ANALYZING THE IMPACT OF STATE LEVEL CONTRACEPTION MANDATES ON PUBLIC HEALTH OUTCOMES

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ABSTRACT

The recent mandate by the U.S. Department of Health and Human Services requiring private health insurance plans to cover all FDA-approved contraceptive drugs has generated a considerable amount of controversy. Much of the commentary and analysis has discussed whether this mandate violates the conscience rights of religious employers; however, there has been considerably less discussion as to whether these contraception mandates offer any significant public health benefit. Since the late 1990s, approximately thirty states have required that privately bought health insurance plans cover contraception. A time series cross-sectional analysis of state level public health data offers important insights as to what impact these contraceptive mandates have on public health outcomes. Results indicate that state contraception mandates have little impact on either unintended pregnancy rates or abortion rates.

INTRODUCTION

Contraception has become a prominent political issue in recent years. Since 2010, abortion opponents have successfully stopped several states from funding Planned Parenthood.

In response, during the 2012 election cycle, various media outlets, President Obama, and other Democratic political candidates argued that Republican efforts to stop federal funding for Planned Parenthood would limit the availability of contraceptives and amount to a "War on Women."[1]

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1.   *See* Tamar Lewin, *Obama Will Speak at Commencement at Barnard College*, N.Y. TIMES (Mar. 3, 2012), http://www.nytimes.com/2012/03/04/us/politics/obama-will-speak-at-barnard-graduation.html ?_r=0; *The War on Women*, N.Y. TIMES (Feb. 25, 2011), http://www.nytimes.com/2011/02/26 /opinion/26sat1.html?_r=0.

Also, in February 2012, the Department of Health and Human Services (HHS) required that private health insurance plans cover all FDA-approved contraceptive drugs by August of 2012.[2]

After the Health and Human Services mandate was handed down, much of the subsequent public debate centered on whether religious groups or employers with strong religious beliefs could be exempted from the contraception mandate. The original HHS mandate did include a religious exemption; however, many felt the exemption was too narrow because it only applied to religious institutions that served those of the same religion.[3] For instance, a Catholic school that enrolled a non-trivial percentage of non-Catholic students would likely be ineligible for an exemption.[4]

Religious institutions filed a number of lawsuits arguing that the HHS contraception mandate violated their conscience rights.[5] Many specifically objected to the fact that the HHS mandate required employers to cover contraceptives, which work as abortifacients.[6] Plaintiffs included a range of religious groups and employers including Notre Dame University, Little Sisters of the Poor, and Priests for Life.[7] On June 30, 2014, in *Burwell v. Hobby Lobby Stores, Inc.*, the Supreme Court struck down the HHS mandate as applied to closely held corporations with religious objections.[8] As such, Hobby Lobby would not be compelled to provide contraception under their healthcare plans. The ruling was reached on statutory grounds, citing the Religious Freedom Restoration Act, because the mandate was not the "least

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2.   Coverage of Certain Preventative Services Under the Affordable Care Act, 78 Fed. Reg. 39,870 (July 2, 2013) (codified in 45 C.F.R. §§ 147, 156); Robert Pear, *Insurance Coverage for Contraception Is Required*, N.Y. TIMES (Aug. 1, 2011), http://www.nytimes.com/2011/08/02/health/policy/02health.html.

3.   *See Fact Checking the White House: False Claims About the HHS Mandate*, THE BECKET FUND FOR RELIGIOUS LIBERTY, http://www.becketfund.org/fact-checking-the-white-house-false-claims-about-the-hhs-mandate/ (last visited July 6, 2015); Ed Whelan, *The HHS Contraception Mandate vs. the Religious Freedom Restoration Act—Introduction*, NAT'L REV. (Jan. 26, 2012), http://www.national review.com/bench-memos/289341/hhs-contraception-mandate-vs-religious-freedom-restoration-act-introduction-ed.

4.   *See id.*

5.   *See* Laurie Goodstein, *Catholics File Suits on Contraceptive Coverage*, N.Y. TIMES (May 21, 2012), http://www.nytimes.com/2012/05/22/us/catholic-groups-file-suits-on-contraceptive-coverage.html; Steve Kenny & Robert Pear, *Justice Blocks Contraception Mandate on Insurance in Suit by Nuns*, N.Y. TIMES (Dec. 31, 2013), http://www.nytimes.com/2014/01/01/us/politics/justice-sotomayor-blocks-contraception-mandate-in-health-law.html?_r=0; Paige Winfield Cunningham, *Religious Colleges Join Fight over Contraceptives*, THE WASH. TIMES (Feb. 20, 2012), http://www.washingtontimes .com/news/2012/feb/20/religious-colleges-join-fight-over-contraceptives/?page=all.

6.   *Id.*

7.   *Id.*

8.   Burwell v. Hobby Lobby Stores, Inc., 134 S. Ct. 2751 (2014).

restrictive" method of implementing the government's interest.[9]   Other litigation is still pending.[10]

The debates about exemptions for employers with religious convictions have certainly been interesting and informative. That said, there has been relatively little public discussion about the public policy implications of the 2012 HHS mandate. Specifically, there has been little research as to whether contraception mandates have positive implications for public health. As such, new research on this area has the ability to usefully inform ongoing public policy debates about not only the HHS mandate, but also contraception policies in general.

Between 1995 and 2010, twenty-eight states instituted mandates requiring that privately sold health insurance plans cover various forms of contraception.[11] These mandates differ from state to state. Some states require that all health insurance plans cover contraceptives.[12] Other states only require those plans which cover pharmaceuticals and/or outpatient services to cover contraceptives.[13]   Overall, the states that have implemented some kind of contraceptive mandate tend to be ideologically and demographically diverse. Additionally, a range of public health data from these states is publicly available.[14] As such, an analysis of both unintended pregnancy rates and abortion rates in these states should lend important insights as to whether or not contraception mandates offer any public health benefit.

