
# The Effect of Access to Legal Abortion on Fertility, Marriage, and Long-term Outcomes for Women

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# The Effect of Access to Legal Abortion on Fertility, Marriage, and Long-term Outcomes for Women[ℵ]

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**Abstract:** We evaluate the short- and long-term effects for women of access to legal, subsidized abortion. We find evidence that the legalization of abortion in Spain in 1985 led to an immediate decrease in births, more pronounced for younger women in provinces with a higher supply of abortion services. Affected women were more likely to graduate from high school, less likely to marry young, less likely to divorce in the long-term, and reported higher life satisfaction as adults. We do not find negative effects on completed fertility, nor do we find significant effects on labor market outcomes in the long run.

Keywords: Abortion, fertility, education, labor market outcomes, satisfaction

JEL codes: J12, J13, I21, C21

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# 1. Introduction

We study the effects of access to abortion on short- and long-term outcomes for women, including fertility, marriage, educational attainment, employment, and earnings. We exploit the legalization of abortion in Spain in 1985 together with regional variation in the availability of health centers providing abortion services.

Access to contraception and family planning has important social implications. It allows women and families to achieve their desired fertility, as well as control its timing, which can affect family well-being through multiple channels. Access to abortion services can also have direct effects on women's health, e.g. if the alternatives to regulated abortion are unsafe.

Abortion is legal and even publicly subsidized in many countries.[1] Abortion regulation, however, remains a heated topic, and many countries have debated and/or reformed their abortion legislation in recent years. For instance, Ireland voted in favor of legalizing abortion in May 2018, while legalization was voted down in the Argentinian Senate in August 2018, then finally approved in December of 2020. In January 2021, Poland introduced a near-total abortion ban, while the state of Texas effectively banned abortion in September 2021.

Previous literature using data for different countries has shown that easier access to abortion has short-term effects on birth-rates (Pop-Eleches 2010 for Romania; Levine et al. 1996, 1999, Guldi 2008, and Bailey and Lindo 2017 for the US; Clarke and Mühlrad 2021 for Mexico), and may affect completed fertility (Gruber et al. 1999, Ananat et al. 2007, 2009). A few recent papers have used distance to legal abortion providers in the US to study short-term effects of access to abortion services on abortion and birth rates (Joyce et al. 2013, Cunningham et al. 2017).[2]

There is also a recent literature analyzing the effects of changes in abortion legislation on abortion rates, including studies on restricted access to abortion

[1] Abortion Policies and Reproductive Health, United Nations 2014.
[2] See also Valente (2014) for evidence from Nepal.

services from parental notification laws (Joyce and Kaestner 1996, Joyce et al. 2006), mandatory waiting periods for abortion (Lindo and Pineda-Torres, 2019), and the Global Gag Rule, i.e. a US policy prohibiting global health assistance to overseas NGOs if they offer abortion-related information or services (Bendavid et al. 2011, Jones 2015, Rodgers 2018).

Recent work by Myers (2017) provides evidence that abortion legalization may have affected age at first marriage and age at first birth in the US. It has also been shown that easier abortion affects the characteristics and outcomes of children born (Ananat et al. 2009, Gruber et al. 1999, Donohue and Levitt 2001, Pop-Eleches 2006).

A related recent literature suggests that access to oral contraception ("the pill") in the US had relevant effects on both fertility and short- and long-term outcomes for women, such as age at first marriage, human capital accumulation, and labor market participation (Goldin and Katz 2002, Bailey 2006, 2010, 2012, Ananat and Hungerman 2012). Bailey and Lindo (2018) summarize the literature on the link between access to fertility control methods and later outcomes.

Regarding previous work on abortion laws and women's health and wellbeing, Clarke and Mühlrad (2021) study effects on maternal morbidity, while a few papers have addressed their impacts on female empowerment, marriage market, and labor supply. From a theoretical perspective, Chiappori and Oreffice (2008) find that more efficient birth control technologies increase the "power," thus the welfare, of women. Oreffice (2007) studies the effect of abortion legalization in the US on spouses' bargaining power and labor supply, and Akerlof, Yellen, and Katz (1996) analyze the connection between the legalization of abortion and the increased availability of contraception in the US and the incidence of shotgun marriages and out of wedlock childbearing.

There are few previous studies providing causal evidence on the long-term effects of access to abortion on education and labor market outcomes for women. This may be due to identification problems. Abortion reforms usually

take place at the national level, which complicates finding appropriate control groups. We address this challenge by combining the time variation provided by the legalization of abortion in Spain in 1985, with geographical variation in the availability of health centers that provided abortion services in the early years after legalization.

The closest paper to ours is probably Molland (2016), who studies the effects of improved access to abortion for single women in Norway. She compares Oslo to other counties over a period (1970-71) where the capital opened two clinics that facilitated access to abortion for unmarried women. Following a difference-in-differences approach with other counties as controls, she finds a reduction in teen fertility but no effect on completed fertility, and a positive impact on educational attainment.

In comparison, we analyze a broader, national-level reform that improved access to abortion for all women, by legalizing abortion (while abortion was legal in Norway since 1964). Like Molland, we exploit differential exposure based on geography and cohort, but while she has a single "treated" county, we can exploit variation in exposure across the 50 Spanish provinces, which we believe strengthens the credibility of the identification.

We provide causal evidence on the long-term effects of access to abortion on women's completed fertility, educational attainment, family formation, labor market outcomes, and subjective well-being. We exploit the legalization of abortion in Spain in 1985, comparing cohorts of women who were affected to a different extent based on their age in 1985, combined with geographical variation in the availability of abortion clinics in the initial years after legalization.

We focus on women who were very young when abortion was legalized, so that they would have been able to avoid an early birth, unlike women who were older in 1985. In addition, the "treatment" of abortion legalization would have been stronger for women living near an abortion clinic, compared with those in

a region where no health centers provided abortion services in the early years after legalization.

We construct a new dataset of abortion clinics with their geographical location and years of operation, and follow a difference-in-differences approach, exploiting variation across cohorts and the availability of abortion clinics. We are able to follow women for up to 30 years after the legal reform. We exploit a range of data sources, from administrative birth certificates to labor force survey data, to explore a range of short- and long-term outcomes.

The supply of abortion services in different locations may not be exogenous and reflect at least in part demand factors. To deal with this concern, we first provide evidence of parallel trends in fertility prior to the reform. In addition, we control directly for demand factors, such as religiosity and pre-existing teen birth rates at the local level, interacted with year dummies, such that we are plausibly left with idiosyncratic variation in the supply of abortion services in an area.

We find that abortion legalization, combined with living close to an abortion clinic, led to a 6% short-term decline in birth-rates among women younger than 21. We find a delay in both first birth and marriage. We also find that women more affected by the reform were significantly more likely to graduate from high school.

In the long term, we find that completed fertility was essentially unaffected. In addition, treated women are less likely to have ever married, and fewer of them report being divorced, suggesting better-quality matches. We find insignificant effects on long-term labor market outcomes (participation, employment, and earnings).

These results are unlikely to be confounded by the impact of access to oral contraceptives, since their introduction and regulation in Spain precedes the regulation of abortion by several years. The pill started being sold in Spain in 1964, and it became legal as a contraceptive method in 1978, i.e. 7 years before the legalization of abortion. Although data on pill usage at the individual level

are not available for those early years, a 1977 fertility survey reports that more than half of women exposed to pregnancy in Spain practiced some birth control method, and that withdrawal and the pill were the most used ones (Ortiz-Gómez and Ignaciuk, 2010).[3] Furthermore, our results are robust to controlling for knowledge of and/or usage of the pill at the regional level.

Our findings suggest that the legal regulation of abortion can have important implications for women's lives, affecting the timing of family formation as well as educational attainment, while not lowering completed fertility. Our interpretation is that those effects are overall positive, as suggested by our analysis of long-term, self-reported well-being.

The remainder of the paper is organized as follows. In the next section we describe the events that led to the legalization of abortion in Spain in 1985. Sections 3 and 4 present our identification strategy and data sources respectively. In section 5, we evaluate the short-term effects of the legal change on fertility and marriage rates. Section 6 presents the results on long-term outcomes, and section 7 concludes.

## 2. The legalization of abortion in Spain

Abortion was banned in Spain until 1985. In October 1982, the Socialist Party won the national election with a large majority, and in January 1983 the Health Minister announced that abortion would be legalized shortly. A draft of the law was approved in the national Parliament in October. However, in December 1983 the law was challenged by conservative legislators, and sent to court with the argument that it was unconstitutional. In April 1985, the High Court upheld the charges. The government then announced that they would make some

[3] Also, a survey carried out by the International Health Foundation in five European countries in 1985 showed that in Spain, 74% of women aged 15-44 exposed to pregnancy used at least one method of contraception, with barrier methods being the most frequent (30%), followed by the pill (19%). The distribution was similar for the younger group of exposed women (aged 15-19): 70% used at least one method of contraception; 30% used barrier methods and 23% the pill (Riphagen and Lehert, 1989).

(minor) changes to the writing of the law in order to make it constitutional. In late May 1985, the new draft was approved in parliament. The law was finally passed in July, and became effective in August 1985.

The 1985 law was relatively restrictive by today's standards. It included three reasons under which abortions had legal coverage: 1) when there was serious risk to the physical or mental health of the pregnant woman, 2) when the woman became pregnant as a result of rape, provided that the abortion was performed within the first 12 weeks of gestation and the rape was reported; and 3) when there was risk of physical or mental malformations or defects in the fetus, provided that the interruption was done within the first 22 weeks. In the first and third cases, a medical report was required to certify compliance with those conditions. In the three cases, abortion was not punishable if undertaken by a doctor, or under their supervision, in a medical establishment approved for abortions, whether public or private, with the express consent of the woman.

In practice, about 98% of all abortions reported between 1986 and 2010 were filed under "risk to the health of the mother". Many of those cases argued risks to the mother's mental health, as confirmed by a psychologist, and this was easy to argue for unwanted pregnancies.[4]

Abortions were allowed in public and private clinics, and they were free of charge if performed in a public clinic. In practice, the vast majority took place in the private sector, where the cost in the early years was about 30,000 pesetas.[5] Clinics that were able to provide this service (health centers that typically were already providing other prenatal and/or maternity care services) needed to request government approval.

Access to abortion was unequal across Spanish territory (ACAI 2008). Some regions did not have any health centers providing abortion services in the

[4] As argued by psychologists at the time, "The law does not specify what is considered grave danger to the psychological health of the mother, which is then susceptible to various interpretations" (Rubí Cid 1986, own translation).
[5] Close to 350 euros (2021 prices). Source: López Trujillo and Martín Campos (2020).

early years, while some others had only private centers. Thus, the actual cost of an abortion varied considerably across Spanish territory, with some women having to travel long distances to a certified clinic.[6] These inequalities in access persisted over time to a large extent (López Trujillo and Martín Campos 2020).

Figure 1 shows the annual number of registered abortions, as reported by the Spanish Ministry of Health. By 1992, at least one out of every 10 pregnancies was terminated legally (45,000 annual registered abortions, for under 400,000 live births). By 2010, it was 1 out of every 5 pregnancies.

This source likely under-reports the actual number of legal abortions in the early years after the law change. Rodríguez Blas et al. (1994) estimate that in 1990, when about 37,000 abortions were registered, an additional 18,500 legal abortions were not counted in the official statistics. Thus, part of the steep increase in the initial period is probably due to improved reporting practices.

According to the 1989 annual report by the Health Ministry, 41% of women obtaining an abortion were under age 25.[7] In terms of occupation, 43% of women who had an abortion in 1989 reported working for pay, while 16% were students and 26% were homemakers. More than half (53%) of all abortions were to unmarried women, but the unmarried rate was more than 90% for women under 20, and 82% for those aged 20 to 24. Most women had lower (39%) or higher (27%) secondary education (only 14% were university educated).

Regarding the incidence of abortions before 1985, there are some reports of "abortion trips" abroad before the legalization, as well as some illegal abortions performed in Spain. Precise estimates are difficult to find, but Peiró et al. (1994) estimate that in 1981-84, about 20,000 Spanish women had an abortion in the UK annually (down to 3,000 by 1988 and under 900 by 1990). Even more imprecise are the estimates of illegal abortions in Spain. In the

[6] "Women residing in Navarra have to travel to Bilbao, Madrid or Zaragoza to get an abortion, while most who live in Cantabria travel to Asturias or the Basque Country" (ACAI 2008, own translation).
[7] Ministerio de Sanidad y Consumo (1991).

1970's, published estimates vary between 20,000 and more than 100,000 per year (Hernández Rodríguez 1979).

In 2010, a new law was passed which decriminalized the practice of abortion during the first 14 weeks of the pregnancy, without the need for any special circumstance to concur.

## 3. Empirical strategy

We study the effects of abortion legalization on a range of short- and long-term outcomes for women. As in Molland (2016), our main outcomes include fertility, education, and labor market outcomes (employment and earnings). Since other studies (such as Myers 2017) find effects of access to abortion on age at marriage, we also consider family formation and dissolution. Finally, we try to say something about overall effects on women's welfare by analyzing self-reported well-being in the long term.

Our approach exploits the legalization of abortion at the national level in 1985, combined with the observation that access to abortion services was in fact very unequal across Spanish territory.

