# Should The Laws Be Aborted?

# The Impact of Restrictive Abortion Laws on Teenage Pregnancy Rates in the United States

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**An Empirical Analysis**

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## Abstract

Following the example of Dr. Medoff in his paper *The Impact of State Abortion Policies on Teen Pregnancy Rates*, this paper theorizes that restrictive abortion laws would influence teenage pregnancy rates through a rational choice model. If a state has restrictive abortion laws, the cost of a pregnancy goes up and accordingly, so do the incentives to teenagers to avoid becoming pregnant either through abstaining from sex or using contraceptives more efficiently. Using data from the years 2000, 2005, and 2010, this paper examines the impact of state restrictive abortion laws on teenage pregnancy rates. To do this, this paper first replicates Dr. Medoff's study directly and then creates a second improved model. In the replication of Dr. Medoff's model, all of the restrictive abortion laws except for Medicaid funding seem to reduce teenage pregnancy rates. The second model's results support the conclusion that restrictive abortion laws have no effect on the teenage pregnancy rates. In terms of public policy, these results suggest that states should focus their efforts elsewhere to lower the teenage pregnancy rate.

## 1. Introduction

Economics, as a discipline, focuses on the costs and benefits taken into account before a decision is made. In regards to teenage pregnancy rates, economics would tell us to focus on the costs considered by teenagers when making decisions about their sexual activity and safety. A potential type of cost to consider is the one generated by public policies. If public policies have a modifying effect on teenagers' behaviors, then that may lower the overall cost associated with risky sexual behavior, i.e. an unintended pregnancy. Pregnancy is not a random event, rather an outcome from specific behavior. One public policy that affects these costs are restrictive state abortion laws. This paper will investigate the relationship between restrictive abortion laws and teen pregnancy rates.

### 1.1. Teenage Pregnancy

Unintended pregnancy is an important measure of the public health of a population. It is so important that it is even included in a few of the US Department of Health and Human Services' Healthy People 2020 initiatives. More than half of pregnancies in 2010 were unintended in 28 of the 50 states. In 2011, 45% of all the pregnancies in the United States were unintended. Between 2001 and 2008, the national rate of unintended pregnancy increased, but since then has decreased. Sonfield et al. [2011] calculated that of all the publicly funded births, over half resulted from unintended pregnancies, causing the government to spend billions to provide prenatal visits, labor and delivery charges, postpartum care, and infant wellness checks.

Teenage pregnancy is an important subset of this issue, especially in the United States. Here, teenage pregnancy rates are higher than most other developed countries, even though the rate is currently declining. In her paper about the relationship between adolescent pregnancy and abortion rates on a global scale, Sedgh states, "A teen's decision to end a pregnancy seems to be driven in large measure by future aspirations and her hopes of achieving them. However, a teen's ability to actually obtain an abortion might depend on whether services are available and affordable and whether she has support to do so." Therefore, teenage pregnancy, more so than for all pregnancies, bears immediate and long-term social and economic costs. Additionally, it costs the government billions of dollars every year for increased health care and foster care,

increased incarceration rates among children of teen parents, and lost tax revenue because of lower educational attainment. The Center for Disease Control and Prevention (CDC) considers teen pregnancy a "winnable battle" with the right public health interventions. Overall, due to the costs to both women and society, teenage unintended pregnancy is a worthwhile problem to attempt to solve.

**1.2 Abortion in the US: A Quick History**

Abortion has been a controversial issue in the Unites States since its founding. When abortion was first criminalized at the turn of the twentieth century, women continued to terminate their pregnancies, thus claiming their right to abortion despite the legal barrier. However, even advocates at this time still did not argue for an official legal right to abort. As time went on, a woman's ability to get an abortion was highly correlated with the law enforcement's interest in enforcing the policies and on the physician's interest to perform; and in postwar America, both law enforcement and physicians were very unwilling to allow and perform abortions. The decade of the 1960s was a period when the conflict changed to not only what should the law be, but also how the abortion issue should be framed. While in earlier decades people who disagreed with the law tried their best to work around it, now advocates challenged the law directly and took their battles to local and State legislatures. By 1973, abortion was prohibited entirely in 60 percent of the states and only allowed in certain situations in the remaining states.

All that changed when a single pregnant woman, Jane Roe, took action against Henry Wade, a district attorney in Texas, on the grounds that the state's anti-abortion law violated the Constitution. The law in question prohibited all abortion at any stage of gestation unless the mother's life was in extreme danger. The Supreme Court in January 1973 came to the conclusion that this state law was unconstitutional since the constitutional right to privacy "is broad enough to encompass a woman's decision whether or not to terminate her pregnancy" (Roe v. Wade, 1973). This remarkable and important decision had reverberating effects and invalidated all similar state laws. *Roe v. Wade* established that the right to privacy of a woman must be measured against the state's "legitimate interest in potential life" (Mohr, 249). To do this, the Supreme Court divided the stages of gestation into thirds. During the first trimester, a woman's right to her own body supersedes the state's interests and should be allowed without interference

from the state. During the second trimester, while the state still cannot deny a woman the right to terminate if she so chooses, the state could demand reasonable standards for the procedure. In the last trimester, the Supreme Court stated that the state's "legitimate interest in potential life" overrides women's right to determine her own future. The Court depended on the concept of "viability", the ability of the fetus to survive on its own, to define the trimesters.

**1.3 Restrictive Abortion Laws**

Since *Roe v. Wade*, states have been left to their own discretion in regards to enacting laws restricting the access and availability of abortion services. Courts have had to step in and rule on if these abortion restrictions were constitutional, and in the end allowing for 4 main types of restrictions. These restrictive state laws revolve around: (i) allowing states to not use public funds i.e. Medicaid to pay for abortion; (ii) letting states involve parents in a minor's decision to have an abortion; (iii) mandatory counsel laws; (iv) and two-visit laws.

In three related cases, *Beal v. Doe*, *Maher v. Roe*, and *Poelker v. Doe* the Court held that states are able to prohibit the use of Medicaid or other public funding from going towards abortion. Later, Congress enacted a law, the Hyde Amendment, that officially prohibited federal funds from being used to pay for abortions for poor women on Medicaid and allowed states to discontinue funding Medicaid abortions. This ruling forces poor women on Medicaid to have to pay for abortion completely out of pocket. In *Planned Parenthood v. Danforth*, the Court held that informed consent statutes, which requires a doctor to get the written consent of a woman after informing her of the potential dangers of abortion, are constitutional if the requirements are only related to maternal health and are not overbearing.

There is a fundamental difference between an informed consent law and a mandatory counsel one. While, informed consent is the principle that all patients, prior to receiving any medical care, have the right to receive accurate medical information so they can make an informed decision, mandatory counsel laws require an abortion provider to go above and beyond this and relay state-approved medical information in advance of the procedure. On the other hand, a two-visit law forces abortion providers to give this information to women in person, i.e. make *two visits* to the abortion provider.

Additionally, the Court also found in *Danforth* that spousal consent statutes are unconstitutional if they allow the husband full control over prohibiting the abortion in the first trimester. The Court has since summarily affirmed a decision making spousal consent laws unconstitutional at any stage of a woman's pregnancy (*Coe v. Gerstein).* In both *Danforth* and *Bellotti v. Baird*, the Court ruled that while a state can require parental consent, it must also provide another option for a minor to receive an abortion if parental consent is denied or not seeked. In terms of parental notification, the Court has gone back and forth but currently allows states to require parental notification as long there is a judicial bypass option.

Then, in the landmark case of *Planned Parenthood v. Casey* the Court decided to change the way they looked at abortion. Now instead of the trimester framework, the Court would look into if a state abortion restriction has the effect of imposing an "undue burden" on women. Using this new framework, the Court upheld the two-visit, mandatory counsel, parental consent/notification by minors with a judicial bypass, and Medicaid funding restrictive laws. After the Court's decision in *Casey*, states jumped on the opportunity and enacted many new laws.

In the 44 years since the Supreme Court decided on *Roe v. Wade*, women in the United States have seen a huge increase in the number of abortion restrictions with over 1,000 abortion restriction laws enacted in total. Of these restrictions, over 25% of them have been enacted since 2010, when Republicans took control of the majority of state governments.

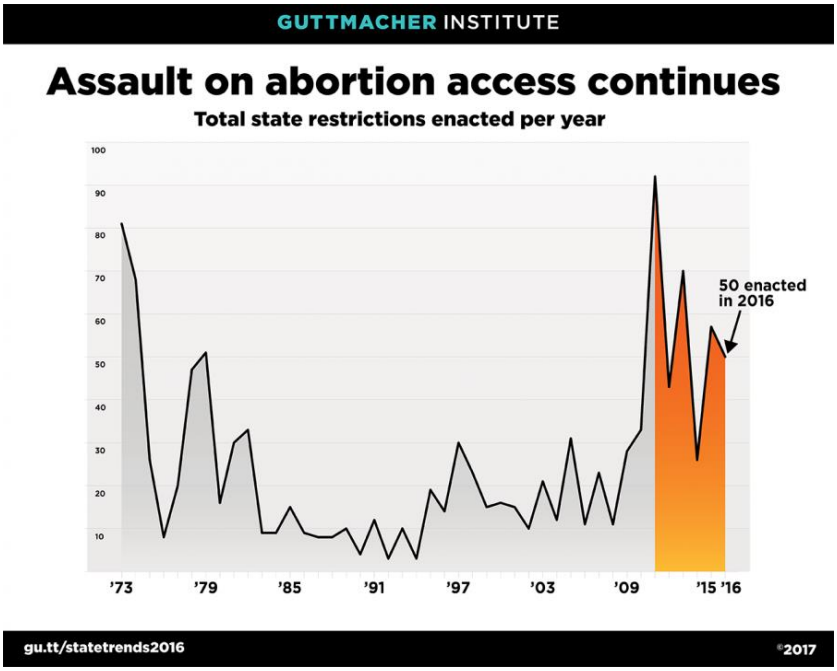



Figure 1: Guttmacher Institute 2017

Proponents of restrictive abortion laws claim that they work by both directly lowering the number of abortions, and therefore the pregnancy rate, and by indirectly raising the opportunity cost of risky sexual behavior (Danel, 2015). The former argument is based on the assumption that restrictive abortion laws may influence the likelihood of women terminating an unintended pregnancy in a few ways. First, the financial burden or the emotional costs for women seeking abortions is increased. Second, these laws reduce the number of abortion providers in each state, which forces women to work harder to find and obtain abortions. The latter argument is based on the assumption that if women know it will be harder to get abortion, the opportunity cost of having an unintended pregnancy increases and they will take additional precautions to avoid unwanted pregnancies (Medoff, 2012). Therefore, it can be concluded that the more restrictive the abortion law, the costlier the pregnancy and the less likely that women will want to become pregnant.

## 2. Theoretical Considerations

In economics, in contrast to other disciplines, teenage sexual decisions are not seen as random but rather the result of weighing known costs and benefits. This means that economics focuses on the costs considered by teenagers when they make decisions about their sexual activity. The

rationale in other disciplines for not doing this is that teens do not have complete information about every action available or the ability to weigh the consequences of them all. While other disciplines may be correct in assuming teens do not have complete information, since teens may still act as if they did have all the information and weigh it accordingly, the economic rationale still holds.

According to Medoff [2012], the economic models of teen sexual activity are based on rational choice theory. By definition, rational choice theory is a framework for understanding social behavior that states that individuals always make logical decisions. Therefore, the economic model of teen sexual activity is based on the idea that teenagers act rationally in regards to their sexual activities and the associated costs. In other words, they make choices that benefit them and try to avoid those that do not. The economic costs of teenage pregnancy usually include lost opportunities due to pregnancy (like schooling or wages).

Traditionally, the literature on teen fertility includes models that begin with the decision to become pregnant, treating abstinence as the "ultimate means" of avoiding an unintentional pregnancy. Within this model, women "choose" to become pregnant by engaging in sexual activity and will only do so if the benefits of pregnancy are greater than the costs. This can be represented in the game tree seen in Figure 2. Following the principles of game theory, the costs and benefits incurred at the later stages of a sequence of events are assumed to be taken into account at the earlier stages. Therefore, if more abortion restrictions are put into place, then the costs of these restrictions should be incorporated into decisions earlier, such as whether to engage in sexual activity.

Through this, the relationship between restrictive abortion laws and teenage pregnancy rates can be seen. It makes logical sense that if access to abortion is limited due to the restrictive abortion laws, teenagers will take that into account when making decisions surrounding sexual activity and change their behavior accordingly. This seems to fit when looking at the current trend of abortion rates falling nationally. According to anti-abortion advocates, this means that abortion restriction laws are doing their job by making teenagers more informed and either abstaining because of the high costs or making the decision to carry the fetus to term. On the other hand, pro-abortion advocates argue that the rate is falling because of more widespread contraception access and sexual education.

Based on this, in our model we can equate the null hypothesis to when restrictive abortion laws have no effect on teenage pregnancy rate and the alternative hypothesis to cases where restrictive abortion laws and teenage pregnancy rates have a relationship.

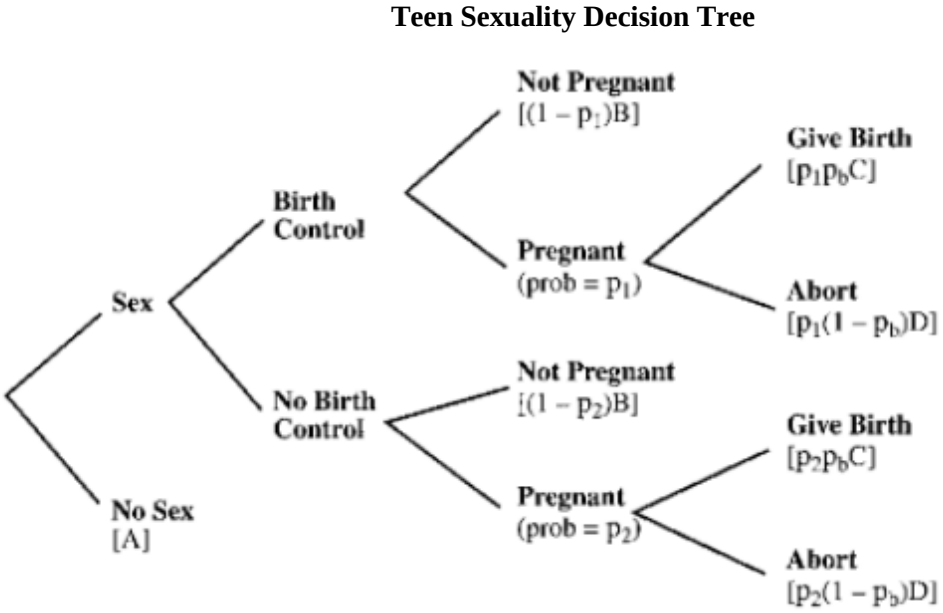



Figure 2: Risky Behavior among Youths: An Economic Analysis

## 3. Literature Review

The factors associated with reproductive decisions have been studied by many academic disciplines. Many papers, both in the economics and public health literature, have looked into how different restrictive abortion laws affect a variety of factors.

