THE IMPACT OF STATE ABORTION POLICIES ON THE ABORTION RATE

A Thesis

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Abstract

of

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This thesis examines the impact of state mandated demand- and supply-side abortion policies on the statewide abortion rate to determine which policies are most effective at lowering state abortion rates. Ordinary least squares regression was used to determine the specific impact and statistical significance of each policy on the state abortion rate, while controlling for several demographic factors identified in the literature as having an impact on a state's abortion rate.

All five demand-side variables and one of the supply-side variables were found to have a statistically insignificant relationship with a state's abortion rate. My research suggests that state abortion rates are largely unaffected by demand-side policies that restrict access to abortion resources, making these policies ineffective and inefficient. The only variable that was consistently correlated with lower abortion rates was a supply-side variable analyzing the effect of comprehensive sex education taught in public schools in lieu of abstinence-only sex education. This thesis recommends discontinuing

federally and state funded abstinence-only sex education programs and switching to a comprehensive sex education curriculum.

_____, Committee Chair
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Chapter 1

INTRODUCTION

Restrictive State Laws and Abortion Rates

Between 2011 and 2013, more bills restricting abortion services and funding of those services were signed into state law than in the entire previous decade (see Figure 1). The growth in restrictive abortion policies is a result of the 2010 elections that brought many pro-life state legislatures and governors to office, allowing them to enact more policy and funding restrictions than was politically feasible previously (Boonstra & Nash, 2014), and is in response to the Affordable Care Act (ACA) enacted in March 2010 that covers over 1,000 providers who provide abortion services (GAO, 2014) despite federal law prohibiting federal funding for abortion services and President Obama's commitment to not provide federal funding for abortion services (Harkness, 2014). The debate over public funding of abortion services is becoming even more significant today in light of the new Affordable Care Act (ACA), which is replacing the Medicaid program previously in effect.

Beginning in 2014, under the ACA, it is now required that new private health plans written on or after August 1, 2012 cover all Food and Drug Administration-approved contraceptive methods without out-of-pocket costs to patients (Guttmacher Institute, 2014). Despite the fact that these policies were not operational until 2014, states began to enact laws in 2010 that restrict the abortion and contraceptive coverage in health plans purchased through the ACA exchange (Guttmacher Institute, 2014). This debate is becoming a point of contention in the current health care plans covered by the

ACA. This inconsistency on abortion funding is fueling a national debate over using government funds, both Federal and State, to provide abortion services. Pro-life activists and believers are trying to push providers of the ACA to remove the funding and service of abortion (Harkness, 2014), while pro-choice supporters argue to keep funding available on the grounds that a woman's right to choose should not be based on one's income level and that funding restrictions are inequitable, discriminatory, and ineffective.

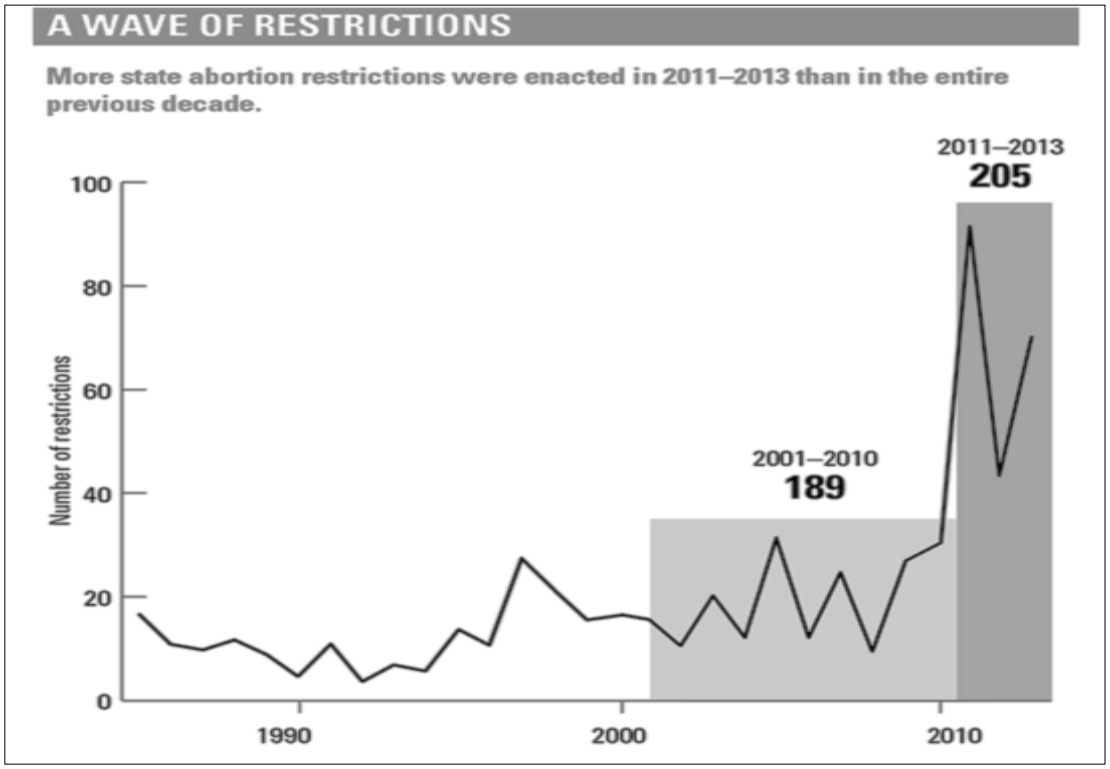

Figure 1. Chart Showing Number of State Abortion Restrictions Enacted: 1985-2013. From "A Surge of State Abortion Restrictions puts Providers, and the Women they Serve, in the Crosshairs," by H. Boonstra and E. Nash, 2014, Guttmacher Institute.

In addition to restricting state funding for medical providers that perform abortion services, states are placing other restrictive laws in place as a secondary measure against possible new federal funding sources (Guttmacher Institute, 2014). Individual states have

the right to place restrictions on abortion practices such as requiring parental consent for minors, requiring counseling, waiting periods, and completion of an ultrasound. Several states enacted new abortion laws to include these restrictions in order to limit abortion services in ways other than through federal funding (Grossu, 2014). This is in addition to the many states that already had restrictive abortion laws in place prior to 2011.

Restrictive Abortion Service and Funding Policies

Proponents of restrictive abortion laws claim the laws work in two ways: 1) the restrictions directly lower the incidence of abortion; and 2) the restrictions indirectly lower abortion rates by raising the opportunity cost of risky sexual behavior. The latter argument assumes that if individuals know access to abortion is limited and costly, they will take precautions to avoid unwanted pregnancies in the first place. As access becomes more difficult, the opportunity cost of having an unwanted pregnancy goes up, making both men and women reconsider their sexual risk taking (Medoff, 2012). Although much research has been done on the effect of state abortion and funding laws on abortion rates, there is much conflict in these findings with some laws seeming to have more impact than others do.

Some researchers and advocates feel that these restrictive policies do not lower abortion rates as intended and disproportionately affect younger and poorer women unfairly (Boonstra & Nash, 2014; Medoff, 2012). Additionally, these added measures women have to go through to obtain abortion services cause waste in administrative costs, medical resources, and time. These resources could be better allocated to more effective policies (Doucleff, 2014; Medoff, 2012). Opponents of restrictive abortion

policies further state these restrictive policies increase red tape for abortion providers and receivers but may not impact the abortion rate substantially. Many studies have shown that making abortions illegal doesn't decrease the number of abortions, it only pushes women to use unsafe and illegal methods and providers for completing the abortion, risking a woman's health and safety, making the policies ineffective or even harmful (Doucleff, 2014).

Abortion Rate Trends in the US

Nationally, 2011 abortion rates dropped 13% since 2008, when they peaked, presumably in response to changes in the political situation, and the policies put into effect (Jones & Jerman, 2011); however, lower national abortion rates do not necessarily mean that state- specific laws are the reasons for lower abortion rates, especially when birth rates have dropped at the same time. Some believe both birth rates and abortion rates have hit all-time lows because women are simply getting pregnant less often due to the improved availability of birth control (Marcotte, 2014; Freedman, 2014; Peipert, Madden, Allsworth, & Secura 2014). Others believe an improved economy since 2008 may well be more responsible for the drop in abortion rates as more individuals who find themselves unexpectedly pregnant are able to provide financially and carry an unexpected pregnancy to term than in times of financial uncertainty (Jones & Jerman, 2011; Kliff, 2012; Pugh Yi, 2011). Blank, George, and London (1996) found as the economy moves into recession, a l-point rise in the unemployment rate leads to about a 3% increase in abortion rates. Abortion rate increases seen unexpectedly from 2005 to

2008 may have also reflected the hesitancy for one to carry an unexpected pregnancy to term in the face of an unstable economy (Jones & Jerman, 2011; Pugh Yi, 2011).

While most restrictive laws after 2008 were enacted in Midwest and Southern states, abortion incidence declined in all regions, suggesting that other factors were more important than restrictive laws in a women's decision to have an abortion (Jones & Jerman, 2011). Also, the states of California, New Jersey, and New York (which are generally considered supportive of abortion rights and do not have funding restrictions) did not enact any new laws yet still experienced declines in their abortion rates, sometimes greater than the national decline (Jones & Jerman, 2011).

The Cost of Unintended Pregnancies

Pro-choice proponents argue that the cost of unintended pregnancies is already staggering and would only continue to grow if abortion laws and funding were made more restrictive. In 2012, there were 6.4 million unintended pregnancies and about half of these ended in abortion. The costs to society from unintended pregnancies that end in unintended births, as opposed to abortion, have received substantial attention from social scientists. Sonfield, Kost, Gold, & Finer (2011) estimated that for women on Medicaid, the cost of prenatal visits, labor and delivery charges, post-partum care, and one year of infant wellness checks of unintended pregnancies that translated to unwanted births cost the government $11.1 billion in 2006, $6.5 billion in federal expenditures and $4.6 billion in state expenditures.

One cannot ignore the cost of unintended pregnancies. The public costs of births following unintended pregnancies are substantial and place a burden on federal and state

governments. There is a general agreement among policymakers that reducing the incidence of unintended pregnancies is an important public and social policy goal. The Healthy People 2020 initiative, put out by the US Department of Health and Human Services (DHHS), addresses the importance of unintended pregnancy rates to the country's health and has set goals to reduce the number of unintended pregnancies in the US. Although the ultimate goal of DHHS is to lower unintended pregnancy rates, removing the option for abortion will potentially increase the number of unplanned births to disadvantaged women who are not prepared to care for the child effectively. This could potentially inhibit a woman's ability to care for the child and the responsibility would fall to the state for assistance, thus increasing the public cost to exponentially higher than the cost of administering an abortion service (Sonfield, et al. 2011). For that reason, investments in programs and policies to reduce unintended pregnancies would empower individuals to make better family-planning decisions, would result in savings to public funds, and would free up funding for other government programs and services.