For the ***short-term outcomes***, including fertility and marriage, we pay close attention to the timing of the legal change. The abortion law was implemented in August 1985. Therefore, abortions taking place in and after August 1985 would have led to fewer births several months later.[8] To make sure that we are

[8] To estimate when we expect to see a drop in births, we make the following calculations. We know that more than 95% of all registered abortions in Spain take place before week 17 of the pregnancy. Also, according to birth-certificate data for 1986, about 95% of all births took place after week 35 of the pregnancy. Finally, we also know that the first registered legal abortions took place on August 9, 1985. Therefore, an abortion that took place on August 9, 1985 at weeks 7-16 of pregnancy would have led to a birth on weeks 36-42 of the pregnancy, i.e. the birth would have taken place between late December, 1985, and early April, 1986. Thus, our first "post" month in the birth data is December 1985. The most common scenario for an August 9, 1985 abortion would be: the abortion taking place on weeks 7-8, which would have led to a birth on weeks 39-40, i.e. in March of 1986.

able to capture all abortions occurring after the law (even those at unusually late stages of the pregnancy), we analyze the time series of births over time, and we look for a break starting in December 1985.

The impact of abortion legalization was unequal across Spanish territory, mainly due to the different availability of abortion clinics. All clinics that practiced at least one abortion in a year had the legal obligation to report it to the Ministry of Health. Using the first annual report available, we construct measures of abortion clinic availability for each of the 50 provinces in Spain. We then estimate the following equation:

$$(1) \qquad Y_{pt} = \alpha + \beta Post_t * Supply_p + \mu_p + \delta_y + \lambda_m + \epsilon_{pt},$$

where $Y_{pt}$ is the outcome of interest (say, number of births over population) in province p and month t, *Post* is a binary indicator taking the value 1 in all months starting in December 1985 and 0 otherwise, and *Supply* is our measure of access to abortion services. $\mu$, $\delta$, and $\lambda$ denote province, year, and calendar month fixed-effects, and $\epsilon_{pt}$ is the error term.[9] We estimate this equation in the full sample, and also separately for younger and older women, since we are particularly interested in the effect of access to abortion from an early age.

We use two alternative indicators for the potential supply of abortion services: i) the number of clinics per 100,000 inhabitants in the province in 1989 (continuous treatment variable), and ii) an indicator taking value 1 if there was at least one clinic practicing abortions in the province in 1989, and zero otherwise (binary treatment variable). We also check the robustness of our results to using the absolute number of clinics in the province, and the distance to the nearest province with at least one clinic.

Our treatment variable is thus a measure of the availability of abortion services in a woman's province of residence. Control women lived in provinces with fewer or no abortion clinics, but they could have traveled to other provinces

[9] Standard errors are clustered at the province level (50 clusters) to account for potential unobserved correlation within a province and over time. The results are robust to using wild bootstrapped standard errors.

to access those services. Our coefficient of interest thus captures the effect of living near an abortion clinic, relative to living in a province with fewer or no clinics, but with (more costly) potential access to abortion services further away.

In additional specifications, we control for province-level, time-varying factors, such as variables that capture the underlying demand for abortion services, since those may be related to both supply and fertility outcomes. We also allow the coefficients on the demand variables to vary over time.

The identifying assumption is that, in the absence of the abortion law, births would have followed the same trend over time in provinces with and without abortion clinics. We provide support for this assumption by showing that both sets of provinces did in fact follow parallel trends before the policy change.

To do that, we estimate a more flexible version of equation (1), where the $\beta$ coefficient is allowed to vary over time. We thus replace the *Post* indicator in equation (1) with a set of year dummies (omitting the year immediately pre-reform):

$$(2) \qquad Y_{pt} = \alpha + \sum_{y=-5}^{5} \delta_y * Supply_p + \mu_p + \delta_y + \lambda_m + \epsilon_{pt}.$$

We estimate the same equations (1) and (2) for the short-term effect of access to abortion on marriage rates. We allow marriages to react immediately to the legal change, such that the *Post* variable takes value 1 starting in August 2021.

For the remaining outcomes, including completed fertility, educational attainment, and employment, our identification strategy relies on comparing different cohorts of women, who vary in their province of residence as well as in their age at the time of abortion legalization.

We focus on cohorts of women who were between ages 11 and 30 at the time of the reform (i.e. born between 1955 and 1974). In our binary treatment variable, we define as "treated" those who were 21 or younger at the time of the reform (while "control" women were older). We also explore a continuous measure of exposure to legal abortion, which we define as the number of years a woman was exposed to legal abortion between ages 14 and 21.

We first evaluate whether the short-term fertility effects persisted, leading to the affected women having fewer children throughout their lifetime. We estimate the following equation:

(3) $$Y_{cpa} = \alpha + \beta Treated_a * Supply_p + \mu_p + \gamma_c + \epsilon_{cpa},$$

where $Y_{cpa}$ is the accumulated number of births per woman for cohort *c* in province *p* by age *a*. The variable *Treated* takes value 1 for all "treated" cohorts, and is interacted with the supply of abortion services (abortion clinics per 100,000 inhabitants or the indicator of clinic availability in the province) at the time of the reform. We control for province and cohort fixed-effects.

Our identification strategy still relies on the assumption of common trends between provinces with different access to abortion services, although now across cohorts instead of over time. To evaluate this assumption, as well as to illustrate any potential dynamics in the effects, we estimate a version of equation (3) that interacts cohort dummies (omitting 1963-64) with our measure of access to abortion services:

(4) $$Y_{cpa} = \alpha + \sum_{c=-10}^{10} \gamma_c * Supply_p + \mu_p + \gamma_c + \epsilon_{cpa}.$$

Finally, to study short- and long-term effects on educational attainment, labor market participation, and earnings, we estimate the following equation at the individual level:

(5) $$Y_{icpt} = \alpha + \beta Treated_c * Supply_p + \mu_p + \delta_t + \gamma_c + \epsilon_{icpt},$$

where $Y_{icpt}$ is the outcome of interest for individual *i* who belongs to cohort (year of birth) *c*, lives in province *p*, and is observed in year *t*. The variable *Treated* takes value 1 for treated cohorts, and is interacted with the supply of abortion services in each province in 1989. We also include province, calendar year, and cohort fixed effects.[10] As before, standard errors are clustered at the province level.

We again estimate a modified version of equation (5) that allows the $\beta$

[10] The inclusion of both calendar year fixed effects as well as cohort (year of birth) fixed effects indirectly controls for age.

coefficient to vary with birth cohort:

$$(6) \quad Y_{icpt} = \alpha + \sum_{c=-10}^{10} \gamma_c * Supply_p + \mu_p + \delta_t + \gamma_c + \epsilon_{icpt},$$

where the $\gamma$'s are the coefficients on the leads and lags.

## 4. Data sources

We use a range of different data sources. First, we construct our measure of access to abortion clinics by province using public information on health centers reporting (legal) abortions, from the 1989 annual report of the Ministry of Health and Consumption.[11]

Regarding the short-term effects of fertility and marriage, we use administrative data from birth and marriage certificates, made publicly available by the Spanish National Statistical Institute (NSI). These registers provide individual-level information on the universe of births and marriages taking place in Spain annually. To calculate rates, we use province population figures, also provided by the NSI (see data appendix for more details).

Our main data source for education and labor market outcomes is the Spanish Labor Force Survey (EPA). This data source is a rotating quarterly survey carried out by the NSI. Sample size is about 64,000 households per quarter, including approximately 150,000 adult individuals. The same person can be interviewed a maximum of six times in a row; therefore, in the main analysis we use data only for the second quarter of each year (the one with less seasonality in employment), to minimize repeated observations of the same individual.

Our main analysis of completed fertility uses data from the Spanish Fertility Surveys (NSI). These surveys were conducted in 1985, 1999, 2006, and 2018. They target women across all of Spain, and include information on the province

[11] The Ministry of Health started to collect this information in 1988. However, the information for that year is incomplete (for example, there is no information for the whole region of Catalonia). Therefore, we use the first year of arguably complete information, 1989. We leave out of the analysis the Autonomous cities, Ceuta and Melilla.

of residence and year of birth of the surveyed woman, as well as on her children and past pregnancies. These data allow us to construct fertility histories for a representative sample of Spanish women, by province and cohort. We also use the 1985 Fertility Survey to construct measures of religiosity by province.[12]

As an alternative approach to analyzing completed fertility, we combine birth-certificate and population data to construct the accumulated number of children born per woman, by year of birth and province, at different ages (18, 21, 34, and 44). To calculate the accumulated number of children per woman by cohort, we pool the total number of births (from birth certificates) from 1975 to 2015, and calculate the cumulative number of births by cohort and province. The cumulative number of births by cohort and province is then divided by the size of the cohort, to get the average number of children born per woman in a cohort and province, at the different ages. We approximate the size of each cohort of women by province of residence with the number of women living in each province in 1981, by age, from the 1981 Population and Housing Census (see data appendix).[13]

The analysis of earnings is conducted using longitudinal administrative data from Social Security records (*Muestra Continua de Vidas Laborales*). We use

[12] The 1985 Fertility Survey included 8,782 observations of women 15 to 49. The survey asked women about their place of residence and their religiosity. Regarding the second, the answers are grouped into: non-believer, non-practicing Catholic, practicing Catholic, another religion, and do not know/do not answer. We calculate the fraction of women who were practicing Catholic by province in 1985. Seven provinces are missing (Avila, Guadalajara, Huelva, Lleida, Segovia, Soria and Teruel). To estimate the religiosity of these missing provinces, we follow the multiple imputation methodology suggested by Rubin (1987), and regress the fraction of practicing Catholic at the province-level on other indicators (fraction of left-wing voters in 1980, birth rates of young women in 1984).

[13] The 1981 Census does not provide information on year of birth, only age, so that we assign each woman to a cohort according to their age at the time when the Census was carried out. This approach ignores migration across provinces after 1981, so we alternatively approximate the size of each cohort by province with the (post-reform) 1991 Population and Housing Census.

the 2009 sample and construct annual earnings at the individual level for 2000-07 (see data appendix).

Finally, we analyze effects on self-reported well-being using data from the 2013 wave of the Spanish Survey on Income and Living Conditions (SILC). This survey includes several questions about individuals' health as well as subjective well-being (see data appendix). We analyze them separately and also combine them into a single index of well-being.

## 5. Short-term effects of access to abortion

### *5.1. Effects on fertility and marriage*

We first present our estimates for the effects of abortion legalization on the reproductive outcomes of women. The reform increased the number of legal abortions in Spain, which would lead mechanically to fewer births. However, illegal abortions as well as abortions abroad likely decreased, and sexual practices may also have reacted to the law change, so that whether the reform led to fewer live births is an empirical question.

Figure 2 shows the annual number of ***births*** in Spain for two age groups (under 21, and 21 and over), between 1979 and 1992 (normalized to 100 in 1985). The number of births displays a decreasing trend for both groups, more pronounced for the younger one. We observe a more marked decline after the reform among women under 21, suggesting that the reform may have affected fertility among younger women, but the fall is hardly distinguishable from the pre-existing trend.

The impact of abortion legalization was unequal across Spanish territory, mainly due to the different availability of abortion clinics. By 1989, all clinics that practiced at least one abortion in a year had the legal obligation to report it to the Ministry of Health, who, in turn, publishes the list of clinics annually (see data appendix). Using the first annual report available, we construct an indicator of the number of clinics per 100,000 inhabitants for each of the 50 provinces in Spain. As shown in Figure 3, there are large geographical differences in the

supply of abortion services: in 10 provinces, there were 0.3-0.6 clinics per 100,000 inhabitants, while 24 out of 50 provinces had no clinics reporting abortions in 1989.

We expect that the presence of abortion clinics in a woman's province of residence would facilitate her access to abortion services. Figure 4 shows the number of registered abortions per 1,000 women in provinces with and without abortions clinics in 1989. As expected, the abortion rate is higher and increased faster in provinces with abortion clinics. We also show that the gap persists over time.

We estimate equations (1) and (2) for monthly birth rates by province. We include 60 months pre- and post- the implementation of the 1985 abortion law, so that our sample contains 120 months, starting in December 1980 and ending in November 1990. Our main measure of fertility is the monthly number of births per 1,000 women.[14] In equation (1), a negative $\beta$ (our coefficient of interest) would indicate a (persistent) relative fall in birth rates with respect to the pre-existing trend in provinces with more access to abortion services.

The results for birth rates are displayed in Table 1 (column 1).[15] The first row reports the coefficient on the interaction between the post dummy and the number of clinics per 100,000 inhabitants in the province ($\beta$). We find that regions with a higher supply of abortion clinics experienced a more pronounced drop in short-term fertility. The average province with positive supply of abortion services had 0.24 clinics per 100,000 inhabitants in 1989, so that we estimate that the legalization of abortion led to a 3.7% decline in birth rates in the province during the first five years.[16]

When we stratify births by age of the mother, we find that the results are driven by younger mothers. The equivalent effect size is about 10.6% for

[14] We also consider the raw monthly number of births, and the natural log of the number of births (see Table A1).
[15] See Appendix Table A1 (Panel A) for the results for the level and the log of the monthly number of births.
[16] (-0.7274*0.24)/4.7, where 4.7 was the average birth rate.

women aged 21 and under.[17] We also stratify using alternative age cutoffs (18 and 24), with similar conclusions.[18]

The results when using the binary treatment dummy also indicate a drop in birth rates after the reform. The second panel of Table 1 shows that, in provinces with at least one clinic in 1989, the birth rate decreased by 0.28 percentage points on average during the first five years after the abortion legalization, equivalent to a drop of 6% with respect to the mean birth rate. Again, the decline was higher among younger women: -0.31 percentage points, or -18.9%.