There have been many models that look into how the legalization of abortion has been associated with birth rates. Many of these studies take advantage of the introduction of Roe v. Wade and look into if there was a change in birth rates both before and after the Supreme Court ruling in 1973. Some studies like Sklar and Berkov [1974], Bauman et al. [1977], and Levine et al [1995] found that the legalization of abortion resulted in a 5-10 percent decline in birthrates. Levine et al. [1995] find that the largest impact of abortion legalization occurred in the handful of states that legalized abortion before Roe v. Wade and that there was a less noticeable decline in birthrates as a result of the ruling itself.

Some studies have evaluated the effect of a specific category of state restrictive abortion law- for example the Medicaid funding restriction. Most of these studies use the Hyde Amendment going into effect, which prohibited federal Medicaid funding of abortions, as a "natural experiment". Jackson and Klerman [1994] find that Medicaid funding for abortion was associated with no differences in fertility among white women and lower fertility among black women. On the other hand, Trussell et al. [1980], Levine, Trainor, and Zimmerman [1995] and Matthews, Ribar, and Wilhelm [1995] find that birth rates were higher, rather than lower, when states helped provide public funding of abortion. Blank et al. [1996] investigated the immediate effects of the cutoff of federal funding for Medicaid abortions by studying abortion decision behavior before and after the Hyde Amendment became active. Generally, they found that 19-25% of the abortions among low-income women that are publicly funded stopped taking place after the federal funding was cut off. They also found a positive relationship between the number of abortion providers and the abortion rate, primarily due to cross-state travel. Along these same lines, Haas-Wilson [1993] compared states with and without public funding for abortions, and found that abortion rates are higher in public funding states. A lot of these same authors have also studied the relationship between different states parental consent laws and abortion-seeking teenagers. Matthews, Ribar, and Wilhelm [1995] and Jackson and Klerman [1994] found that teen birth rates fell following the implementation of these laws. These results however are less striking than they seem since at the same time birth rates for older women fell too.

There have been some empirical studies that have focused specifically on the combined effect of Medicaid funding restrictions and parental involvement laws on the risky sexual activity of teens. Levine found that over the period 1991-1997 neither Medicaid funding restrictions or parental involvement laws had an effect on the proportion of teens that participated in sexual activity or contraceptive use, by using the Youth Risk Behavior Survey. Averett et al. found the same results using the National Surveys of Family Growth of 1988 and 1995.

Other studies focus only on parental consent requirements. Of these, some focus on the impact of parental involvement laws among women of reproductive age as a whole i.e. including both minors and adults. Meier et al. used a pooled time-series design from 1982-1992 to estimate the effect of parental involvement laws on the abortion rate of all women aged 15-44 (reproductive

age). The law was one of many policies related to abortion that were included concurrently in the regression. In the end, this study found that parental involvement laws had no effect on the abortion rate. Bitler and Zavodny used a pooled time-series analysis for all the states using CDC data to see the effect of restrictive abortion laws on the timing and rate of abortions among women aged 15-44. In their regression they controlled for both demographics and political conditions. They found that enforced parental involvement laws were associated with a 5.5% decrease in the abortion rate and that once parental involvement laws were enjoined in a state, there was a resulting increase in the share of second-trimester abortions.

There are also many studies that look into the association between parental involvement laws and the specific abortion rate of minors. This approach seems more appropriate, since minors are the only ones really affected by a change in these laws. Ohsfeldt and Gohmann [1994] used data from a majority of the states to look into differences in abortion and pregnancy rates between states with and without parental involvement laws. The authors argued that parental involvement laws would increase the costs of abortions and therefore cause minors to practice safe sex. In the end, the authors found that the laws were associated with a reduction in the ratio of minor to older teenage abortion rates. Cartoof and Klerman [1986] analyzed a Massachusetts parental consent law and found a sharp decrease in abortions received by minors in clinics after the law was enacted, but also found an increase in the number of abortions Massachusetts' teens received in neighboring states. Additionally, Blum, Resnick, and Stark [1987] found that 40% of teens that received abortions in Minnesota had not notified their parent, deciding to rather use the judicial bypass option. One highly cited study by Kane and Staiger [1996] used county-level data to estimate the effect of parental involvement laws on teenage births. Their simple model assumed that women get information during the early months of pregnancy and abort the pregnancy if they then decide the birth is unwanted. They argued that abortion acts as a type of insurance against unintended pregnancies. Surprisingly found that a restriction on abortion access was associated with a reduction in teen birthrates.

Some studies look into the effect of parental involvement laws by seeing how they affect gonorrhea rates, as a way to measure teens risky sexual behavior. Klick and Stratmann [2004] found that parental involvement laws were associated with a decline in the gonorrhea rates of

white and Hispanic teens. They attribute this to the fact that parental involvement laws raise the cost of abortion, which induces teens to avoid risky sexual activity. Another study by Sen [2007] finds similar results; he found that reducing access to abortion leads to less sexually transmitted diseases in females.

While there is a huge amount of literature that looks into the effect of one or two restrictive abortion law, not many look into the effects of the four main demand-side restrictive laws: Medicaid funding, parental consent, mandated delay, and two-visit laws. One author who does, Medoff, wrote many papers on different potential relationships between restrictive abortion laws and other factors. For example, he wrote about their effect on teenage pregnancy rates, unintended pregnancy rates, racial breakdown of abortion demand, abortion price, and even adoption demand. Overall, this paper will replicate Medoff's model and see if his results still hold. Then this paper will add to Medoff's model with a few new variables so that it no longer suffers from endogeneity concerns and omitted variable bias.

## 4. Medoff's Paper

The variation between numbers of restrictive abortion laws in different states and years have been used to estimate their impact on teenage pregnancy rates. However, to more accurately determine the relationship between the two, it is necessary to use multivariate regression analysis with confounders to control for state differences. If we do not control for the confounders, any conclusions drawn from the estimated impact of restrictive abortion laws on teen pregnancy rates may really just be the effect of the omitted variables. Control variables help identify whether the relationship is truly causal. This is exactly what Medoff did in his paper *The Impact of State Abortion Policies on Teen Pregnancy Rates*. Medoff used rational choice theory to create his economic model of teen sexual activity. He decided to use state data as the unit of analysis because in his words, "it is restrictive abortion laws that are responsible for restricting women's access to obtaining an abortion and it is the heterogeneity of state abortion laws that will change the cost of an abortion to a woman" (Medoff, 182). Therefore, differences in the effective cost of an abortion and therefore the cost of an unintended pregnancy, is due in part to state differences in their restrictive laws.

To study the effect of restrictive abortion laws on teenage pregnancy rates, Medoff needed to find a few types of variables for each state: the dependent variable, teen pregnancy rates; the independent variable, restrictive abortion laws; other abortion variables; and socioeconomic characteristics. He used data from the years 1982, 1992 and 2000 because those were the only three years that data on teen pregnancy rates were available from the Guttmacher Institute, which meant a total of 150 observations (50 states x 3 years) in his data set. Four dummy variables were used to denote whether or not a state has a law about (1) Medicaid Funding Restrictions (2) Parental Involvement (3) Mandated Delay or (4) Required Second Visit. His model controls for the abortion price, the average full-time female income, the female labor force participation rate, female high school graduation rate, religiosity as the socioeconomic variables. He states that he sourced the data from the US Bureau of the Census, US Census of Population, State Reports (1983, 1993, 2003), the Guttmacher Institute, and the Statistical Abstract of the United States. Medoff's model also controls for state social policies through the welfare generosity of a state, the state's unobserved public attitude towards abortion and teen sexual activity, and if the border states have parental involvement or mandated delay laws. Also, he included time trend variables. Through the use of a two-stage least-squares model, his results show that Medicaid funding restrictions and the price of obtaining an abortion have a significantly negative impact on a state's teen pregnancy rate. The coefficient of the Medicaid funding restriction variable implies that teens' pregnancy avoidance behavior is very sensitive to increases in the cost of an abortion. Specifically, a Medicaid funding restriction reduces a state's teen pregnancy rate by 27 pregnancies per 1000 teens when compared to states without the restriction. Parental involvement laws and mandated delay laws are not found to significantly alter teens' pregnancy rate. Overall, Medoff concluded that from a public policy standpoint, these empirical results suggest that sexually active teens respond to the burden of restrictive abortion laws by either reducing their frequency of unprotected sexual activity or increasing their use of contraceptives.

While I would like to replicate his model in its entirety, he includes a two-stage least squares with the first stage using instruments to replace abortion price because of its endogeneity. However, I do not have this variable. The Guttmacher Institute, when I asked, claim to have never provided state-level abortion price data to Medoff. They keep their Abortion Provider Survey private as a way to hide the identity of specific abortion providers in states, since some

may only have a few. I also tried to reach out to Medoff directly. However, after emailing him, I found his obituary online, which significantly lowered the probability of receiving a response. Then I reached out to the *Social Indicators Research* journal where his work was published, but they too did not respond with the necessary data. Therefore, this paper will instead use a proxy for price following the example of Blank et al. [1996].

After dealing with the problem of abortion price, this paper attempts to improve on the approach used in Medoff. First, we will include state fixed effects to control for unmeasured heterogeneity between the states that is not captured in the original model. According to Blank [1996], this is a better approach to understanding the determinants of abortion rather than just relying on the cross-sectional state variation in the data. Additionally, while Medoff is worried only about the endogeneity of abortion price, this paper worries more about the endogeneity of the restrictive abortion law so therefore creates an instrument to proxy for the laws themselves in the two-stage least-squares regression.

### 4.1 Medoff's Model

His original model can be represented by the equation:

> Teenage Pregnancy Rate = $B_0$ + $B_1$(Restrictive Abortion Laws) + $B_2$(Abortion Price) + $B_3$(Median Female Income) + $B_4$(Female Labor Force Participation Rate) + $B_5$(Female Education) + + $B_6$(Female Marital Rate) + $B_7$(Religiosity) + $B_8$(Average TANF Benefits) + $B_9$(Border State Parental Involvement Law) + $B_{10}$(Border State Mandatory Delay Law) + $B_{11}$(Unobserved Political Attitude) + $B_{12}$(Year Trend) +$B_{13}$(Missing Unobserved Political Attitude Dummy) + ε

That is, teenage pregnancy rate is regressed onto restrictive abortion laws, using abortion price, median female income, female labor force participation rate, female high school graduation rate, religiosity, average TANF benefits, border state parental involvement laws, border state mandatory delay law, unobserved political attitude, year, and an indicator if unobserved political attitude is missing as controls. This multivariate regression is what Medoff thinks would best predict the average teen pregnancy rate for a given value of the independent variables and controls. In other words, if we know the Restrictive Abortion Laws (x1), Abortion Price ($x_2$), Median Female Income ($x_3$), Female Labor Force Participation Rate ($x_4$), Female Education ($x_5$), Female Marital Rate ($x_6$), Religiosity ($x_7$), Average TANF Benefits ($x_8$), Border State Parental

Involvement Law ($x_9$), Border State Mandatory Delay Law ($x_{10}$), Unobserved Political Attitude ($x_{11}$), Year Trend ($x_{12}$), Missing Unobserved Political Attitude Dummy ($x_{13}$), then we expect the teenage pregnancy rate (y) to be a linear function of all those variables. The coefficients will then be how much we expect teenage pregnancy rate to vary when we increase the variable in question by one unit, but leave all the other control variables constant.

Medoff states that the price of an abortion in this equation cannot be treated as exogenous since teens' risky sexual activity can have an effect on the price of an abortion. The economic solution to this problem is to perform a two-stage least-squares model with instruments added that are correlated with the abortion price, but do not directly affect the teen pregnancy rate. Based on Medoff and Blank [1996], the instruments this study uses are (1) the average income of registered nurses and (2) number of hospitals per state. Medoff ran all four restrictive abortion laws together, which I replicated in Table 4.

## 5. Data

Before I was able to replicate Medoff's model, I had to construct a similar dataset. While getting Medoff's original data would have been the best way to accurately replicate and test the accuracy of his results, since he has no coauthors on any of his papers, that was not a possibility. Additionally, since the needed data were state averages, rather than individual level data, there was not really a dataset that already had all the necessary variables. Therefore, this researcher had to find all the data points herself. While Medoff used the years 1982, 1992, and 2000, this study decided to use the more recent years of 2000, 2005, and 2010.

Most of the papers regarding abortion and restrictive abortion laws use data from three main sources: the Guttmacher Institute, the Center for Disease Control and Prevention (CDC) and state health departments. The CDC, based on state public health agencies reports, publishes annual statistics on abortions. While there are a large variety of years available in the CDC data, not all states report their data to them (e.g. California) so there are gaps in the data. The Guttmacher Institute conducts a survey of all abortion providers which provides data on the number of abortions performed in all states. Many researchers, myself included, have chosen to use the Guttmacher Institute's data since it tends to be more complete.

## 5.1 Dependent Variable

An important variable in this study is the teenage pregnancy rate. As a whole, teen pregnancy rate has continued to decline since the early 1990s (Figure 3) and this trend continues, only more marginally, through the years of interest. The only complication with this variable is that it was collected for only 1996, 2000, 2005, 2008, 2010, and 2011. The report with the 2011 teen pregnancy data was released in 2014 and is the latest data on file with the Guttmacher Institute. So while I would have liked to use a more recent year, that was not possible with the resources available. While some states have their teen pregnancy rates on file for more recent years, the majority that do either report the teen birth rate and teen pregnancy rate as equivalent or their reports from earlier years are not similar to the Guttmacher observations on file. Additionally, I cannot use teenage pregnancy rate data from 2011 since the Guttmacher Institute changed how they calculated the rate and therefore it would not be accurate to compare the different years. The data shows that the teen pregnancy rate ranges from 25 pregnancies per 1000 females aged 15-19 in New Hampshire to 123 pregnancies per 1000 females aged 15-19 in DC. The 2000 average was around 78, the 2005 average was around 64 pregnancies, and the 2010 average was around 55 pregnancies per 1000 women aged 15-19.