Preventive Policies

Preventive policies are ones that aim to prevent an unwanted pregnancy before it results in abortion. Generally these policies are focused around making contraceptives available and teaching youth how to be responsible and educated when making their sexual decisions. While some states have polices in place to ensure access to information and access to contraceptives, most states are taking a more limiting approach to contraceptive access. According to the "National Survey of Adolescents and Their Parents: Attitudes and Opinions about Sex and Abstinence, Final Report" (Olsho, Cohen,

Walker, Johnson & Locke, 2010) approximately 70 percent of parents preferred for their children to only engage in sexual relations when married, stating sex outside of wedlock was against their value system. This parental preference is supported by the federal government that provides funding to states through the State Abstinence Education Grant Program, authorized by Title V, Section 510 of the Social Security Act to promote abstinence-only messages. In 2011, 35 states were accepting Title V, Section 510 federal funds, up from 30 in 2010 (FYSB, 2014). The program was created to prevent youth from having children out of wedlock, with special focus paid to more at-risk groups including children in foster care, homeless, or living in rural areas (FYSB, 2014). The Abstinence Education Grant Program has existed in its current form since 1996. A 43% state match is required. States may use funds for abstinence education, mentoring, counseling or adult supervised activities. While states are encouraged to use "evidence-based" programs, federally funded abstinence-only programs are expressly prohibited from providing any information to adolescents about any other forms of birth control for preventing unintended pregnancy other than abstinence (NCSL, 2014). The Abstinence Education Grant Program primarily focuses on youth, but most states do some type of outreach to the general public through public service announcements and information distribution. Most states accept funding but 15 states have waived their right to Title V funding, allowing sex education to be taught in schools, which includes discussion of different birth control and family planning techniques.

Access to contraceptive methods is another area of reproductive law where state policies differ. As of 2011, 24 states had contraceptive equality laws which required

private insurance companies to cover contraceptives if the insurance policy also covers other types of prescriptions, while the other 23 states did not require contraceptives to be part of the medical services provided (NCSL, 2014). The role of private insurance companies dictating a woman's family planning options is becoming a bigger issue in light of the ACA which covers contraceptive methods despite state laws which prevent private insurance companies from offering contraceptive methods. Over 100 lawsuits to date have been filed with the federal courts to remove the birth control benefit under ACA (National Women's Law Center, 2012).

Whether a causal relationship between these preventive policies and lower abortion rates is still undetermined, however the correlation cannot be ignored. As birth control use has become more popular, abortion rates have dropped (Kliff, 2012). Pro-life supporters see these preventive methods as encouraging sexual activity by promoting knowledge and therefore increasing the acceptance of the concept and ultimately raising the rate of unintended pregnancies and abortions (Olsho et al., 2010). Pro-choice states view sex education and access to free birth control as proactive policies that address the problem of abortion before it starts. By giving individuals the education and tools needed to make informed decisions in their life, they will have the knowledge to understand the repercussion of their actions and make more aware choices that will lead to lower unintended pregnancy and abortion rates (Hamby, 2012; Santelli, Lindberg, Finer &Singh, 2007).

Demographic Factors

Pro-choice advocates have long claimed demographic factors, particularly socioeconomic factors, to be a more accurate indicator of a woman's likelihood to have an unintended pregnancy ending in abortion than policies restricting access or services. Marital status (Wadhera & Millar, 1997), region of the US (Pew, 2013), state poverty and unemployment rates (Blank et al., 1996), education (Sihvo, Bajos, Ducot, Kaminski, &the Cocon Group 2003), access to services (Medoff, 2012; Boonsta & Nash, 2014), and median state income (Blank et al., 1996) are all factors that have been correlated with abortion rates. Opponents of restrictive abortion policies often cite these demographic factors as being the most important factors in forming an individual's decision to choose abortion and they further state that restrictive abortion laws can disproportionately affect disadvantaged demographic groups when women are unable to control their fertility and ultimately life planning (Kearney & Levine 2012). Identifying the demographic and socioeconomic variables most commonly associated with unwanted pregnancies and abortion can lead to more targeted policies that address the underlying demographic variable correlated with abortions rather than simply limiting access to abortions for all women (Blank et al., 1996).

Abortion Rate Determinants

My research question is: "Which approach is associated with lower rates of abortion – 1) restrictive abortion policies and funding limitations; or 2) policies designed to prevent unwanted pregnancies?" Controlling for state level demographic variables will be introduced in the analysis.

My hypothesis is that preventive measures will be positively correlated with lowering abortion rates while restrictive policies (including funding restrictions) will not be related to lower abortion rates. Lowering the abortion rates through policies which empower a woman to control her fertility rather than empowering the state to control her fertility after contraception is a more desirable option because it allows the woman to make the right contraceptive choices to avoid abortion altogether. The act of abortion is undeniably seen as a stressful and difficult decision for any woman, despite her religious or moral beliefs. If a woman can avoid this by having private insurers pay for contraceptives a woman might not be able to afford, or by teaching her about contraceptive use in schools, we can give women the tools and knowledge needed to avoid abortion as an option in the first place. Through this study I plan to determine the variables most closely correlated with a state's abortion rate: restrictive access policies or preventive policies, while controlling for state demographic characteristics I believe preventive programs will be more highly correlated with lower abortion rates and that policies aimed at promoting responsible choices early and increasing access to birth control will be a more influential way to lower abortion rates than restrictive policies which limit access to abortion and contraceptive services.

In Chapter 2, the Literature Review, I discuss previous of studies the effect of restrictive policies, preventive polices, and demographic factors in relation to abortion rates. In Chapter 3, the Methodology section, I review the datasets I used to gather both policy and demographic data for the 50 US states and the regression models I created to determine the relationship between abortion rates and polices, after controlling for

demographic characteristics. Chapter 4, my Findings section, discusses the relationship found between restrictive and preventative polices on abortion rates. Finally, Chapter 5 makes recommendations for future abortion policy based on the Findings presented in Chapter 4 and suggests areas for further research.

Chapter 2

LITERATURE REVIEW

The United States (U.S.) Supreme Court's 1973 *Roe v. Wade* decision legalizing abortion also recognized that states have the right to regulate the procedure. Since the Supreme Court's decision in *Roe v. Wade* (1973), the federal government and individual states have enacted restrictive abortion laws regulating when and under what circumstances a woman may obtain an abortion. Federal law permits states to create and enforce restrictive abortion policies provided that the state law or regulations purpose was not to create barriers to access for woman seeking an abortion. The ambiguity of the "undue burden" caveat allowed many states to enact an assortment of restrictive abortion policies (Medoff, 2013). For the purposes of this study, these policies are grouped into two categories: 1) restrictive policies that restrict access and add barriers for abortion services and 2) preventive family planning policies that focus on comprehensive sexual education and access to contraceptives.

The Hyde Amendment

The Hyde Amendment, passed by the House of Representatives in 1976, was the first legislative provision to prohibit using federal funds to pay for abortions through Medicaid, a joint federal-state program that provides health insurance to the poor (10th Cir., 1995). Originally the Hyde Amendment to the Labor/Health and Human Services Appropriations Bill restricted the use of Medicaid funding for abortions in all cases except life endangerment to the woman; however, President Clinton expanded Medicaid abortion services to include cases of rape or incest under the Departments of Labor,

Health and Human Services, and Education, and Related Agencies Appropriations Act of 1994 (10th Cir., 1995). Although this bill has always been a rider bill and never signed into law, the No Taxpayer Funding for Abortion Act (H.R. 7) was passed by the House on January 28, 2014 and is still awaiting Senate consideration (United States, 2014). In large measure, it would render permanent the restrictions on federal funding of abortion in the laid out in the Hyde Amendment (United States, 2014). Prior to the Hyde Amendment, the Medicaid program paid for about 300,000 abortions a year for low-income women. In 1995, the number of abortions funded by federal dollars through Medicaid had dropped to 204 (NCHLA, 1999). This provision left states to decide if they were willing to foot the bill for abortion services performed for Medicaid patients.

After the Hyde Amendment was enacted by Congress, many states followed suit and enacted laws that prohibited the use of their public funds to pay for Medicaid abortions. As of 2011, four states voluntarily used their own funds to pay for all or most medically necessary abortions for women who receive Medicaid benefits while 17 states were court-ordered to use state funds to pay for all or most medically necessary abortions for Medicaid enrollees. Thirty-two states prohibit the use of state funds except where the woman's life is in danger or the pregnancy is the result of rape or incest as allowed under the current Hyde Amendment (Guttmacher Institute, 2014). In these states, women on Medicaid have to pay the entire cost of an abortion. South Dakota limits funding to cases of life endangerment only, despite being out of compliance with federal law (Guttmacher Institute, 2014).

Effects of Removing Funding for Abortion Services

Blank et al. (1996) completed a literature review on multiple studies that investigated the immediate effects of the cutoff of Federal funding for Medicaid abortions in the late 1970s by studying abortion behavior in selected locations before and after the Hyde amendment went into effect. In general, these studies indicated that publicly funded abortions for lower-income women did decrease 19-25% in states when funding was removed, and that these unintended pregnancies ended in unwanted births (Cates, 1981; Gold, 1980; Henshaw & Wallisch, 1984; Meier & McFarlane, 1994). Similarly, Haas-Wilson (1993) completed a comparison of states with and without public funding and found abortion rates are higher in states that provide funding for abortion services to women, but these studies may have been impacted by state-specific demographic differences that may affect abortion rates (Blank et al., 1996).

An equal number of studies found Medicaid funding to have no significant impact on the abortion rate or unintended pregnancy rates. Wetstein (1995) found, after accounting for state demographics, state restrictions in Medicaid funding for abortion services did not lower abortion rates. The results reported in Medoff (2012) and Medoff and Dennis (2014) indicate that Medicaid funding restrictions had no impact on lowering the unintended pregnancy rate. Sen (1999) using data from the 1997 National Longitudinal Survey of Youth, similarly found that Medicaid funding restrictions did not have significant effects on either the frequency of sexual activity or use of contraception of sexually-active minors.

Several studies found that when Medicaid funding was eliminated from state budgets (due to either budget cuts or policy changes), this resulted in 18-37% higher rate of pregnancies carried to term that would have ended in abortion had Medicaid funding been available (Trussell, 1980; Cook, P., Parnell, A., Moore, M., & Pagnini, D., 1999). Additionally, Cook et al. (1980) found the number of completed pregnancies that would have ended in abortions had funds been available was concentrated among women without a high school degree. The cost of unintended pregnancies to women without a high school degree and already in poverty (measured by their eligibility for Medicaid) indicates unintended pregnancies resulting in unintended births, rather than abortions through Medicaid restriction, have unfavorable financial repercussions for the government.