In Section I, therefore, I will provide a literature review on the impact of contraception on unintended pregnancies and abortions. In Section II, I will explain the methodology used to analyze the impact of the twenty-eight state

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9.   *Id.* at 2759.

10.   *See HHS Mandate Information Central*, THE BECKET FUND FOR RELIGIOUS LIBERTY, http://www.becketfund.org/hhsinformationcentral/ (last updated Apr. 29, 2015).

11.   *See* Frances A. Althaus & Stanley K. Henshaw, *The Effects of Mandatory Delay Laws on Abortion Patients and Providers*, 26 FAM. PLAN. PERSP. 228 (1994).

12.   *See infra* Table 1 (referencing the nature of state contraceptive mandates, specifically Colorado, Hawaii, Maryland, New Hampshire, and Ohio).

13.   *See infra* Table 1 (referencing the nature of state contraceptive mandates, specifically Arizona, Arkansas, California, Connecticut, Delaware, Georgia, Illinois, Iowa, Maine, Montana, Missouri, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Texas, Vermont, Virginia, West Virginia, and Wisconsin).

14.   The CDC has been releasing state level abortion data every year since the late 1960s. *See* CHARLES A. DONOVAN & NORA SULLIVAN, CHARLOTTE LOZIER INST., ABORTION REPORTING LAWS: TEARS IN THE FABRIC 1, 14 (2012), available at http://www. lozierinstitute .org/wp-content/uploads /2012/12/American-Report-Series-ABORTION-REPORTING-LAWS.pdf. The Guttmacher Institute frequently releases state level abortion data. The Guttmacher Institute also released state level data on unintended pregnancy rates for 2002, 2004, 2006, and 2008. *See* Kathryn Kost, *Unintended Pregnancy Rates at the State Level: Estimates for 2002, 2004, 2006 and 2008*, GUTTMACHER INST. 3, 5 (2013).

contraceptive mandates on public health outcomes. Section III presents the results, followed by a brief conclusion.

I.   LITERATURE REVIEW

Abortion opponents receive a considerable amount of criticism from various media outlets for not being more supportive of contraception.[15] That being said, research on the efficacy of programs to promote contraceptive use paints a mixed picture of its effectiveness. The Guttmacher Institute, which up until 2007 was Planned Parenthood's research arm and still receives significant funding from Planned Parenthood, frequently publishes studies and analyses that argue contraception programs are effective;[16] however, a closer look at their research and other research that has appeared in peer-reviewed journals raises serious questions about the efficacy of contraceptive programs.

A.   *Theoretical Reasons Why Contraceptive Programs May Be Ineffective*

The Guttmacher Institute has published a number of studies advocating for the effectiveness of various contraceptive programs; however, several of their studies are theoretical in nature and do not analyze hard data on either contraceptive spending or unintended pregnancy rates.[17] They simply assume that if more money is spent, more people will have access to contraception, and unintended pregnancy rates will decline.[18]

These studies, however, often fail to take into account that there is a substantial body of research that finds that increasing the availability of

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15.   William Saletan, *How Choice Can Stop Abortions*, SLATE (Oct. 3, 2014, 12:57 PM), http://www.slate.com/articles/news_and_politics/human_nature/2014/10/reducing_the_abortion_rate_long _acting_reversible_contraceptives_beat_abstinence.html.

16.   *See* Joerg Dreweke, *U.S. Abortion Rate Continues to Decline While Debate over Means to the End Escalates*, 17 GUTTMACHER POL'Y REV. 2, 2–3 (2014); Jennifer J. Frost et al., *Contraceptive Needs and Services, 2010*, GUTTMACHER INST. (2013); Susheela Singh & Jacqueline E. Darroch, *Adding It Up: Costs and Benefits of Contraceptive Services: Estimates for 2012*, GUTTMACHER INST. (2012).

17.   *See* Rachel Benson Gold et. al., *Next Steps for America's Family Planning Program: Leverging the Potential of Medicaid and Title X in an Evolving Health Care System*, GUTTMACHER INST. (2009), https://www.guttmacher.org/pubs/NextSteps.pdf; Jennifer Frost et. al., *The Impact of Publicly Funded Family Planning Clinic Services on Unintended Pregnancies and Government Cost Savings*, 19 J. HEALTH CARE FOR THE POOR & UNDERSERVED 777 (2008).

18.   *See* Rachel Benson Gold et. al., *Next Steps for America's Family Planning Program: Leverging the Potential of Medicaid and Title X in an Evolving Health Care System*, GUTTMACHER INST. (2009), https://www.guttmacher.org/pubs/NextSteps.pdf; Jennifer Frost et. al., *The Impact of Publicly Funded Family Planning Clinic Services on Unintended Pregnancies and Government Cost Savings*, 19 J. HEALTH CARE FOR THE POOR & UNDERSERVED 777 (2008).

contraception may result in more sexual activity.[19]   This will reduce the effectiveness of any program designed to distribute contraceptives more widely or encourage contraceptive use.[20]   Even an analysis of teen sexual activity by a scholar affiliated with the Guttmacher Institute found that the availability of the birth control pill in the early 1960s resulted in teens engaging in sexual activity at an earlier age.[21]

The Akerlof, Yellen, and Katz study, which appeared in *The Quarterly Journal of Economics* in 1996, was especially interesting.[22]   The authors designed an economic model of mating and sexual behavior.   They argued that before the advent of the birth control pill, the effective price of pre-marital sex was high because there was a substantial risk of an unintended pregnancy;[23] however, the advent of the birth control pill in the early 1960s had two important implications.   First, it lowered the effective price of sex by reducing the risk of an unintended pregnancy.[24]   This resulted in more pre-marital sexual activity.[25]   Second, since a higher percentage of women were engaging in pre-marital sexual activity—other women felt compelled to engage in pre-marital sex in order to make themselves more attractive to potential mates.[26]   The end result was more sexual activity and more unintended pregnancies.[27]