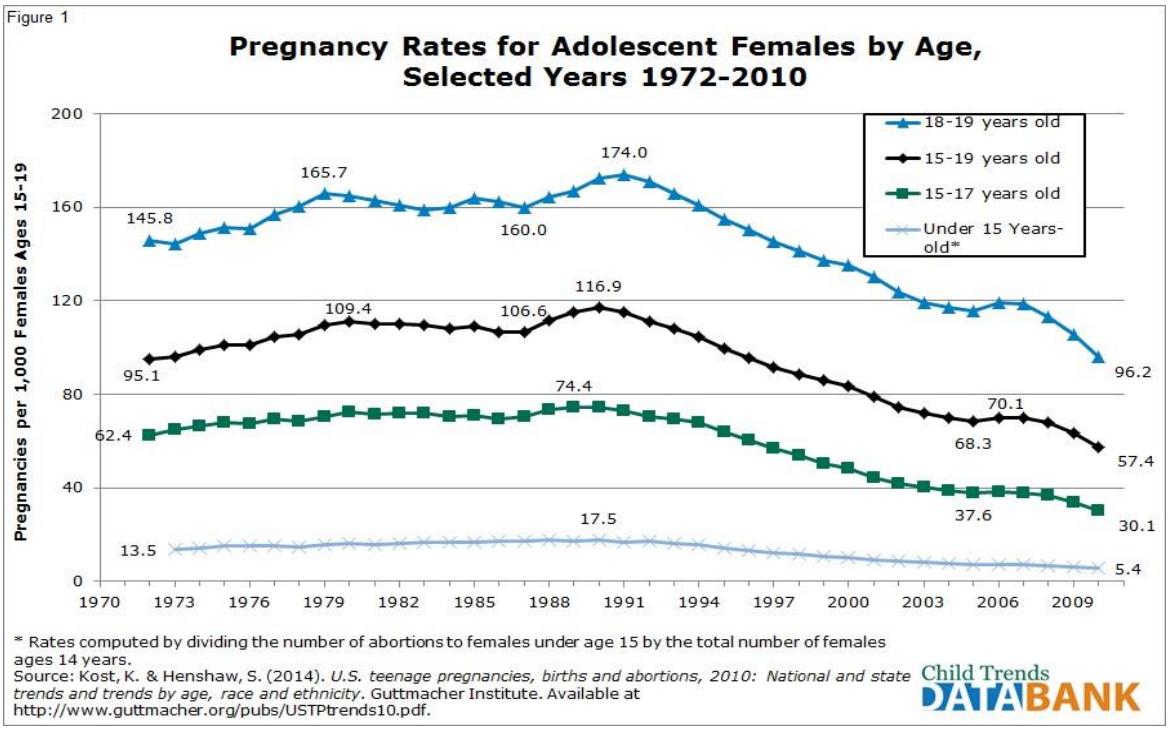
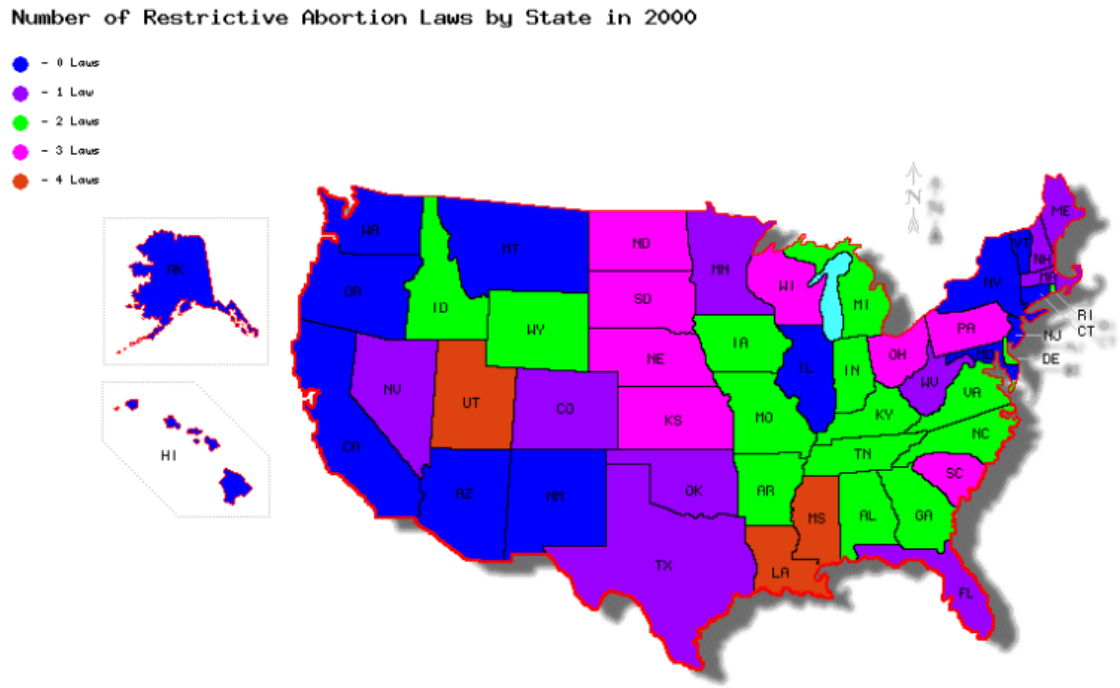



Figure 3: Guttmacher Institute

### 5.2 Independent Variable

There are four main independent variables used in my model, each representing a different type of restrictive abortion law that a state put in place. They are variables for if a state had in place during the year: a Medicaid funding restriction, a parental consent requirement law, a mandated delay restriction, and a requirement for a woman to make a visits to the clinic in person before receiving an abortion. This study used dummy variables between 0 and 1, where if the restrictive law is in effect, the value equals 1 and 0 otherwise. Figure 4 shows maps of the United States by the number of restrictive abortion laws to give an idea of how the spread of restrictive laws looks over our time period. The state that throughout the 3 years consistently had all 4 kinds of restrictive law in place was Louisiana. The states that throughout the 3 years consistently never had any restrictive laws in place were California, Connecticut, Hawaii, Illinois, Montana, New Jersey, New York, New Mexico, Oregon, and Washington. As the maps illustrated, as time goes by, more and more states have restrictive abortion laws.



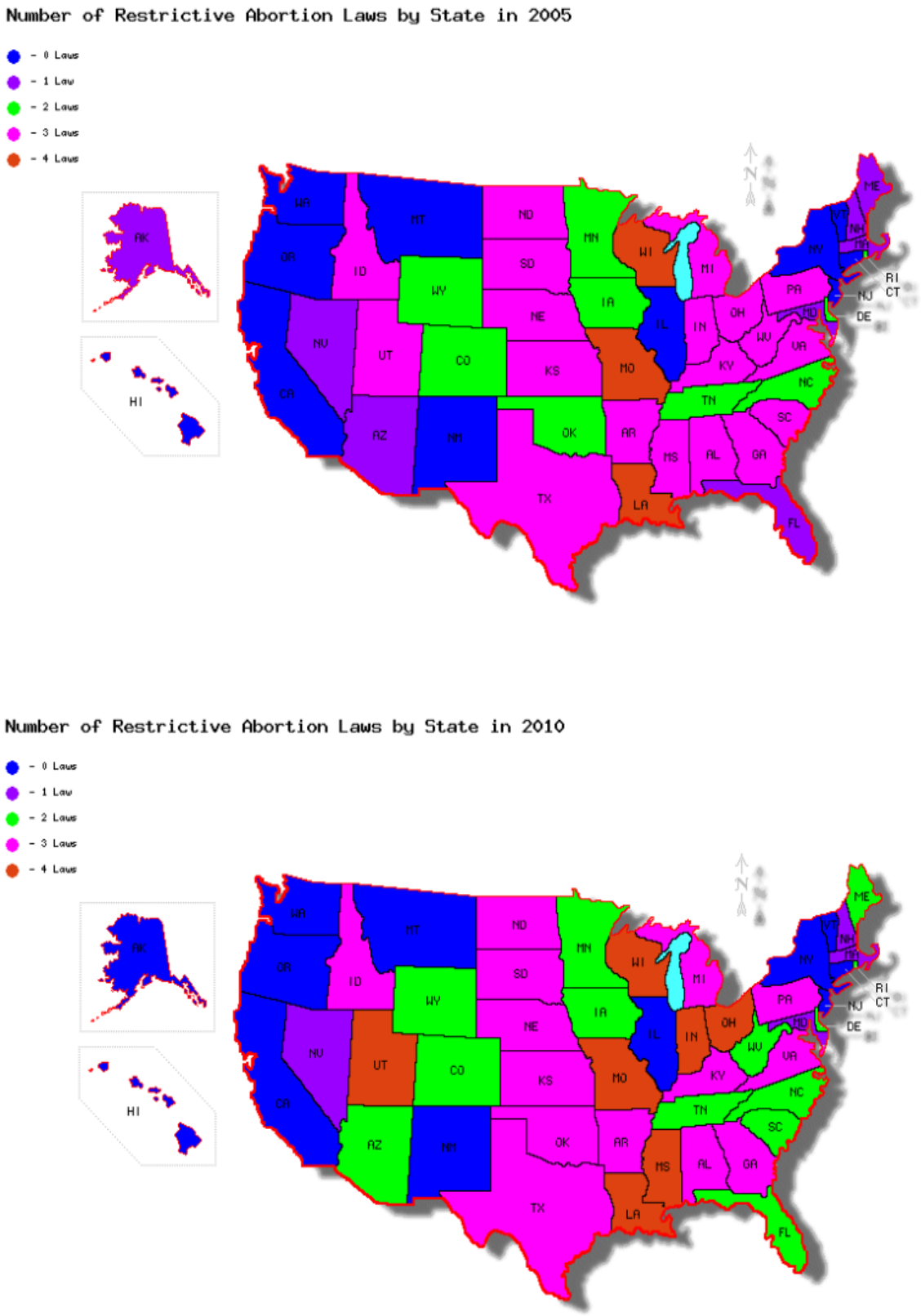



Figure 4: Generated by author based on Guttmacher Institute data

### 5.3 Control Variables

The control variables represent states' socioeconomic and political characteristics. To be included in this regression the control variables, by definition, have to be related to the dependent variable, related to the independent variables, and not be redundant. The variables chosen have all passed this test either through being administered by the author of another study or by this author herself.

*Abortion Price*

In determining the abortion price proxy variable, this paper will follow the strategy of Blank [1996] and include a variable related to access to abortion providers in each state. Blank states that since we lack price information, one can view abortion providers in a state as an imperfect proxy for the prices. For example, since abortion price is largely unregulated, if there are only a few abortion providers in a state, they will have a monopoly over the market and be able to charge as much as they want (within reason). While this is a good base strategy for picking a proxy, there are states like DC or New Jersey that might not have as many abortion providers as Arkansas because of their size and population distribution. Therefore, a proxy for price that should be more accurate is the percentage of women that live in counties without an abortion provider.

The percentage of women living in counties without an abortion provider in addition to the percentage of counties without an abortion provider were found in the Guttmacher Institute's yearly study on Abortion Incidence and Provider Availability in the United States. The South and Midwest tend to have the highest percentages of counties (and women living in them) without an abortion provider, with some rates as high as 98%. The only state with no women living without abortion providers in their county is DC, which makes logical sense given the size.

*Socioeconomic and Political Controls*

The majority of the socioeconomic control variables were found in the American Community Survey 1-Year Estimates for 2000, 2005, and 2010. The variables found here were median female income, female labor force participation rate, female marital status rate, and female high school degree rate. The income data for the years 2000 and 2010 are adjusted into 2010-dollars to control for inflation using the Bureau of Labor Statistics inflation calculator. Female income, once adjusted, seems pretty constant across the 3 years, staying between $34000 and $36000 on average. For all 3 years, DC has the highest average female income. On the other end, Idaho, Louisiana, Montana, North Dakota, Mississippi, and West Virginia consistently have extremely lowest female income. The average female labor force participation rate hovers in the 50-68% range with West Virginia consistently having the lowest rate. The average female marital status rate per state stays around the 50% mark, slightly getting lower with time, with DC as a distant outlier with averages around the 25% mark. The average female high school graduation rate tends to increase as the years go on.

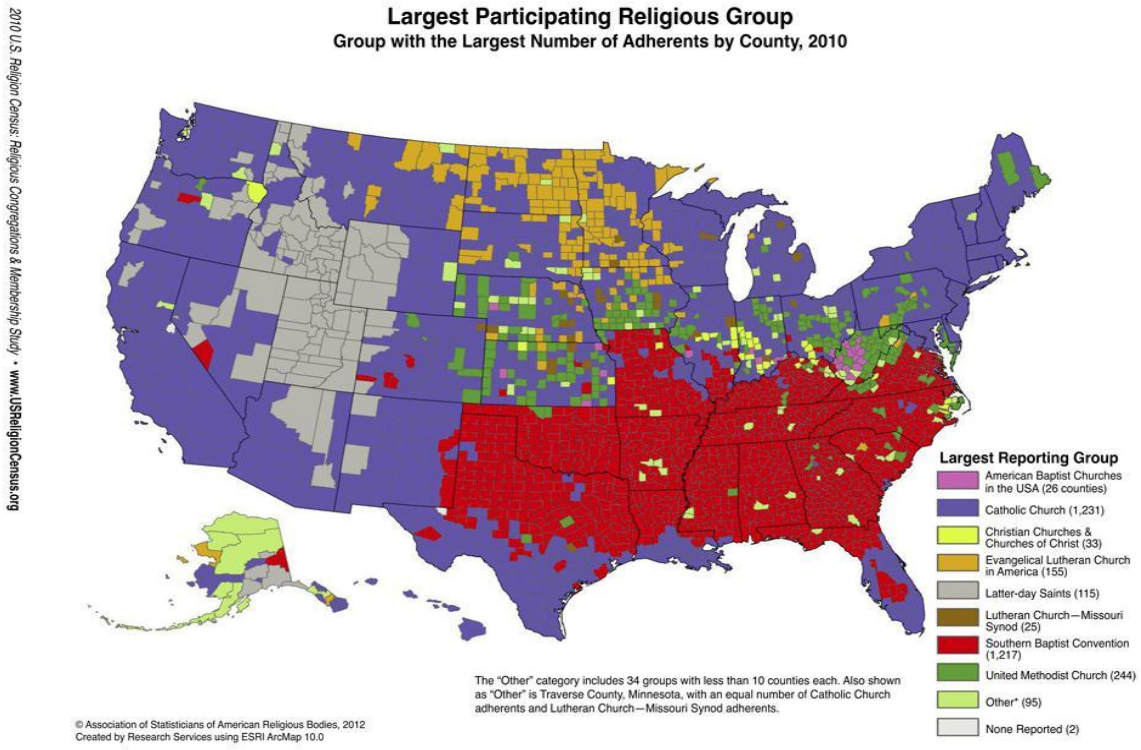



Figure 5, Source: Association of Statisticians of American Religious Bodies

Other socioeconomic variables were found from a variety of sources. The religiosity variable was found by looking at the percentage of people that identified as Evangelical Christians in the Pew Research Center's Religious Landscape Study. As illustrated by Figure 5, Evangelical Christians tend to live in the South and the Southwest of the country.

The regression model controls for the welfare generosity of a state through the average Temporary Assistance to Needy Families (TANF) benefits. This information was found on the yearly *Characteristics and Financial Circumstances of TANF Recipients* report through the US Department of Health and Human Service's Office of Family Assistance.