Costs to state and federal governments include additional Medicaid coverage for dependents, eligibility and use of social programs for low-income families (e.g. Temporary Aid to Needy Families, Supplemental Nutrition Assistance Program, Head Start, and Women, Infants, and Children). These studies concluded that funding abortions would ultimately produce substantial public medical and welfare cost savings (Torres, Donovan, Dittes, and Forrest, 1986; Evans, Gleicher, Feingold, Johnson, and Sokol, 1993). This is true especially in comparison to a procedure that only costs a couple of hundred dollars (Cook et al., 1999). By measuring the effect of these policies, one can determine the impact of Medicaid funding in comparison to other policy decisions and determine how policies might impact different social classes disproportionately.

Non-Funding Restrictive Policies

The Hyde Amendment opened up the door for states to impose legislation on abortion services and requirements. In addition to policies which revolved around financing of abortion services and contraceptives, states also began to place laws on when and how any woman could receive an abortion, regardless of where the source of funding. Many abortion laws, such as restrictions on access, mandated counseling, and waiting periods were intended to discourage women from obtaining abortions, thereby reducing the "demand" for services. Little evidence indicates that these restrictive laws have substantially reduced state abortion rates, which brings into question their usefulness as a policy tool to lower abortion, and ultimately, unintended pregnancy rates (Jones & Jerman, 2011). Funding restrictions can be evaluated alongside other restrictive policies to determine their effectiveness individually or as a combined package of rules and regulations.

Waiting Periods

Proponents of waiting periods argue that their purpose is to allow a woman to consider all her options after being given the counseling information about abortion. Opponents of waiting periods argue that women who reside in areas that don't provide services face increased cost and difficulty in obtaining the abortion because of travel necessity (Guttmacher Institute, 2014). As of 2011, twenty-eight states required a woman seeking an abortion to wait a specified period, usually 24 hours, between when she receives counseling and the procedure is performed which effectively requires the

woman make two separate trips to the clinic to obtain the procedure (Guttmacher Institute, 2011).

Medoff (2013) found that from 1982-2005 mandatory waiting periods had no effect on the likelihood of a woman obtaining an abortion. Bitler and Zavodny found that, over the period 1974-1997, mandatory waiting periods had no significant effect on the overall abortion rate, but did increase the percentage of abortions performed after the first trimester of pregnancy. Joyce and Kaester (2001) also found when studying the impact of the law implementation in Mississippi that the number of second trimester abortions increased. Joyce and Kaester (2001) did notice a decrease of 10-14% of in-state abortion rates; however, this was counteracted by an increase in the number of Mississippi resident women who obtained abortion services in another state. These empirical results suggest that mandatory waiting periods represent an increase in the total cost and time of obtaining an abortion while not affecting the overall likelihood of a woman to obtain an abortion (Medoff, 2013).

State-Mandated Counseling

Most states require a patient receiving medical services to have informed consent before the procedure takes place. Informed consent has translated into abortion-specific counseling laws requiring that an abortion provider deliver state-approved medical information to any woman wanting to obtain an abortion (Medoff, 2012). Such information may include fetal development, potential future health risks including mental instability, increases in breast cancer potential, and potential infertility as well as

information on public financial assistance (Medoff, 2012). The information may be given or offered either written or orally, by telephone, mail, fax, or over the Internet.

Under the concept of informed consent, twenty-four states mandate that women be given in-person counseling before an abortion (Guttmacher Institute, 2011). However, eleven of these states have two-visit laws that require women receive their mandatory counseling information in person at least twenty-four hours before the abortion procedure, which requires an overnight stay for those women who must travel because they reside in areas that don't provide services and increases the difficulty in obtaining the abortion (Guttmacher Institute, 2014). All eleven states also have laws in place requiring a twenty-four hour waiting period before obtaining the abortion, which reinforces the need to make two separate trips. Medoff (2012) and Medoff and Dennis (2014) found mandatory counseling laws, regardless of whether they require two visits or not, did not have any significant impact on the unintended pregnancy rate.

Parental Advisement

In the years following the *Roe v. Wade* decision, the Supreme Court held that pregnant teens under the age of 18 years are constitutionally entitled to obtain an abortion without unreasonable state intrusion. But the Supreme Court also agreed that in the interest of protecting a teen minor, either parental notification or parental consent must be attained prior to a teen minor being able to complete the decision to have an abortion. Twenty-one states require one or both parents to consent to the procedure, while 12 require that one or both parents be notified and five states require both parental consent and notification (Guttmacher Institute, 2011).

From the literature reviewed, parental consent laws had the most impact in lowering unintended pregnancy rates even though minors represent a small portion of the population obtaining abortions. Joyce, Kaestner, and Colman (2006) assessed the impact of a parental involvement law that took effect in Texas in 2000 requiring notification of the parents of a teen minor. Comparison of abortion rates two years before and two years after the law took effect showed that the abortion rates as well as birth rates declined for teens ages 15, 16, and 17 suggesting abortion laws may have also impacted a teens risky sexual behavior overall. Joyce and Kaestner (2001) also found similar results when comparing parental involvement laws in Mississippi and South Carolina. Tomal (1999) found that the enforcement of a parental involvement law was correlated with a significant reduction in the incidence of unintended teen pregnancies, implying that parental involvement laws may be effective in causing teens to rethink risky sexual behavior. However, Blank et al. (1996) found such parental notification requirements appeared to have no significant effects on state abortion rates. Sen (1999) using data from the 1997 National Longitudinal Survey of Youth, also found that such laws had no significant effects on either the frequency of sexual activity or the frequency of sexually active teens using contraception.

Ultrasound required

Since the mid-1990s, several states have passed provisions requiring a woman to undergo an ultrasound examination before an abortion. Ten states require an ultrasound be completed and the women shown the ultrasound picture before the abortion can be completed. Ultrasounds are not medically necessary to complete the abortion procedure,

which brings into question the purpose of the requirement to use photos of the fetus. Opponents of the policy argue that the policy seems to be an attempt to emotionally influence a woman's choice to have an abortion at a vulnerable moment (Guttmacher Institute, 2014). The ultrasound requirement may also serve as a financial barrier as it can add significantly to the cost of the procedure (Guttmacher Institute, 2014). Few studies have determined what the impact of viewing a fetus before termination has been, but the most comprehensive study to date "Relationship Between Ultrasound Viewing and Proceeding to Abortion" found that in 98.8% of the 15,575 cases studied, women chose to continue through with the abortion (Gattter, Kimport, Foster, Greene, Weitz, and Upadhyay, 2014). The 1.2% of cases where the woman chose to carry the pregnancy to term were also the same cases where the woman was least sure of her decision to have an abortion prior to viewing the ultrasound. They concluded that viewing of an ultrasound does not alter the decision of the majority of women, especially if they are sure of their decision before the viewing.

Both the waiting period requirement and the counseling requirement require additional time and money to complete an abortion, and do indeed make the abortion more difficult to obtain. Although studies do not show individual policies to be impactful, when combined (especially with removal of Medicaid funding), it is possible these laws can lower the abortion rate. The policy question that remains is whether lowering the abortion rate by forcing the most disadvantaged women to have children is a good financial decision for the state.

Preventive Policies

A different and more preferred approach to lowering abortion rates is to lower the unintended birth rate. This can be done through policies promoting education and access to contraceptive services, or can be done by practicing abstinence. A major point of pro-life argument is based on the assumption that if young people and the general public are not given adequate education in how to use contraceptives, and then adequate access to them, they will not have sex (Trenholm, Devaney, Fortson, Quay, Wheeler, & Clark, 2007). Almost universally, pro-life supporters feel that access to contraceptives encourages teenagers to enter into sexual relationships at younger ages and increase risky sexual behavior among adults.

As a result of this anti-contraceptive use view, two of the most common preventive policy decisions states have taken to lower unintended pregnancy and abortion rates are 1) allowing private insurance companies to deny contraceptive coverage, thus limiting the ability of a woman to obtain contraceptives (Finer and Kost, 2012) and 2) accepting Title V federal funds in agreement to teach only “abstinence-until-marriage” education, which excludes any information being provided about contraceptives including abortion. By studying these policy decisions alongside demand-side policies which restrict access to services after an unintended pregnancy, one can identify which are more effective policy tools for lowering unintended pregnancies, and ultimately, abortion rates.

Private Insurance Companies not required to Provide Contraceptives

In alignment with federal and state funding restrictions, as of 2011, 23 states did not require private insurance companies to pay for abortion or contraceptive services, making both women using federal funds and women using private insurance responsible for purchasing contraceptive services out-of-pocket (Guttmacher Institute, 2014). States have also banned abortion coverage in public employees' insurance policies or in other cases where public funds are used to insure employees. The reason given for this exclusion to health insurance plans is to lower the cost by removing benefits (Sonfield et al., 2011). Proponents of access to contraceptives argue access to effective contraceptives is critical to reducing levels of unintended childbearing in the U.S. (Atkins & Bradford, 2014; Sonfield et al., 2011).

As with the restrictive policies, an assessment of the impact of these laws on a woman's likelihood of having an unintended pregnancy ending in abortion is needed to determine whether such policies are effective. Finer and Kost (2012) found that when women must pay for contraceptive services, it can discourage contraceptive use and possibly result in inconsistent use, leading to more instances of unintended pregnancies and the potential for abortion. Similarly, Atkins and Bradford (2014) found women living in states offering contraceptive services through private insurance companies were 5% more likely to use contraception than women in states not requiring insurance companies to cover contraceptives and concluded that access to contraceptives can help to lower the unintended pregnancy rate. Santelli et al. (2006) also found in their cross-

sectional analysis of 1995-2002 U.S. adolescent pregnancy rates that improved contraceptive use has been the primary determinant of declining teen pregnancies.

Title V Funding for Abstinence Only Education

In addition to federal funds being restricted for abortion services, additional federal funding is provided to states practicing an “abstinence-until-marriage” sex education policy that specifically does not cover use of contraceptives including abortion, adding another financial penalty to states teaching contraceptive use services to its constituents, and adding another financial benefit to states restricting abortion-related services. In 1996, Congress signed into law the Personal Responsibility & Work Opportunities Reconciliation Act (PRWORA), or "welfare reform." As part of the PRWORA, Title V Section 510 provided $250 million of funding over 5 years to states to support abstinence-until-married education, with the ultimate goal of preventing unwed childbearing, unintended pregnancy, and the spread of sexually transmitted diseases (Trenholm et al., 2007). The program specifically targets individuals between the ages of 12-29 (SIECUS, 2009).

Under this grant program administered by the U. S. Department of Health and Human Services (DHHS), states must match federal funds at 75%. In accordance with the majority of parents supporting abstinence-only education being taught in school (Olsho et al., 2010), 30 states accepted Title V funding to promote abstinence education both to minors in schools and through media programs aimed at the general public in 2011 (Hills, 2012).