Now it is certainly possible that gains in contraception use may offset the risks involved with increased sexual activity; however, there is another important reason to question the efficacy of contraception programs.   Namely, research shows that very few women forego contraception due to high cost or lack of availability.[28]   This is unsurprising considering how

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19.   *See* George A. Akerlof et al., *An Analysis of Out-of-Wedlock Childbearing in the United States*, 111 Q. J. ECON. 277, 288, 307 (1996); David Paton, *The Economics of Family Planning and Underage Conceptions*, 21 J. HEALTH ECON. 207, 208 (2002); Claudia Goldin & Lawrence F. Katz, *The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions*, 110 J. POL. ECON. 730, 752 (2002); Lawrence B. Finer, *Trends in Premarital Sex in the United States: 1954–2003*, 122 PUB. HEALTH REP. 73, 76, 78 (2007); Peter Arcidiacono et al., *Habit Persistence and Teen Sex: Could Increased Access to Contraception Have Unintended Consequences for Teen Pregnancies?*, 30 J. BUS. & ECON. STAT. 312, 312 (2012).

20.   *See* Akerlof et al., *supra* note 19; Paton, *supra* note 19; Goldin & Katz, *supra* note 19; Finer, *supra* note 19; Arcidiacono et al., *supra* note 19.

21.   Finer, *supra* note 19, at 76.

22.   Akerlof et al., *supra* note 19.

23.   *Id.* at 294.

24.   *Id.* at 294–95.

25.   *Id.* at 288.

26.   *Id.* at 290, 296–97.

27.   *Id.* at 295–97.

28.   *See* Rachel K. Jones et al., *Contraceptive Use Among U.S. Women Having Abortions in 2000–2001*, 34 PERSP. ON SEXUAL & REPROD. HEALTH 1 (2002).

widely available contraception is. In 2002, the Guttmacher Institute surveyed over 10,000 sexually active women who were not using contraception.[29] The most frequently cited reasons for not using contraceptives included a perceived low risk of pregnancy, concerns about contraceptive methods, and ambivalence about contraception.[30] Only twelve percent cited high cost or lack of availability.[31] Additionally, in 2012 a study conducted by the Centers for Disease Control (CDC) of 5,000 teenage girls who gave birth after unplanned pregnancies found that only a small percentage had difficulty accessing contraception.[32]

Case studies provide additional evidence that few women forego contraception due to cost or availability. In the book *Unmarried Couples with Children*, sociologists Kathryn Edin of Harvard University and Paula England of Stanford University conducted an intense study of seventy-six low-income couples from Milwaukee, Chicago, and New York who had just given birth.[33] The fertility patterns of all of the women in the study were carefully studied for four years.[34] Edin and England found that only a very small percentage of these women wanted contraception but were unable to afford it.[35] Specifically, all of the women surveyed were asked whether they had been in a situation where they wanted birth control but could not afford or find it.[36] Tellingly, all said no.[37] In fact, according to Edin and England, "[s]ome laughed when we asked this question, pointing out how hard clinics and schools in their communities push contraceptives."[38]

B. *U.S. Trends in Contraception Use, Abortion Rates, and Unintended Pregnancy Rates*

An analysis of trends in contraception use, abortion rates, and unintended pregnancy rates in the United States also raises questions about the efficacy of contraception programs. Many commentators give increased contraception

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29. *Id.* at 1.

30. *Id.* at 4.

31. *Id*.

32. Ayanna T. Harrison et al., *Prepregnancy Contraceptive Use Among Teens with Unintended Pregnancies Resulting in Live Births—Pregnancy Risk Assessment Monitoring System (PRAMS), 2004–2008*, 61 MORBIDITY & MORTALITY WKLY. REP. (2012).

33. PAULA ENGLAND & KATHRYN EDIN, UNMARRIED COUPLES WITH CHILDREN 5–6 (Paula England & Kathryn Edin eds., 2007).

34. *Id.* at 6.

35. *Id.* at 48.

36. *Id.*

37. *Id.*

38. *Id.*

use much of the credit for the fairly consistent decline in the U.S. abortion rate since the early 1980s and the approximately twenty-five percent decline in the number of abortions performed since 1990.[39] These commentators are correct that contraception use has increased at a time when the abortion rate has been declining; however, there are two problems with this line of analysis. First, contraception use has been rising since the early 1970s[40] and increases in contraception use during the 1970s did not reduce the incidence of abortion during that decade.[41] Secondly, since the mid-1990s, there have actually been increases in the unintended pregnancy rate, the percentage of pregnancies that were unplanned, and the fertility rate.[42] These factors make it unlikely that increases in contraception use are responsible for the U.S. abortion decline. In fact, Guttmacher's own research finds that women facing unexpected pregnancy have become more likely to carry their pregnancy to term.[43] This likely plays a large role in explaining the abortion decline in the United States.

C. *Global Trends*

Global data finds that the level of contraceptive use or contraceptive availability has little impact on either the abortion rate, the unintended pregnancy rate, or the fertility rate.[44] A 2003 Guttmacher Institute study showed that contraception use and abortion rates rose simultaneously in several countries including United States, Cuba, Denmark, Netherlands, Singapore, and South Korea.[45] In particular, contraception use rose dramatically in both Sweden and Spain during the 1990s, and abortion rates

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39.   *Contraception Defeats Abortion*, THE DISH (Feb. 3, 2014, 12:43 PM), http://dish.andrewsullivan .com/2014/02/03/contraception-defeats-abortion/. *See also* Sonya B. Gamble et al., *Abortion Surveillance—United States, 2005*, 57 MORBIDITY & MORTALITY WKLY. REP. (Nov. 14, 2008); Lisa M. Koonin et al., *Abortion Surveillance: Preliminary Data—United States, 1990*, 41 MORBIDITY & MORTALITY WKLY. REP. (Dec. 18, 1992).

40.   William D. Mosher & William F. Pratt, *Contraceptive Use in the United States, 1973–88*, 182 ADVANCE DATA 1, 1 (1990).

