-0.002*
		(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in private	191,330	0.006***	0.001***	0.002*	-0.000	0.007***
		(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in IMSS	155,093	0.001	0.001	0.001	-0.003***	-0.002
		(0.002)	(0.000)	(0.002)	(0.001)	(0.001)
Mean Y		0.039	0.003	0.031	0.011	0.021
B. First birth Cesarean						
All	306,448	0.001	0.001*	0.004***	-0.001*	0.003***
		(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in SSA clinic	105,544	-0.003	-0.000	0.002	-0.002**	-0.000
		(0.002)	(0.000)	(0.002)	(0.001)	(0.002)
First birth in private	135,318	0.004**	0.001***	0.003**	0.000	0.007***
		(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in IMSS	64,773	-0.001	0.001	-0.000	-0.003***	-0.005**
		(0.003)	(0.001)	(0.002)	(0.001)	(0.002)
Mean Y		0.048	0.004	0.038	0.009	0.029
C. First birth not Cesarean						
All	466,068	0.001	0.000	0.000	-0.002***	0.000
		(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in SSA clinic	303,904	-0.002	-0.001**	-0.000	-0.002***	-0.002**
		(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
First birth in private	55,727	0.009***	0.002***	-0.001	-0.001	0.009***
		(0.003)	(0.001)	(0.002)	(0.001)	(0.002)
First birth in IMSS	89,976	0.002	0.001	0.001	-0.002***	-0.000
		(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Mean Y		0.033	0.002	0.026	0.012	0.016

Notes: First births are excluded from the sample. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample.Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A9: SP and Infant Health Outcomes, Excluding Births in the 5% Most Rural Municipios

	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
A. Overall						
Full sample	735,951	-0.031	0.012	0.093	0.023	-0.026
		(0.046)	(0.012)	(0.059)	(0.035)	(0.037)
First birth in SSA clinic	384,708	-0.017	0.018	0.112	0.023	-0.077
		(0.083)	(0.025)	(0.112)	(0.056)	(0.092)
First birth in private	184,781	-0.079	0.017	0.028	-0.011	-0.057
		(0.058)	(0.013)	(0.059)	(0.027)	(0.042)
First birth in IMSS	151,827	0.048	-0.019	0.205	0.055	0.175
		(0.146)	(0.037)	(0.161)	(0.086)	(0.136)
Mean Y		0.039	0.003	0.031	0.011	0.022
B. First birth Cesarean						
All	294,451	-0.021	0.005	0.144**	0.002	-0.065
		(0.058)	(0.014)	(0.072)	(0.042)	(0.053)
First birth in SSA clinic	99,459	0.020	-0.044	0.216	-0.049	-0.368
		(0.175)	(0.061)	(0.245)	(0.087)	(0.360)
First birth in private	131,168	-0.039	0.016	0.061	-0.007	-0.054
		(0.057)	(0.012)	(0.057)	(0.030)	(0.042)
First birth in IMSS	63,460	-0.214	-0.004	0.921	0.154	0.529
		(0.541)	(0.127)	(1.073)	(0.395)	(0.739)
Mean Y		0.049	0.004	0.038	0.009	0.029
C. First birth not Cesarean						
All	441,490	-0.046	0.020	0.048	0.049	0.005
		(0.068)	(0.019)	(0.068)	(0.051)	(0.045)
First birth in SSA clinic	285,217	-0.034	0.039	0.079	0.043	0.007
		(0.092)	(0.035)	(0.105)	(0.069)	(0.071)
First birth in private	53,490	-0.192	0.016	-0.055	-0.008	-0.052
		(0.131)	(0.030)	(0.099)	(0.057)	(0.081)
First birth in IMSS	88,232	0.069	-0.027	0.035	0.028	0.079
		(0.124)	(0.034)	(0.123)	(0.053)	(0.097)
Mean Y		0.033	0.002	0.026	0.012	0.017