Additionally, two variables were included in the regression to control for potential travel by teens to nearby border states that have different parental-involvement or mandated-delay laws. Blank et al. [1996] found that a simple average of the border state laws produced the same results as a weighted average taking into account the distance between the capital city and the border state's. For example, if all the bordering states have a parental consent law, this would be represented by setting this variable equal to 1. Since the purpose of this variable is to show if teens could easily travel to states with friendlier laws, for Alaska and Hawaii we set the variable equal to 1 since there is nowhere teens in these states can travel to.

Another variable that has to be controlled for according to Medoff is a state's political lean. The political identification of a state may impact the state's unobserved public attitude towards non-marital teen sexual activity and abortion. Medoff used a CBS/New York Times Opinion Poll for each state but since this researcher could not find the same poll, she went with the Gallup Party Identification by State Polls. Since the polls only exist for 2002 onwards, this study followed the procedure advocated in Cohen and Cohen [1975] and substituted a value, 0, for the year 2000 missing data in addition to including a missing data indicator variable into the regression. Figure 6 shows a map of the political lean of all 50 states in 2002 for an idea of the political makeup of the country.

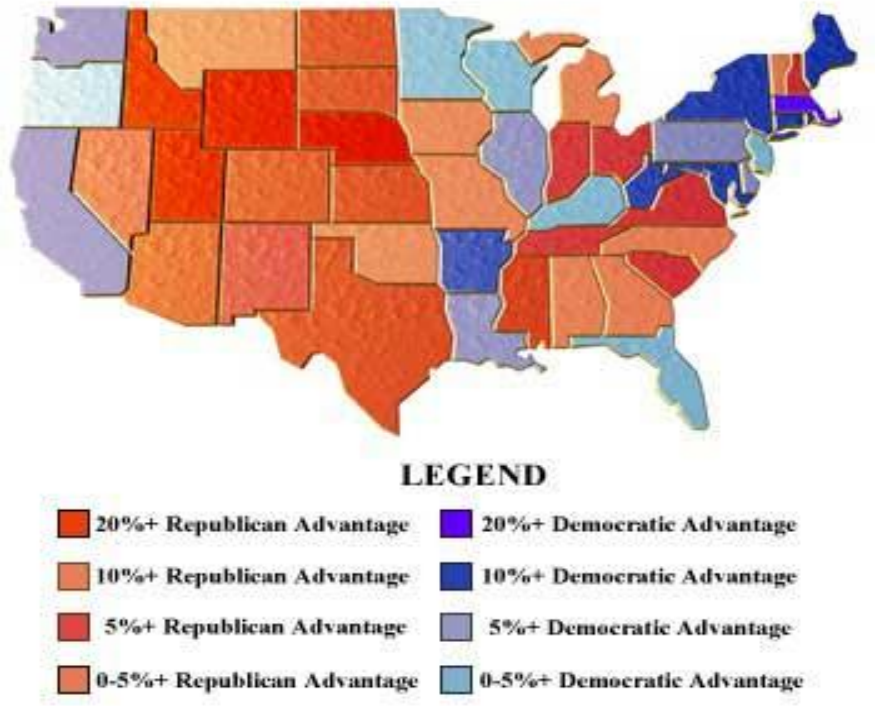



Figure 6: Gallup Party Identification by State, 2002

Finally, I had to find the data for the instrument variables this study would need for the two-stage least-squares regression. The data for number of hospitals were found in the Kaiser Foundation's American Hospital Association Annual Survey. Data on registered nurses average income were found through the Bureau of Labor Statistics Occupational Employment Statistics.

The main variables are described in Table 1.

| **Names** | **Variable** | **Obs** | **Mean** | **Std. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|---|
| Medicaid Funding restrictive law | medicaidfund | 153 | 0.6601307 | 0.4752202 | 0 | 1 |
| Parental Consent restrictive law | parentalconsent | 153 | 0.6405229 | 0.481423 | 0 | 1 |
| Mandated Delay restrictive law | delay | 153 | 0.4183007 | 0.4949 | 0 | 1 |
| Two-Visit restrictive law | twovisit | 153 | 0.1045752 | 0.3070102 | 0 | 1 |
| Any restrictive law | anylaw | 153 | 0.7581699 | 0.4295981 | 0 | 1 |
| Median Income | income | 153 | 31637.24 | 7529.394 | 16796.8 | 56127 |

| | | | | | | |
|---|---|---|---|---|---|---|
| % of Women in Labor Force | laborforce | 153 | 60.27516 | 3.885318 | 48.1 | 68.5 |
| % of Women with HS degrees | hsdegree | 153 | 85.42157 | 4.423947 | 73.7 | 92.8 |
| % of Married Women | maritalstatus | 153 | 51.34837 | 4.675849 | 25.3 | 59 |
| % Evangelical Christians | religion | 153 | 18.74477 | 12.60064 | 1.61 | 53 |
| Teen Pregnancy Rate | tpreg_rate | 153 | 65.86275 | 18.58482 | 28 | 123 |
| Abortion Rate | abor_rate | 153 | 15.96144 | 9.762658 | 0.7 | 68.1 |
| % of Counties W/Out Abortion Provider | counties | 153 | 77.4902 | 25.71481 | 0 | 100 |
| % of Women Living in Counties W/Out Abortion Provider | women_counties | 153 | 44.62092 | 25.87292 | 0 | 100 |
| % on TANF Benefits | tanfben | 153 | 335.5624 | 116.2436 | 144 | 686 |
| Unobserved Political Attitudes | politicalatt | 153 | 7.375163 | 13.65695 | -29.9 | 62.1 |
| % of Female Judges | fjudges | 153 | 24.63791 | 9.106143 | 0 | 42.9 |
| Number of Hospitals | hospital | 153 | 96.96732 | 79.72761 | 5 | 426 |
| Border State Parental Consent Law | bs_parental | 153 | 0.6956863 | 0.2842274 | 0 | 1 |
| Border State Mandated Delay Law | bs_delay | 153 | 0.4633333 | 0.3278097 | 0 | 1 |
| TRAP restrictive law | trap_law | 153 | 0.3986928 | 0.4912373 | 0 | 1 |
| State Fixed | statetrend | 153 | 26 | 14.76794 | 1 | 51 |
| Nurses Income | nurse_income | 153 | 54669.28 | 11053.56 | 36310 | 87480 |
| Income/1000 | income1000 | 153 | 31.63724 | 7.529394 | 16.7968 | 56.127 |
| Nurse Income/1000 | nurse_income1000 | 153 | 54.66928 | 11.05356 | 36.31 | 87.48 |
| Non-Missing Unobserved Political Attitude Variable | d_politicalatt | 153 | 0.6666667 | 0.4729527 | 0 | 1 |

Table 1: Summary Statistics

## 6. Replication Results

This study replicated Medoff's model by running the regression with each of the four restrictive abortion laws separately to eliminate possible endogeneity between the different restrictive laws, which can be seen in Table 2. The first stage of the regression included: abortion price; a restrictive abortion law; a vector of the socioeconomic controls; and the instruments for abortion price, nurse's income and number of hospitals. Then the residual from that regression was calculated. Finally, the second stage of the regression was run including teen pregnancy rate, the residual, a restrictive abortion law, and a vector of the socioeconomic controls. The results from the four regressions (one for each restrictive abortion law) can be seen in the table below.

| **Teen Pregnancy Rate tpreg_rate** | **Medicaid Funding Restrictive Law** | **Parental Consent Restrictive Law** | **Mandated Delay Restrictive Law** | **Two Visit Restrictive Law** |
|---|---|---|---|---|
| Residuals for Abortion Price | 0.08 | 0.217 | 0.08 | 0.179 |
| | (0.34) | (0.87) | (0.37) | (0.69) |
| Medicaid Fund Law | -3.455 | | | |
| | (1.47) | | | |
| Parental Consent Law | | -13.054 | | |
| | | (3.00)*** | | |
| Mandated Delay Law | | | -6.542 | |
| | | | (2.12)** | |
| Two Visit Law | | | | -7.212 |
| | | | | (1.78)* |
| Income/1000 | 0.94 | 1.295 | 0.771 | 1.201 |
| | (1.23) | (1.71) | (1.22) | (1.55) |
| Labor Force Rate | -0.59 | -0.403 | -0.587 | -0.747 |
| | (1.47) | (1.18) | (1.59) | (1.93)* |
| HS Degree Rate | -1.842 | -2.068 | -1.859 | -1.874 |
| | (3.91)*** | (4.46)*** | (4.02)*** | (3.97)*** |
| Marital Status Rate | -0.917 | -0.829 | -0.923 | -0.998 |

| | | | | |
|---|---|---|---|---|
| | (3.82)*** | (3.75)*** | (3.93)*** | (4.08)*** |
| Religiosity | 0.006 | -0.014 | 0.014 | -0.04 |
| | (0.04) | (0.1) | (0.1) | (0.26) |
| Average TANF Benefits | -0.022 | -0.03 | -0.019 | -0.01 |
| | (1.53) | (2.73)*** | (1.48) | (0.6) |
| Border State Parental Law | -4.692 | -3.966 | -3.257 | -6.116 |
| | (0.87) | (0.83) | (0.67) | (1.1) |
| Border State Delay Law | 18.47 | 18.878 | 18.213 | 20.44 |
| | (3.84)*** | (4.32)*** | (4.06)*** | (4.07)*** |
| Year Trend | -1.6 | -1.394 | -1.677 | -1.803 |
| | (2.57)** | (2.61)** | (2.77)*** | (2.82)*** |
| Political Attitude | -0.015 | -0.025 | -0.001 | -0.002 |
| | (0.2) | (0.35) | (0.02) | (0.02) |
| Missing Political Attitude | 15.076 | 18.191 | 10.742 | 16.885 |
| | (1.88)* | (2.36)** | -1.59 | (2.13)** |
| Constant | 279.844 | 272.391 | 287.115 | 279.15 |
| | (9.06)*** | (9.55)*** | (9.79)*** | (9.25)*** |
| Observations | 153 | 153 | 153 | 153 |
| R-squared | 0.74 | 0.78 | 0.75 | 0.74 |
| Absolute value of t statistics in parentheses | | | | |
| * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

Table 2: Replication of Medoff's Model

The abortion price has a positive but not significant effect on a state's teen pregnancy rate due to the positive coefficient of 0.08-0.22. This implies that the frequency of teens' unprotected sexual activity responded positively to state policies that increase the cost of an abortion to a teen. If this coefficient was significant we would say that a 1 point rise in the percentage of women living in counties without abortion providers, the abortion price proxy, leads to a 8-22% increases in a state's teen pregnancy rate per 1000 teens, depending on the restrictive law used. These results differ from those in Medoff's paper; his coefficient was negative and significantly so. However,

the 95% confidence interval from this study includes the significant coefficient from Medoff's. The difference may come from the fact that he uses actual abortion price while this study followed the example of Blank et al. [1996] and used a proxy related to access to abortion. This coefficient is pretty similar to the coefficient in Blank et al. [1996] in terms of both the positive value, 0.135, and the (non) significance.

Medicaid funding restrictions are found to not significantly alter teens' pregnancy avoidance behavior (p score = .144). This suggests that Medicaid funding laws represent a negligible increase in the effective total cost to teens getting pregnant. These results were surprising given that Medoff found Medicaid funding to significantly reduce a state's teen pregnancy rate by 27 pregnancies per 1000 teens as compared to states without Medicaid funding restrictions. If these results were significant, Medicaid funding restriction laws would reduce a state's teen pregnancy rate by 3 pregnancies per 1000 women.

Parental consent restrictive laws are found to significantly alter teens' pregnancy avoidance behavior. A parental consent restriction reduces a state's teen pregnancy rate by around 13 pregnancies per 1000 teens as compared to states without a parental consent restriction. This differs from Medoff who found parental consent laws to be not significant.

Mandated delay restrictive laws were found to significantly alter teens' pregnancy avoidance behavior. More specifically, a mandated delay requirement reduced a state's teen pregnancy rate by around 6 pregnancies per 1000 teens as compared to states without a mandatory delay law. Medoff found this coefficient to be positive and not statistically significant which differs largely from this study's results. This may be partially due to a lack of clarity on Medoff's part on how he is defining mandatory delay - as this study did for mandatory delays, or as this study did for two-visit laws. This study found two-visit laws to be weakly significant (p score >.10) and reduce a state's teen pregnancy rate by 7 pregnancies per 1000 teens.

There are a few potential explanations for the differences in findings between this study and Medoff's. First, not all the data sources were the same in the two studies. Medoff was very vague about where he got some of the data from and therefore this researcher had to extrapolate what

he meant from what little information was given. Similarly, not all the same sources exist now as they did when he gathered the data so some variables, like political attitude, used different polls and therefore had missing values. Additionally, this study decided to run all four laws separately to get rid of potential endogeneity between the different restrictive abortion laws, Medoff on the other hand, ran all four laws together. Finally, the years are different in this study than Medoff's. The number of restrictive abortion requirements have increased almost exponentially in the past twenty years and that may influence the strength and direction of the coefficients. Also, society has changed drastically since the 80s, and teens may now be responding to a different information set. For example, it is much more acceptable for schools to focus on a comprehensive sexual education program rather than an abstinence only one so teens might have more knowledge about their preventative options. Also, the internet is more widely accessible and therefore easier for teens to learn about their sexual decisions on their own.