Figure 5 displays the results of estimating equation (2) for monthly birth rates. The baseline period is November 1984-December 1985. The figure displays the coefficients of the interactions between the number of clinics per 100,000 inhabitants and year dummies. We find no significant differences in birth rates between provinces with high/low presence of abortion clinics before the legal change, providing support for the parallel trends assumption. After the reform, birth rates started to decrease in provinces with higher supply of abortion services relative to those with lower supply, suggesting a drop in short-term fertility as consequence of the abortion legalization.

The drop in early fertility may have been accompanied by a reduction in the number of early ***marriages***. We next estimate equation (1) using the monthly number of marriages over population as a dependent variable. Note that in this case, the post-reform period starts immediately after the law was implemented, in August 1985. The results are shown in Table 1 (column 2).

Consistent with the strong drop in fertility among younger women, we find evidence of a significant drop in the number of marriages among women aged 21 and younger, in provinces with a larger supply of abortion services. In the specification with the continuous treatment variable, we find a reduction of 0.63 percentage points in the marriage rate of this group, or a reduction of 8.5% with

[17] (-0.725*0.24)/1.64.
[18] See Panel B of Appendix Table A1.

respect to the mean marriage rate (1.77).[19] The equivalent magnitude when using the binary treatment dummy (second panel of Table 1) is about 10%.

Figure 6 shows the coefficients from estimating equation (2) for marriage rates. While we find no statistically significant differences across provinces before the abortion legalization, early marriages seem to decrease more in provinces with higher supply of clinics after legalization.

***Robustness checks***

*Controlling for demand factors*

We interpret the number of abortion clinics per 100,000 inhabitants as a measure of the supply of abortion services. However, the presence of abortion clinics in a province could be driven by demand factors, such that higher underlying demand for abortion services could be driving clinic availability, and thus the supply of clinics would be endogenous.

In order to test for this possibility, we gathered information on some of the most relevant demand factors. To take into account cultural and religious factors (since the Catholic church was strongly against abortion), we collected information on religiosity by region from the 1985 Fertility Survey. As a direct measure of underlying demand, we calculate the fraction of teenage births before abortion legalization in each province. We also consider the use of the pill and the political leaning of each province.

Appendix figure A1 shows the regional distribution of the percentage of births to unmarried women aged 21 or younger in 1984, the percentage of women who used (or had used) the pill in 1985, the percentage of women who declared being practicing Catholics in 1985, and the proportion of left-wing voters in the 1982 General Elections, by province. Visually, there is not much apparent overlap across these different indicators.

We re-estimate our fertility specifications, sequentially adding each of these demand-driven explanatory factors. Table 2 shows that our baseline results

[19] (-0.6296*0.24/1.77)

remain statistically significant (overall and for women younger 21), even after controlling for these demand-driven explanatory factors. This supports our conclusion that the short-term fertility effects that we find are driven by the supply of abortion services.

What explains the remaining variation in abortion clinics across provinces? Appendix Table A2 assesses the predictors of abortion clinics by province in 1989. We regress the province-level number of abortion clinics (adjusted by population) in 1989 on the number of beds in private maternity hospitals in 1985 (also over population), as well as the demand factors described above. We find that the pre-existing number of beds in private maternity hospitals is a significant and powerful predictor of the number of abortion clinics at the province level, even after controlling for demand factors.

*Sensitivity to the measure of supply of abortion services*

In our preferred specification, we use the clinics reporting abortions in 1989, which is the first year with available information for all provinces. To assess the sensitivity of our results to the measure of supply, Appendix Table A3 shows the results of alternative specifications where we use alternative measures of the supply of abortion services in the early years after legalization. In addition to clinics reporting abortions in 1989, we use the number of clinics reporting abortions in 1990, and the average number of clinics reporting abortions over a 5-year period from 1989 to 1993 (columns 2 and 3 respectively). The short-term fertility decline, especially for women under 21, is robust to measuring the number of clinics in these alternative ways.

*Treatment intensity*

Appendix Table A4 shows that our main fertility results are also robust to alternative measures of treatment intensity. In Panel A, we interact the post-reform indicator variable with the distance to the nearest province with at least

one clinic that practiced abortions in 1989.[20] We find that the larger the distance, the lower the drop in fertility. In Panel B we use the absolute number of clinics in the province, and find again that the drop is higher in provinces with a larger number of clinics practicing abortions, although the estimates are less precise. Our preferred specification is the one interacting the post reform variable with the number of clinics per 100,000 inhabitants, as it exploits variation across provinces while taking into account the size of each province.

### *5.2. Short-term effects on education and labor market participation*

If women who were very young when abortion was legalized were able to postpone fertility and avoid teen births, this could have had short-term effects on women's schooling and/or labor supply decisions. We analyze women's education and employment outcomes in the years immediately following the implementation of the reform (years 1986-1990), using micro data from the Labor Force Survey (see data appendix). We define treatment based on the age of each woman at the time of abortion legalization.

We focus on women born between 1955 and 1974 (inclusive). We define as "treated" those who were born in 1965 or later, so that they were 21 or younger at the time of the reform (while "control" women were older). This is motivated by our finding of significant fertility and marriage effects in this younger age group. We estimate equation (5), where the outcome variables are two dummy variables indicating labor force participation and full-time education. Both outcomes are measured in 1986-90, i.e. during the 5 years immediately following abortion legalization. As before, standard errors are clustered at the province level.[21] Age at the time of the interview is indirectly controlled for, since it equals the year of the survey minus the year of birth, which are both included in the regression.

[20] We use the geographic coordinates of the province's center and use geodetic distances to find the nearest neighbor province with at least one clinic.
[21] The results are robust to using wild bootstrapped standard errors.

Table 3 reports the results of these regressions. Although none of the effects are statistically significant, we find that women who were very young (21 or under) when abortion was legalized, in regions with a higher supply of abortion services, were more likely to be in full-time education, compared to the control group, and less likely to be in the labor force. These results are also consistent in the regressions using the alternative treatment definitions.[22]

## 6. Long-term effects of access to abortion

We next analyze the long-term effects of early access to abortion services for women. We do so by comparing cohorts of women who were younger vs. older when abortion was legalized, in provinces with vs. without abortion clinics in the early years. We study long-term outcomes such as completed fertility and labor market outcomes later in life because we believe it is relevant to understand whether access to abortion before age 21 (via effects on education, age at first birth, etc) can have long-term consequences.

### *6.1. Completed fertility*

We first evaluate whether the short-term fertility effects persisted, leading affected women to having fewer children throughout their lifetime. We estimate equation (3), where the variable *Treated* takes value 1 for all treated cohorts (women born between 1965 and 1974), and is interacted with the supply of abortion services after the reform.

We first estimate this equation using data from the Spanish Fertility Survey. We restrict the sample to cohorts born between 1955 and 1975. We compute the number of children by ages 18, 21, 34 and 44 (which are defined only for women who were at least that age at the time of the interview).[23] We also create a

[22] The results are also robust to broader age ranges.

[23] For the first three waves of the survey, the variable is defined as the number of children at the time of the interview, minus the number of children the respondent had after the corresponding age. Due to data availability problems, for women from the 2018 survey the variable is defined in a slightly different way: it includes all the biological children the respondent had at the time of the

variable that measures the timing of the first child (*Age first child)*, which is defined for women who have had at least one child and who are at least 40 years old at the time of the interview. The results are shown in Table 4 (Panel A).

The results in the first row suggest that women more exposed to abortion services before age 21 were significantly older when they had their first child. This result is confirmed in the second and third specifications, with alternative measures of exposure and supply. The magnitude of the estimated effect is large: we estimate that women who were under 21 in 1985 and lived in a province with 0.24 abortion clinics per 100,000 inhabitants in 1989 were on average half a year older at the time of first birth.[24]

This result is consistent with the finding that affected women had fewer children by age 18 and 21. We find no significant effects on the number of children by ages 34 or 44, suggesting that access to abortion before age 21 did not affect completed fertility.

Figure 7 plots the results of estimating equation (4), using age at first birth as the dependent variable. Again, the omitted cohorts are those born in 1963-64, and the figure shows the coefficient on the interactions between cohorts and the treatment variable (clinics per 100,000 inhabitants). We find a significant increase in age at first birth for cohorts born in 1967 and younger, relative to the baseline cohort and to provinces with fewer clinics.

As an alternative approach to analyzing completed fertility, we combine birth-certificate and population data to construct the accumulated number of children born per woman, by year of birth and province, at different ages. Panel B of Table 4 reports the results when following this approach. Columns 1 to 4 show the results from estimating equation (3) for the average number of children born per woman, by cohort and province, by ages 18, 21, 34, and 44, respectively.

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interview and is set to missing if her first child was born after the corresponding age.

[24] (1.9x0.24)=0.46 years

The results in Panel B of Table 4 confirm the drop in early fertility for women with more access to abortion services after the reform. The sizes of the coefficients are similar to those in Panel A for the earlier ages and, in this case, very precisely estimated in all specifications. These specifications do suggest some effects on fertility by age 34, which are largely gone by age 44.[25]

Regarding the size of these effects, the average province with positive supply of abortion services had 0.24 clinics per 100,000 inhabitants in 1989. Thus, our estimates in the first row of Panel B (Table 4) suggest that the average clinic availability led the treated cohorts to reduce their teen birth rates by close to 22% ((-0.0453×0.24)/0.050), while the effect was 18% by age 21. By age 34, the effect on accumulated fertility amounted to about 2% of average birth rates, while by age 44 it was down to 1%.

Figure 8 plots the results from estimating equation (4) for completed fertility (number of births by age 44). The figure suggests that, in fact, the younger cohorts may have experienced a significant drop in completed fertility relative to the baseline cohort and to women living in provinces with less supply of abortion services. The larger effect is observed in the youngest cohorts (71-74), for whom the drop in completed fertility is about 5% ((-0.3x0.24)/1.37).

In summary, our findings suggest that the legalization of abortion delayed fertility among women who were young at the time of the reform and who lived in a province with good access to abortion services. These women were less likely to experience a teenage birth. The results on completed fertility are more mixed. Our analysis with fertility survey data indicate no effects on total number of children by age 44, while the results using birth-certificate data point to (imprecisely estimated) small negative effects.

[25] We find very similar results when we use the 1991 Census instead of the 1981 Census to estimate the size of each cohort by province: a drop in early fertility, but no significant effects on completed fertility measured at age 44.

### *6.2. Education, marriage, and labor market outcomes*

We next investigate the long-term effects of the abortion reform on long-term educational attainment, family formation, and labor market outcomes. We use data from the Spanish Labor Force Survey for years 1992 to 2018 (i.e. between 7 and 33 years after the reform). As before, we use the second interview of each year, and select women born between 1955 and 1974 (inclusive), so that they were 11-30 at the time of the reform. These cohorts are between 37-63 (the oldest cohort) and 18-44 (the youngest one) at the time of the interview. Again, we define as treated women who were born in 1965 or later, so that they were 21 or younger at the time of the reform. We estimate equation (5), now focusing on the long-term effects of the reform on educational achievement, labor market outcomes, marriage, and divorce.

Panel A of Table 5 displays the results for educational attainment. We find that access to legal abortion is significantly associated with high school graduation. Women who were more exposed to legal abortion were about 1 percentage point more likely to have attained (at least) a high school degree (0.24x0.0403). We do not find significant effects on college graduation rates.

The evidence suggests that legalizing abortion had long-term effects on educational attainment for young women. Figure 9 shows the coefficients from estimating equation (6) for high school graduation, where we interact the treatment variable with cohort dummies. The omitted cohorts correspond to those born in 1963-1964 (aged 21 and 22 at the time of the reform). The figure shows no effects for the cohorts who were 17-20 at the time of the reform, i.e., who were past the high school graduation age when abortion was legalized, while we find significant effects for the younger cohorts.

We also estimate effects on family formation and dissolution (Panel B of Table 5). We find no significant effect on the likelihood of being married at the time of the interview.[26] We do find a significant reduction in the probability of

[26] Note that this variable refers to marital status at the time of the interview. We do not have information on whether the individual was ever married.

being divorced or separated for women exposed to the reform. This suggests that exposure to legal abortion, which we showed led to fewer early marriages, may have increased the quality of matches, resulting in lower rates of marital dissolution in the long term. This is confirmed when looking at Figure 10, which plots the results of the event study model for the likelihood of being divorced. As with the educational outcomes, we find no differential effects for the older cohorts (aged 17-20 at the time of the reform), but we observe a reduction in divorce probabilities for the younger cohorts affected by the reform.

Finally, Panel C of Table 5 shows effects on labor market outcomes. We study the effects of access to legal abortion on labor force participation, employment, and unemployment, again with labor force survey data. The coefficients of interest are small, and none of them are statistically significant. We also analyze the effect on earnings using administrative Social Security data (last column). We find that annual earnings are slightly higher among more affected women, but again precision is low and we cannot reject null effects.