Notes: First births are excluded from the sample. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample.Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A10: SP and Infant Health Outcomes, Excluding Births With > 12 Prenatal Visits

	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
A. Overall						
Full sample	745,776	-0.013	0.014	0.100*	0.021	-0.010
		(0.042)	(0.012)	(0.058)	(0.032)	(0.034)
First birth in SSA clinic	402,023	0.033	0.023	0.113	0.018	-0.040
		(0.081)	(0.026)	(0.107)	(0.053)	(0.073)
First birth in private	181,415	-0.055	0.016	0.039	-0.003	-0.039
		(0.057)	(0.013)	(0.055)	(0.024)	(0.041)
First birth in IMSS	145,927	-0.012	-0.013	0.231	0.064	0.123
		(0.134)	(0.034)	(0.156)	(0.079)	(0.117)
Mean Y		0.039	0.003	0.031	0.011	0.022
B. First birth Cesarean						
All	291,559	-0.016	0.009	0.133**	0.011	-0.048
		(0.057)	(0.014)	(0.065)	(0.037)	(0.049)
First birth in SSA clinic	102,885	-0.016	-0.038	0.117	-0.049	-0.314
		(0.147)	(0.051)	(0.162)	(0.074)	(0.265)
First birth in private	127,430	-0.017	0.018	0.064	0.002	-0.036
		(0.059)	(0.013)	(0.056)	(0.025)	(0.042)
First birth in IMSS	60,431	-0.248	0.018	0.721	0.140	0.309
		(0.391)	(0.086)	(0.615)	(0.262)	(0.389)
Mean Y		0.049	0.004	0.038	0.009	0.029
C. First birth not Cesarean						
All	454,029	-0.016	0.021	0.070	0.039	0.020
		(0.062)	(0.019)	(0.069)	(0.048)	(0.045)
First birth in SSA clinic	298,881	0.031	0.045	0.105	0.041	0.047
		(0.092)	(0.038)	(0.117)	(0.069)	(0.077)
First birth in private	53,695	-0.166	0.008	-0.022	-0.009	-0.051
		(0.115)	(0.029)	(0.088)	(0.055)	(0.079)
First birth in IMSS	85,160	0.024	-0.030	0.049	0.033	0.049
		(0.128)	(0.035)	(0.126)	(0.055)	(0.100)
Mean Y		0.033	0.002	0.026	0.012	0.017

Notes: Sample excludes births where the mother received more than 12 prenatal appointments during pregnancy. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index pregnancy, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A11: SP and Infant Health Outcomes, Excluding Births Where 1st Birth was Premature

	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
A. Overall						
Full sample	756,422	-0.014	0.015	0.095*	0.017	-0.007
		(0.041)	(0.011)	(0.056)	(0.032)	(0.030)
First birth in SSA clinic	400,452	0.051	0.031	0.140	0.022	-0.010
		(0.081)	(0.027)	(0.115)	(0.051)	(0.057)
First birth in private	188,500	-0.049	0.013	0.016	-0.012	-0.036
		(0.053)	(0.012)	(0.057)	(0.025)	(0.039)
First birth in IMSS	150,958	-0.078	-0.015	0.217	0.049	0.071
		(0.133)	(0.035)	(0.161)	(0.081)	(0.106)
Mean Y		0.022	0.000	0.032	0.010	0.000
B. First birth Cesarean						
All	297,697	-0.026	0.004	0.138**	0.004	-0.045
		(0.052)	(0.012)	(0.066)	(0.036)	(0.045)
First birth in SSA clinic	101,518	-0.026	-0.040	0.179	-0.036	-0.234
		(0.148)	(0.044)	(0.183)	(0.070)	(0.210)
First birth in private	133,205	-0.009	0.015	0.052	-0.006	-0.024
		(0.055)	(0.012)	(0.055)	(0.027)	(0.039)
First birth in IMSS	62,156	-0.358	0.012	0.798	0.093	0.158
		(0.441)	(0.089)	(0.689)	(0.245)	(0.289)
Mean Y		0.026	0.000	0.039	0.007	0.000
C. First birth not Cesarean						
All	458,529	-0.009	0.027	0.055	0.039	0.022
		(0.060)	(0.019)	(0.067)	(0.048)	(0.043)
First birth in SSA clinic	298,681	0.063	0.056	0.120	0.040	0.062
		(0.093)	(0.041)	(0.118)	(0.065)	(0.073)
First birth in private	55,003	-0.164	0.003	-0.076	-0.014	-0.065
		(0.114)	(0.028)	(0.100)	(0.057)	(0.080)
First birth in IMSS	88,454	-0.026	-0.029	0.009	0.032	0.029
		(0.119)	(0.036)	(0.129)	(0.055)	(0.099)
Mean Y		0.020	0.000	0.027	0.011	0.000