### 6.1 Running the Replication Differently

Another way to run a two-stage least squares model is through the use of the command *ivregress*. Using this command on the replication of Medoff's study gives the results found in Table 3. All the coefficients are the same as they were in the first model and there are minimal differences in the levels of significance.

| **Teen Pregnancy Rate tpreg_rate** | **Medicaid Funding Restrictive Law** | **Parental Consent Restrictive Law** | **Mandated Delay Restrictive Law** | **Two Visit Restrictive Law** |
|---|---|---|---|---|
| Residuals for Abortion Price | 0.08 | 0.217 | 0.08 | 0.179 |
| | (0.34) | (0.82) | (0.37) | (0.65) |
| Medicaid Fund Law | -3.455 | | | |
| | (1.47) | | | |
| Parental Consent Law | | -13.054 | | |
| | | (2.82)*** | | |
| Mandated Delay Law | | | -6.542 | |
| | | | (2.14)** | |
| Two Visit Law | | | | -7.212 |
| | | | | (1.68)* |

| | | | | |
|---|---|---|---|---|
| Income/1000 | 0.94 | 1.295 | 0.771 | 1.201 |
| | (1.24) | (1.61) | (1.23) | (1.46) |
| Labor Force Rate | -0.59 | -0.403 | -0.587 | -0.747 |
| | (1.47) | (1.11) | (1.61) | (1.81)* |
| HS Degree Rate | -1.842 | -2.068 | -1.859 | -1.874 |
| | (3.92)*** | (4.20)*** | (4.06)*** | (3.74)*** |
| Marital Status Rate | -0.917 | -0.829 | -0.923 | -0.998 |
| | (3.84)*** | (3.53)*** | (3.97)*** | (3.84)*** |
| Religiosity | 0.006 | -0.014 | 0.014 | -0.04 |
| | (0.04) | (0.1) | (0.1) | (0.24) |
| Average TANF Benefits | -0.022 | -0.03 | -0.019 | -0.01 |
| | (1.54) | (2.57)** | (1.49) | (0.57) |
| Political Attitude | -0.015 | -0.025 | -0.001 | -0.002 |
| | (0.2) | (0.33) | (0.02) | (0.02) |
| Border State Parental Law | -4.692 | -3.966 | -3.257 | -6.116 |
| | (0.87) | (0.79) | (0.68) | (1.03) |
| Border State Delay Law | 18.47 | 18.878 | 18.213 | 20.44 |
| | (3.86)*** | (4.06)*** | (4.10)*** | (3.83)*** |
| Missing Political Attitude | 15.076 | 18.191 | 10.742 | 16.885 |
| | (1.89)* | (2.22)* | -1.61 | (2.01)** |
| Year Trend | -1.6 | -1.394 | -1.677 | -1.803 |
| | (2.58)*** | (2.46)** | (2.79)*** | (2.65)*** |
| Constant | 279.845 | 272.391 | 287.115 | 279.15 |
| | (9.09)*** | (8.98)*** | (9.88)*** | (8.71)*** |
| Observations | 153 | 153 | 153 | 153 |
| Absolute value of z statistics in parentheses | | | | |
| * significant at 10%;** significant at 5%; ***significant at 1% | | | | |

Table 3: Replication of Medoff's model using *ivregress* command

If we instead forget about the potential endogeneity concerns of running all four restrictive laws together and run the model exactly like Medoff did, the regression results from utilizing the *ivregress* command are found in Table 4.

| **Teen Pregnancy Rate** | **All Restrictive Laws** |
|---|---|
| Residuals for Abortion Price | 0.249 |
| | (0.95) |
| Medicaid Fund Law | 3.015 |
| | (1.1) |
| Parental Consent Law | -12.99 |
| | (2.84)*** |
| Mandated Delay Law | -2.725 |
| | (1.09) |
| Two Visit Law | -4.301 |
| | (1.27) |
| Income/1000 | 1.28 |
| | (1.67)* |
| Labor Force Rate | -0.45 |
| | (1.19) |
| HS Degree Rate | -2.088 |
| | (4.24)*** |
| Marital Status Rate | -0.883 |
| | (3.69)*** |
| Religiosity | -0.026 |
| | (0.18) |
| Average TANF Benefits | -0.024 |
| | (1.76)* |
| Border State Parental Law | -3.847 |
| | (0.78) |

| | |
|---|---|
| Border State Delay Law | 19.51 |
| | (4.12)*** |
| Year Trend | -1.5 |
| | (2.57)** |
| Political Attitude | -0.009 |
| | (0.12) |
| Missing Political Attitude | 16.612 |
| | (2.14)** |
| Constant | 277.149 |
| | (9.11)*** |
| Observations | 153 |
| R-squared | 0.74 |
| Absolute value of t statistics in parentheses<br>* significant at 10%; ** significant at 5%; *** significant at 1% | |

Table 4: Exact replication of Medoff's Model

Including all the restrictive abortion laws in one regression makes only the parental involvement law significant. A parental consent restriction reduces a state's teen pregnancy rate by around 13 pregnancies per 1000 teens as compared to states without a parental consent restriction, which is of similar size and direction as the results from Table 3. The fact that only parental consent laws are significant could be explained by the fact that this study specifically looks into the effect of these laws on teenagers and the parental consent law would have a much more significant effect on this population than on women in general. When replicating his regression, this researcher found a $R^2$ of about .72, which indicates that these variables explain about three-quarters of the variance in the dependent variable.

## 7. Expanding on Medoff's Model

According to The Guttmacher Institute's literature review of studies looking into the effects of abortion restrictions, Medoff's study falls a bit short. Finer, the report's main author, states that

the absence of controls for fixed effects is a definite weakness of Medoff's analysis. Medoff relies on variations between states for his model, but does not control for a state fixed variable to take into account fixed differences between states like geography. Therefore, adding a state fixed variable into the model will make the regression results more accurate.

Additionally, this researcher is not convinced that the proxy for abortion price in in fact endogenous. Blank et al. [1996], gave the following reasoning for why they considered their proxy, number of abortion providers, endogenous, "One fundamental problem … is that the variable [number of abortion providers] is endogenous, since the availability of abortion providers is at least partially determined by the demand for abortion. Without attention to this problem, the estimated coefficient on provider availability is biased." While this study copied the reasoning behind Blank et al.'s proxy, we did not use the exact same one. Instead, for reasons discussed previously, we chose to use percentage of women in counties without abortion providers instead of the flat number of abortion providers in a state. Therefore, there is not the direct relationship between the abortion price proxy and demand for abortion that Blank et al. found. Therefore, unlike Medoff, this study will just use the percentage of women living in counties without abortion providers as an imperfect proxy for abortion price directly in the OLS model.

This can also be seen empirically through a test of endogeneity in the model. The results from the test are shown in Figure 7. Since the p-score for all four of the tests are above the significance level ($\alpha > 0.05$), we fail to reject the null hypothesis that the variables are exogenous. While this might not be enough cause on its own to declare the abortion price proxy as not exogenous, paired with the theoretical evidence above, percentage of women living in counties without abortion providers can be treated as exogenous in the next model.

**Tests of endogeneity**

Ho: variables are exogenous

For Medicaid Funding Restrictive Law:

Durbin (score) chi2(1) = 1.29913 (p = 0.2544)

Wu-Hausman F(1,138) = 1.1818 (p = 0.2789)

For Parental Consent Restrictive Law:

Durbin (score) chi2(1) = 1.71465 (p = 0.1904)

Wu-Hausman F(1,138) = 1.56408 (p = 0.2132)

For Mandatory Delay Restrictive Law:

Durbin (score) chi2(1) = 1.25853 (p = 0.2619)

Wu-Hausman F(1,138) = 1.14456 (p = 0.2866)

For Two Visit Restrictive Law:

Durbin (score) chi2(1) = 2.07625 (p = 0.1496)

Figure 7

More importantly, this study is worried about the potential endogeneity between a restrictive abortion law and the teenage pregnancy rate, since it is possible that a state's restrictive abortion laws are partially determined by the demand for abortion and therefore a potential cause of bias. For example, if a state has a very high teenage pregnancy rate, the state might enact more restrictive abortion laws to act as a deterrent towards risky sexual activity. Therefore, this study will use a two-stage least squares model to fully measure the relationship.

To use a two-stage least squares model, this researcher had to find a useable instrument; a variable associated with a state's restrictive abortion laws that would not have an effect on its teenage pregnancy rate. In another paper by Medoff, he showed that the percentage of female legislators in a state affects the number of restrictive abortion laws enacted. While the relationship between the two make sense, the percentage of female legislators is too closely related to the teenage pregnancy rate to be the instrument variable. For instance, legislators can enact laws that could easily affect the teenage pregnancy rate like sexual education requirements or laws that affect access to contraceptives. Also, legislators are elected by the people. A better

variable for instrument would be the percentage of female judges on the state's court. Judges have no direct effect on the laws enacted and are appointed rather than elected. Therefore, the percentage of female judges is this regression's instrument variable due to its relationship with restrictive abortion laws and its non-relationship with teenage pregnancy rate.

### 7.1 New Model

The first-stage of the new model can be represented by the equation:

$$\text{Restrictive Abortion Laws} = B_0 + B_1(\text{Percentage of Female Judges}) + B_2(\text{Abortion Price Proxy}) + B_3(\text{Median Female Income}) + B_4(\text{Female Labor Force Participation Rate}) + B_5(\text{Female Education}) + + B_6(\text{Female Marital Rate}) + B_7(\text{Religiosity}) + B_8(\text{Average TANF Benefits}) + B_9(\text{Border State Parental Involvement Law}) + B_{10}(\text{Border State Mandatory Delay Law}) + B_{11}(\text{Unobserved Political Attitude}) + B_{12}(\text{Year Trend}) + B_{13}(\text{Missing Unobserved Political Attitude Dummy}) + B_{14}(\text{State Fixed}) + \varepsilon$$

Then the second-stage of the new model would be:

$$\text{Teenage Pregnancy Rate} = B_0 + B_1(\text{Restrictive Abortion Law Residual}) + B_2(\text{Abortion Price Proxy}) + B_3(\text{Median Female Income}) + B_4(\text{Female Labor Force Participation Rate}) + B_5(\text{Female Education}) + + B_6(\text{Female Marital Rate}) + B_7(\text{Religiosity}) + B_8(\text{Average TANF Benefits}) + B_9(\text{Border State Parental Involvement Law}) + B_{10}(\text{Border State Mandatory Delay Law}) + B_{11}(\text{Unobserved Political Attitude}) + B_{12}(\text{Year Trend}) + B_{13}(\text{Missing Unobserved Political Attitude Dummy}) + B_{14}(\text{State Fixed}) + \varepsilon$$

That is, we regress teenage pregnancy rate onto the restrictive abortion law residual, using the abortion price residual (from Medoff's original model replication), median female income, female labor force participation rate, female high school graduation rate, religiosity, average TANF benefits, border state parental involvement laws, border state mandatory delay law, unobserved political attitude, year, an indicator if unobserved political attitude is missing, and state fixed variable as controls. This multivariate regression will update Medoff's model to best predict the average teen pregnancy rate for a given value of the independent variables and controls. In other words, if we know the Restrictive Abortion Law Residual(x1), Abortion Price Residual ($x_2$), Median Female Income ($x_3$), Female Labor Force Participation Rate ($x_4$), Female Education ($x_5$), Female Marital Rate ($x_6$), Religiosity ($x_7$), Average TANF Benefits ($x_8$), Border State Parental Involvement Law ($x_9$), Border State Mandatory Delay Law ($x_{10}$), Unobserved Political Attitude ($x_{11}$), Year Trend ($x_{12}$), Missing Unobserved Political Attitude Dummy ($x_{13}$),

and State Fixed Effect ($x_{14}$) then we expect the teenage pregnancy rate (y) to be a linear function of all those variables.

### 7.2 New Model Results

The results of the new model are shown in the table below:

| Teen Pregnancy Rate tpreg_rate | Medicaid Fund Restrictive Law | Parental Consent Restrictive Law | Mandated Delay Restrictive Law | Two Visit Restrictive Law |
|---|---|---|---|---|
| Medicaid Fund Law | 5.937 | | | |
| | (0.36) | | | |
| Parental Consent Law | | 86.556 | | |
| | | (0.36) | | |
| Mandated Delay Law | | | -264.185 | |
| | | | (0.36) | |
| Two Visit Law | | | | -10.78 |
| | | | | (0.36) |
| Abortion Price Proxy | -0.163 | -1.02 | 1.615 | -0.114 |
| | (2.79)*** | (0.43) | (0.33) | (0.97) |
| Income/1000 | 0.432 | -1.117 | -6.053 | 0.133 |
| | (0.77) | (0.29) | (0.35) | (0.31) |
| Labor Force Rate | -0.939 | -3.156 | 5.93 | -0.485 |
| | (0.99) | (0.45) | (0.33) | (0.96) |
| HS Degree Rate | -1.363 | 0.589 | -7.613 | -1.68 |
| | (2.08)** | (0.1) | (0.46) | (3.06)*** |
| Marital Status Rate | -0.859 | -1.345 | -1.946 | -1.043 |
| | (3.45)*** | (1.06) | (0.67) | (2.20)** |
| Religiosity | 0.059 | 0.127 | 0.107 | 0.063 |
| | (0.48) | (0.66) | (0.7) | (0.53) |
| Average TANF Benefits | -0.017 | 0.067 | -0.086 | -0.023 |
| | (0.61) | (0.26) | (0.53) | (1.5) |
| Border State Parental Law | -0.288 | -5.182 | 24.22 | -1.565 |

| | | | | |
|---|---|---|---|---|
| | (0.07) | (0.4) | (0.35) | (0.34) |
| Border State Delay Law | 16.409 | 18.112 | -0.684 | 16.051 |
| | (3.49)*** | (2.15)** | (0.02) | (3.83)*** |
| Year Trend | -1.448 | -3.191 | -4.496 | -1.394 |
| | (2.53)** | (0.63) | (0.52) | (2.67)*** |
| Political Attitude | -0.012 | 0.036 | 0.566 | 0.024 |
| | (0.16) | (0.26) | (0.36) | (0.22) |
| State Trend | -0.074 | -0.039 | -0.13 | -0.06 |
| | (1.25) | (0.36) | (0.77) | (0.87) |
| Missing Political Attitude | 11.636 | -0.114 | -181.291 | 7.654 |
| | (1.41) | (0) | (0.35) | (1) |
| Constant | 275.413 | 287.313 | 781.121 | 300.083 |
| | (6.56)*** | (10.10)*** | (0.57) | (6.44)*** |
| Observations | 153 | 153 | 153 | 153 |
| R-squared | 0.76 | 0.76 | 0.76 | 0.76 |
| Absolute value of t statistics in parentheses | | | | |
| * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

There are only a few results that are significant are for at least two out of the four regressions like Border State Delay Law, Year Trend, Marital Status Rate, and HS Degree. The majority of the results are not significant to the extreme. While at first look that might seem like the results are bad or just plain wrong, the truth is that coefficients that are not significant tell a powerful story. No statistically significant linear dependence of the mean of teenage pregnancy rates on restrictive abortion laws was detected. Even though there are control variables, the relationship between restrictive abortion laws and teenage pregnancy rate can be looked at as a simple hypothesis test. If the model shows that the relationship between restrictive abortion law and teen pregnancy rates is significant after controlling for all the confounders, the null hypothesis of no relationship between restrictive abortion laws and teen pregnancy rates can be rejected. However if the model shows that the relationship after controlling for the confounders is not significant, then we would fail to reject the fact that there is no relationship between the two. Therefore, as

the results from this model are not significant, we would fail to reject the fact that there is no relationship between restrictive abortion laws and teen pregnancy rates. These results seem to support the idea that restrictive abortion laws do not actually have much that much effect on teen pregnancy rates and consequently might not be the best option for states to use to lower their pregnancy rate.

Overall, this seems to suggest that these policies are not achieving their desired goal. This is an important observation since these policies may be costing states and individuals extra time, money, and energy. These policies undoubtedly make it more difficult for women to access abortion services and therefore if they do not have the desired effect, it might not make sense for states to retain these policies. Additionally, the time, money and energy that states are expending enforcing these policies could be used in more effective ways to lower the teen pregnancy rate. Based on these results, I conclude that the recent national downfall in teen pregnancy rates is due to something else than an increase in restrictive abortion laws.