We conclude that the legalization of abortion increased the educational attainment of women with better access to abortion services, who were more likely to graduate from high school. We also find a lower divorce rate among treated cohorts of women, suggesting that later marriage may have led to better matches. We do not find significant effects on labor market outcomes in the long-run.

We also analyze the potential effect of access to abortion on the education, marriage, and labor market outcomes of contemporary cohorts of men. We expect any effects to be smaller than those found for women. We consider affected cohorts of men to be two years older than affected women, given the average age difference in Spanish couples. The results are shown in Appendix Table A5. We find that affected cohorts of men were also more likely to graduate from high school, although the magnitude is smaller than the effect for women. We also find that affected men are less likely to divorce, and we find no evidence of significant effects on employment or earnings.

### *6.3 Wellbeing*

We use data from the 2013 wave of the Spanish Survey on Income and Living Conditions (SILC) to assess the long-term effects of abortion legalization on women's self-reported well-being. The survey includes some questions about individuals' health as well as subjective well-being (see data appendix). We estimate equation (5) using the following outcomes: an indicator for the woman having a chronic illness; how often the woman feels tense, with low morale, depressed, calm or happy; and the degree of satisfaction with her life. To take into account inference issues due to multiple hypothesis testing, we follow Anderson (2008) and construct a summary index as the unweighted average of all standardized outcomes. We standardize each outcome using the mean and standard deviations of women living in provinces without abortion clinics in 1989. For the summary index, the sign of adverse outcomes (chronic illness, tense, low morale, depressed) is reversed, so that a higher value of the index indicates higher wellbeing.

We restrict our sample to native women born in 1955-1975, which results in a sample of 4,546 observations. In 2013, the youngest cohort in our sample (women born in 1975) was 38 years old, while the oldest one (1955 cohort) was 58, so that we are evaluating women's degree of satisfaction when they are mostly in their 40's and 50's.[27]

Table 6 displays the results. For the individual outcomes we report both the original p-value and the Romano-Wolf (2016) correction. We find evidence suggesting that women's exposure to legal abortion before age 21 led to an improvement in wellbeing in the long term. The summary index is statistically significant at the 99% level. For individual outcomes, we find evidence that women with more access to abortion services when young are less likely to suffer chronic illnesses in their 40's or 50's, less likely to feel tense, with low

[27] The minimum age in the sample is 38, the maximum age is 58, and mean age is 48.3.

morale or depressed, and more likely to feel calm or happy. They also report a higher overall degree of satisfaction with their life.

## 7. Conclusions

We analyze the short- and long-term effects of the legalization of abortion in Spain in 1985 on women's lives. We follow a difference-in-differences strategy, where we exploit the fact that younger cohorts of women were exposed to legal abortion at an earlier age, as well as the geographic variation in the supply of abortion services in the early years after legalization.

We find that women who had access to legal abortion before age 21 were less likely to have children at an early age, while their completed fertility was unaffected. We also find that they were less likely to marry early, and in the long term they were less likely to get divorced. We find a positive effect on high school graduation rates, and no effect on college attendance. We do not find significant long-term effects on labor supply or earnings, but we do provide suggestive evidence of a positive impact on overall life satisfaction almost 30 years after the reform.

Overall, our results suggest that legalizing abortion in Spain allowed young women to delay fertility and marriage and remain in full-time education, resulting in higher life satisfaction several decades down the line. Our findings also suggest that there were no aggregate costs in terms of lower fertility in the long run.

The fact that women were better able to control the timing of their first birth could imply positive effects for the cohort of children born after the abortion legalization. To what extent this may have translated into better outcomes for children in the long run, is a topic to be addressed in future research.

Our results also suggest that the restrictions in access to abortion taking place in certain countries (like the US or Poland) in recent months may have deleterious effects on women's lives for decades to come.

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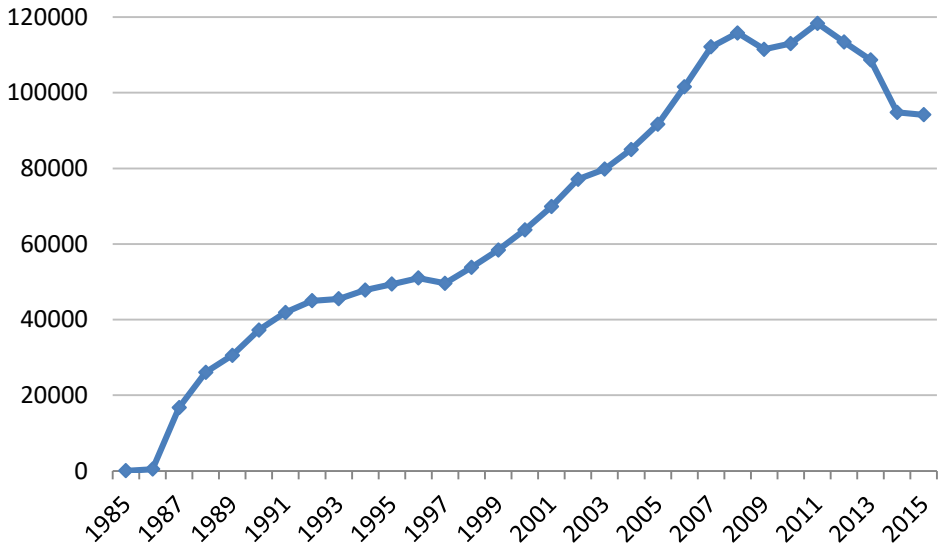
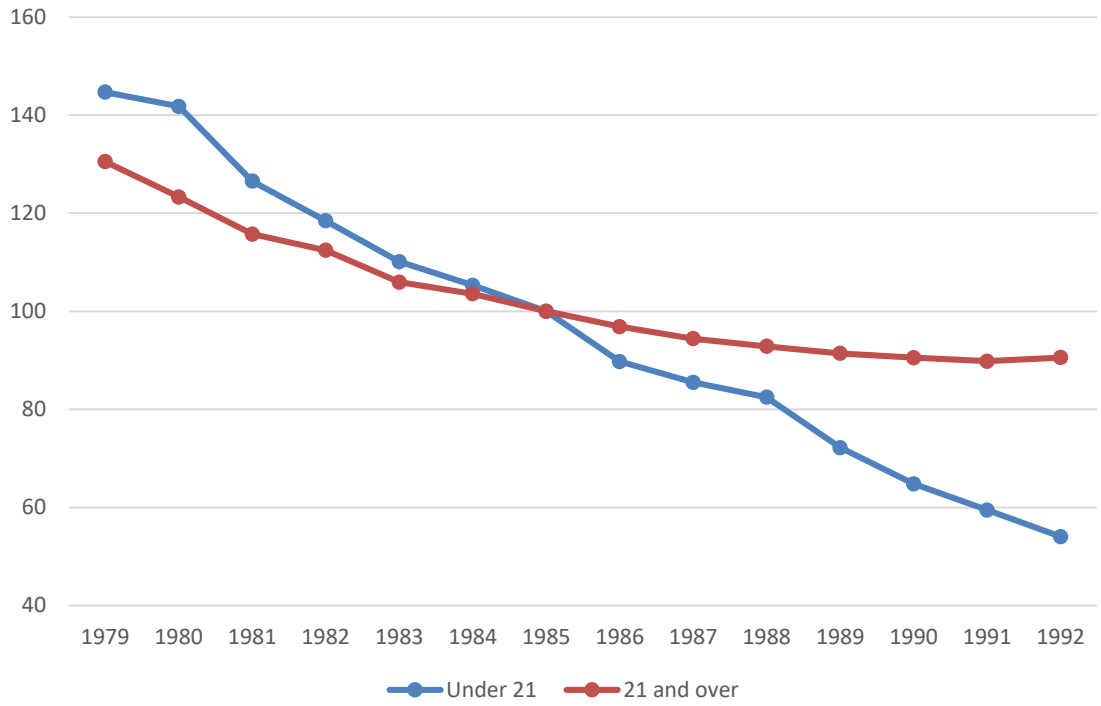
## Tables and Figures

**Figure 1. Annual number of registered abortions, Spain 1985-2015**



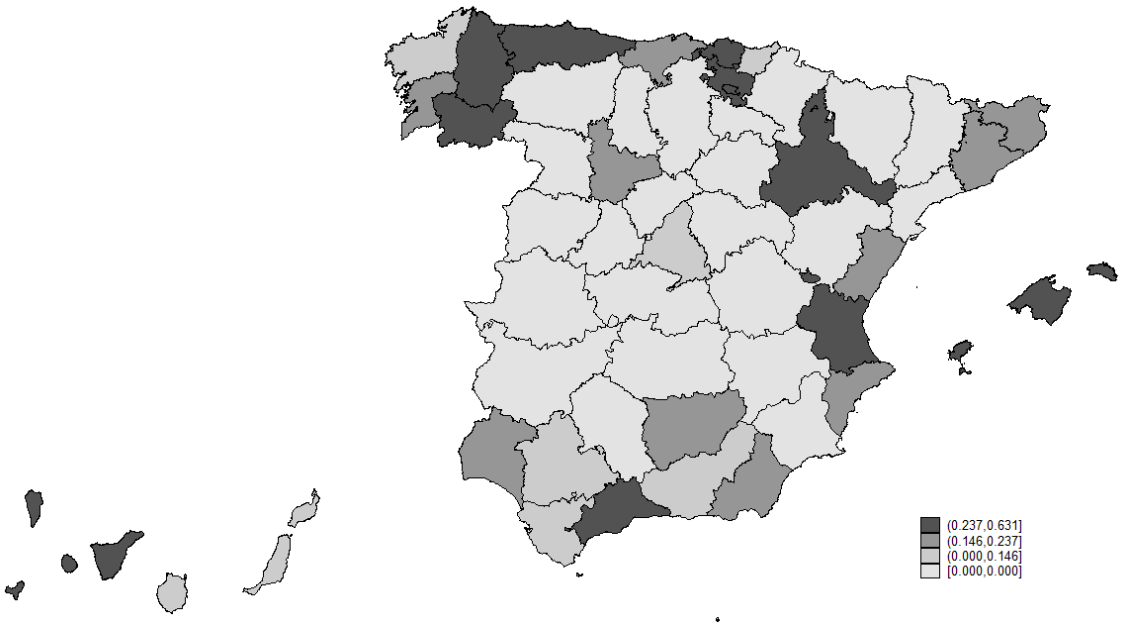

Source: Spanish Ministry of Health annual reports.

**Figure 2. Annual number of births by age of the mother (1985: 100).**



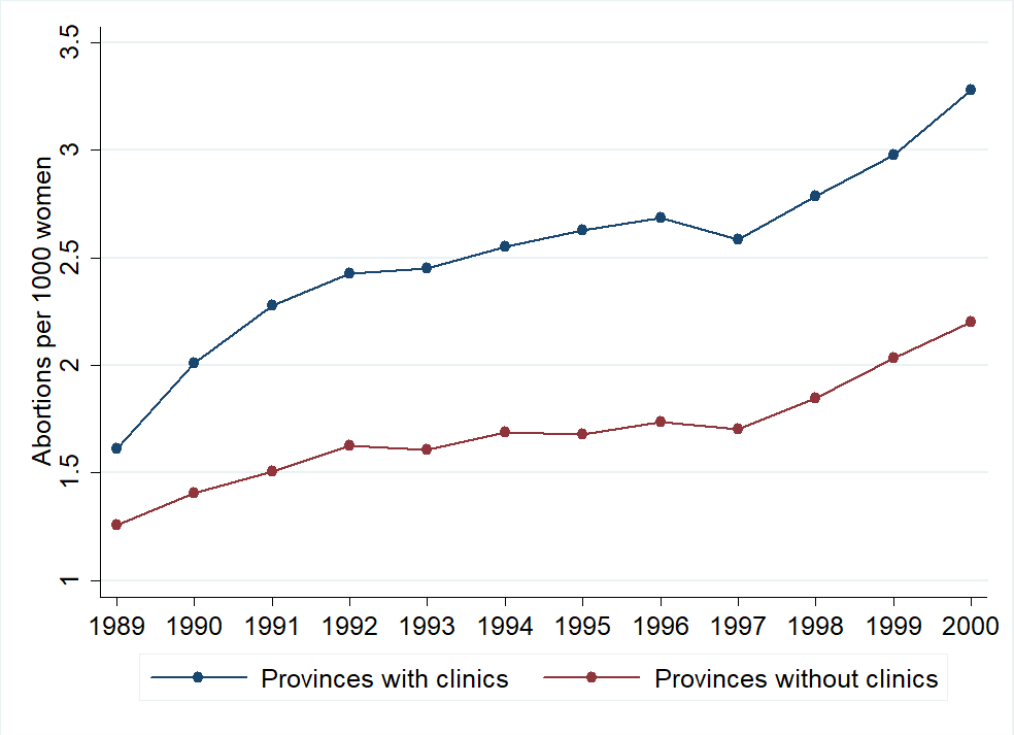

Source: Birth-certificate data, Spanish National Statistical Institute.