41.   *See id.*

42.   Jo Jones et al., *Current Contraceptive Use in the United States, 2006–2010, and Changes in Patterns of Use Since 1995*, 60 NAT'L HEALTH STAT. REP. 1, 2 (2012).

43.   Lawrence B. Finer & Mia R. Zolna, *Shifts in Intended and Unintended Pregnancies in the United States, 2001–2008*, 104 AM. J. PUB. HEALTH S43, S45–S46 (2014); Stanley K. Henshaw, *Unintended Pregnancy in the United States*, 30 FAM. PLAN. PERSP. 24, 28 (1998).

44.   *See* Cicely Marston & John Cleland, *Relationships Between Contraception and Abortion: A Review of the Evidence*, 29 INT'L FAM. PLAN. PERSP. 6, 6 (2003); José Luis Dueñas et al., *Trends in the Use of Contraceptive Methods and Voluntary Interruption of Pregnancy in the Spanish Population During 1997–2007*, 83 CONTRACEPTION 82, 85 (2011); Lant H. Pritchett, *Desired Fertility and the Impact of Population Policies*, 20 POPULATION & DEV. REV. 1, 2 (1994).

45.   *See* Marston & Cleland, *supra* note 44.

increased.[46] Additionally, cross-national studies find that the best predictor of national fertility rates is the amount of children that women want to have.[47] The extent to which contraceptives are available has only a marginal impact.

D. *Specific Studies on Contraception Availability and Unintended Pregnancies*

One unique study showed that significant increases in the price of contraception have little impact on unintended pregnancy rates.[48] In 2005, the passage of the Federal Deficit Reduction Act led to a sharp increase in the price of birth control pills at college health centers.[49] A 2011 study authored by the University of Michigan's Population Studies Center analyzed how this price increase impacted the sexual activity of college women.[50] It found that after the price of oral contraceptives increased—there were statistically significant decreases in both the frequency of sexual intercourse and the number of sex partners.[51] The unintended pregnancy rate remained about the same.[52]

Similarly, several controlled studies of contraception programs have also provided little evidence that encouraging contraception use will lower the incidence of unintended pregnancy. Separate studies conducted in Britain, Scotland, and San Francisco have found that free contraceptive programs have been ineffective at lowering both teen pregnancy rates and abortion rates.[53]

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46. *See* K. Edgardh, *Adolescent Sexual Health in Sweden*, 78 SEXUALLY TRANSMITTED INFECTIONS 352 (2002); Dueñas et al., *supra* note 44.

47. *See generally* Pritchett, *supra* note 44; Nicholas Eberstadt & Apoorva Shah, *Fertility Decline in the Muslim World*, HOOVER INST. POL'Y REV. (June 1, 2012), http://www.hoover.org/research/fertility-decline-muslim-world.

48. Emily Gray Collins & Brad Hershbein, *The Impact of Subsidized Birth Control for College Women: Evidence from the Deficit Reduction Act* 21 (Population Studies Ctr., May 2011), *available at* http://www.psc.isr.umich.edu/pubs/pdf/rr11-737.pdf (an updated version was published in 2013).

49. *Id. See generally* Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006).

50. *See* COLLINS & HERSHBEIN, *supra* note 48, at 2.

51. *Id.*

52. *Id.*

53. *See* Anna Glasier et al., *Advanced Provision of Emergency Contraception Does Not Reduce Abortion Rates*, 69 CONTRACEPTION 361, 361–64 (2004) (noting that offering supplies of emergency contraception had no measurable effect on abortion rates among young women in Scotland); Paton, *supra* note 19, at 223–24 (noting a lack of evidence to suggest that greater access to family planning has reduced conception or abortion rates among teen-women in the United Kingdom); Tina R. Raine et al., *Direct Access to Emergency Contraception Through Pharmacies and Effect on Unintended Pregnancy and STIs: A Randomized Controlled Trial*, 293 JAMA 54, 55 (2005) (noting that free access to emergency contraception did not decrease pregnancy in a study of young women in San Francisco).

The British experience is particularly telling. In 1999, the British government launched its Teenage Pregnancy Strategy program, which was supposed to cut the number of teen pregnancies in half by promoting comprehensive sexual education and birth control.[54] Some £300 million ($454 million) was spent on this initiative.[55] Since then, the British teen-abortion rate has climbed steadily.[56] In fact, in 2009, the *Daily Mail* reported that teen-pregnancy rates in England are now higher than they were in 1995, and pregnancies among girls under sixteen (below the age of sexual consent) are also at the highest level since 1998, the year before the program began.[57]

Furthermore, there is a broad body of research on emergency contraceptive programs, which shows that they are ineffective at reducing either abortion rates or unintended pregnancy rates. In fact, twenty-three studies published between 1998 and 2006 all show easier access to emergency contraception fails to achieve any statistically significant reduction in rates of either unintended pregnancy or abortion.[58] Specific studies from Shanghai, Washington State, Britain, and Scotland all show that easier access to emergency contraception fails to significantly reduce either the abortion rate or the unintended pregnancy rate.[59]

II. Methodology

Since there is little evidence that increasing the use of contraceptives reduces the unintended pregnancy rate, it seems likely that contraception mandates would have little impact on the incidence of either unintended pregnancy or abortion; however, an analysis of state level data should lend

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54. *See* Steve Doughty, *Labour's £300m Policy 'Disaster' as Teen Pregnancies Rocket to Highest Level in Decade*, Daily Mail (Feb. 26, 2009, 7:13 PM), http://www.dailymail.co.uk/news/article-1155824/Labours-300m-policy-disaster-teen-pregnancies-rocket-highest-level-decade.html.

55. *Id.*

56. *Id.*

57. *Id.*

58. *See* Elizabeth G. Raymond et al., *Population Effect of Increased Access to Emergency Contraceptive Pills: A Systematic Review*, 109 Obstetrics & Gynecology 181, 182 (2007).