For the first five years of the initiative, every state but California participated in the program; however, popularity for the program has waned as more and more research shows abstinence-only programs show little, if any, success (Hauser, 2014). Abstinence-only education has been shown to be one of the least effective social policies to reduce unintended pregnancies (Culp-Ressler, 2013). The National Academy of Sciences, Sexuality Information and Education Council of the U.S. (SIECUS), AIDS Institute, American Civil Liberties Union, Human Rights Campaign, and Planned Parenthood all supported repeal of Title V funding because they believed it is an unwise policy both for the fiscal and physical health of our nation (Kasperowicz, 2013). Trenholm et al., in their study funded by DHHS, which administers the Title V program, also found abstinence-only education programs to have no impact on the likelihood of a minor abstaining from sexual relations. When comparing states teaching abstinence-only education to states teaching comprehensive sex education, Collins, Alagiri, and Summers (2002) found in their meta-analysis that comprehensive sex education programs do not promote earlier onset of sexual activity or an increased number of sexual partners among adolescents. Some programs were even found to reduce a teen's tendency to engage in sexual behavior that may result in unintended pregnancy or contraction of sexually transmitted diseases.

By contrast, little if any credible research exists to substantiate the claims that abstinence-only programming leads to positive behavior change among youth (Collins et al, 2002). Hauser (2014) studied 10 states with abstinence-only policies to see the effect on a teen's likelihood of having premarital sex. She found abstinence-only policies had

no impact in decreasing a teen's likelihood of engaging in sexual relations before marriage but did correlate with teens being less likely to use a condom or birth control while engaged in premarital sexual relations.

Social and Cultural Variables Relationship to Abortion Rates

Potentially having even more impact on a woman's decision to have an abortion than state funding or social policies may be the demographic and cultural characteristics of the state in which the woman resides. The reasons for why abortion rates differ between states can be better understood by studying their correlation to state characteristics (Bankole, Singh, and Haas, 1999). State-level characteristics can be broken into two separate categories 1) characteristics based on religious and moral views classified as cultural characteristics and 2) characteristics based on economic and demographic indicators.

Demographic and cultural state-level characteristics such as the percent of people practicing a religion, the number of medical providers administering abortions, the region of the country an individual resides in, and the social and political climate of a state's views on abortion are all state-wide factors that impact the political and social landscape of how abortion is viewed within each state. Demographic variables such as state median income, poverty rates, unemployment rates, education level obtained by residents, and marriage status are not variables that are directly correlated the cultural landscape of a state's view on abortion, but are still important variables to consider to identify underlying economic or demographic factors that may help explain variation in abortion rates by state.

Religion

One of the factors related to a state's stance on abortion policies is the percentage of the state population affiliated with a faith-based religion. Studies have shown that religious belief is strongly associated with opposition to abortion in the U.S. and support for procreation (Zhai & Yu, 2007). Catholicism, Orthodox, Protestant, Islamic, Hindu, Sikh, and Jewish beliefs forbid the practice of abortion, claiming abortion is equal to murder (SPUC, 2015). While current laws in most developed countries would agree than murder is not acceptable, the fine line in abortion is whether a fetus constitutes a life. Most religions including Buddhism, Sikhism and Catholicism teach that life begins at fertilization – the moment that sperm meets egg (EFC, 2011).

Pro-choice proponents argue that religion should remain what it truly is -- a voluntary belief, not science and not law. Pro-choice proponents also argue that religion was created to explain how the world works and why. However, with increased understanding of our world due to scientific discoveries, religion should be viewed as a tradition or belief, and not a science or a basis for creating laws (Veselka, 2011). The belief that abortion is morally wrong has the potential to impact state policies. When policies are created based on moral belief instead of science and research, this forces values on to an unaccepting population, not by changing their belief system , but by forcing a belief system on to them through law.

Not only does banning or placing restrictive policies on abortion services because of religious beliefs impose on an individual's choice for abortion, it also removes a woman's family planning ability in case of accidental pregnancy.

Access to Services

Efforts to use clinic regulation to limit access to abortion, rather than to make abortion provisions safer, resurfaced in the 1990s and have become more popular since 2010 (Guttmacher Institute, 2014). Legislators have increased efforts to restrict the "supply" of abortion, typically through targeted regulation of abortion providers (TRAP) laws. These laws require facilities offering abortion services to have ambulatory surgical center, agreements with hospitals for patient transfers in case of problems with the abortions, and will not allow for the funding of any medical facilities that provide abortion services regardless of other services they may provide. Fifty-nine percent of women of reproductive age live in one of the 26 states with TRAP laws.

Arguments against TRAP laws state that the laws place unnecessary and burdensome regulations on providers, typically by targeting clinics (Jones & Jerman, 2011; Medoff, 2013). Access to a service and the distance a woman has to commute to obtain an abortion are identified as potential factors related to lower abortion rates (Medoff, 2013), not because a woman changes her mind, but because the service could not be obtained, potentially leading to an unwanted birth. With clinics closing in many states, locating and getting to an abortion provider are becoming increasingly difficult. Raising money not only for the procedure but also for transportation, a hotel, and making arrangements for child care (60% of women obtaining abortions already have at least one child) are challenges that add delays and increase costs financially and in terms of women's health and safety (Guttmacher Institute, 2014).

A change in the number of abortion providers could affect access to abortion, and the number of facilities that offer abortions is one measure of service availability (Jones & Jerman 2011). However, California, New York, and New Jersey saw a slight drop in the number of clinics offering abortion services from 2008-2011. These are states which have no TRAP laws in place, which may reflect a decline in demand as opposed to the imposition of legal barriers (Jones & Jerman, 2011).

Region

The balance of opinion toward abortion nationwide had remained largely steady over the1980's and 1990's. But over the last decade, the abortion policy landscape at the state level has shifted dramatically. Although a core of states in the Northeast and on the West Coast remained consistently supportive of abortion rights between 2000 and 2011, a number of states substantially increased their number of regulations (Gold & Nash, 2012). These states were mostly concentrated in the Midwest and South, showing regional fluctuations. For this reason, it is important to take into account the region a state resides in and how that regions view on abortion could affect the states abortion rates. The Northeast and Western regions generally support legal abortion, whereas residents of the South states express the least support for legal abortion (Pew, 2013). There is also substantially more opposition to legal abortion in Midwestern states than in the country at large (Pew, 2013).

NARAL Score

Attitudinal variables are sometimes used to gauge the social and political climate of a state's personal views on abortion (Blank et al., 1996). The "National Abortion and Reproductive Rights Action League (NARAL)", informally known as "NARAL: Pro-Choice America", provides an assessment of how "abortion-friendly" each state is depending on laws, access to other forms of birth control, insurance prohibition for abortion, and access to abortion services. Each state is ranked from 1-50 in order of the states providing the best services to the state providing the worst, In addition to the 1-50 ranking, each state is awarded a grade from A-F. Studies on abortion services have used this score as an indicator of the state's general attitude towards abortion. The empirical results reported in Medoff (2012) indicate that antiabortion attitudes have no significant impact on the unintended pregnancy rate of women of childbearing age.

Morality is a big factor in determining a state's stance on abortion, but unfortunately, the topic is not that simple. Although morality is a determinant in a woman deciding to obtain an abortion, other factors indicating a woman's potential economic standing and ability to care for a child appropriately is also an impactful determinant in a woman deciding to carry an unintended pregnancy to term or not. Taking into account state demographic indicators such as the state median income, poverty and unemployment rates, educational attainment, and marriage rates can indicate a woman's overall ability to afford and care for a child.

Median State Income

Unquestionably, abortion restrictions fall hardest upon the poorest women, the very group bearing a disproportionate burden of unintended pregnancies. In 2008, the rate of unintended pregnancy among poor women was about five times that of women with an income of at least 200% of the federal poverty level (137 vs. 26 per 1,000 women aged 15–44). As a result, poor women are disproportionately likely to be faced with the decision about whether to seek an abortion. Individual income information exists only for unintended pregnancy rates and is not collected from women obtaining abortions, so the effects of abortion policies by individual income level cannot be investigated (Blank et al., 1996). However, Blank et al., found increases in per capita income led to an increase in the abortion rate (1996).

State Poverty and Unemployment Rates

Along with state income level, poverty and unemployment rates are shown to be correlated with abortion rates, however their correlations are inconsistent. Blank et al. (1996) found when the economy is in a recession, a l% increase in the unemployment rate leads to about a 3% increase in abortion rates. Finer and Kost (2012) and Finer and Zolna (2014) found a negative correlation between poverty and abortion rates, suggesting as abortion rates increase, poverty rates decline. These conflicting relationships between economic variables may not be so conflicting after all. If an unemployed woman is allowed to have an abortion instead of carry a pregnancy to term, her likelihood of falling into poverty is lessened (hence the negative relationship) because of increased resources available to devote to education and building a career. Comparing

various state characteristics may assist a researcher in identifying collinear relationships between variables.

Education Level

Education levels of both women and men have been found to be directly related to pro-choice views: college graduates are the most likely to say abortion should be legal in any circumstances (Saad, 2010). Sihvo et al. (2003) found a high level of education of a woman and her partner increased the likelihood of supporting the right to obtain an abortion, especially among young women. Data on the educational level of women obtaining an abortion is not collected, so most often the educational attainment of a state as a whole is used to measure how education affects abortion rates. Finer and Kost (2012) found that states with high percentages of women with less than a high school degree had higher instances of unintended pregnancy rates and concluded low educational attainment is strongly correlated with higher unintended pregnancy rates.

Marriage Status

Marital status has been found to be inversely correlated with abortion rates meaning married women are less likely to terminate an unintended pregnancy in abortion than a single woman is. In 2011, 81% of women obtaining an abortion were single compared to 16% of women obtaining an abortion who were married women (Abortion Review, 2012). These numbers have remained fairly stable in the U.S. over the last 20 years. Blank et al., (1996) estimated a 3% increase in marriage rate led to a 1% decrease in the unintended pregnancy rate. While unintended pregnancy rates cannot be directly compared to abortion rates, fewer unintended pregnancies almost by definition translate

to lower abortion rates (Blank et al., 1996). The connection between lower abortion rates and marital status can also be found in a woman's economic standing, with a married woman likely to have additional income from a spouse rather than one source of income in the case of single women.

Through analysis of the literature, one can see that the findings are conflicting in regards to the relationship between abortion rates and state characteristics as well as state abortion policies. Very little research has been done comparing restrictive abortion policies alongside restrictive contraceptive access and education policies when state characteristics are taken into consideration. In the next section, I will analyze states using restrictive policies and preventive policies restricting access to contraceptives to see if restricting access to abortions and contraceptives lowers the ratio of births to abortions. I will compare these states against other states to see if these policies are more impactful to lowering the abortion rate than states that have fewer restrictive policies and support the education and use of contraceptives through denial of Title V funding in lieu of sex education and requirements that private insurance companies must provide contraceptives. State demographic variables will be used as control variables to account for differences other than policy implementations that may affect the impact a woman's likelihood to end a pregnancy.