**Figure 3. Number of clinics that practiced abortions in 1989 per 100,000 inhabitants, by province**



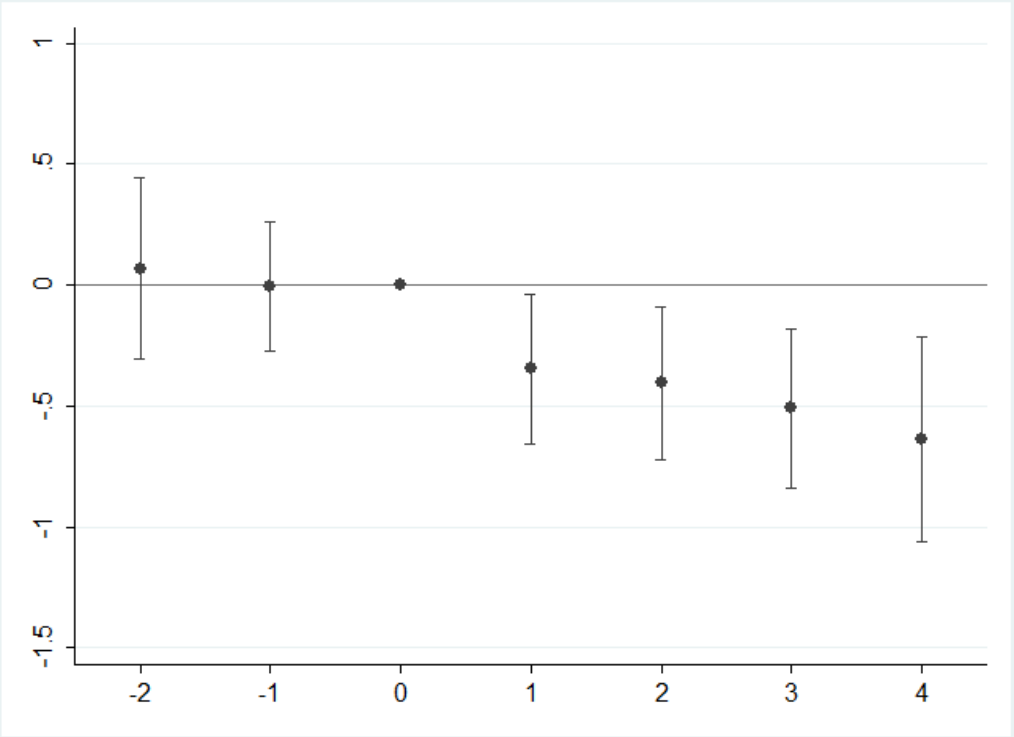

Sources: Authors' calculations based on data from the 1989 report of voluntary pregnancy interruptions from the Spanish Ministry of Health, Social Services and Equality and province-level population from the Spanish National Statistical Institute.

**Figure 4. Abortion rate in provinces with and without abortions clinics**



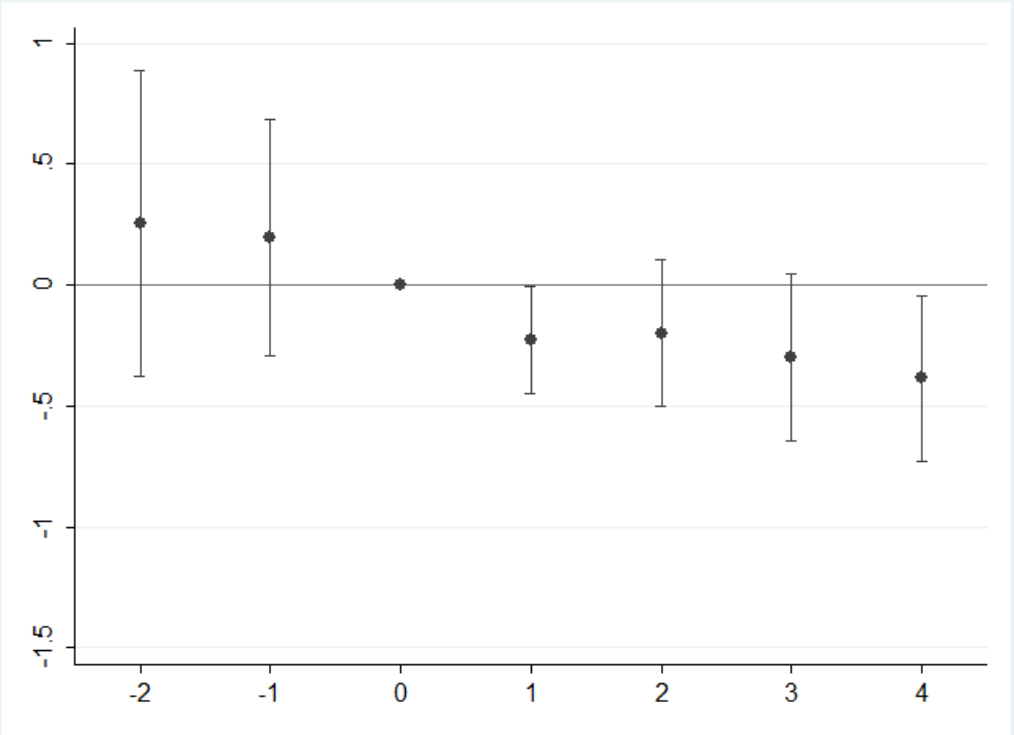

Source: Authors' calculations based on data from the 1989-2000 reports of voluntary pregnancy interruptions from the Spanish Ministry of Health and female population from the Spanish National Statistical Institute. The provinces are classified based on the centers reporting abortions in 1989.

**Figure 5. The effect of the supply of abortion clinics on birth rates**



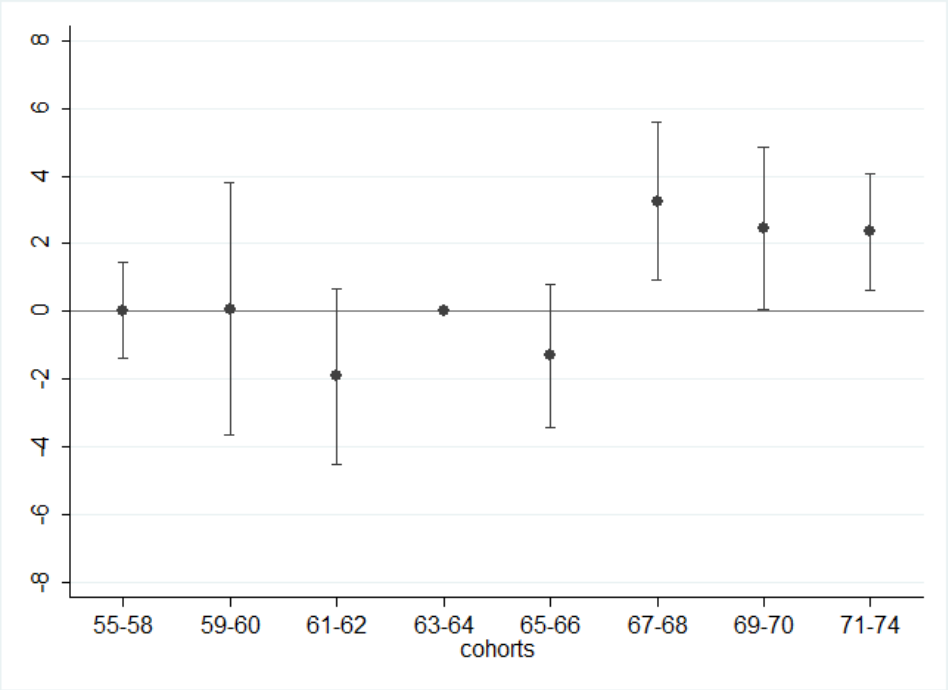

Notes: Results from estimating an equation (see equation 2 in Section 3) where the dependent variable is the monthly birth rate by province and the independent variables are year dummies and their interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province and calendar month fixed-effects. The figure displays the coefficients of the interactions between year dummies and the number of clinics per 100,000 inhabitants. The baseline period is November 1984-December 1985. Confidence intervals at 95% level.
Source: Birth-certificate data, Spanish National Statistical Institute and data of clinics that practiced abortions in 1989 from the Spanish Ministry of Health.

**Figure 6. The effect of supply of abortion clinics on marriage rates of women 21 or younger**



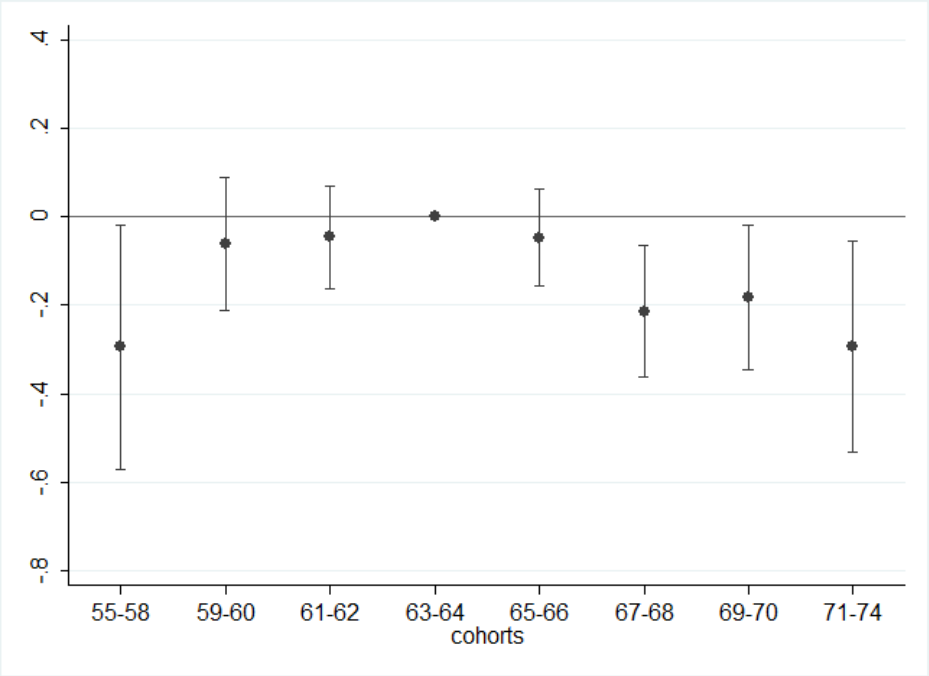

Notes: Results from estimating an equation (see equation 2 in Section 3) where the dependent variable is monthly marriage rates of women 21 and younger by province and the independent variables are year dummies and their interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province and calendar month fixed-effects. The figure displays the coefficients of the interactions between year dummies and the number of clinics per 100,000 inhabitants. The baseline period is November 1984-December 1985. Confidence intervals at 95% level.
Source: Marriage-certificate data, Spanish National Statistical Institute.

**Figure 7. The effect of supply of abortion clinics on the age of woman at the first birth**



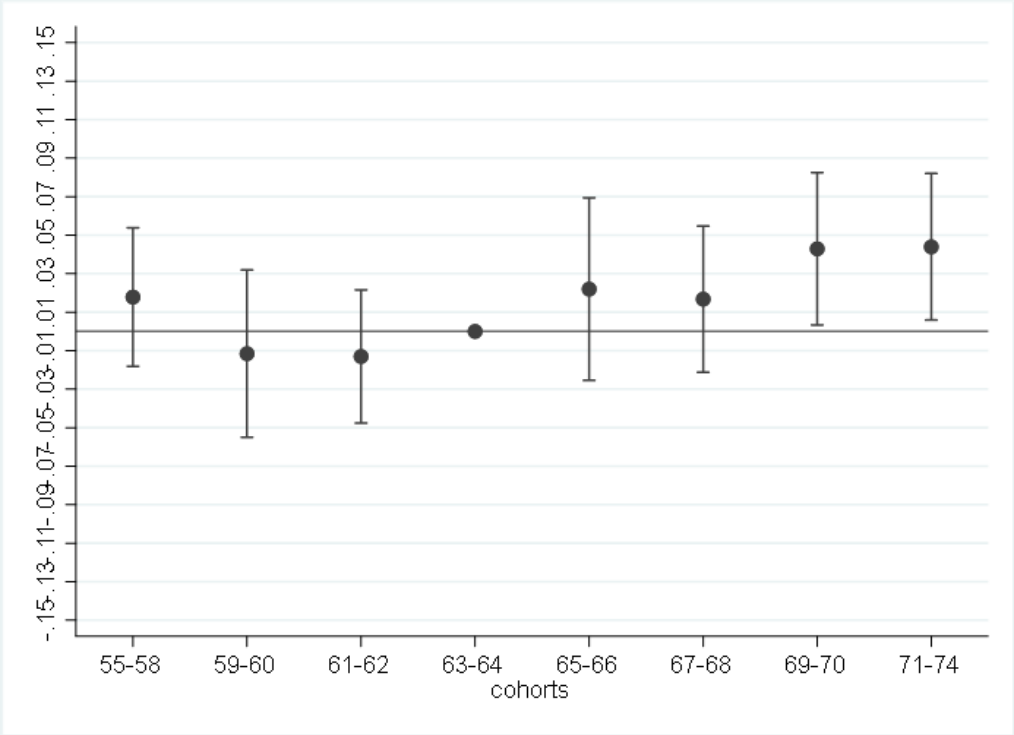

Notes: Results from estimating an equation (see equation 4 in Section 3), where the dependent variable is the age of the woman at the first birth (defined for women who have had a child and who are at least 40 years old at the time of the interview) and the independent variables are cohort dummies and its interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province fixed-effects. The figure displays the coefficients of the interactions between cohort dummies and the number of clinics per 100,000 inhabitants and confidence intervals at 95% level.
Source: own calculations based on 1985, 1999, 2006 and 2018 Fertility Surveys.