59. *See* Jacqueline S. Gardner et al., *Increasing Access to Emergency Contraception Through Community Pharmacies: Lessons from Washington State*, 33 Fam. Plan. Persp. 172, 175 (2001) (noting the pregnancy and abortion rate increased in Washington during 1999, while the study was being conducted); Glasier et. al., *supra* note 53, at 361–64 (noting that offering supplies of emergency contraception had no measurable effect on abortion rates among young women in Scotland); Xiaoyu Hu et al., *Advanced Provision of Emergency Contraception to Postnatal Women in China Makes No Difference in Abortion Rates: A Randomized Controlled Trial*, 72 Contraception 111 (2005) (noting free access to emergency contraception and birth control had no effect on the pregnancy rate or the abortion rate among Chinese women in the study as all pregnancies were terminated); Paton, *supra* note 19, at 223–24 (noting a lack of evidence to suggest that greater access to family planning has reduced conception or abortion rates among teen women in the United Kingdom).

insights as to the impact of contraception mandates. Since the early 1990s, twenty-eight states have required that contraceptive coverage be included as part of privately purchased state health insurance plans.[60] Regression analysis is well suited to analyze the impact of these contraception mandates on public health outcomes since there are a variety of factors that can impact unintended pregnancy rates.

A. *Dependent Variables*

I will run regressions based on three separate dependent variables to analyze the impact of contraceptive mandates on public health outcomes. The first dependent variable is each state's unintended pregnancy rate. Guttmacher began to release state level data on unintended pregnancy rates in 2002;[61] however, as of 2014, is has only released state level data for four years: 2002, 2004, 2006, and 2008.[62] This relatively small number of data points may limit our analysis.

The second dependent variable analyzed is the state abortion rate as collected by the Centers for Disease Control (CDC). Since a relatively high percentage of unintended pregnancies are aborted, this can serve as a good proxy for the unintended pregnancy rate. Additionally, more data is available on abortion rates than unintended pregnancy rates.[63] The CDC has been releasing annual data on the incidence of abortion since the late 1960s.[64] There are, however, concerns about the reliability of CDC abortion data.[65] Federal reporting requirements for abortion data are weak and some states either release incomplete data to the CDC or fail to release any data at all.[66] In particular, California has not released any state abortion data to the CDC since 1997.[67]

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60. *See infra* Table 1.

61. *See* Kost, *supra* note 14.

62. *Id.*

63. *See* Kost, *supra* note 14.

64. *See* DONOVAN & SULLIVAN, *supra* note 14.

65. *Id.*

66. *Id.*

67. *See generally* Laurie D. Elam-Evans et al., *Abortion Surveillance—United States, 1999*, 51 MORBIDITY & MORTALITY WKLY. REP. (Nov. 29, 2002); Laurie D. Elam-Evans et al., *Abortion Surveillance—United States, 2000*, 52 MORBIDITY & MORTALITY WKLY. REP. (Nov. 28, 2003); Sonya B. Gamble et al., *Abortion Surveillance—United States, 2005*, 57 MORBIDITY & MORTALITY WKLY. REP. (Nov. 28, 2008); Joy Herndon et al., *Abortion Surveillance—United States, 1998,* 51 MORBIDITY & MORTALITY WKLY. REP. (June 7, 2002); Lisa M. Koonin et al., *Abortion Surveillance—United States, 1997*, 49 MORBIDITY & MORTALITY WKLY REP. (Dec. 8, 2000); Karen Pazol et al., *Abortion Surveillance—United States, 2006*, 58 MORBIDITY & MORTALITY WKLY. REP. (Nov. 27, 2009); Karen Pazol et al., *Abortion Surveillance—United States, 2007*, 60 MORBIDITY & MORTALITY WKLY. REP. (Feb.

The third dependent variable analyzed is the Guttmacher Institute's state abortion rate data. Guttmacher collects abortion data by conducting a survey of abortion facilities.[68] As such, its data collection is more consistent from year to year and its data tends to be more reliable.[69] Unfortunately, Guttmacher does not release data every year. For this analysis, I only have state abortion rate data from Guttmacher for seven years: 1991, 1992, 1995, 1996, 2000, 2005, and 2007.[70]

25, 2011); Karen Pazol et al., *Abortion Surveillance—United States, 2008*, 60 MORBIDITY & MORTALITY WKLY. REP. (Nov. 25, 2011); Karen Pazol et al., *Abortion Surveillance—United States, 2009*, 61 MORBIDITY & MORTALITY WKLY. REP. (Nov. 23, 2012); Karen Pazol et al., *Abortion Surveillance— United States, 2010*, 62 MORBIDITY & MORTALITY WKLY. REP. (Nov. 29, 2013); Karen Pazol et al., *Abortion Surveillance—United States, 2011*, 63 MORBIDITY & MORTALITY WKLY. REP. (Nov. 28, 2014); Lilo T. Strauss et al., *Abortion Surveillance—United States, 2001*, 53 MORBIDITY & MORTALITY WKLY. REP. (Nov. 26, 2004); Lilo T. Strauss et al., *Abortion Surveillance—United States, 2002*, 54 MORBIDITY & MORTALITY WKLY. REP. (Nov. 25, 2005); Lilo T. Strauss et al., *Abortion Surveillance—United States, 2003*, 55 MORBIDITY & MORTALITY WKLY. REP. (Nov. 24, 2006); Lilo T. Strauss et al., *Abortion Surveillance—United States, 2004*, 56 MORBIDITY & MORTALITY WKLY. REP. (Nov. 23, 2007) (all identifying state abortion data and demonstrating that California has not released any such data).

68.   *See* DONOVAN & SULLIVAN, *supra* note 14, at 4; Rachel K. Jones & Kathryn Kooistra, *Abortion Incidence and Access to Services in the United States, 2008*, 43 PERSP. ON SEXUAL REPROD. HEALTH 41, 43 (2011) (data from 2000, 2005, 2007, and 2008).