Notes: Sample excludes births where the first birth to the mother was premature. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index birth, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample. Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.

Table A12: SP and infant health outcomes, only mothers with middle school education or less

	N	LBW	VLBW	Macrosomic	APGAR < 7	Preterm
A. Overall						
Full sample	488,372	0.008	0.019	0.100	0.031	0.012
		(0.048)	(0.016)	(0.062)	(0.037)	(0.035)
First birth in SSA clinic	310,346	0.028	0.030	0.137	0.020	0.003
		(0.092)	(0.031)	(0.136)	(0.058)	(0.070)
First birth in private	88,233	-0.008	0.007	0.060	0.009	-0.031
		(0.051)	(0.015)	(0.055)	(0.023)	(0.040)
First birth in IMSS	75,002	-0.060	0.010	0.123	0.047	0.085
		(0.125)	(0.036)	(0.148)	(0.079)	(0.121)
Mean Y		0.038	0.003	0.031	0.012	0.020
B. First birth Cesarean						
All	157,925	-0.023	0.003	0.107	0.018	-0.068
		(0.060)	(0.015)	(0.068)	(0.030)	(0.049)
First birth in SSA clinic	74,128	-0.131	-0.048	0.184	-0.024	-0.393
		(0.202)	(0.051)	(0.211)	(0.075)	(0.300)
First birth in private	55,973	-0.001	0.005	0.038	0.033	-0.020
		(0.059)	(0.014)	(0.054)	(0.023)	(0.042)
First birth in IMSS	27,048	-0.470	0.188	0.753	0.002	0.403
		(0.941)	(0.308)	(1.295)	(0.425)	(0.791)
Mean Y		0.049	0.004	0.040	0.009	0.029
C. First birth not Cesarean						
All	330,207	0.028	0.031	0.094	0.047	0.074
		(0.071)	(0.026)	(0.083)	(0.059)	(0.061)
First birth in SSA clinic	235,932	0.045	0.051	0.112	0.033	0.114
		(0.111)	(0.042)	(0.138)	(0.071)	(0.106)
First birth in private	31,951	-0.042	0.008	0.099	-0.025	-0.071
		(0.089)	(0.029)	(0.112)	(0.059)	(0.083)
First birth in IMSS	47,600	-0.007	-0.013	0.017	0.055	0.074
		(0.106)	(0.036)	(0.113)	(0.054)	(0.098)
Mean Y		0.032	0.002	0.027	0.014	0.016

Notes: Sample excludes births where the first birth to the mother was premature. Municipio SMSXXI enrollment rate is used as an instrument for the individual mother's enrollment in SP, with affiliation assigned to the municipio of first birth. The first birth is excluded from all regressions. All regressions include (fixed) municipio of residence, year, month, mother's age, number of pregnancies including the index birth, years of schooling, a control for the baby's sex, an indicator for mother's marital status, and state time trends. Regressions are weighted by the inverse probability of appearing in the mother population sample.Mean Y reports the mean outcome variable calculated only over first births. Standard errors clustered at the municipio of residence. *p<0.10. **p<0.05. ***p<0.01.