Chapter 3

METHODOLOGY

This study uses multiple linear regression analysis to estimate the effect of restrictive abortion laws and access to family planning services on state abortion rates by state for the year 2011. This is a standard approach to analyzing abortion rates involves cross-sectional data input into a multivariate regression of state abortion rates against a variety of demographic and policy-related variables. Ordinary Least Squares (OLS) is used for this analysis to estimate the coefficients for each variable in the model and to identify the amount of variation in the state abortion rate explained by the explanatory variables. OLS has many benefits. It is both the simplest and the most commonly accepted regression technique and is the best linear unbiased estimator for this analysis, where assumptions of normality, homoscedasticity, and separateness of datasets are met (Statistics Solutions, 2014).

The Model for Determining Policy Effects on a State's Abortion Rate

The model examines restrictive policies and preventive polices, while controlling for certain state-level characteristics, to determine the impact the different types of policies have on the state abortion rate. Restrictive policies are those considered to be barriers that prevent a woman from obtaining an abortion once she is pregnant. Preventive policies aim to lower abortion levels by providing family planning support in the form of access to sexual education and contraceptives. The state-level characteristic variables control for any variation in abortion rates that may be related to demographic characteristics of the state.

Abortion rate = f (restrictive policies, family planning policies, control variables)

- Restrictive policies = f (Medicaid funding disallowed, parental consent required, in-person counseling required, waiting period of 18-72 hours, ultrasound required)
- Family planning policies = f (abstinence-only "Title V" sex education funds accepted, private insurance not required to cover contraceptives)
- Control = f (state marriage rate, state median income, state unemployment rate, access to abortion services, population having a high school degree, region of country state is located in, and % of state population that practices a Western-based religion)

Procedures for Data Collection

Deciding on the Best Dependent Variable to Use in the Model

Previous studies that estimate the impact of various state abortion laws on the incidence of abortion use two different abortion demand dependent variables. Some use the abortion ratio (the number of abortions per 1000 pregnancies) while others use the abortion rate (the number of abortions per 1000 women of childbearing age15-44 years) (Medoff, 2013). While both of these methods measure the incidence of abortion, neither of them account for state differences in pregnancy rates. The ideal variable to examine the impact of various restrictive abortion laws is the incidence of unintended pregnancies that result in an abortion. Unfortunately, data on unintended pregnancies that result in an abortion are not available so data on the number of abortions completed on a statewide

level in comparison to the number of live births is the next best method for measuring abortion trends in relation to state policies.

The dependent variable, “Aborpreg”, was developed by dividing each state’s 2011 abortion rate by its 2011 pregnancy rate (per 1000 women of ages 15-44). This was done to compare the relative number of pregnancies in a population that end in abortion to the number of live births. State data on the number of abortions performed and the pregnancy rate for each state was retrieved from the Centers for Disease Control (CDC). Annually, CDC requests abortion data from the central health agencies of the 50 states, which is used to calculate abortion rates (number of abortions per 1,000 women of ages 15-44). In most states, collection and reporting of abortion data to a central health agency is required for hospitals, facilities, and physicians (CDC, 2011). These central health agencies then voluntarily report the abortion data they have collected and provide state aggregated data to CDC. Abortion and birth rates were used from 2011 because this is the last year abortion rates were calculated by CDC.

Explanatory Variables

The explanatory variables are divided into two categories: 1) restrictive state abortion laws and 2) preventive family planning policies. Data on states that have implemented restrictive state abortion laws came from the Guttmacher Institute. Data on states that accepted Title V funding in 2011 was retrieved from the Family and Youth Services Bureau under the federal department of Health and Human Services. Data on states that had policies requiring insurance companies to cover contraceptives as of 2011 was retrieved from the National Conference of State Legislatures Center.

Policy variables can be coded in several ways. This study uses dummy variables between 0 and 1, equal to the states policy being in effect (1) or not (0), to analyze the relationship between state restrictive policies and their abortion rates (Blank et al., 1996).

- Funding limitations equals 1 if state prohibited the use of its Medicaid funds to pay for an abortion in 2011 (states which were mandated by court order to cover abortions through federal funding were grouped with states which voluntarily provide funding);
- Parental consent equals 1 if the state had a parental consent law in effect in 2011 (originally, states requiring notification of a parent was evaluated, however there was no statistical relationship exhibited, so only states requiring parental consent were included in the final model);
- Mandatory counseling law equals 1 if the state requires abortion providers give to women state-approved abortion-specific medical information about the procedure in 2011;
- Waiting period equals 1 if there was a required amount of time a women must wait after finding out she is pregnant to have the abortion; and required;
- Ultrasound received a 1 if a women was required to have an ultrasound and view the photo;
- Private Insurance not required to Cover Contraceptives (Contra) uses the number of years a state has had a policy in effect requiring private insurance companies to offer contraceptive services. This was the only variable accurate information could be obtained for the year the policy went into effect.

- Title V abstinence-only education uses the amount of federal funds (in dollars) each state received in 2011 to promote abstinence-only education. States that did not choose to practice Title V abstinence-only sex education received a 0, representing $0 federal dollars granted.

Control Variables

The control variables are the state socioeconomic characteristics the literature found to be associated with likelihood to obtain an abortion. These continuous variables include state marriage rate (% of people in a marriage), % of people who have a college degree, the state median income, % of population living below 200% of the poverty line (the income restriction for Medicaid), the state unemployment level, the state region (Northeast, West, South, and Midwest), access to abortion services (number of providers in state), the percentage of the population that practices a western-based religion, and the states view on abortion measured through their 2011 NARAL Report Card rank (see Appendix 2). All control variables are continuous with the exception of "Region", which was set up as a dummy variable, with each state receiving a 1 for the region of the country the state is located (South, West, and Midwest). At least one category must always be omitted in order to compare each of the other categories. The omitted category becomes the reference category against which the effects of the other categories are assessed. The South was left out as the reference category because of its harsher stance on legalized abortion in the literature reviewed as opposed to the other three regions of the country. Also, the South comprised more states than any other region (see

descriptive statistics in Appendix 3). When choosing your reference category, it is best to choose the largest group as the reference category (The Analysis Factor, n.d.).

Control variables were checked for homoscedasticity using the Shapiro-Wilk test as well as a visual inspection of the Q-Q plots to ensure the residuals of the predicted values were normally distributed. The variables "Marriage" and "Providers" showed outliers and left skew so the log was applied to both variables to create a more normal distribution. All other control variables were normally distributed.

Procedures for Data Analysis

Testing for Multi-collinearity between Independent Variables

Multi-collinearity was examined using the Variance Inflation Factor (VIF) to determine if any compounding relationships existed between explanatory variables. VIF specifically indicates the magnitude of the inflation in the standard errors associated with an independent variables' beta coefficient that is due to multi-collinearity. The lower a VIF score, the less likely the beta coefficient is artificially inflated. A VIF score above 10 shows predictor variables are usually considered highly correlated (Statistical Solutions, 2014). Variables "Poverty", "Income", and "NARAL_rank" had VIF scores higher than 10. "Income" was removed from the model and the variable "Poverty" was used instead because the literature reviewed stated abortion policies were said to be disproportionately constraining to populations in poverty and is more likely to impact the population studied than overall state income levels. This is especially true for limitations in Medicaid funding (which primarily serves low-income residents). Waiting restrictions

Table 1. Table of Variables, Predicted Relationship, and Data Source

Dependent Variable	Predicted Relationship	Type of Data	Name of Variable	Data Source
2011 Abortion to Pregnancy Ratio by State of Occurrence		# per 1000 women	Aborpreg	Center for Disease Control
Explanatory Variables	**Predicted Relationship**	**Type of Data**	**Name of Variable**	**Data Source**
Restrictive Policies				
No Medicaid funding	-	Dummy	Federal_Standard	Guttmacher Institute
Parental consent requirement	-	Dummy	Parental_con	Guttmacher Institute
In-person counseling requirement	N/A	Dummy	Counseling	Guttmacher Institute
Waiting period (18-72 hours)	N/A	Dummy	Waiting	Guttmacher Institute
Ultrasound requirement	N/A	Dummy	Ultrasound	Guttmacher Institute
Family Planning Policies				
Title V sex ed.	+	Dummy	Title_V	Family and Youth Services Bureau
Insurance not required to cover contraceptives	-	Years policy in effect	No_Cont	National Conference of State Legislatures Center
Control Variables	**Predicted Relationship**	**Type of Data**	**Name of Variable**	**Data Source**
State marriage rate	-	% of population	Marriage	2011 Census Data
State median income	-	$	Income	2011 Census Data
State poverty rate	+	%	Poverty	2011 Census Data
State unemployment rate	+	%	Unemploy	2011 Census Data
Access to abortion services	+	%	Providers	Guttmacher Institute
% of population not completing H.S.	+	%	LessHS	2011 Census Data
State ranking on abortion	-	Scale	NARAL_rank	NARAL
% of Population religious		%	Religion	Pew Research Center
Region of country state is located in	+ for NE and West – for South and MW	Dummy	Northeast, West, South, Midwest	Guttmacher Institute

and counseling requirements that require two-visits were also stated to be more impactful to women in poverty who may not be able to afford making two trips to obtain abortion services.

After "Income" was removed from the model, the VIF for "Poverty" lowered to 3.5 so "Poverty" was kept in the model. Because "NARAL_rank" measured several state level factors to determine a state's relative ranking, it is not surprising that this variable showed high correlation with other variables in the model. "NARAL_rank" was also removed from the model. All other variables had a VIF below 5 so no mutli-collinearity was found and no further variables removed from the initial models (see Table 2).

Manipulation and Deselection of Insignificant Control Variables

The control variables "College", Unemploy", "Religion" and "Northeast" did not show a significant explanation for variation in abortion rates in the parameter estimates as demonstrated by their high p-values in the parameter estimates (see Table 2). Traditionally in behavioral research, all control variables are included in the model regardless of statistical insignificance to show that the demographic variable has been accounted for, but the model can be improved by transforming the control variables to reach a higher statistical significance, if possible. I ran a Cook's D test, which is commonly used estimate of the influence of a data point when performing an OLS regression analysis (Mendnhall & Sincich, 1996). The Cook's D test can indicate data points that are worth checking for validity and to inspect for influential observations to identify outliers that may have been coded incorrectly. I reviewed the data and identified that Maryland was influencing the model results disproportionately and recoded

Maryland as “Northeast” instead of “South”. This lowered the p-value (and increased the significance) of the variable “Northeast” from 0.496 to 0.255.