69.   *See* DONOVAN & SULLIVAN, *supra* note 14.

70.   *See* Stanley K. Henshaw, *Abortion Incidence and Services in the United States, 1995–1996*, 30 FAM. PLAN. PERSP. 264 (1998) (data from 1992, 1995, and 1996); Stanley K. Henshaw & Jennifer Van Vort, *Abortion services in the United States, 1991 and 1992*, 26 FAM. PLAN. PERSP. (1994) (data from 1991 and 1992); Jones & Kooistra, *supra* note 68.

Table 1: State Contraceptive Mandates[71]

State	Year	Nature of Mandate
Arizona	2002	Only Plans That Cover Prescriptions and/or Outpatient Services
Arkansas	2005	Only Plans That Cover Prescriptions and/or Outpatient Services
California	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Colorado	2010	All Health Insurance Plans
Connecticut	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Delaware	2000	Only Plans That Cover Prescriptions and/or Outpatient Services
Georgia	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Hawaii	1999	All Health Insurance Plans
Illinois	2003	Only Plans That Cover Prescriptions and/or Outpatient Services
Iowa	2000	Only Plans That Cover Prescriptions and/or Outpatient Services
Maine	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Maryland	1998	All Health Insurance Plans
Massachusetts	2002	Only Plans That Cover Prescriptions and/or

71. *See Insurance Coverage for Contraception Laws*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/health/insurance-coverage-for-contraception-state-laws.aspx (last updated Feb. 2012)

		Outpatient Services
Missouri	2001	Only Plans That Cover Prescriptions and/or Outpatient Services
Nevada	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
New Hampshire	1999	All Health Insurance Plans
New Jersey	2005	Only Plans That Cover Prescriptions and/or Outpatient Services
New Mexico	2001	Only Plans That Cover Prescriptions and/or Outpatient Services
New York	2002	Only Plans That Cover Prescriptions and/or Outpatient Services
North Carolina	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Ohio	2000	All Health Insurance Plans
Oregon	2007	Only Plans That Cover Prescriptions and/or Outpatient Services
Rhode Island	2000	Only Plans That Cover Prescriptions and/or Outpatient Services
Texas	2001	Only Plans That Cover Prescriptions and/or Outpatient Services
Vermont	1999	Only Plans That Cover Prescriptions and/or Outpatient Services
Virginia	1997	Only Plans That Cover Prescriptions and/or Outpatient Services
Washington	2007	Only Plans Purchased Through the State's Health Insurance Exchange

| West Virginia | 1995 | Only Plans That Cover Prescriptions and/or Outpatient Services |
| Wisconsin | 2009 | Only Plans That Cover Prescriptions and/or Outpatient Services |

B. *Independent Variables*

There are other factors besides the presence or absence of contraception mandates that may affect rates of abortion or rates of unintended pregnancy. As such, a variety of other factors will be held constant. For instance, there is research that indicates that racial minorities, particularly African Americans and Hispanics, have higher rates of both unintended pregnancies and abortions than white women.[72] As such, I include a series of variables measuring the racial composition of women between the ages of fifteen and forty-four in each state in the regression.

I also include separate variables measuring the percentage of women of childbearing age who are between the ages of 20 to 24, 25 to 29, 30 to 34, 35 to 39, and 40 to 44, respectively. Some studies find that younger women tend to be more likely to face unintended pregnancies than their older counterparts.[73] The pregnancy rate among teenagers has been declining,[74] but teenage girls are more likely than older women to seek an abortion when confronted with an unintended pregnancy.[75] Additionally, it is possible that as women get older, their desire to avoid pregnancy may increase. Older women may have greater concerns about birth defects or the health risks involved with carrying a pregnancy to term. Overall, more information about the age distribution of women of childbearing age might provide additional insights about state trends in abortion rates and unintended pregnancy rates.

There is also evidence that low-income women are more likely to experience an unintended pregnancy and obtain abortions than high-income women.[76] Additionally, a slow economy may render it more difficult for

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72. *See* Laurie D. Elam-Evans et al., *Abortion Surveillance—United States, 1999*, *supra* note 67; Jones et al., *supra* note 42.

73. *See* Jones et al., *supra* note 42, at 45.

74. *See* Sarah Kliff, *The Mystery of the Falling Teen Birthrate*, Vox (Jan. 21, 2015), http://www.vox.com/2014/8/20/5987845/the-mystery-of-the-falling-teen-birth-rate.

75. *See* Karen Pazol et al., *Abortion Surveillance—United States, 2011*, 63 Morbidity & Mortality Wkly Rep. Fig. 2 (Nov. 28, 2014), http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6311a1.htm.

76. *See* Jones et al., *supra* note 42, at 295–96; Rachel K. Jones, Lawrence B. Finer, & Susheela Singh, *Characteristics of U.S. Abortion Patients, 2008*, Guttmacher Inst. 6, 8–9 (May 2010), https://www.guttmacher.org/pubs/US-Abortion-Patients.pdf; Lawrence B. Finer & Mia R. Zolna, *Shifts in*

some women to obtain the resources necessary to carry a pregnancy to term and raise a child. As such, the regression will include a variety of variables to measure the strength of each state's economy. They will include the log of real per capita personal income, the annual change in state per capita personal income growth, and the annual change in the unemployment rate.

When I am analyzing state abortion rates, I also include two variables to measure specific abortion policies. There is research that finds informed consent laws, which require women to make two separate trips to the abortion facility, reduce state abortion rates.[77] As such, an indicator variable is included to measure the presence or absence of this two-visit policy.

There is also a substantial body of evidence indicating that when states publicly fund abortion through Medicaid, the abortion rate increases.[78] As such, I also include an indicator variable to measure whether or not states are publicly funding abortion through Medicaid. Table 2 contains a list of variables used in this study and their sources.

Intended and Unintended Pregnancies in the United States, 2001–2008, 104 AM. J. OF PUB. HEALTH 43, 45 (2014).