## 8. Limits

There are a few potential problems with these empirical results. For one, it is possible, and probably likely, that there is omitted variable bias. This means that there is some other factor that affects teens' pregnancy avoidance behavior that changed at the same time the restrictive laws were enacted. If these omitted variables were included and therefore controlled for in the model, the multivariate regression would produce more accurate results and get rid of the bias. However, since these variables are not included, the model is falsely attributing the impact of it to a state's restrictive abortion law.

Similarly, this model compared differences over a 10-year span and assumed the adjusted differences reflected the effects of variation in restrictive abortion laws. However, there are many other factors that could have changed over this time that would influence the decline in teenage pregnancy rates. Maybe a better method would have been to look at the changes in the abortion law both before and after each law was enacted to see the effect, similar to how researchers used the Hyde Amendment as a natural experiment to test the effects of the Medicaid funding restrictions. Another strategy could have been to look at states that had enjoined a

restrictive abortion law because then the state's unobserved political attitude would have been in favor of the laws, but they would not affect any teens access to abortion.

Another potential problem is with the teenage pregnancy rate variable. The Guttmacher Institute calculates teenage pregnancy rate by summing the number of abortions, the number of births, and the number of fetal deaths and then dividing by the number of teenagers. The abortion rate included is abortion by state of occurrence rather than by state of residence. This might have influenced the results since then the number of abortions and therefore the pregnancy rate would be higher in states with friendly abortion laws, since teenagers will travel to border states to receive abortion. Unfortunately, the Guttmacher Institute does not release abortions by state of residence to the general public.

## 9. Conclusion

While the Supreme Court decision made abortion legal in *Roe v. Wade*, in *Planned Parenthood v. Casey* the Court made it harder for abortions to take place by making it constitutional for states to pass restrictive abortion laws. Since then, states have continued to pass more and more restrictive laws. The hope of this study and its replication of Medoff's model is to examine if these laws have had their expected effect of limiting abortions and unintended pregnancies. Through economic analysis, this paper empirically studies the relationship between restrictive abortion laws and teenage pregnancy rates specifically.

In the original argument, we theorized that restrictive abortion laws would influence teenage pregnancy rates through a rational choice model. If a state has restrictive abortion laws, the cost of a pregnancy goes up and accordingly, so do the incentives to teenagers to avoid becoming pregnant either through abstaining from sex or or using contraceptives more efficiently. In the replication of Medoff's model, all of the restrictive abortion laws except for Medicaid funding were found to be statistically significant. This means we can reject the null hypothesis that restrictive abortion laws have no effect on teenage pregnancy rates. However, due to the chosen proxy for Medoff's abortion price variable, Medoff's concerns about endogeneity no longer applied. Rather, I was more concerned about the potential endogeneity from the restrictive abortion laws themselves since by nature they seem to be partially determined by other variables in the model. Therefore, I ran a two-stage least-squares regression correcting for the potential

endogeneity with the instrument, percentage of female judges and additionally added a fixed state variable into the model.

In these results, restrictive abortion laws did not seem to significantly influence a teenager's decisions even after controlling for confounders. Many researchers instead credit this decrease to better sexual educational programs. This makes sense given the trend of more and more states declining Title V abstinence-only-until-marriage funding in the 2000s until its eventual expiration in 2009. Additionally, there is now clear evidence that comprehensive sexual education programs have a profound effect on teenage sexual decisions. In the future, I would compare the results from this study to one which focused on the effect of preventative measures on the sexual decisions of teenagers. The results from this comparison could help shape public policy and have a profound public health impact.

Overall, the relationship between restrictive abortion laws and teenage pregnancy rates is important to study. In my opinion, restrictive abortion laws are an undue burden on the reproductive rights of women. Accordingly, states should be careful when deciding whether to enact these laws and should only do so if they significantly decrease the teenage pregnancy rate. This paper provides evidence that these restrictive abortion laws are not having their expected effect. Therefore, instead of spending resources to restrict access to abortions, states should focus their efforts on a preventative measure that has a more tangible effect on teenage pregnancy rates.

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# Appendix

Year 2000 Observations

| | Type of Restrictive Abortion Law in 2000 | | | | | Border State Parental Consent Law | Border State Mandated Delay Law | Adjusted Female Median Income | Labor Force Participation Rate | Education Rate |
|---|---|---|---|---|---|---|---|---|---|---|
| **State** | No Medicaid Funding | Parental Involvement Laws | Mandatory Delay Laws | Two-Visit Laws | Any Law | | | | | |
| **AL** | Y | Y | | | 1 | 0.50 | 0.25 | 21011.58 | 53.4 | 75.4 |
| **AK** | | | | | 0 | 1 | 1 | 27122.10 | 65.8 | 88.4 |
| **AZ** | | | | | 0 | 0.20 | 0.20 | 24322.64 | 55 | 81.5 |
| **AR** | Y | Y | | | 1 | 0.67 | 0.33 | 20077.99 | 55.1 | 75.7 |
| **CA** | | | | | 0 | 0.00 | 0.00 | 26675.44 | 56 | 76.8 |
| **CO** | Y | | | | 1 | 0.57 | 0.43 | 26387.18 | 64.1 | 87.4 |
| **CT** | | | | | 0 | 0.67 | 0.00 | 31222.62 | 61.3 | 84.1 |
| **DE** | Y | Y | | | 1 | 0.33 | 0.33 | 27740.17 | 60.7 | 83.4 |
| **DC** | Y | | | | 1 | 0.50 | 0.00 | 33401.43 | 60.5 | 77.7 |
| **FL** | Y | | | | 1 | 1.00 | 0.00 | 24055.16 | 53.4 | 80.3 |
| **GA** | Y | Y | | | 1 | 0.80 | 0.20 | 25513.32 | 59.9 | 79 |
| **HI** | | | | | 0 | 1 | 1 | 27921.95 | 58.8 | 83.6 |
| **ID** | Y | | Y | | 1 | 0.33 | 0.17 | 17671.96 | 59.6 | 85.1 |
| **IL** | | | | | 0 | 1.00 | 0.00 | 26441.71 | 59.9 | 81.8 |
| **IN** | Y | Y | | | 1 | 0.75 | 0.75 | 22846.30 | 60.9 | 82.2 |
| **IA** | Y | Y | | | 1 | 0.83 | 0.33 | 21636.14 | 64.2 | 86.8 |
| **KS** | Y | Y | Y | | 1 | 0.50 | 0.25 | 22212.65 | 62 | 86.5 |
| **KY** | Y | Y | | | 1 | 0.86 | 0.14 | 20986.91 | 55.1 | 75 |
| **LA** | Y | Y | Y | Y | 1 | 0.33 | 0.33 | 19567.70 | 54.2 | 75.8 |
| **ME** | Y | | | | 1 | 0.00 | 0.00 | 21611.47 | 61.4 | 86.3 |
| **MD** | | | | | 0 | 1.00 | 0.25 | 32117.26 | 63.4 | 84.1 |
| **MA** | | Y | | | 1 | 0.20 | 0.00 | 29155.48 | 61.4 | 84.9 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **MI** | Y | Y | | | 1 | 0.80 | 0.20 | 24251.22 | 59.1 | 83.9 |
| **MN** | | Y | | | 1 | 1.00 | 0.40 | 26356.02 | 67.3 | 88.4 |
| **MS** | Y | Y | Y | Y | 1 | 0.75 | 0.25 | 19862.45 | 54.3 | 73.7 |
| **MO** | Y | Y | | | 1 | 0.75 | 0.14 | 22464.55 | 60.3 | 81.2 |
| **MT** | | | | | 0 | 0.75 | 0.75 | 16796.80 | 61 | 87.7 |
| **NE** | Y | Y | Y | | 1 | 0.83 | 0.33 | 21449.16 | 65.5 | 87.3 |
| **NV** | Y | | | | 1 | 0.60 | 0.40 | 26919.55 | 59.5 | 80.7 |
| **NH** | Y | | | | 1 | 0.33 | 0.00 | 26148.26 | 65.7 | 88.2 |
| **NJ** | | | | | 0 | 0.67 | 0.33 | 31394.02 | 58.1 | 81.9 |
| **NM** | | | | | 0 | 0.40 | 0.20 | 19971.52 | 55.1 | 79.1 |
| **NY** | | | | | 0 | 0.50 | 0.17 | 28137.49 | 55.9 | 79.2 |
| **NC** | Y | Y | | | 1 | 1.00 | 0.25 | 24175.91 | 59.6 | 79.2 |
| **ND** | Y | Y | Y | | 1 | 0.67 | 0.33 | 18532.83 | 63.8 | 84.7 |
| **OH** | Y | Y | Y | | 1 | 1.00 | 0.20 | 23592.91 | 59.4 | 83 |
| **OK** | Y | | | | 1 | 0.50 | 0.17 | 19884.52 | 55.9 | 80.6 |
| **OR** | | | | | 0 | 0.00 | 0.25 | 22333.41 | 59.2 | 85.9 |
| **PA** | Y | Y | Y | | 1 | 0.50 | 0.17 | 23620.17 | 56.4 | 81.8 |
| **RI** | Y | Y | | | 1 | 0.33 | 0.00 | 24887.46 | 59.4 | 77.8 |
| **SC** | Y | Y | Y | | 1 | 1.00 | 0.00 | 22484.03 | 58.3 | 76.9 |
| **SD** | Y | Y | Y | | 1 | 0.80 | 0.33 | 20041.64 | 65.1 | 85.7 |
| **TN** | Y | Y | | | 1 | 1.00 | 0.13 | 22486.62 | 57.3 | 76.4 |
| **TX** | Y | | | | 1 | 0.50 | 0.25 | 22928.10 | 56.8 | 75.8 |
| **UT** | Y | Y | Y | Y | 1 | 0.17 | 0.17 | 18353.65 | 61.9 | 88.1 |
| **VT** | | | | | 0 | 0.33 | 0.00 | 22193.17 | 65.8 | 87.7 |
| **VA** | Y | Y | | | 1 | 0.80 | 0.00 | 26250.84 | 61.3 | 82.1 |
| **WA** | | | | | 0 | 0.00 | 0.50 | 25563.96 | 60.4 | 87.3 |
| **WV** | | Y | | | 1 | 0.80 | 0.00 | 18517.25 | 48.1 | 75.8 |
| **WI** | Y | Y | | Y | 1 | 0.75 | 0.00 | 23794.17 | 65.3 | 85.6 |
| **WY** | Y | Y | | | 1 | 0.50 | 0.67 | 17221.39 | 62.3 | 88.5 |

Year 2000 Dataset continued

| State | Marital Status Rate | % Evangelical Christians | Teen Pregnancy Rates | Average TANF Benefits | % of Counties W/Out Known Abortion Provider | % of Women Living in these Counties | Unobserved Political Attitudes | % of Female Judges | Number of Hospitals | Nurses Income |
|---|---|---|---|---|---|---|---|---|---|---|
| **AL** | 52.5 | 40.54 | 90 | 156 | 93 | 59 | NA | 11.1 | 108 | 40770 |
| **AK** | 55.6 | 12.39 | 75 | 686 | 85 | 39 | NA | 20 | 18 | 51800 |
| **AZ** | 53.6 | 9.44 | 105 | 283 | 97 | 79 | NA | 20 | 61 | 45700 |
| **AR** | 55.7 | 43.1 | 93 | 165 | 80 | 18 | NA | 14.3 | 83 | 37470 |
| **CA** | 50.7 | 7.22 | 96 | 532 | 41 | 4 | NA | 42.9 | 389 | 55120 |
| **CO** | 54.7 | 10.59 | 82 | 286 | 78 | 26 | NA | 42.9 | 69 | 45280 |
| **CT** | 52.3 | 2.4 | 71 | 455 | 25 | 9 | NA | 28.6 | 35 | 50860 |
| **DE** | 50.9 | 5.13 | 92 | 298 | 33 | 17 | NA | 20 | 5 | 50630 |
| **DC** | 27.5 | 9.81 | 123 | 372 | 0 | 0 | NA | 16.7 | 11 | 50040 |
| **FL** | 51.9 | 14.03 | 98 | 225 | 70 | 19 | NA | 28.6 | 202 | 42280 |
| **GA** | 51.5 | 27.77 | 95 | 242 | 94 | 56 | NA | 28.6 | 151 | 42590 |
| **HI** | 52.5 | 8.06 | 93 | 526 | 0 | 0 | NA | 25 | 21 | 55290 |
| **ID** | 59 | 8.92 | 62 | 267 | 93 | 67 | NA | 40 | 42 | 41800 |
| **IL** | 51.3 | 10.26 | 87 | 254 | 90 | 30 | NA | 14.3 | 196 | 44850 |
| **IN** | 54.3 | 15.98 | 73 | 232 | 93 | 62 | NA | 0 | 109 | 40910 |
| **IA** | 55.8 | 11.62 | 54 | 344 | 95 | 64 | NA | 25 | 115 | 36310 |
| **KS** | 56.4 | 15.51 | 69 | 285 | 96 | 54 | NA | 14.3 | 129 | 37100 |
| **KY** | 55 | 33.67 | 75 | 234 | 98 | 75 | NA | 14.3 | 105 | 39450 |
| **LA** | 48.2 | 21.53 | 87 | 186 | 92 | 61 | NA | 37.5 | 123 | 41690 |
| **ME** | 54.1 | 3.26 | 52 | 380 | 63 | 45 | NA | 28.6 | 37 | 41240 |
| **MD** | 49.7 | 7.72 | 92 | 343 | 67 | 24 | NA | 14.3 | 49 | 56440 |
| **MA** | 48.9 | 2.36 | 60 | 499 | 21 | 7 | NA | 42.9 | 80 | 49400 |
| **MI** | 51.8 | 10.72 | 75 | 377 | 83 | 31 | NA | 42.9 | 146 | 47020 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **MN** | 55 | 11.16 | 50 | 285 | 95 | 58 | NA | 28.6 | 135 | 48610 |
| **MS** | 48.6 | 39.69 | 102 | 144 | 98 | 86 | NA | 22.2 | 95 | 39040 |
| **MO** | 53.1 | 24.39 | 74 | 267 | 97 | 71 | NA | 14.3 | 119 | 40280 |
| **MT** | 56.3 | 11.15 | 60 | 427 | 91 | 43 | NA | 14.3 | 52 | 36830 |
| **NE** | 55.7 | 14.54 | 59 | 324 | 97 | 46 | NA | 14.3 | 85 | 38830 |
| **NV** | 53.1 | 5.36 | 116 | 308 | 82 | 10 | NA | 42.9 | 22 | 50440 |
| **NH** | 55.7 | 2.44 | 47 | 467 | 50 | 26 | NA | 20 | 28 | 41580 |
| **NJ** | 51.2 | 2.42 | 92 | 325 | 10 | 3 | NA | 42.9 | 80 | 51110 |
| **NM** | 47.1 | 13.05 | 103 | 356 | 88 | 48 | NA | 40 | 35 | 42430 |
| **NY** | 53.9 | 2.95 | 91 | 455 | 42 | 8 | NA | 28.9 | 215 | 49930 |
| **NC** | 56 | 25.57 | 95 | 228 | 78 | 44 | NA | 14.3 | 113 | 42050 |
| **ND** | 52.1 | 10.54 | 41 | 402 | 98 | 77 | NA | 40 | 42 | 39560 |
| **OH** | 55.3 | 9.94 | 74 | 343 | 91 | 50 | NA | 42.9 | 163 | 42250 |
| **OK** | 53.9 | 41.42 | 85 | 263 | 96 | 56 | NA | 15.6 | 108 | 39720 |
| **OR** | 51.5 | 11.36 | 79 | 423 | 78 | 26 | NA | 14.3 | 59 | 49570 |
| **PA** | 48.5 | 5.74 | 60 | 351 | 75 | 39 | NA | 14.3 | 207 | 43450 |
| **RI** | 51.4 | 1.61 | 66 | 466 | 80 | 39 | NA | 40 | 11 | 47320 |
| **SC** | 55.9 | 29.39 | 88 | 150 | 87 | 66 | NA | 20 | 63 | 43090 |
| **SD** | 53.6 | 14.41 | 54 | 283 | 98 | 78 | NA | 0 | 48 | 37210 |
| **TN** | 54.3 | 36.94 | 89 | 187 | 94 | 56 | NA | 20 | 121 | 40630 |
| **TX** | 58 | 24.37 | 101 | 165 | 93 | 32 | NA | 33.3 | 403 | 42360 |
| **UT** | 53.3 | 1.89 | 52 | 349 | 93 | 51 | NA | 20 | 42 | 42980 |
| **VT** | 53.4 | 2.42 | 44 | 501 | 43 | 23 | NA | 40 | 14 | 41600 |
| **VA** | 54.1 | 17.1 | 72 | 262 | 84 | 47 | NA | 42.9 | 88 | 41850 |
| **WA** | 54.7 | 9.82 | 75 | 442 | 74 | 17 | NA | 33.3 | 84 | 49950 |
| **WV** | 54.6 | 11.03 | 67 | 288 | 96 | 93 | NA | 20 | 57 | 36900 |
| **WI** | 57.5 | 12.72 | 55 | 491 | 93 | 62 | NA | 42.9 | 118 | 43290 |
| **WY** | 49.1 | 11.3 | 77 | 234 | 91 | 88 | NA | 0 | 24 | 37110 |