To determine the impact of educational attainment on abortion rates, I changed the variable from completion of college (“College”) to the percent of population without a high school degree (“LessHS”) as the control variable to see if this variable was able to explain more variation in state abortion rates than “College”. My reason for changing

Table 2. Variance Inflation Factor

Parameter Estimates

Variable	DF	Beta Coefficient	Standard Error	t Value	Pr > |t|	VIF
Intercept	1	2.389	0.784	3.05	0.005	0.000
No_funds	1	-0.044	0.025	-1.77	0.086	2.624
Parental_Con	1	0.029	0.028	1.04	0.307	3.748
Waiting	1	-0.057	0.034	-1.64	0.110	5.562
Counseling	1	0.034	0.033	1.03	0.309	5.262
Ultrasound	1	0.008	0.022	0.36	0.720	1.633
Contra	1	-0.001	0.002	-0.36	0.718	1.880
TitleV	1	0.037	0.019	1.92	0.063	1.680
Poverty	1	-1.748	0.459	-3.81	0.001	3.654
College	1	-0.004	0.004	-0.87	0.390	2.028
Unemploy	1	-0.286	1.003	-0.29	0.777	1.981
logmarriage	1	-0.941	0.430	-2.19	0.036	2.264
logproviders	1	0.067	0.018	3.77	0.001	1.678
Religion	1	-0.427	0.245	-1.74	0.091	3.036
Northeast	1	0.024	0.035	0.69	0.496	3.930
Midwest	1	-0.046	0.031	-1.48	0.147	3.349
West	1	-0.082	0.035	-2.37	0.024	4.146

*South was removed from the variables because it was used as the reference category for region.

the level of education is that the literature reviewed stated that although people with college degrees are more likely to support a pro-choice stance, females with less than a high school education are more likely to actually obtain an abortion and therefore, affect a state's abortion rate. This would potentially make not completing high school a better indicator of a woman's chance to have an abortion than completion of college. When using the percent of population without a high school degree, instead of percent of population with a college degree, the education variable became more significant at $p > 0.111$ (compared to $p>0.390$), and "Religion" became more significant at the $p >0.058$ level (compared to 0.091).

Despite its' statistical insignificance, "Unemploy" was kept in the initial models to see if any interactions existed between explanatory variables. No interactions were found and additionally, when added to initial models, "Unemploy" was unable to explain any variability in abortion rates by states (as demonstrated by decreasing the adjusted R square value when added to the model). This is probably because the other control variables "Poverty" and "LessHS" are already measures of economic standing and do a better job of explaining variability in abortion rates, so "Unemploy" was removed from the final models.

Testing for Auto-correlation – Durbin Watson

Once "Unemploy" and "College" were removed from the variable list and "LessHS" was added, autocorrelation was tested to ensure independence of the data sets using the Durbin-Watson test. The Durbin-Watson test statistic tests the null hypothesis that the residuals from an OLS regression are not auto-correlated. The Durbin-Watson

statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation, a value toward 0 indicates positive autocorrelation, and a value toward 4 indicates negative autocorrelation. The Durbin-Watson test statistic was 2.46, indicating the data sets are independent sets of information and no auto-correlation exists (see Table 3).

Table 3. Durbin-Watson Score

Durbin-Watson D	2.46
Number of Observations	50

Testing for Interactions between Control and Explanatory Variables

Interactions between control variables and explanatory variables were tested based on strong correlations demonstrated in the Pearson's correlation matrix (see Table 4). The control variables "Logproviders", "Religion" and "Poverty" had strong, statistically significant correlations with the explanatory variables (indicated by grey shadowing in Table 4) so interactions were included in the models to see if they improved the variation in abortion rates by state. An interaction between "Poverty" and "No_funds" was found despite showing a weak correlation initially, so this interaction was added to one of the models. No other interactions were statistically significant.

Model Results

Four separate models were run using the dependent variable "Aborpreg" (abortion to pregnancy rate) while changing the independent variables (see Table 5). Each regression model was constructed to estimate the variable slope coefficient each independent variable had on the state abortion rate. An adjusted R^2 value was used to determine how accurate the model explains the amount of variability in state abortion

Table 4. Pearson's Correlation Matrix

Pearson Correlation Coefficients, N = 50																
	Aborpreg	No_funds	Parental_Con	Waiting	Counseling	Ultrasound	Contra	TitleV	logmarriage	logproviders	Religion	Poverty	LessHS	Midwest	West	Northeast
Aborpreg	1	-0.364	-0.366	-0.484	-0.403	-0.156	0.502	0.012	-0.172	0.611	-0.370	-0.554	0.076	-0.201	-0.158	0.646
p-value		0.009	0.009	0.000	0.004	0.278	0.000	0.935	0.232	<.0001	0.008	<.0001	0.598	0.161	0.274	<.0001
No_funds	-0.364	1	0.633	0.384	0.436	0.381	-0.228	0.245	0.016	-0.331	0.325	0.236	-0.053	0.107	-0.190	-0.332
p-value	0.009		<.0001	0.006	0.002	0.006	0.111	0.087	0.914	0.019	0.021	0.099	0.713	0.461	0.187	0.018
Parental_Con	-0.366	0.633	1	0.725	0.641	0.435	-0.375	0.284	-0.034	-0.324	0.516	0.372	0.130	0.187	-0.281	-0.241
p-value	0.009	<.0001		<.0001	<.0001	0.002	0.007	0.046	0.816	0.022	0.000	0.008	0.369	0.193	0.048	0.091
Waiting	-0.484	0.384	0.725	1	0.771	0.373	-0.451	0.307	0.059	-0.385	0.596	0.414	-0.016	0.309	-0.351	-0.307
p-value	0.000	0.006	<.0001		<.0001	0.008	0.001	0.030	0.683	0.006	<.0001	0.003	0.913	0.029	0.013	0.030
Counseling	-0.403	0.436	0.641	0.771	1	0.359	-0.406	0.331	0.148	-0.319	0.448	0.255	-0.017	0.397	-0.165	-0.414
p-value	0.004	0.002	<.0001	<.0001		0.010	0.003	0.019	0.305	0.024	0.001	0.074	0.907	0.004	0.252	0.003
Ultrasound	-0.156	0.381	0.435	0.373	0.359	1	-0.178	0.158	-0.244	-0.001	0.318	0.355	0.225	0.041	-0.185	-0.282
p-value	0.278	0.006	0.002	0.008	0.010		0.216	0.272	0.088	0.997	0.025	0.011	0.117	0.779	0.197	0.047
Contra	0.502	-0.228	-0.375	-0.451	-0.406	-0.178	1	-0.113	-0.166	0.399	-0.376	-0.301	0.291	-0.274	0.000	0.379
p-value	0.000	0.111	0.007	0.001	0.003	0.216		0.433	0.248	0.004	0.007	0.034	0.041	0.054	0.998	0.007
TitleV	0.012	0.245	0.284	0.307	0.331	0.158	-0.113	1	-0.067	-0.054	0.418	0.294	0.183	-0.091	-0.281	-0.135
p-value	0.935	0.087	0.046	0.030	0.019	0.272	0.433		0.644	0.711	0.003	0.038	0.203	0.529	0.048	0.350
Logmarriage	-0.172	0.016	-0.034	0.059	0.148	-0.244	-0.166	-0.067	1	-0.151	-0.141	-0.451	-0.427	0.097	0.314	-0.141
p-value	0.232	0.914	0.816	0.683	0.305	0.088	0.248	0.644		0.295	0.329	0.001	0.002	0.504	0.026	0.329
Logproviders	0.611	-0.331	-0.324	-0.385	-0.319	-0.001	0.399	-0.054	-0.151	1	-0.208	-0.232	0.358	-0.231	0.140	0.226
p-value	<.0001	0.019	0.022	0.006	0.024	0.997	0.004	0.711	0.295		0.148	0.105	0.011	0.106	0.331	0.115
Religion	-0.370	0.325	0.516	0.596	0.448	0.318	-0.376	0.418	-0.141	-0.208	1	0.491	0.232	0.216	-0.502	-0.310
p-value	0.008	0.021	0.000	<.0001	0.001	0.025	0.007	0.003	0.329	0.148		0.000	0.105	0.131	0.000	0.028
Poverty	-0.554	0.236	0.372	0.414	0.255	0.355	-0.301	0.294	-0.451	-0.232	0.491	1	0.488	-0.138	-0.139	-0.402
p-value	<.0001	0.099	0.008	0.003	0.074	0.011	0.034	0.038	0.001	0.105	0.000		0.000	0.340	0.334	0.004
LessHS	0.076	-0.053	0.130	-0.016	-0.017	0.225	0.291	0.183	-0.427	0.358	0.232	0.488	1	-0.305	0.042	-0.137
p-value	0.598	0.713	0.369	0.913	0.907	0.117	0.041	0.203	0.002	0.011	0.105	0.000		0.031	0.771	0.343
Midwest	-0.201	0.107	0.187	0.309	0.397	0.041	-0.274	-0.091	0.097	-0.231	0.216	-0.138	-0.305	1	-0.316	-0.298
p-value	0.161	0.461	0.193	0.029	0.004	0.779	0.054	0.529	0.504	0.106	0.131	0.340	0.031		0.026	0.035
West	-0.158	-0.190	-0.281	-0.351	-0.165	-0.185	0.000	-0.281	0.314	0.140	-0.502	-0.139	0.042	-0.316	1	-0.298
p-value	0.274	0.187	0.048	0.013	0.252	0.197	0.998	0.048	0.026	0.331	0.000	0.334	0.771	0.026		0.035
Northeast	0.646	-0.332	-0.241	-0.307	-0.414	-0.282	0.379	-0.135	-0.141	0.226	-0.310	-0.402	-0.137	-0.298	-0.298	1
p-value	<.0001	0.018	0.091	0.030	0.003	0.047	0.007	0.350	0.329	0.115	0.028	0.004	0.343	0.035	0.035	

rates. The explanatory variables were manually entered into the regression model to determine their impact to the dependent variable as well as the effect including the model had on the overall adjusted R^2 score. The dependent variable "Aborpreg" residuals were plotted against the predicted fitted values of the models to determine the consistency of the residual spread. The residuals showed equality of spread and linearity in the residuals. Normality was sufficiently identified for each model.

The first model used all five restrictive variables with all control variables included to see how much of the abortion rate could be attributed specifically to these policies. Model 2 used all restrictive and preventive family planning policies to see if the model was improved and more variation in state abortion rates was explained by including the two additional family planning policies. Model 3 added an interaction between "No_funds" and "Poverty" to see if the relationship between Medicaid funding of abortion services and abortion rates could be more fully explained when correlating restricted funding with poverty (most individuals on Medicaid fall below the poverty line and would be more affected by this policy than those not living in poverty).

Model 4 combined both restrictive and preventive family planning policies as Model 2 and 3 did, but changed the variable "Poverty" to "Income" to see if funding of abortion services still had a negative effect on the abortion rate when poverty was remove from the equation. By looking at the effect of different income levels, we can determine the effects of public funding restrictions on abortion decisions among states by different income levels.