**Figure 8. The effect of supply of abortion clinics on completed fertility**



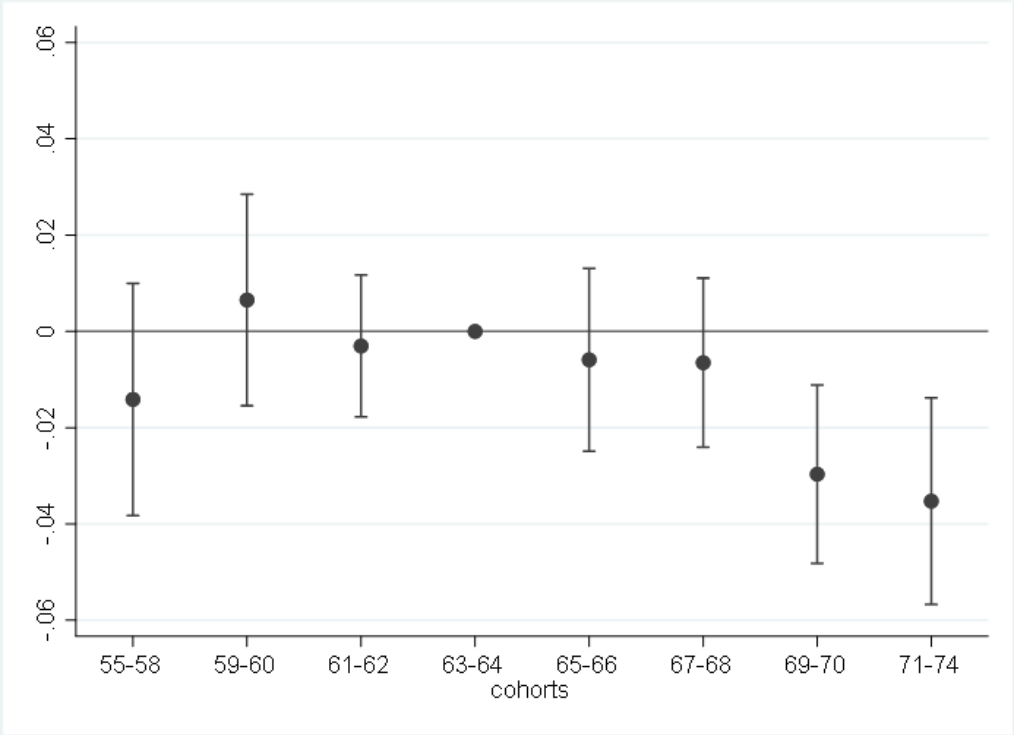

Notes: Results from estimating an equation (see equation 4 in Section 3), where the dependent variable is the average number of births per woman to a cohort and province at 44 years old and the independent variables are cohort dummies and its interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province fixed-effects. The figure displays the coefficients of the interactions between cohort dummies and the number of clinics per 100,000 inhabitants and confidence intervals at 95% level.
Source: own calculations based on birth-certificates records and 1981 Population and Housing Census.

**Figure 9. Long-term effects of the supply of abortion clinics on the probability of completing high school**




Notes: Results from estimating an event study framework (see equation 6 in Section 3), where the dependent variable is having completed high school and the independent variables are cohort dummies and its interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province fixed-effects. The figure displays the coefficients of the interactions between cohort dummies and the number of clinics per 100,000 inhabitants and confidence intervals at 95% level.
Source: own calculations based on data from the labor force survey for the years 1992 to 2018.

**Figure 10. Long-term effects of the supply of abortion clinics on the probability of divorce**




Notes: Results from estimating an event study framework (see equation 6 in Section 3), where the dependent variable is being divorced and the independent variables are cohort dummies and its interactions with the treatment intensity indicator (clinics per 100,000 inhabitants). We also control for province fixed-effects. The figure displays the coefficients of the interactions between cohort dummies and the number of clinics per 100,000 inhabitants and confidence intervals at 95% level.
Source: own calculations based on data from the labor force survey for the years 1992 to 2018.

**Table 1. Short-term fertility and marriage effects of abortion legalization, overall and by age**

| | Births per 1,000 women | Marriages per 1,000 women |
|---|---|---|
| | (1) | (2) |
| Continuous treatment variable | | |
| Post × Clinics per 100,000 inhab | -0.7274*** | -0.3857 |
| | (0.2401) | (0.2481) |
| *21 and younger* | | |
| Post × Clinics per 100,000 inhab. | -0.7250*** | -0.6296*** |
| | (0.1955) | (0.2219) |
| *Older than 21* | | |
| Post × Clinics per 100,000 inhab | 0.0022 | -0.1020 |
| | (0.3170) | (0.3085) |
| Binary treatment variable | | |
| Post × Any clinics in province in 1989 | -0.2803*** | -0.0725 |
| | (0.0821) | (0.0961) |
| *21 and younger* | | |
| Post × Any clinics in province in 1989 | -0.3089*** | -0.1788** |
| | (0.0572) | (0.0843) |
| *Older than 21* | | |
| Post × Clinics in province in 1989 | -0.0227 | 0.0554 |
| | (0.1114) | (0.1128) |
| Mean Dep. Var. All | 4.671 | 2.235 |
| Mean Dep. Var. 21 and younger | 1.638 | 1.770 |
| Mean Dep. Var. Older than 21 | 6.699 | 2.547 |
| N (months x provinces) | 6,000 | 6,000 |
| Calendar month dummies | Y | Y |
| Year fixed-effects | Y | Y |
| Province fixed-effects | Y | Y |

Notes: In panel 1) we present results from estimating equation (1) using births records by month and province (60 months before and after the reform). The variable *Post* takes the value 1 from Dec. 1985 onwards and 0 otherwise. The variables *Clinics per 100,000 inhabitants* and *Clinics in province in 1989* are based on the number of clinics that reported having practiced at least one abortion in 1989, by province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health and Consumption). In panel 2) we present results from estimating equation (2) using marriage records by month and province. Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table 2. Short-term fertility effects of abortion legalization, overall and by age, controlling for demand factors**

| | Baseline | + teenage births | +% women using the pill in 1985 | + religiosity | + % of left-wing voters |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Continuous treatment variable | | | | | |
| Post × Clinics per 100,000 inhab | -0.7274*** | -0.5470** | -0.4887** | -0.4080* | -0.4074* |
| | (0.2401) | (0.2180) | (0.2118) | (0.2197) | (0.2225) |
| *21 and younger* | | | | | |
| Post × Clinics per 100,000 inhab. | -0.7250*** | -0.5501*** | -0.4937*** | -0.4958*** | -0.4964*** |
| | (0.1955) | (0.1503) | (0.1469) | (0.1623) | (0.1570) |
| *Older than 21* | | | | | |
| Post × Clinics per 100,000 inhab | 0.0022 | 0.1524 | 0.0802 | 0.1859 | 0.1882 |
| | (0.3170) | (0.3355) | (0.3412) | (0.3557) | (0.3315) |
| Binary treatment variable | | | | | |
| Post × Any clinics in province in 1989 | -0.2803*** | -0.1728** | -0.1536* | -0.1313 | -0.1323 |
| | (0.0821) | (0.0838) | (0.0875) | (0.0854) | (0.0856) |
| *21 and younger* | | | | | |
| Post × Any clinics in province in 1989 | -0.3089*** | -0.2112*** | -0.1990*** | -0.1994*** | -0.1985*** |
| | (0.0572) | (0.0550) | (0.0578) | (0.0606) | (0.0603) |
| *Older than 21* | | | | | |
| Post × Clinics in province in1989 | -0.0227 | 0.0916 | 0.0723 | 0.1007 | 0.0970 |
| | (0.1114) | (0.1174) | (0.1243) | (0.1238) | (0.1135) |
| Mean Dep. Var. All | 4.671 | 4.671 | 4.671 | 4.671 | 4.671 |
| Mean Dep. Var. 21 and younger | 1.638 | 1.638 | 1.638 | 1.638 | 1.638 |
| Mean Dep. Var. Older than 21 | 6.699 | 6.699 | 6.699 | 6.699 | 6.699 |
| N (months x provinces) | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 |
| Calendar month dummies | Y | Y | Y | Y | Y |
| Year fixed-effects | Y | Y | Y | Y | Y |
| Province fixed-effects | Y | Y | Y | Y | Y |

Notes: Column (1) displays the baseline specification using birth rates as dependent variable (column 3 of Table 1). Specifications in columns (2) to (5) sequentially add province-level potential demand factors and its interactions with year dummies. Column (2) adds birth rates to unmarried women 21 years old in 1984, column (3) adds the fraction of women aged between 15-49 who used (or who had used) the pill in 1985, column (4) adds the percentage of women aged between 15-49 practicing Catholics in 1985, and column (5) adds the province-level proportion of left-wing voters in the 1982 General elections. The variable Post takes the value 1 from Dec. 1985 onwards and 0 otherwise. The variables Clinics per 100,000 inhabitants and Clinics in province in 1989 are based on the number of clinics that reported having practiced at least one abortion in 1989, by province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table 3. Short-term effect on school enrolment and labor force participation, by region according to clinic availability**

| | In education | In the labor force |
|---|---|---|
| | (1) | (2) |
| Continuous treatment variable | | |
| Treated × Clinics per 100,000 inhab. | 0.0648 | -0.0945 |
| | (0.0584) | (0.0765) |
| Binary treatment variable | | |
| Treated × Any clinics in province in 1989 | 0.0007 | -0.0201 |
| | (0.0228) | (0.0318) |
| Mean Dep.Var. | 0.266 | 0.509 |
| N | 128,675 | 128,675 |
| Cohort fixed-effects | Y | Y |
| Year fixed-effects | Y | Y |
| Province fixed-effects | Y | Y |

Note: Results from estimating equation (5) using LFS data (second quarter) from 1986 to 1990 and the cohorts included are those born between 1955 and 1974. The variable Clinics per 100,000 inhabitants is a continuous variable based on the number of clinics that reported having practiced at least one abortion in 1989, by province, per 100,000 inhabitants in that province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). The variable Clinics in province in 1989 is a dummy variable that captures the existence of clinics that reported having practiced at least one abortion in 1989, by province. Treated cohorts are those born between 1965 and 1974 so that they are aged 21 or younger at the time of the reform. Standard errors clustered by province.

## Table 4. Effects of abortion legalization on completed fertility

| | Average number of births by… | | | | Age at first birth |
|---|---|---|---|---|---|
| | age 18 | age 21 | age 34 | age 44 | |
| | (1) | (2) | (3) | (4) | (5) |
| **A. Fertility surveys** | | | | | |
| Treated × Clinics per 100,000 inhab | -0.0405 | -0.1117 | 0.0324 | 0.2023 | 1.9019** |
| | (0.0372) | (0.0757) | (0.1788) | (0.1858) | (0.8981) |
| Treated × Any clinics in prov. in 1989 | -0.0284** | -0.0626*** | -0.0545 | 0.0255 | 0.7062* |
| | (0.0137) | (0.0218) | (0.0730) | (0.0767) | (0.4059) |
| Years treated × Any clinics in 1989 | -0.0022 | -0.0062** | -0.0098 | 0.0052 | 0.1182** |
| | (0.0014) | (0.0026) | (0.0091) | (0.0132) | (0.0528) |
| Mean dep. var. | 0.053 | 0.191 | 1.355 | 1.461 | 27.49 |
| N. obs. | 17,717 | 16,636 | 10,772 | 5,618 | 6,086 |
| **B. Birth registers** | | | | | |
| Treated × Clinics per 100,000 inhab. | -0.0453*** | -0.1490*** | -0.1278 | -0.0695 | |
| | (0.0101) | (0.0353) | (0.0791) | (0.0955) | |
| Treated × Any clinics in prov. in 1989 | -0.0178*** | -0.0616*** | -0.0736** | -0.0627 | |
| | (0.0028) | (0.0104) | (0.0298) | (0.0390) | |
| Years treated × Any clinics in 1989 | -0.0028*** | -0.0091*** | -0.0127*** | -0.0120** | |
| | (0.0004) | (0.0015) | (0.0042) | (0.0056) | |
| Mean dep. var. | 0.050 | 0.198 | 1.294 | 1.551 | |
| N. obs. | 950 | 1,000 | 1,000 | 980 | |

Notes: Results from estimating equation (3) over the average number of births per woman in a cohort and province by 18 years old (Column 1), 21 years old (Column 2), and so on, and over the age at first birth (Column 5). Results in Panel A are based on microdata of the 1985, 1999, 2006 and 2018 Spanish Fertility Surveys (source: Spanish National Statistical Institute and Spanish Center for Sociological Research (2006)). Sample: 1955-1974 cohorts; in panel A we restrict the sample to women aged 18, 21, 34 and 44 years in columns 1 to 4 respectively, and to older 50 at the time of the interview in column 5. In panel B, the average number of births per woman in a cohort and province was calculated as the total number of births by cohort and province (based on birth records between 1975 and 2018) divided by the size of the cohort by province in 1981 (based on female population by age and province in 1981, source: 1981 Population and Housing Census). "Treated" cohorts are those born between 1965 and 1974, so that they are aged 21 or younger at the time of the reform. Robust standard errors clustered at province level (50 clusters) in parentheses. All specifications include province and cohort fixed-effects, and those in Panel A also include survey fixed-effects. *** p<0.01, ** p<0.05, * p<0.1.