Year 2005 Dataset

| | Type of Restrictive Abortion Law in 2005 | | | | | Border State Parental Consent Law | Border State Mandated Delay Law | Female Median Income | Labor Force Participation Rate | Education Rate |
|---|---|---|---|---|---|---|---|---|---|---|
| **State** | No Medicaid Funding | Parental Involvement Laws | Mandated Counsel Laws | Two-Visit Laws | Any Law | | | | | |
| **AL** | Y | Y | Y | | 1 | 0.75 | 0.50 | 35916.15 | 54.5 | 80.9 |
| **AK** | | | Y | | 1 | 999 | 999 | 29625.69 | 66.9 | 90.9 |
| **AZ** | | Y | | | 1 | 0.40 | 0.20 | 41841.51 | 55.6 | 84.6 |
| **AR** | Y | Y | Y | | 1 | 0.83 | 0.83 | 29071.90 | 57.6 | 81.5 |
| **CA** | | | | | | 0.33 | 0.00 | 41407.19 | 57.1 | 80.2 |
| **CO** | Y | Y | | | 1 | 0.71 | 0.57 | 38670.60 | 64.2 | 89 |
| **CT** | | | | | | 0.67 | 0.33 | 45268.11 | 60.9 | 88 |
| **DE** | Y | Y | | | 1 | 0.67 | 0.33 | 39340.51 | 62 | 87 |
| **DC** | | | | | | 1.00 | 0.50 | 52430.57 | 64.1 | 84.1 |
| **FL** | Y | | | | 1 | 1.00 | 1.00 | 34015.84 | 56 | 85 |
| **GA** | Y | Y | Y | | 1 | 0.80 | 0.40 | 35259.64 | 60.7 | 83.5 |
| **HI** | | | | | | 999 | 999 | 36069.12 | 61.4 | 86.7 |
| **ID** | Y | Y | Y | | 1 | 0.33 | 0.17 | 29977.39 | 63.3 | 87.4 |
| **IL** | | | | | | 1.00 | 0.67 | 38788.95 | 59.7 | 85.9 |
| **IN** | Y | Y | | Y | 1 | 0.75 | 0.75 | 33435.25 | 60.7 | 85.4 |
| **IA** | Y | Y | | | 1 | 0.83 | 0.83 | 32807.77 | 66.9 | 90.1 |
| **KS** | Y | Y | Y | | 1 | 0.75 | 0.75 | 33203.01 | 64 | 89.2 |
| **KY** | Y | Y | Y | | 1 | 0.86 | 0.57 | 32186.98 | 57.4 | 80.3 |
| **LA** | Y | Y | Y | Y | 1 | 1.00 | 1.00 | 29595.54 | 58.2 | 81.5 |
| **ME** | Y | | | | 1 | 0.00 | 0.00 | 32973.01 | 62.2 | 89.9 |
| **MD** | | Y | | | 1 | 1.00 | 0.75 | 45761.61 | 62.5 | 87.8 |
| **MA** | | Y | | | 1 | 0.20 | 0.00 | 44688.63 | 61.4 | 88.6 |
| **MI** | Y | Y | Y | | 1 | 0.80 | 0.60 | 36952.28 | 59.3 | 87.5 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **MN** | | Y | Y | | 1 | 1.00 | 0.80 | 38201.67 | 68.5 | 91.5 |
| **MS** | Y | Y | Y | | 1 | 1.00 | 0.75 | 28600.73 | 55.1 | 79.6 |
| **MO** | Y | Y | Y | Y | 1 | 0.75 | 0.63 | 32245.04 | 61.7 | 85.3 |
| **MT** | | | | | | 1.00 | 0.75 | 28110.57 | 61.9 | 91.2 |
| **NE** | Y | Y | Y | | 1 | 1.00 | 0.50 | 31943.58 | 67.2 | 90.3 |
| **NV** | Y | | | | 1 | 0.60 | 0.60 | 34900.12 | 59.1 | 82.5 |
| **NH** | Y | | | | 1 | 0.33 | 0.00 | 38050.94 | 65 | 90.8 |
| **NJ** | | | | | | 0.67 | 0.33 | 44905.24 | 58.2 | 86 |
| **NM** | | | | | | 0.60 | 0.80 | 30755.61 | 57.7 | 82.3 |
| **NY** | | | | | | 0.50 | 0.17 | 40673.64 | 56.5 | 84.4 |
| **NC** | Y | Y | | | 1 | 1.00 | 0.75 | 33192.97 | 58.5 | 83.6 |
| **ND** | Y | Y | Y | | 1 | 0.67 | 0.67 | 28893.25 | 66.6 | 88.9 |
| **OH** | Y | Y | Y | | 1 | 1.00 | 0.80 | 35123.42 | 61.5 | 86.5 |
| **OK** | Y | | Y | | 1 | 0.67 | 0.67 | 30141.52 | 57.1 | 84.5 |
| **OR** | | | | | | 0.25 | 0.25 | 35088.81 | 59.7 | 88.4 |
| **PA** | Y | Y | Y | | 1 | 0.50 | 0.33 | 35334.45 | 58.3 | 86.7 |
| **RI** | Y | Y | | | 1 | 0.33 | 0.00 | 39660.95 | 62.6 | 83.2 |
| **SC** | Y | Y | Y | | 1 | 1.00 | 0.50 | 30708.71 | 58.1 | 82.1 |
| **SD** | Y | Y | Y | | 1 | 0.80 | 0.40 | 28693.40 | 68.3 | 89.8 |
| **TN** | Y | Y | | | 1 | 1.00 | 0.88 | 31652.17 | 55.7 | 81.9 |
| **TX** | Y | Y | Y | | 1 | 0.50 | 0.75 | 33932.10 | 58.6 | 78.9 |
| **UT** | Y | Y | Y | | 1 | 0.67 | 0.33 | 31938.00 | 62.3 | 90.5 |
| **VT** | | | | | 1 | 0.33 | 0.00 | 34754.97 | 66.4 | 91.2 |
| **VA** | Y | Y | Y | | 1 | 1.00 | 0.40 | 39361.73 | 62.2 | 85.8 |
| **WA** | | | | | | 0.50 | 0.50 | 39739.11 | 61.3 | 89.1 |
| **WV** | Y | Y | Y | | 1 | 1.00 | 0.80 | 27863.82 | 50.6 | 81.5 |
| **WI** | Y | Y | Y | Y | 1 | 0.75 | 0.50 | 34887.84 | 65 | 89.5 |
| **WY** | Y | Y | | | 1 | 0.67 | 0.67 | 28606.31 | 63.4 | 92.2 |

2005 Dataset continued

| State | Marital Status Rate | % Evangelical Christians | Teen Pregnancy Rate | Average TANF | % of Counties W/Out Known Abortion Provider | % of Women Living in these Counties | Nurses Income | % of Female Judges | Number of Hospitals | Unobserved Political Attitudes |
|---|---|---|---|---|---|---|---|---|---|---|
| **AL** | 54.2 | 49 | 71 | 199.52 | 93 | 61 | 48,840 | 18 | 109 | -3.2 |
| **AK** | 53.5 | 26 | 65 | 665.58 | 81 | 23 | 60820 | 18 | 22 | -24.8 |
| **AZ** | 51.5 | 23 | 90 | 278.5 | 73 | 16 | 56280 | 28 | 67 | -4.5 |
| **AR** | 53.3 | 53 | 80 | 225.1 | 97 | 79 | 48620 | 13 | 85 | 11.3 |
| **CA** | 49.7 | 18 | 75 | 626.67 | 41 | 4 | 70430 | 27 | 357 | 9.2 |
| **CO** | 53.7 | 23 | 69 | 347.57 | 78 | 23 | 56340 | 29 | 71 | 3.3 |
| **CT** | 51.6 | 10 | 58 | 425.26 | 25 | 10 | 61990 | 22 | 36 | 21.1 |
| **DE** | 51 | 15 | 76 | 245.98 | 33 | 18 | 58260 | 23 | 6 | 33.2 |
| **DC** | 28.2 | 15 | 111 | 330.69 | 0 | 0 | 59130 | 33 | 11 | 62.1 |
| **FL** | 50 | 25 | 78 | 250.81 | 69 | 20 | 53190 | 28 | 205 | 1.3 |
| **GA** | 50.5 | 38 | 79 | 220.57 | 92 | 62 | 52430 | 30 | 149 | -3.9 |
| **HI** | 52.4 | 18 | 72 | 538.22 | 20 | 0 | 65490 | 35 | 25 | 8.8 |
| **ID** | 57.6 | 22 | 53 | 300.88 | 93 | 68 | 49460 | 14 | 39 | -16.5 |
| **IL** | 50.3 | 19 | 67 | 154.8 | 92 | 34 | 53470 |  | 191 | 10 |
| **IN** | 53.2 | 34 | 61 | 197.47 | 93 | 63 | 50020 | 20 | 113 | -8.1 |
| **IA** | 56.5 | 24 | 49 | 323.68 | 93 | 56 | 45330 | 23 | 116 | 6.2 |
| **KS** | 55.3 | 29 | 59 | 307.89 | 96 | 57 | 46990 | 16 | 131 | -12.9 |
| **KY** | 54.1 | 49 | 65 | 243.06 | 98 | 77 | 50370 | 31 | 105 | 8.7 |
| **LA** | 45.9 | 31 | 67 | 271.12 | 92 | 62 | 50950 | 21 | 128 | 6.2 |
| **ME** | 53.5 | 15 | 43 | 368.86 | 63 | 46 | 52840 | 18 | 37 | 11.8 |
| **MD** | 48.7 | 15 | 66 | 351.89 | 58 | 19 | 67330 | 29 | 50 | 12.5 |
| **MA** | 48.6 | 11 | 46 | 518.86 | 14 | 7 | 66250 | 30 | 80 | 22.6 |
| **MI** | 51.1 | 26 | 60 | 400.22 | 83 | 33 | 57190 | 27 | 146 | 11.9 |
| **MN** | 54.9 | 21 | 42 | 353.46 | 95 | 62 | 60500 | 28 | 133 | 10.5 |
| **MS** | 47.1 | 47 | 83 | 148.83 | 99 | 91 | 48460 | 20 | 94 | -10.7 |
| **MO** | 52.4 | 37 | 62 | 239.47 | 96 | 68 | 50650 | 19 | 119 | 8.3 |
| **MT** | 56.4 | 26 | 56 | 327.16 | 91 | 49 | 48460 | 37 | 54 | 0.2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **NE** | 55.5 | 21 | 48 | 341.85 | 97 | 45 | 50000 | 17 | 87 | -23.8 |
| **NV** | 51.2 | 13 | 94 | 320.43 | 88 | 12 | 59660 | 30 | 32 | 12.3 |
| **NH** | 54.2 | 11 | 33 | 503.41 | 50 | 19 | 53340 | 15 | 28 | 13.8 |
| **NJ** | 50.6 | 12 | 71 | 383.23 | 19 | 10 | 63070 | 23 | 80 | 16.2 |
| **NM** | 49.5 | 25 | 93 | 303.24 | 88 | 47 | 54380 | 24 | 37 | 7.8 |
| **NY** | 46 | 11 | 76 | 597.64 | 40 | 7 | 63010 | 29 | 203 | 18.5 |
| **NC** | 51.7 | 41 | 73 | 214.37 | 83 | 48 | 51970 | 22 | 115 | 1.3 |
| **ND** | 56.3 | 24 | 41 | 358.27 | 98 | 75 | 48110 | 17 | 40 | -22.3 |
| **OH** | 51.1 | 26 | 61 | 317.84 | 90 | 51 | 53150 | 24 | 170 | 7 |
| **OK** | 53.9 | 53 | 74 | 193.59 | 96 | 57 | 47200 | 19 | 110 | -1.7 |
| **OR** | 52.2 | 30 | 57 | 420.3 | 78 | 26 | 60270 | 32 | 58 | 14.6 |
| **PA** | 50.4 | 18 | 51 | 324.72 | 78 | 40 | 54040 | 23 | 191 | 3.5 |
| **RI** | 48.4 | 10 | 56 | 421.87 | 80 | 39 | 58400 | 34 | 11 | 33.9 |
| **SC** | 49.6 | 45 | 76 | 161.16 | 91 | 72 | 52060 | 29 | 63 | -14.6 |
| **SD** | 55.4 | 24 | 50 | 335.93 | 98 | 78 | 47500 | 15 | 52 | -6 |
| **TN** | 51.8 | 51 | 77 | 168.54 | 94 | 59 | 51250 | 16 | 130 | 0 |
| **TX** | 52.8 | 34 | 87 | 189.44 | 93 | 35 | 54810 | 25 | 415 | -15.9 |
| **UT** | 58.5 | 7 | 43 | 401.7 | 93 | 55 | 52490 | 23 | 43 | -29.9 |
| **VT** | 50.9 | 11 | 38 | 537.11 | 43 | 24 | 50060 | 42 | 14 | 4.7 |
| **VA** | 52.3 | 31 | 60 | 305.86 | 86 | 57 | 54480 | 19 | 87 | 0.4 |
| **WA** | 52.4 | 25 | 59 | 425.33 | 67 | 14 | 62220 | 29 | 86 | 11.6 |
| **WV** | 53.8 | 36 | 60 | 324.93 | 96 | 84 | 48340 | 16 | 57 | 13 |
| **WI** | 53.3 | 24 | 46 | 455.29 | 93 | 63 | 55060 | 15 | 124 | 4.2 |
| **WY** | 57.7 | 26 | 64 | 200.12 | 96 | 96 | 48210 | 14 | 24 | -29.6 |