77. *See* Althaus & Henshaw, *supra* note 11; Ted Joyce & Robert Kaestner, *The Impact of Mississippi's Mandatory Delay Law on the Timing of Abortion*, 32 FAM. PLAN. PERSP. 4, 12 (2000); Michael J. New, *Analyzing the Impact of U.S. Antiabortion Legislation in the Post-*Casey *Era: A Reassessment*, 14 ST. POL. & POL'Y Q. 228, 232 (2014).

78. *See* Deborah Haas-Wilson, *Women's Reproductive Choices: The Impact of Medicaid Funding Restrictions*, 29 FAM. PLAN. PERSP. 228, 228 (1997); Susan B. Hansen, *State Implementation of Supreme Court Decisions: Abortion Rates Since* Roe v. Wade, 42 J. POL. 372, 391–92 (1980); Carol C. Korenbrot et al., *Trends in Rates of Live Births and Abortions Following State Restrictions on Public Funding of Abortion*, 105 PUB. HEALTH REP. 555, 561 (1990); Shelly Lundberg & Robert D. Plotnick, *Effects of State Welfare, Abortion and Family Planning Policies on Premarital Childbearing Among White Adolescents*, 22 FAM. PLAN. PERSP. 246, 251 (1990); Kenneth J. Meier et al., *The Impact of State-Level Restrictions on Abortion*, 33 DEMOGRAPHY 307, 310 (1996); Kenneth J. Meier & Deborah R. McFarlane, *State Family Planning and Abortion Expenditures: Their Effect on Public Health*, 84 AM. J. PUB. HEALTH 1468, 1470 (1994); Stephen Matthews et al., *The Effects of Economic Conditions and Access to Reproductive Health Services on State Abortion Rates and Birthrates*, 29 FAM. PLAN. PERSP. 52, 59 (1997); Michael J. New, *Analyzing the Effect of Anti-Abortion U.S. State Legislation in the Post-*Casey *Era*, 11 ST. POL. & POL'Y Q. 28, 31, 37 (2011); New, *supra* note 77; James Trussell et al., *The Impact of Restricting Medicaid Financing for Abortion*, 12 FAM. PLAN. PERSP. 120, 129 (1980); Rebecca M. Blank et al., *State Abortion Rates: The Impact of Policies, Providers, Politics, Demographics, and Economic Environment* 2 (Nat'l Bureau Econ. Res., Working Paper No. 4853, 1994); Phillip B. Levine et al., *The Effect of Medicaid Abortion Funding Restrictions on Abortions, Pregnancies, and Births* 22 (Nat'l Bureau Econ. Res., Working Paper No. 5066, 1995).

Table 2: Data Sources

Variable	Source
Percent of women of childbearing age between 15–19	U.S. Census Bureau
Percent of women of childbearing age between 20–24	U.S. Census Bureau
Percent of women of childbearing age between 25–29	U.S. Census Bureau
Percent of women of childbearing age between 30–34	U.S. Census Bureau
Percent of women of childbearing age between 35–39	U.S. Census Bureau
Percent of women of childbearing age between 40–44	U.S. Census Bureau
Percent of women of childbearing age who are Black	U.S. Census Bureau
Percent of women of childbearing age who are Hispanic	U.S. Census Bureau
Percent of women of childbearing age 15–44 who are Native American	U.S. Census Bureau
Percent of women of childbearing age who are Asian	U.S. Census Bureau
Real Per Capita Personal Income	Bureau of Economic Analysis
Real Per Capita Income Growth	Bureau of Economic Analysis
Annual Change in the Unemployment Rate	Bureau of Labor Statistics
Data on Medicaid Funding For Abortion	New (2014); Merz, Jackson and Klerman (1995)
State Informed Consent Laws	New (2014)
State Data on Contraception Mandates	Alliance Defense Fund

State Data on Unintended Pregnancy Rates	Kost 2013
State Data on Abortion RatesGuttmacher	CDC

In this article, I ran my regressions on the natural log of each of the dependent variables. This allows us to measure the impact of contraception mandates in percentage terms. It also reduces the impact of statistical outliers and serves as a partial correction for heterosketasticity. All of the regressions were run using a generalized least squares model with an AR1 correction for autocorrelation. Year fixed effects are used in every model to hold constant factors that vary over time such as the strength of the national economy. In the first set of regressions, a random effects model is used where state indicator variables are not held constant. In the second and third set of regressions, a fixed effects model will be used where state indicator variables will be held constant. The results of the first set of regressions can be found in Table 3.

Table 3: Regression Results: Analyzing the Effect of State Level Contraception Mandates

Technique: General Least Squares with a Correction for Autocorrelation:
Random Effects Model (No State Fixed Effects)

	Model 1	**Model 2**	**Model 3**
	ln Unintended Pregnancy Rate	ln Abortion Rate (CDC)	ln Abortion Rate (AGI)
Percent 20–24	-0.020	0.090***	0.096**
	(0.019)	(0.032)	(0.041)
Percent 25–29	0.030*	0.059**	0.078***
	(0.018)	(0.028)	(0.030)
Percent 30–34	0.014	0.010	0.034
	(0.017)	(0.028)	(0.032)
Percent 35–39	-0.044**	0.010	0.184***
	(0.026)	(0.038)	(0.054)

Percent 40–44	0.015	0.096**	0.039
	(0.019)	(0.041)	(0.047)
Percent Black	0.012***	0.016***	0.015***
	(0.001)	(0.004)	(0.003)
Percent Hispanic	0.006***	0.018***	0.014***
	(0.001)	(0.004)	(0.003)
Percent Native American	0.010***	0.001	0.011
	(0.001)	(0.009)	(0.011)
Percent Asian	0.007***	0.006	0.009**
	(0.001)	(0.004)	(0.004)
ln (Per Capita Personal Income)	0.172***	0.597**	1.393***
	(0.066)	(0.250)	(0.265)
Percent Change Real Per Capita Personal Income	0.003	-0.005***	-0.030***
	(0.003)	(0.002)	(0.007)
Annual Change in Unemployment Rate	0.019	-0.001	-0.036
	(0.012)	(0.008)	(0.022)
Medicaid Funding of Abortion	---	0.136*	0.101
		(0.070)	(0.070)
Informed Consent Law (Requiring Two Visits)	---	-0.119#	-0.076
		(0.073)	(0.089)
Contraception Mandate	-0.016	0.068**	0.083*
	(0.016)	(0.030)	(0.049)
Number of Observations	154	956	324
R Squared	0.815	0.361	0.673

\# significant at the 11 percent level; * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

<u>Notes</u>:   Individual year variables are held constant; standard errors are in parentheses.