Table 5. Determinates of Abortion Rates in 50 States: 2011

Variables	Labels	Model 1	Model 2	Model 3	Model 4
Adjusted R-squared		0.752***	0.778***	0.777***	0.743***
Number of observations		50	50	50	50
Restrictive Policies					
icaid funding disallowed (1=yes)	No_funds	-0.027	-0.025		0.003
Medicaid funding disallowed (1=yes) interacted w/ Poverty	No_fundspov			-0.204	
Parental consent required (1=yes)	Parental_Con	0.014	0.008	0.010	0.001
In-person counseling required (1=yes)	Counseling	0.030	0.012	0.015	-0.005
Waiting period of 18-72 hours (1=yes)	Waiting	-0.038	-0.030	-0.033	-0.020
Ultrasound (1=yes)	Ultrasound	0.004	0.009	0.010	0.006
Family Planning Policies					
Abstinence-only sex ed. (1=yes)	Title_V		0.041**	0.040**	0.042**
Insurance not required to cover contraceptives (1=yes)	Contra		-0.002	-0.002	-0.001
Control Variables					
State marriage rate	logmarriage	-0.757*	-0.823**	-0.827**	-0.452
State poverty rate	Poverty	-1.918***	-2.082***	-1.965***	
State median income	Income				0.001***
Access to abortion services	logproviders	0.059***	0.056**	0.056***	0.049**
% Population not completing HS	LessHR	0.953	1.293*	1.256	0.474
% of state religious	Religion	-0.332	-0.458*	-0.420*	-0.560**
Region of country state is located in	Northeast	0.026	0.038	0.038	0.059*
	West	-0.093***	-0.080**	-0.080**	-0.074**
	Midwest	-0.048*	-0.032	-0.034	0.004

* = significant at 10% level, ** = significant at 5% level, *** = significant at 1% level

Chapter 4

FINDINGS

Policies Restricting Access to Abortion Services do not Lower Abortion Rates

Demand-side policies put in place to restrict access to abortion services after an unintended pregnancy occurred did not prove to influence a state's abortion rate at a statically significant level. Although not statistically significant (p –value >0.259), state restriction of Medicaid funding for abortion services did decrease the ratio of abortions to births by 2.7 points in these states, suggesting removal of Medicaid funding for abortions may lower the abortion rate, but the results were inconclusive. Enforcing a waiting period of 18-72 hours also showed to have a negative correlation with abortion rates of 3.8 points, but was also insignificant at the p>0.249 level. Mandatory counseling, parental consent for minors, and ultrasound viewing requirements were positively correlated with the state abortion rate, suggesting these policies have no apparent impact on the abortion rate; however, all of these results were statistically insignificant, suggesting these variables did not significantly alter women's decisions to have an abortion within that state.

Abstinence-Only Education Correlates with Higher Abortion Rates

When incorporating family planning supply-side policies aimed at lowering the abortion rate by lowering the number of unintended pregnancies, such inclusion helped explain additional variance in the abortion rate. Requiring insurance companies to cover contraceptives was not a significant factor affecting abortion rates. This may be because women who were employed and had health insurance may be in a position to afford and

purchase contraceptives out-of-pocket. However Title V–Abstinence-only education correlated with an increase in abortion rates by 4.1 points at the significance level of $p>0.02$. A positive relationship between Title V funding and abortion was consistently identified in every model. Abstinence-only education correlated with higher state abortion rates may reflect a state's hesitation to address women in need of birth control and family-planning services. This in turn, results in a higher rate of unintended pregnancies and ultimately, a higher rate of abortions. This finding is consistent with the large body of literature suggesting that while abstinence-only education meets most religious requirements for teaching appropriate sexual behavior, this form of education does not adequately prepare individuals for out-of-wedlock sexual engagements, thus putting them at a higher risk for unintended pregnancies.

Policies Seem to Affect Poorer Women Disproportionately

To determine if abortion policies affected poor women disproportionately as the reviewed literature implied, the control variable "Poverty" was replaced with "Income" to see if restrictive and preventive policies still showed the same correlations with state abortion rates, or lack thereof. When income was added as a control variable, funding restrictions for Medicaid patients was a much more insignificant factor in reducing abortion rates (with the p-value increasing from $p>0.286$ to $p>0.897$) and the beta coefficient changed from a negative effect to a positive effect on state abortion rates. This finding suggests that limiting Medicaid funding for abortion services does affect the overall state abortion rate among the poorest women, but is not valid when considering the abortion rate for women overall in a state.

The negative affect of the waiting period on the abortion rate became less significant when using “Income” instead of “Poverty”. This finding is consistent with the literature reviewed that stated policies preventing access to services through waiting times requiring women to make two trips disproportionately affect poorer women who cannot afford the costs associated with inter-state travel.

Although state characteristics are not the focus of this study, it is important to note the control variables found to have the most impact on the state abortion rate were a state’s poverty rate and the percentage of the population not having completed high school. While not completing high school showed a positive correlation with abortion rates, poverty levels showed an inverse relationship. These results are consistent with the literature reviewed. No causal relationship can be stated with certainty, but it is very possible that a woman who has not completed high school has less earning potential and ability to raise a family, so she may be more likely to obtain an abortion in the face of an unintended pregnancy. If this woman gets pregnant unintentionally and knows she cannot afford to take care of a child, she may choose to have an abortion to decrease her risk of entering into poverty, which in turn, lowers the state poverty rate.

The empirical evidence indicates that mandatory counseling, waiting periods, parental notification, and ultrasound-viewing requirements have no significant impact on women’s pregnancy resolution decisions. A women’s choice to have abortions seem to have very little to do with what “society” tells them to do, and everything to do with what their personal circumstances demand. As a result, poor women are markedly more likely

to be faced with the decision about whether to seek an abortion and be more negatively affected by the anti-funding position of Medicaid.

I found no evidence that demand-side abortion restrictions affected abortion incidence at the statewide level, suggesting these policies are not achieving their desired goal. In addition to the time, money, and energy spent on enforcing ineffectual policies, these laws are problematic for other reasons. Although the restrictive policies do not seem correlated with a woman actually receiving an abortion, these policies undoubtedly made it more difficult and costly for women to find funding and facilities to provide abortion services.

Chapter V

CONCLUSIONS

In the final chapter, I evaluate the research question and offer policy recommendations on how the results could lead to improved policies to lower unintended pregnancy rates and support family planning activities. Public opinion on abortion has remained relatively stable since first legalized and the vast number of policies enacted to restrict access to abortion services has not effectively lowered nor been found to correlate with abortion rates. My research suggests that state abortion rates are largely unaffected by demand-side policies which restrict access to abortion resources after a woman has already become pregnant. These demand-side antiabortion laws dissuade very few pregnant women seeking an abortion and impose undue burden on women seeking an abortion by reducing their access to abortion services and inhibiting their reproductive choices.

Policy Recommendations

My findings provide no evidence for causal relationships, but the associations I found imply state-level policy and state-level characteristics deserve exploration as factors in the rate of abortion. Specifically, findings regarding teaching of abstinence-only sexual education may explain at least part of the variation among the states' different abortion rates.

Removal of Abstinence-only Education in Schools

Currently, the federal government provides over $100 million for abstinence-only education campaigns. As discussed in the reviewed literature, these funds are given to

support abstinence-until-married education, with the ultimate goal of preventing unwed childbearing, unintended pregnancy, and the spread of sexually transmitted diseases (Trenholm et al., 2007). If practiced, abstinence-only–until-married education and policies can ensure people are only having children while in a committed relationship. However, the overwhelming amount of research shows abstinence-only sex education completely fails to lower unintended pregnancy rates, as this study found as well. With the research and findings on sex education continuing to point towards better health outcomes for youth taught comprehensive sex education in lieu of abstinence-only sex education, parents, educators, and policy makers should base policies on conclusive studies to make the best decisions to support positive health outcomes for adolescents.

No quantity of research will settle the moral and religious disputes that are present in the sex education debate. Despite preferences of both parents and teenagers to refrain from sexual relations until marriage, sexual activity is a reality for some teens in the US. This study suggests implementing responsible sex education that provides teenagers with the knowledge they need to make the correct family planning decisions for their life choices is a better way to address the issue of unintended pregnancies than restricting sexual knowledge. Empowering youth with the mindfulness they need to make decisions has more impact than telling youth they simply are not allowed to do something because it is a proactive method that works to lower the supply-side of abortion services by preventing unwanted pregnancies.

Parents and youth can certainly practice their moral beliefs and refrain from sexual relations in any form they feel is true to their faith, but restricting access to all on

faith-based beliefs and not science has shown to be both ineffective and impractical. To encourage acceptance of comprehensive sex education in schools, federal funding allocations for sex education should be consistent with what current science tells us about what is effective instead of basing education on morality. By also increasing access to birth control, condoms, and HIV testing, we can empower the youth of today to make responsible decisions that correspond with their actions.

Lowering Poverty through Increased Access to Family Planning Resources

Policies aimed at removing circumstances that push a woman to the choice of abortion can be created to address the issue on a root level. The reasons most frequently cited for women not wanting to complete an unplanned pregnancy were that having a child would interfere with a woman's education, work, or ability to care for dependents (74%), that she could not afford a baby now (73%), and that she was not currently in a stable relationship and did not want to be a single mother (48%) (Finer, Frohwirth, Dauphinee, Singh, and Moore, 2005). Forcing a woman to have a child that she knows she cannot care for and may negatively affect the children she already has can have negative consequences for the economic stability of the country.

By focusing on comprehensive sex education and encouraging use of contraceptives by this impoverished group, more targeted sex education can be made towards the women most likely to get pregnant unintentionally and not have the resources to care for the child. The most direct strategy for mitigating the impacts of poverty is lowering or eliminating the existence of poverty. If women are not in poverty, the children that emerge from them will not be as prone to many of the downfalls that

accompany poverty-stricken individuals. Instead of removing Medicaid funding for abortion services, efforts should be made to expand contraceptive services among private insurance and Medicaid coverage to reduce unintended pregnancy incidences that could end in abortion or an unintended birth, leading to a financial and time commitment for life that an individual might not be prepared to take on.

One must question the validity of spending millions of federal dollars to support policy decisions and educational curriculum that has shown to be ineffective. As a society, we must accept reality and promote policy that bases funding and laws on the health needs of its constituents, while paying special attention to those more at-risk due to certain demographic factors, especially poverty. Through addressing barriers and increasing access to family planning services, including abortion and comprehensive sex education, policy makers can substantially improve the ability of women from all socioeconomic backgrounds to make informed decisions about their fertility that correspond with other work or educational attainment goals.

Study Limitations and Suggested Future Research

The results in this paper are limited to certain assumptions. It is assumed that abstinence-only education is promoted within the school system to prevent youth from having unsafe sex, resulting in unintended pregnancies. Policy recommendations in this paper only address the effect abstinence-only education has on the abortion rate and does not consider the potential moral beliefs that support abstinence-until-married sex education.

Despite inclusion of a number of independent variables the literature found to be associated with a woman's decision to have an abortion, other socioeconomic variables were not controlled for. This study is also reliant that the data obtained to measure both the explanatory and control variables was accurate and complete. This study also did not take into account inter-state travel that may have taken place by a woman attempting to receive abortion services that were not available in her state due to additional restrictions, thus causing states with easier access to abortion services to have inflated abortion rates.