2010 Dataset Observations

| | Type of Restrictive Abortion Law in 2010 | | | | | Border State Parental Consent Law | Border State Mandated Delay Law | Female Median Income | Labor Force Participation Rate | Education Rate |
|---|---|---|---|---|---|---|---|---|---|---|
| **State** | No Medicaid Funding | Parental Involvement Laws | Mandatory Counsel Laws | Two-Visit Laws | Any Law | | | | | |
| **AL** | Y | Y | Y | | 1 | 1.00 | 0.50 | 31321.00 | 54.2 | 82.9 |
| **AK** | | | | | | 999 | 999 | 42376.00 | 65.6 | 91.4 |
| **AZ** | | Y | Y | | 1 | 0.40 | 0.20 | 35947.00 | 55.9 | 86.1 |
| **AR** | Y | Y | Y | | 1 | 1.00 | 0.83 | 29148.00 | 56 | 83.8 |
| **CA** | | | | | | 0.33 | 0.00 | 41302.00 | 58 | 81.1 |
| **CO** | Y | Y | | | 1 | 0.86 | 0.57 | 39638.00 | 63.7 | 90.3 |
| **CT** | | | | | | 0.67 | 0.00 | 46004.00 | 63.1 | 89.2 |
| **DE** | Y | Y | | | 1 | 0.67 | 0.33 | 39508.00 | 60.7 | 88.9 |
| **DC** | Y | Y | | | 1 | 1.00 | 0.50 | 56127.00 | 63.6 | 88 |
| **FL** | Y | Y | | | 1 | 1.00 | 1.00 | 32762.00 | 56.1 | 86.6 |
| **GA** | Y | Y | Y | | 1 | 1.00 | 0.40 | 34709.00 | 59 | 85.4 |
| **HI** | | | | | | 999 | 999 | 36242.00 | 61.9 | 88.8 |
| **ID** | Y | Y | Y | | 1 | 0.33 | 0.17 | 30403.00 | 58.4 | 88.9 |
| **IL** | | | | | | 1.00 | 0.83 | 38638.00 | 61 | 87.4 |
| **IN** | Y | Y | Y | Y | 1 | 0.75 | 0.75 | 32221.00 | 59.4 | 87.6 |
| **IA** | Y | Y | | | 1 | 0.83 | 0.83 | 33186.00 | 64.2 | 91.2 |
| **KS** | Y | Y | Y | | 1 | 0.75 | 0.75 | 32204.00 | 63.6 | 89.7 |
| **KY** | Y | Y | Y | | 1 | 1.00 | 0.71 | 31628.00 | 55.4 | 83 |
| **LA** | Y | Y | Y | Y | 1 | 1.00 | 1.00 | 30600.00 | 57.5 | 83.3 |
| **ME** | Y | Y | | | 1 | 0.00 | 0.00 | 33873.00 | 61.1 | 91.5 |
| **MD** | | Y | | | 1 | 1.00 | 0.75 | 47175.00 | 65.3 | 89 |
| **MA** | | Y | | | 1 | 0.20 | 0.00 | 46213.00 | 63 | 89.3 |
| **MI** | Y | Y | Y | | 1 | 0.80 | 0.80 | 36413.00 | 58.4 | 89.4 |
| **MN** | | Y | Y | | 1 | 1.00 | 0.80 | 39289.00 | 66.5 | 92.3 |
| **MS** | Y | Y | Y | Y | 1 | 1.00 | 0.75 | 28879.00 | 54.3 | 82.8 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **MO** | Y | Y | Y | Y | 1 | 0.88 | 0.63 | 32481.00 | 60.5 | 87.2 |
| **MT** | | | | | | 1.00 | 0.75 | 30306.00 | 60.3 | 92.4 |
| **NE** | Y | Y | Y | | 1 | 1.00 | 0.50 | 32022.00 | 66.4 | 91.2 |
| **NV** | Y | | | | 1 | 0.60 | 0.60 | 35363.00 | 60.6 | 84.6 |
| **NH** | Y | | | | 1 | 0.67 | 0.00 | 40185.00 | 65.1 | 92 |
| **NJ** | | | | | | 0.67 | 0.33 | 45936.00 | 60.8 | 88.4 |
| **NM** | | | | | | 0.80 | 0.80 | 32234.00 | 55.2 | 84.3 |
| **NY** | | | | | | 0.50 | 0.17 | 41570.00 | 58.5 | 85.2 |
| **NC** | Y | Y | | | 1 | 1.00 | 0.75 | 33188.00 | 58.6 | 86.5 |
| **ND** | Y | Y | Y | | 1 | 0.67 | 0.67 | 31027.00 | 66.7 | 90.9 |
| **OH** | Y | Y | Y | Y | 1 | 1.00 | 1.00 | 35284.00 | 59.7 | 88.7 |
| **OK** | Y | Y | Y | | 1 | 0.67 | 0.67 | 30901.00 | 57.1 | 86.7 |
| **OR** | | | | | | 0.25 | 0.25 | 35301.00 | 59.1 | 89.6 |
| **PA** | Y | Y | Y | | 1 | 0.50 | 0.33 | 36338.00 | 58.1 | 88.6 |
| **RI** | Y | Y | | | 1 | 0.33 | 0.00 | 40532.00 | 61.2 | 84.3 |
| **SC** | | Y | Y | | 1 | 1.00 | 0.50 | 31508.00 | 57.6 | 85.2 |
| **SD** | Y | Y | Y | | 1 | 0.80 | 0.40 | 30876.00 | 64.6 | 90.7 |
| **TN** | Y | Y | | | 1 | 1.00 | 0.88 | 31854.00 | 56.4 | 84.6 |
| **TX** | Y | Y | Y | | 1 | 0.75 | 0.75 | 33689.00 | 58.7 | 81.3 |
| **UT** | Y | Y | Y | Y | 1 | 0.67 | 0.33 | 32163.00 | 60.2 | 91 |
| **VT** | | | | | | 0.33 | 0.00 | 35891.00 | 64.9 | 92.7 |
| **VA** | Y | Y | Y | | 1 | 1.00 | 0.40 | 40669.00 | 61.8 | 87.8 |
| **WA** | | | | | | 0.50 | 0.50 | 40246.00 | 59.8 | 90.5 |
| **WV** | | Y | Y | | 1 | 1.00 | 0.80 | 29651.00 | 49.5 | 84.4 |
| **WI** | Y | Y | Y | Y | 1 | 0.75 | 0.50 | 35490.00 | 64.7 | 90.8 |
| **WY** | Y | Y | | | 1 | 0.67 | 0.67 | 32426.00 | 62.2 | 92.8 |

2010 Dataset continued

| State | Marital Status Rate | % Evangelical Christians | Pregnancy rate | Average TANF | % of Counties W/Out Known Abortion Provider | % of Women Living in these Counties | Nurse Income | % of Female Judges | Number of Hospitals | Unobserved Political Attitudes |
|---|---|---|---|---|---|---|---|---|---|---|
| **AL** | 48.2 | 42.04 | 62 | 291.80 | 93 | 59 | 57,850 | 21 | 105 | -9 |
| **AK** | 49.9 | 14.22 | 64 | 590.92 | 90 | 37 | 79,350 | 18 | 22 | -21 |
| **AZ** | 49 | 11.93 | 60 | 209.12 | 67 | 14 | 70,220 | 30 | 73 | -5 |
| **AR** | 51 | 38.98 | 73 | 155.68 | 97 | 78 | 56,500 | 16 | 85 | -2 |
| **CA** | 46.9 | 9.4 | 59 | 510.3 | 45 | 5 | 87,480 | 28 | 343 | 14 |
| **CO** | 51.2 | 11.95 | 54 | 374.82 | 78 | 28 | 67,280 | 29 | 80 | 0 |
| **CT** | 48.5 | 4.4 | 44 | 445.47 | 13 | 5 | 73,860 | 23 | 34 | 18 |
| **DE** | 47.8 | 7.2 | 67 | 306.67 | 33 | 18 | 70,920 | 25 | 7 | 13 |
| **DC** | 25.3 | 12.52 | 90 | 334.37 | 0 | 0 | 76,210 | 34 | 11 | 64 |
| **FL** | 47.1 | 16.22 | 60 | 237.43 | 73 | 22 | 63,010 | 29 | 210 | 4 |
| **GA** | 48.2 | 29.45 | 64 | 209.65 | 96 | 58 | 61,670 | 29 | 154 | -3 |
| **HI** | 48.8 | 9.58 | 65 | 558.97 | 40 | 4 | 82,130 | 34 | 26 | 13 |
| **ID** | 56.2 | 12.86 | 47 | 297.9 | 95 | 69 | 62,720 | 11 | 41 | -28 |
| **IL** | 48.1 | 12.86 | 57 | 230.97 | 92 | 39 | 66,660 | 27 | 189 | 13 |
| **IN** | 50.7 | 19.1 | 53 | 222.64 | 93 | 61 | 57,820 | 20 | 125 | -3 |
| **IA** | 53.8 | 13.21 | 44 | 326.11 | 85 | 50 | 51,970 | 23 | 118 | 3 |
| **KS** | 52.6 | 18.11 | 53 | 282.2 | 98 | 74 | 57,470 | 17 | 130 | -10 |
| **KY** | 50.4 | 33.39 | 62 | 270.92 | 98 | 74 | 58,130 | 32 | 106 | 5 |
| **LA** | 44.8 | 23.48 | 69 | 314.37 | 92 | 63 | 62,060 | 26 | 126 | 4 |
| **ME** | 50.8 | 4.45 | 37 | 382.07 | 81 | 55 | 64,650 | 20 | 37 | 5 |
| **MD** | 47.6 | 12.02 | 57 | 451.61 | 67 | 24 | 76,450 | 31 | 47 | 22 |
| **MA** | 46.5 | 3.43 | 37 | 470.18 | 36 | 10 | 84,990 | 32 | 79 | 20 |
| **MI** | 48.8 | 12.92 | 52 | 380.33 | 86 | 36 | 63,970 | 28 | 156 | 9 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **MN** | 52.5 | 14.04 | 36 | 349.74 | 95 | 59 | 73,770 | 31 | 133 | 4 |
| **MS** | 45.9 | 39.38 | 76 | 233.73 | 99 | 91 | 57,940 | 17 | 96 | 1 |
| **MO** | 50.3 | 25.36 | 54 | 231.31 | 97 | 74 | 59,140 | 19 | 122 | 1 |
| **MT** | 53.1 | 12.24 | 53 | 415.58 | 89 | 46 | 57,860 | 34 | 48 | -12 |
| **NE** | 52.7 | 15.82 | 43 | 267.21 | 97 | 41 | 56,480 | 18 | 88 | -13 |
| **NV** | 47.2 | 7.89 | 68 | 343.27 | 88 | 10 | 75,320 | 30 | 36 | 5 |
| **NH** | 51.4 | 3.58 | 28 | 492.52 | 50 | 23 | 63,340 | 16 | 28 | -6 |
| **NJ** | 47.6 | 4.33 | 51 | 318.2 | 48 | 28 | 75,440 | 27 | 73 | 12 |
| **NM** | 45 | 13.47 | 80 | 351.24 | 94 | 60 | 66,090 | 24 | 36 | 12 |
| **NY** | 42.8 | 4.5 | 63 | 536.76 | 53 | 12 | 74,000 | 30 | 185 | 19 |
| **NC** | 47.3 | 27.11 | 59 | 213.93 | 90 | 53 | 60,260 | 24 | 117 | 4 |
| **ND** | 52.5 | 11.69 | 42 | 317.41 | 98 | 73 | 57,020 | 17 | 41 | -2 |
| **OH** | 46.9 | 12.93 | 54 | 368.17 | 91 | 54 | 60,590 | 24 | 183 | 7 |
| **OK** | 52.2 | 40.82 | 69 | 198.45 | 96 | 55 | 54,340 | 19 | 113 | -4 |
| **OR** | 51.4 | 11.67 | 47 | 447 | 78 | 31 | 75,350 | 32 | 58 | 12 |
| **PA** | 50.6 | 8.49 | 49 | 312.84 | 87 | 49 | 65,070 | 26 | 196 | 7 |
| **RI** | 45.2 | 2.49 | 44 | 416.13 | 80 | 37 | 70,640 | 34 | 11 | 18 |
| **SC** | 49.4 | 30.51 | 65 | 204.35 | 93 | 72 | 60,040 | 30 | 67 | -6 |
| **SD** | 52.5 | 14.51 | 47 | 386.48 | 98 | 77 | 54,730 | 13 | 53 | -7 |
| **TN** | 52.2 | 37.57 | 62 | 165.32 | 96 | 63 | 60,480 | 17 | 134 | -4 |
| **TX** | 51.6 | 25.68 | 73 | 229.91 | 93 | 35 | 66,180 | 25 | 426 | -3 |
| **UT** | 58 | 2.28 | 38 | 511.46 | 97 | 62 | 60,530 | 23 | 44 | -32 |
| **VT** | 50.5 | 3.62 | 32 | 463.71 | 79 | 51 | 63,210 | 40 | 14 | 26 |
| **VA** | 50.8 | 19.14 | 48 | 267.89 | 92 | 78 | 65,020 | 20 | 89 | -1 |
| **WA** | 51.3 | 12.2 | 49 | 446.48 | 64 | 13 | 73,680 | 30 | 86 | 7 |
| **WV** | 50.9 | 13.48 | 64 | 335.15 | 98 | 90 | 54,300 | 23 | 56 | 7 |
| **WI** | 51.1 | 14.17 | 39 | 429.4 | 96 | 97 | 64,280 | 17 | 124 | 6 |
| **WY** | 55.7 | 10.51 | 56 | 351.62 | 100 | 100 | 58,750 | 15 | 24 | -28 |