**Table 5. Long-term effects of abortion legalization on family formation, educational attainment, and labor market outcomes**

**Panel A. Educational attainment**

| | High school or more | High school | College |
|---|---|---|---|
| Treated × Clinics per 100k inhab. | 0.0403** | 0.0311** | -0.0065 |
| | (0.0198) | (0.0145) | (0.0177) |
| Treated × Any clinics in 1989 | 0.0121 | 0.0064 | -0.0004 |
| | (0.0072) | (0.0049) | (0.0079) |
| Years treated × Clinics per 100k | 0.0044** | 0.0047*** | -0.0016 |
| | (0.0022) | (0.0016) | (0.0022) |
| Mean Dep.Var. | 0.506 | 0.246 | 0.213 |
| N | 674,708 | 674,708 | 674,708 |

**Panel B. Marriage and divorce**

| | Married | Divorced or separated |
|---|---|---|
| Treated × Clinics per 100k inhab. | -0.0079 | -0.0175** |
| | (0.0194) | (0.0076) |
| Treated × Any clinics in 1989 | -0.0005 | -0.0091*** |
| | (0.0077) | (0.0026) |
| Years treated × Clinics per 100k | 0.0003 | -0.0037*** |
| | (0.0028) | (0.0013) |
| Mean Dep.Var. | 0.669 | 0.065 |
| N | 674,708 | 674,708 |

**Panel C. Labor market outcomes**

| | Active | Working | Unemployed | Log earnings |
|---|---|---|---|---|
| Treated × Clinics per 100,000 inhab. | 0.0000 | 0.0041 | 0.0035 | 0.0218 |
| | (0.0166) | (0.0153) | (0.0189) | (0.0538) |
| Treated × Any clinics in province in 1989 | 0.0063 | 0.0048 | -0.0007 | 0.0154 |
| | (0.0080) | (0.0066) | (0.0060) | (0.0148) |
| Years treated × Clinics per 100,000 | 0.0001 | 0.0000 | 0.0014 | 0.0021 |
| | (0.0033) | (0.0031) | (0.0032) | (0.0081) |

| | | | | |
|---|---|---|---|---|
| Mean Dep.Var | 0.678 | 0.538 | 0.206 | |
| N | 674,708 | 674,708 | 674,708 | 1,273,219 |

Notes: Results from estimating equation (5) using labor force survey data (2nd quarter) from 1992 to 2018. Each coefficient comes from a different regression. Cohorts included are those born between 1955 and 1974. The wage equation is estimated with Social Security data. The variable *Clinics per 100,000 inhabitants* is a continuous variable based on the number of clinics that reported having practiced at least one abortion in 1989, by province, per 100,000 inhabitants in that province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). The variable *Clinics in province in 1989* is a dummy variable that captures the presence of clinics that reported having practiced at least one abortion in 1989, by province. Treated cohorts are those born between 1965 and 1974 so that they were aged 21 or younger at the time of the reform. All specification include province, cohort, and year fixed effects. Standard errors (in parentheses) are clustered by province (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table 6. Long-term effects of abortion legalization on women's wellbeing**

| | **Summary index (1)** | Chronic illness (2) | Tense (3) | Low morale (4) | Depressed (5) | Calm (6) | Happy (7) | Satisfaction with life (8) |
|---|---|---|---|---|---|---|---|---|
| Treated × Clinic per 100,000 inhab. | | | | | | | | |
| Standardized coeff. | **0.315** | -0.199 | -0.377 | -0.212 | -0.311 | 0.423 | 0.218 | 0.350 |
| Original p-value | **(0.001)*** ** | (0.124) | (0.027)** | (0.159) | (0.075)* | (0.003)*** | (0.162) | (0.001)*** |
| Romano-Wolf p-value | | [0.327] | [0.069]† | [0.327] | [0.148] | [0.040] †† | [0.327] | [0.109] |
| Treated × Any clinics in province in 1989 | | | | | | | | |
| Standardized coeff. | **0.1418** | -0.101 | -0.148 | -0.128 | -0.155 | 0.174 | 0.144 | 0.111 |
| Original p-value | **(0.001)*** ** | (0.076)* | (0.029)** | (0.021)** | (0.009)*** | (0.012)** | (0.028)** | (0.031) ** |
| Romano-Wolf p-value | | [0.059] †† | [0.040] †† | [0.040] †† | [0.030] †† | [0.030] †† | [0.040] †† | [0.059] †† |
| Mean Dep. Var. | -0.001 | -0.021 | -0.001 | 0.086 | 0.043 | -0.041 | -0.038 | -0.030 |
| Province fixed-effects | Y | Y | Y | Y | Y | Y | Y | Y |
| Cohort fixed-effects | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 4,450 | 4,546 | 4,472 | 4,471 | 4,471 | 4,472 | 4,464 | 4,464 |

Notes: Results from estimating equation (5) based on the 2013 wave of the Spanish Survey on Income and Living Conditions (SILC). The summary index in column (1) is the unweighted average of the sum of the standardized values of the outcomes in columns (2) to (8). Outcomes are standardized using the mean and standard deviation of women living in provinces without abortion clinics. For the summary index, the sign of the adverse outcomes in columns (2), (3), (4) and (5) were reversed so that a higher index value indicates more wellbeing. Sample: women born in Spain in 1955-1974. Treated cohorts are those born between 1965 and 1974 (aged 21 or younger at the time of the reform). Standard errors clustered at province level. For each individual outcome, we report the original p-value and the p-value of the Romano-Wolf (2016) correction.

## Appendix

### Table A1. Short-term fertility and marriage effects of abortion legalization, overall and by age.

### Panel A. Alternative specifications of the birth and marriage outcome variables

| | Births | Births in logs | Marriages | Marriages in logs |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Continuous treatment variable | | | | |
| Post × Clinics per 100,000 inhab. | -358.18*** | -0.1530** | -13.30 | -0.1863 |
| | (84.648) | (0.0587) | (59.189) | (0.2023) |
| *21 and younger* | | | | |
| Post × Clinics per 100,000 inhab. | -97.64*** | -0.2005* | -102.44*** | -0.2409 |
| | (23.399) | (0.1000) | (29.831) | (0.2338) |
| *Older than 21* | | | | |
| Post × Clinics per 100,000 inhab | -260.53*** | -0.1369** | 89.22 | -0.0952 |
| | (65.463) | (0.0576) | (65.875) | (0.2112) |
| Binary treatment variable | | | | |
| Post × Any clinics in province in 1989 | -134.65*** | -0.0302 | 15.91 | -0.0170 |
| | (34.336) | (0.0195) | (20.065) | (0.0771) |
| *21 and younger* | | | | |
| Post × Any clinics in province in 1989 | -40.24*** | -0.0408 | -34.36*** | -0.0233 |
| | (8.825) | (0.0335) | (10.307) | (0.0845) |
| *Older than 21* | | | | |
| Post × Clinics in province in 1989 | -94.412*** | -0.0236 | 50.30** | 0.0214 |
| | (26.588) | (0.0192) | (22.736) | (0.0790) |
| N (months x provinces) | 6,000 | 6,000 | 6,000 | 6,000 |
| Calendar month dummies | Y | Y | Y | Y |
| Year fixed-effects | Y | Y | Y | Y |
| Province fixed-effects | Y | Y | Y | Y |

Notes: Columns 1) and 2) report results from estimating equation (1) using births records by month and province (60 months before and after the reform). Columns 3) and 4) report results from estimating equation (2) using marriage records by month and province (60 months before and after the refrm). The variable *Post* takes the value 1 from Dec. 1985 onwards and 0 otherwise. The variables *Clinics per 100,000 inhabitants* and *Clinics in province in 1989* are based on the number of clinics that reported having practiced at least one abortion in 1989, by province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Panel B. Alternative age cutoffs**

| | Births per 1,000 women | Marriages per 1,000 woman |
|---|---|---|
| | (1) | (2) |
| **Continuous treatment variable** | | |
| *19 and younger* | -0.8915*** | -0.9657*** |
| Post × Clinics per 100,000 inhab. | (0.2164) | (0.2157) |
| *Older than 19* | -0.3827 | -0.1389 |
| Post × Clinics per 100,000 inhab. | (0.2619) | (0.2851) |
| *24 and younger* | -1.2591*** | -0.9410** |
| Post × Clinics per 100,000 inhab. | (0.2963) | (0.4414) |
| *Older than 24* | -0.1478 | -0.2752* |
| Post × Clinics per 100,000 inhab | (0.2494) | (0.1473) |
| **Binary treatment variable** | | |
| *19 and younger* | -0.6116*** | -0.3313*** |
| Post × Any clinics in province in 1989 | (0.1150) | (0.0829) |
| *Older than 19* | -0.1687* | 0.0343 |
| Post × Any clinics in province in 1989 | (0.0908) | (0.1055) |
| *24 and younger* | -0.4678*** | -0.2068 |
| Post × Any clinics in province in 1989 | (0.0968) | (0.1654) |
| *Older than 24* | -0.0719 | -0.0612 |
| Post × Clinics in province in 1989 | (0.0870) | (0.0566) |
| N (months x provinces) | 6,000 | 6,000 |
| Calendar month dummies | Y | Y |
| Year fixed-effects | Y | Y |
| Province fixed-effects | Y | Y |

Notes: In column (1) we present results from estimating equation (1) using births records by month and province (60 months before and after the reform). The variable *Post* takes the value 1 from Dec. 1985 onwards and 0 otherwise. The variables *Clinics per 100,000 inhabitants* and *Any clinics in province in 1989* are based on the number of clinics that reported having practiced at least one abortion in 1989, by province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health and Consumption). In column (2) we present results from estimating equation (2) using marriage records by month and province. Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table A2. Correlates of abortion clinics across provinces**

| *Dep var:* | *A. Clinics per 100,000 inhabitants* | | | *B. Any clinic in province in 1989* | | |
|---|---|---|---|---|---|---|
| | LPM | LPM in logs | Poisson | LPM | LPM in logs | Poisson |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Beds in private maternity hospitals per 100,000 inhabitants in 1985 | 0.023** | 0.055* | 0.171*** | 0.073*** | 0.185* | 0.131*** |
| | (0.009) | (0.032) | (0.063) | (0.023) | (0.100) | (0.046) |
| Teenage births | -1.934 | -2.077 | -26.719 | 47.124 | 43.626 | 65.918 |
| | (12.276) | (11.121) | (95.310) | (37.900) | (38.652) | (70.710) |
| % of women using the pill in 1985 | 0.172 | 0.152 | 1.588 | 0.958 | 0.950 | 1.782 |
| | (0.237) | (0.215) | (2.124) | (0.955) | (0.977) | (1.921) |
| Religiosity | -0.298** | -0.225** | -2.336** | -0.757 | -0.662 | -1.550 |
| | (0.129) | (0.111) | (1.050) | (0.523) | (0.535) | (1.157) |
| % of left-wing voters | 0.239 | 0.160 | 1.901 | 0.695 | 0.509 | 1.064 |
| | (0.251) | (0.208) | (2.182) | (0.740) | (0.721) | (1.699) |
| Constant | 0.141 | 0.125 | -2.172 | 0.082 | 0.135 | -1.327 |
| | (0.178) | (0.155) | (1.656) | (0.713) | (0.712) | (1.593) |
| Observations | 50 | 50 | 50 | 50 | 50 | 50 |
| R-squared | 0.305 | 0.288 | 0.074 | 0.418 | 0.373 | 0.106 |

Notes: Results from estimating a province-level regression model, where the dependent variable is one of our treatment variables. The explanatory variables are: 1) the number of beds in private maternity hospitals per 100,000 inhabitants (source: 1986 National Hospitals Catalog, Ministry of Health, Social Services and Equality); 2) birth rates to unmarried women 21 years old in 1984; 3) the fraction of women aged between 15-49 who used (or who had used) the pill in 1985; 4) the percentage of women aged between 15-49 practicing Catholics in 1985; and 5) the province-level proportion of left-wing voters in the 1982 General elections. Columns (1) and (4) shows the results of estimating a linear probability model with all variables in levels. In column (2) we transform both the dependent variable and the explanatory variable number of beds in private maternity hospitals into logarithms and in column (4) only the explanatory variable number of beds in private maternity hospitals. We add the value 1 in both variables before taking logs to avoid missing values in provinces either without clinics or without private maternity hospitals. Columns (3) and (5) shows the results of estimating Poisson models. Roust standard errors. *** p<0.01, ** p<0.05, * p<0.1.