Future research will need to examine to what extent these laws affect abortion incidence and what the impact of these policy decisions are on the economy and on individual family units. Although income level is not currently included when gathering unintended pregnancy data, looking at groups by participation on income-eligible programs can help define if polices affect groups differently and should be formed in ways that take into account the populations income status and access to resources. Specifically, socioeconomic levels should be looked at to see if increased sex education programs or access to birth control affects unintended pregnancy rates at different income levels.

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Appendix 1: Data Set of Explanatory Variables

STATE	aborpreg	No_funds	Parental_Con	Waiting	Counseling	Ultrasound	Contra	Title_V
ALABAMA	0.15	1	1	1	0	1	0	1
ALASKA	0.1922	0	0	0	1	0	0	0
ARIZONA	0.1817	1	1	1	1	1	9	1
ARKANSAS	0.1068	1	1	1	1	1	6	1
CALIFORNIA	0.3898	0	0	0	0	0	12	0
COLORADO	0.1648	1	0	0	0	0	1	0
CONNECTICUT	0.4136	0	0	0	0	0	12	0
DELAWARE	0.291	1	0	0	0	0	11	1
FLORIDA	0.395	1	0	0	0	1	0	1
GEORGIA	0.2234	1	0	1	1	0	11	1
HAWAII	0.1554	0	0	0	0	0	11	0
IDAHO	0.1383	1	1	1	1	0	0	0
ILLINOIS	0.2596	0	0	0	0	0	8	0
INDIANA	0.1491	1	1	1	1	1	0	0
IOWA	0.1659	1	0	0	0	0	11	0
KANSAS	0.1434	1	1	1	1	0	0	1
KENTUCKY	0.1032	1	1	1	1	0	0	1
LOUISIANA	0.1275	1	1	1	1	1	0	1
MAINE	0.1865	1	0	0	0	0	12	0
MARYLAND	0.5018	0	0	0	0	0	13	1
MASSACHUSETTS	0.3297	0	1	1	0	0	9	0
MICHIGAN	0.2346	1	1	1	1	0	0	1
MINNESOTA	0.2806	0	0	1	1	0	0	0
MISSISSIPPI	0.1211	1	1	1	1	1	0	1
MISSOURI	0.1796	1	1	1	1	0	10	1
MONTANA	0.2	0	0	1	0	0	0	0
NEBRASKA	0.1488	1	1	1	1	0	0	1
NEVADA	0.1779	1	0	0	0	0	12	0
NEW HAMPSHIRE	0.4607	1	0	0	0	0	12	1
NEW JERSEY	0.3039	0	0	0	0	0	6	1
NEW MEXICO	0.1375	0	0	0	0	0	8	0
NEW YORK	0.4238	0	0	0	0	0	9	1
NORTH CAROLINA	0.1966	1	1	1	1	0	12	1
NORTH DAKOTA	0.1738	1	1	1	1	0	0	1
OKLAHOMA	0.1058	1	1	1	0	0	0	0
OREGON	0.2489	0	0	0	0	0	4	1
PENNSYLVANIA	0.3061	1	1	1	1	0	0	1
RHODE ISLAND	0.3682	1	1	0	0	0	11	0

STATE	aborpreg	No_funds	Parental_Con	Waiting	Counseling	Ultrasound	Contra	Title_V
SOUTH CAROLINA	0.1754	1	1	1	1	0	0	1
SOUTH DAKOTA	0.1043	0	0	1	1	0	0	1
TENNESSEE	0.1661	1	1	0	0	0	0	1
TEXAS	0.1781	1	1	1	1	1	10	1
UTAH	0.1395	1	1	1	1	0	0	1
VERMONT	0.3438	0	0	0	0	0	12	0
VIRGINIA	0.3167	1	1	1	1	1	10	1
WASHINGTON	0.3	0	0	0	0	0	4	1
WEST VIRGINIA	0.1	0	0	1	0	0	6	1
WISCONSIN	0.1923	1	1	1	1	1	2	0
WYOMING	0.1036	1	0	0	0	0	0	0

Appendix 2: Data Set of Control Variables

STATE	logmarriage	logproviders	Income	Poverty	Unemploy	College	NARAL_rank	Northeast	Midwest	South	West
ALABAMA	1.673	0.903	$38,783	16.6	6.5	22	35	0	0	1	0
ALASKA	1.711	0.954	$59,393	10.9	4.1	26.6	14	0	0	0	1
ARIZONA	1.675	1.23	$47,265	14.2	5.3	25.6	26	0	0	0	1
ARKANSAS	1.688	0.699	$36,599	17.3	4.9	18.9	38	0	0	1	0
CALIFORNIA	1.688	2.709	$56,645	13.1	4.3	29.9	1	0	0	0	1
COLORADO	1.69	1.623	$52,015	12	4.4	35.9	22	0	0	0	1
CONNECTICUT	1.691	1.613	$63,422	8.3	3.5	28.7	3	1	0	0	0
DELAWARE	1.687	0.903	$52,833	11.1	3.5	28.7	21	0	0	1	0
FLORIDA	1.665	1.944	$45,495	12.6	3.3	25.3	28	0	0	1	0
GEORGIA	1.674	1.447	$46,832	14.7	4.7	27.5	30	0	0	1	0
HAWAII	1.719	1.519	$61,160	9.3	2.5	29.6	4	0	0	0	1
IDAHO	1.742	0.602	$42,865	12.6	3	23.9	42	0	0	0	1
ILLINOIS	1.682	1.568	$52,006	12.3	4.6	30.6	17	0	1	0	0
INDIANA	1.691	1.079	$45,394	12.7	5	22.5	33	0	1	0	0
IOWA	1.704	1.255	$44,491	11	3.7	25.1	19	0	1	0	0
KANSAS	1.708	0.477	$45,478	12.4	4.4	29.5	46	0	1	0	0
KENTUCKY	1.689	0.477	$39,372	17	5.9	21	40	0	0	1	0
LOUISIANA	1.634	0.845	$39,337	19	3.9	21.4	49	0	0	1	0
MAINE	1.682	1.049	$43,439	12.9	4.7	26.9	7	1	0	0	0
MARYLAND	1.675	1.531	$65,144	7.8	3.8	35.7	5	1	0	0	0
MASS.	1.671	1.602	$59,963	9.9	4.8	38.2	15	1	0	0	0
MICHIGAN	1.674	1.613	$47,182	13.5	6.9	24.6	32	0	1	0	0
MINNESOTA	1.706	1.176	$54,023	9.8	4.1	31.5	18	0	1	0	0
MISSISSIPPI	1.65	0.301	$34,473	21.1	6.8	19.6	48	0	0	1	0
MISSOURI	1.681	0.699	$42,841	13.6	4.8	25.5	45	0	1	0	0
MONTANA	1.69	0.903	$40,627	13.6	3.2	27.4	13	1	0	0	0
NEBRASKA	1.708	0.699	$45,474	11.5	3	27.4	44	0	1	0	0
NEVADA	1.658	1.146	$52,998	10.3	4.2	21.8	12	0	0	0	1
NEW HAMPSHIRE	1.719	1.114	$59,683	8	3.5	32	20	1	0	0	0
NEW JERSEY	1.705	1.806	$64,470	8.7	4.6	23.8	9	1	0	0	0
NEW MEXICO	1.65	1.079	$40,629	18.5	4.1	25.3	11	0	0	0	1
NEW YORK	1.64	2.352	$51,384	14.2	4.6	32.4	10	1	0	0	0
NORTH CAROLINA	1.677	1.556	$42,625	14.7	4.8	26.5	29	0	0	1	0

STATE	logmarriage	logproviders	Income	Poverty	Unemploy	College	NARAL_rank	Northeast	Midwest	South	West
NORTH DAKOTA	1.687	0	$41,919	11.4	3.2	24.1	50	0	1	0	0
OHIO	1.667	1.415	$44,532	13.3	5.4	22.7	41	0	1	0	0
OKLAHOMA	1.687	0.699	$38,770	17	4.1	29.2	36	0	0	1	0
OREGON	1.681	1.462	$46,230	13.3	5.3	26.4	6	0	0	0	1
PENNSYLVANIA	1.679	1.672	$46,259	12.1	4.5	30.5	34	1	0	0	0
RHODE ISLAND	1.648	0.602	$51,814	11.1	5.1	24.3	24	1	0	0	0
SOUTH CAROLINA	1.67	0.954	$41,100	15.7	6.4	25.1	31	0	0	1	0
SOUTH DAKOTA	1.702	0.301	$42,791	13.6	3.1	23	47	0	1	0	0
TENNESSEE	1.686	1.146	$40,315	16.2	5.2	25.5	27	0	0	1	0
TEXAS	1.699	1.792	$44,922	16.9	4.9	27.9	37	0	0	1	0
UTAH	1.788	0.954	$51,309	10.6	2.9	28.5	43	0	0	0	1
VERMONT	1.687	0.903	$47,665	10.3	3.7	33.1	8	1	0	0	0
VIRGINIA	1.700	1.544	$56,277	9.6	3	34	39	0	0	1	0
WASHINGTON	1.695	1.653	$52,583	11.8	4.9	31	2	0	0	0	1
WEST VIRGINIA	1.683	0.602	$35,059	17.3	4.5	17.3	16	0	0	1	0
WISCONSIN	1.691	0.903	$48,772	11	4.7	25.7	25	0	1	0	0
WYOMING	1.722	0.477	$47,423	9.4	3.2	34.5	23	0	0	0	1

Appendix 3: Descriptive Statistics

Variable	**N**	**Mean**	**Std Dev**	**Minimum**	**Maximum**
States	50	25.50	14.58	1.00	50
Aborpreg	50	0.22	0.10	0.10	1
No_funds	50	0.66	0.48	-	1
Parental_Con	50	0.50	0.51	-	1
Waiting	50	0.56	0.50	-	1
Counseling	50	0.48	0.50	-	1
Ultrasound	50	0.22	0.42	-	1
Contra	50	5.08	5.17	-	13
TitleV	50	0.58	0.50	-	1
Logmarriage	50	1.69	0.03	1.63	2
Logproviders	50	1.15	0.54	-	3
Religion	50	0.83	0.05	0.73	1
Income	50	$47,842	$7,764	$ 34,473	$ 65,144
Poverty	50	0.13	0.03	0.08	0
Unemploy	50	0.04	0.01	0.03	0
LessHS	50	0.05	0.02	0.02	0
HSDegree	50	0.07	0.02	0.04	0
College	50	0.54	2.55	0.11	18
NARAL_rank	50	25.50	14.58	1.00	50
Northeast	50	0.22	0.42	-	1
Midwest	50	0.24	0.43	-	1
South	50	0.30	0.46	-	1
West	50	0.24	0.43	-	1

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