**Table A3. Short-term fertility effects of abortion legalization. Robustness tests using clinics in different years**

| | Clinics 1989 (baseline) | Clinics 1990 | Avg clinics 1989-93 |
|---|---|---|---|
| | (1) | (2) | (3) |
| Continuous treatment variable | | | |
| Post × Clinics per 100,000 inhab | -0.7274*** | -0.3751* | -0.2532 |
| | (0.2401) | (0.1934) | (0.1819) |
| *21 and younger* | | | |
| Post × Clinics per 100,000 inhab. | -0.7250*** | -0.4803*** | -0.3406** |
| | (0.1955) | (0.1706) | (0.1362) |
| *Older than 21* | | | |
| Post × Clinics per 100,000 inhab | 0.0022 | 0.2522 | -0.1824 |
| | (0.3170) | (0.2733) | (0.2465) |
| Binary treatment variable | | | |
| Post × Any clinics in province | -0.2803*** | -0.2390*** | -0.0735 |
| | (0.0821) | (0.0867) | (0.0717) |
| *21 and younger* | | | |
| Post × Any clinics in province | -0.3089*** | -0.2874*** | -0.1667*** |
| | (0.0572) | (0.0596) | (0.0518) |
| *Older than 21* | | | |
| Post × Any clinics in province | -0.0227 | 0.0383 | -0.0134 |
| | (0.1114) | (0.1137) | (0.0956) |
| N (months x provinces) | 6,000 | 6,000 | 6,000 |
| Calendar month dummies | Y | Y | Y |
| Year fixed-effects | Y | Y | Y |
| Province fixed-effects | Y | Y | Y |

Notes: Results from estimating equation (1) using births records by month and province (60 months before and after the reform). The variable *Post* takes the value 1 from Dec. 1985 onwards and 0 otherwise. The variables *Clinics per 100,000 inhabitants* and *Any clinics in province* are based on the number of clinics that reported having performed at least one abortion in 1989 or 1990 in columns 1 and 2 respectively and the average number of clinics that reported having performed abortions in 1989-93 in Column 3 (source: 1989-1993 reports of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table A4. Short-term fertility effects by region and clinic availability. Alternative measure of clinic availability (births in logs)**

| | All | 21 and younger | Older than 21 |
|---|---|---|---|
| A. Using distance to the nearest province with at least one clinic | | | |
| Post × Distance | 0.0418*** | 0.0591** | 0.0370*** |
| | (0.0133) | (0.0257) | (0.0131) |
| B. Using the absolute number of clinics | | | |
| Post × N. of clinics | -0.0026 | -0.0091** | -0.0019 |
| | (0.0046) | (0.0040) | (0.0046) |
| N (months x provinces) | 6,000 | 6,000 | 6,000 |
| Calendar month dummies | Y | Y | Y |
| Year fixed-effects | Y | Y | Y |
| Province fixed-effects | Y | Y | Y |

*Notes:* Results from estimating equation (1) using births records by month and province (60 months before and after the reform). The variable *Post* takes the value 1 from Dec 1985 onwards and 0 otherwise. In panel A, the variable Distance is the distance (in 100 km) to the nearest province with at least one clinic that practiced abortions in 1989 (geodetic distance). In panel B, the variable *Nclinics* is the absolute number of clinics that practiced abortions in 1989 in province *p*. Standard errors clustered at province level (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

**Table A5. Long-term effects of abortion legalization on family formation, educational attainment, and labor market outcomes for men.**

| | High school or more | High school | College |
|---|---|---|---|
| Treated × Clinics per 100,000 inhab. | 0.0126 | 0.0132 | -0.0133 |
| | (0.0225) | (0.0181) | (0.0134) |
| Treated × Any clinics in prov. in 1989 | 0.0119* | 0.0118*** | -0.0047 |
| | (0.0065) | (0.0043) | (0.0050) |
| Province fixed effects | Y | Y | Y |
| Cohort fixed effects | Y | Y | Y |
| Year fixed effects | Y | Y | Y |
| N | 658,162 | 658,162 | 658,162 |

**Panel B. Marriage and divorce**

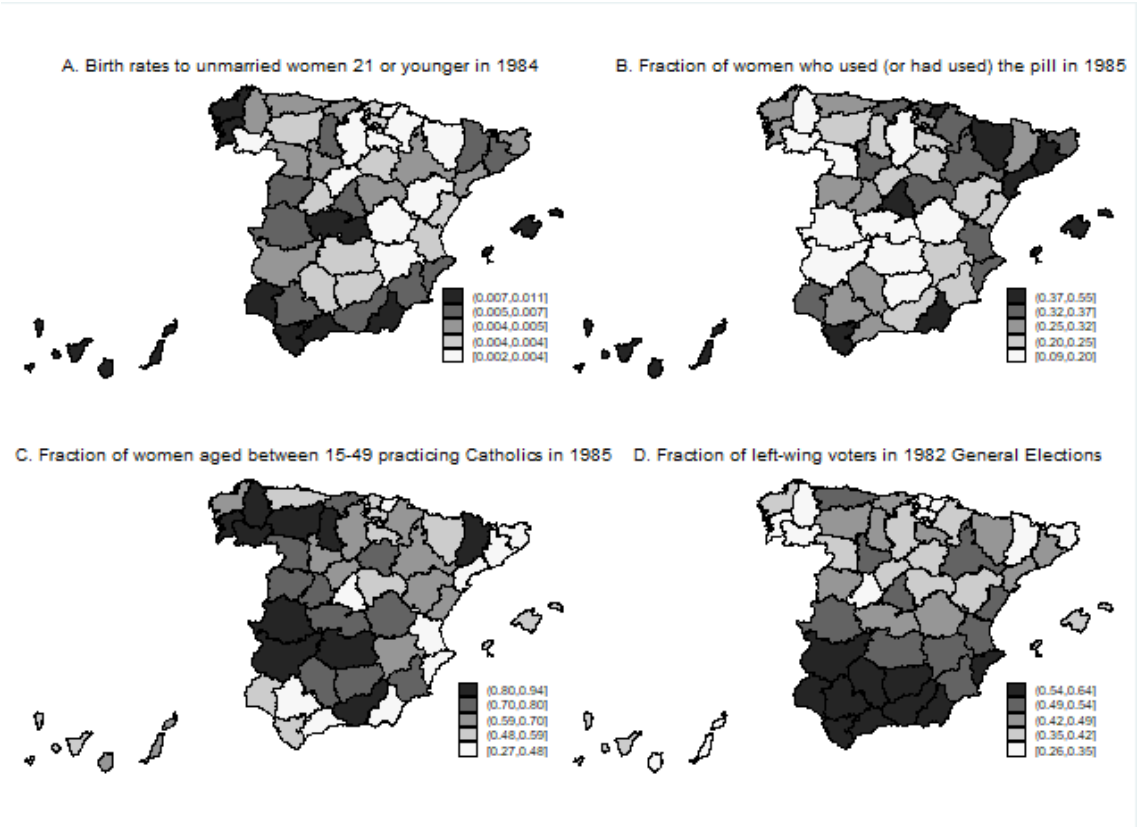
| | Married | Divorced or separated |
|---|---|---|
| Treated × Clinics per 100,000 inhab. | 0.0063 | -0.0202** |
| | (0.0193) | (0.0096) |
| Treated × Any clinics in province in 1989 | 0.0030 | -0.0088*** |
| | (0.0074) | (0.0024) |
| Province fixed effects | Y | Y |
| Cohort fixed effects | Y | Y |
| Year fixed effects | Y | Y |
| N | 658,162 | 658,162 |

**Panel C. Labor market outcomes**

| | Active | Working | Unemployed | Log earnings |
|---|---|---|---|---|
| Treated × Clinics per 100,000 inhab. | 0.0234* | -0.0132 | 0.0407** | -0.0265 |
| | (0.0123) | (0.0157) | (0.0172) | (0.0553) |
| Treated × Any clinics in province in 1989 | 0.0066 | -0.0006 | 0.0079* | 0.0098 |
| | (0.0052) | (0.0063) | (0.0042) | (0.0108) |
| Province fixed effects | Y | Y | Y | Y |
| Cohort fixed effects | Y | Y | Y | Y |
| Year fixed effects | Y | Y | Y | Y |
| N | 654,765 | 654,765 | 586,525 | 1,727,849 |

Notes: Results from estimating equation (5) using labor force survey data (2nd quarter) from 1992 to 2018. Each coefficient comes from a different regression. Cohorts included are those born between 1953 and 1972. Note that we include men that are two years older (two previous cohorts) with respect to the cohorts of women included in Table 5 as, on average, women marry men that are two years older. The wage equation is estimated with Social Security data. The variable *Clinics per 100,000 inhabitants* is a continuous variable based on the number of clinics that reported having practiced at least one abortion in 1989, by province, per 100,000 inhabitants in that province (source: 1989 report of voluntary pregnancy interruptions, Ministry of Health, Social Services and Equality). The variable *Clinics in province in 1989* is a dummy variable that captures the presence of clinics that reported having practiced at least one abortion in 1989, by province. Treated cohorts are those born between 1963 and 1972. Standard errors (in parentheses) are clustered by province (50 clusters). *** p<0.01, ** p<0.05, * p<0.1.

## Figure A1. Province variation in potential abortion demand factors




*Notes:* Panel A. Source: Authors' calculations based on birth-certificate data and female population data in 1984 (Source: Spanish National Statistical Institute). Birth rates to unmarried women 21 and younger in 1984 are defined as the number of births of unmarried mothers aged 21 or less per province in 1984 divided by female population of 15-19 years old per province. Panel B. Source: 1985 Fertility Survey microdata, Spanish National Statistical Institute. Authors' calculations based on the answers to a question about whether the women used or had used the pill at the time of the interview. Answers are missing for 7 provinces (Avila, Guadalajara, Huelva, Lleida, Segovia, Soria and Teruel) due to lack of enough sample size to be representative of the population of interest. To estimate the value for these missing provinces we follow the multiple imputation methodology suggested by Rubin (1987) and regress the proportion of women who used the pill by province on a group of other indicators for the same or around years. Panel C. Source: 1985 Fertility Survey microdata, Spanish National Statistical Institute. Practicing catholic are those who actually practice the religion, for example, going to Mass every Sunday. We follow the same strategy as in Panel B to estimate the religiosity of the missing provinces. Panel D. Source: Wikipedia. Left-wing voters are defined as the fraction of votes received by the Spanish Socialist Workers' Party (PSOE).

## DATA APPENDIX

| Dataset Name | Outcome | Description Dataset |
|---|---|---|
| Birth Records | Short-term births | This is an administrative dataset of the universe of births in Spain each year. It includes information on the characteristics of the birth (with month of birth), the health of the newborn as well as on socio-demographic characteristics of the parents. The information comes from the Civil Registry through a document filled out by parents (or relatives) obliged to declare the birth. It is available at the yearly level since 1975. It is available at the Spanish National Statistical Institute. |
| Marriage Records | Short-term marriages | This is an administrative dataset of the universe of marriages celebrated in Spain each year. It includes information on socio-demographic characteristics of the two partners getting married as well as the region and date of the marriage. The information comes from the Civil Registry through a document that spouses fill out when getting married. It is available at the yearly level since 1975. It is available at the Spanish National Statistical Institute. |
| Spanish Fertility Surveys | Long-term completed fertility | The Fertility Surveys (FS) are answered by a representative sample of the Spanish women population (sample sizes around 8000-1000 observations). The survey asked women about their retrospective information on fertility as well as socio-demographic information (including the year of birth). They are available as cross-sectional surveys for the years 1985, 1999, 2006 and 2018. It is available at the Spanish National Statistical Institute. |
| Spanish Labor Force Survey (EPA) | Short and long term effects on education, family formation and labor market | The Spanish Labor Force Survey (EPA) is a rotating quarterly survey carried out by the Spanish National Statistical Institute. It includes information on socio-demographic characteristics (with year of birth) and labor market outcomes (except earnings). The sample size is about 64,000 households per quarter, including approximately 150,000 adult individuals. The same person can be interviewed a maximum of six times in a row; therefore, we use the second interview of each year in order to minimize repeated observations of the same individual. It is available since 1999 at the webpage of the National Statistical Institute and since 1976 by special request. Some of the variables are also restricted and provided only under request. |
| Interrupciones Voluntarias del Embarazo | Clinics reporting abortions (treatment variable) | Each abortion practiced in Spain has to be reported to the Ministry of Health by the clinic where it takes place. Therefore, the Ministry publishes a report every year with information on the number of abortions, clinics, etc. These yearly reports are published as pdf files in the webpage of the Spanish Ministry of Health. |
| Population and Housing Census | Long-term completed fertility | It includes information on the universe of persons (socio-demographic characteristics such as the year of birth), households (size, composition…), buildings (floors, state, year of construction…) and dwellings (tenancy regime, area, number of floors…) in Spain. It is available at the Spanish National Statistical Institute and is collected every 10 years. For this paper, we use the waves of 1981 & 1991. |
| Muestra Continua de Vidas Laborales | Long-term effects on earnings | Administrative data from the Spanish Social Security Administration including 4% of all individuals that have contributed for at least one day to the Social Security in Spain. For those individuals, there is information on the entire retrospective labor market career including a proxy for wages; social security contribution as well as some personal information |

| | | |
|---|---|---|
| | | such as the month and year of birth. We use the 2009 sample and construct annual earnings at the individual level for 2000-07. |
| Spanish Survey on Income and Living Conditions (SILC) | Long-term self-reported well-being | The dataset includes cross-sectional microdata on income, poverty, social exclusion and living conditions for a representative sample of the Spanish population. The survey includes some questions about individuals' health, personal information (such as the year of birth) as well as subjective well-being that we use for our analysis. We use data from the 2013 wave. |