The results indicate that states with contraception mandates have similar rates of unintended pregnancies as states that do not have contraception mandates. In Model 1, the coefficient for the state contraceptive mandates variable is very small and fails to achieve conventional standards of statistical significance. Additionally, the model indicates that states with contraception mandates actually have higher abortion rates than states without a contraceptive mandate. In Models 2 and 3, the coefficient indicating the presence of a contraceptive mandate is both positive and statistically significant.

The demographic variables are interesting. The age variables had a mixed impact on the unintended pregnancy rate; however, there is some evidence that when the demographic of women of childbearing age is older, the abortion rate increases. Additionally, states where a higher percentage of women of childbearing age are racial minorities have both higher unintended pregnancy rates and higher abortion rates. The coefficient for percentage African American and percentage Hispanic was positive and statistically significant in all three regression models.

Wealthier states, as measured by per capita personal income, have higher rates of both unintended pregnancies and abortions than poorer states. This is an unexpected finding. The abortion policy variables had the expected effects. The variable for Medicaid funding of abortions was positive in both models and statistically significant when abortion data from CDC data was analyzed. Similarly, the variable indicating the presence of an informed consent law requiring two visits to the abortion facility was negative in both models and approached levels of statistical significance when data from the CDC was analyzed.

The previous regression results were run with a model that included year indicator variables, but no state indicator variables. I will re-run the regressions with a fixed effects model that includes state indicator variables. The state fixed effects allow the model to compare unintended pregnancy rates and abortion rates in the same state both before and after the parental involvement laws were enacted. As such, the model captures the effects of the *enactment* of a contraception mandate instead of just the *presence* of a contraception mandate. The state fixed effects also control factors that vary across states, but do not vary much across time, such as geography and citizen ideology. Table 4 shows the results of the state fixed effects model.

Table 4: Regression Results: Analyzing the Effect of
State Level Contraception Mandates

Technique: General Least Squares with a Correction for Autocorrelation:
Fixed Effects Model (State and Year Indicator Variables)

	Model 1	**Model 2**	**Model 3**
	ln Unintended Pregnancy Rate	ln Abortion Rate (CDC)	ln Abortion Rate (AGI)
Percent 20–24	0.031 (0.019)	-0.038 (0.028)	0.016 (0.035)
Percent 25–29	0.034 (0.020)	-0.054** (0.025)	0.013 (0.025)
Percent 30–34	0.034*** (0.012)	-0.074*** (0.026)	-0.032 (0.030)
Percent 35–39	0.040* (0.024)	-0.047** (0.033)	0.123*** (0.046)
Percent 40–44	0.077*** (0.027)	-0.131*** (0.042)	-0.070 (0.047)
Percent Black	0.035*** (0.011)	0.049** (0.021)	0.031 (0.020)
Percent Hispanic	-0.048*** (0.007)	-0.002 (0.009)	-0.022** (0.009)
Percent Native American	0.057 (0.046)	0.020 (0.017)	0.014 (0.018)
Percent Asian	0.009 (0.012)	0.012 (0.009)	0.010 (0.010)
ln (Per Capita Personal Income)	0.534*** (0.166)	-1.433*** (0.335)	1.704*** (0.440)

Percent Change	0.000	0.007**	-0.027***
Real Per Capita Personal Income	(0.003)	(0.002)	(0.007)
Annual Change in	0.011	-0.002	-0.071***
Unemployment Rate	(0.008)	(0.008)	(0.022)
Medicaid Funding of Abortion	---	0.030	0.104
		(0.082)	(0.087)
Informed Consent Law	---	-0.061	-0.084
(Requiring Two Visits)		(0.063)	(0.066)
Contraception Mandate	0.000	0.039	0.034
	(0.022)	(0.027)	(0.042)
Number of Observations	154	956	324
R Squared	0.97	0.902	0.925

* significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level

Notes: Individual year variables are held constant; standard errors are in parentheses.

The results from the state fixed effects model demonstrate that the enactment of a state contraception mandate does little to change either the unintended pregnancy rate or the abortion rate. The regression results indicate that contraception mandates have no effect on the unintended pregnancy rate and result in a slight increase in the abortion rate; however, the coefficient for the contraception mandate variable is small in all three regressions and does not come anywhere near conventional standards of statistical significance.

In this set of regressions, the variables measuring racial demographics lose some of their size and significance. This is unsurprising since this set of regressions includes a set of state indicator variables, and state level racial demographics typically exhibit little change from year to year. Interestingly, it appears that in states where the percentage of Hispanics is increasing, there are statistically significant reductions in both the abortion rate and the unintended pregnancy rate. The coefficient for the Hispanic variable is negative in all three regressions and statistically significant in two.

The economic variables have inconsistent effects. High levels of per capita personal income appear to increase both the rate of unintended pregnancy and the rate of abortion when measured by Guttmacher; however, high levels of per capita income lower the abortion rate when the CDC measured it. Similarly, high rates of economic growth increase the abortion rate when the CDC measures it and lower the abortion rate when it is measured by Guttmacher. It is unclear why there are these inconsistencies. It is possible that too many economic variables are being included in these regression models. In future research, I will consider holding constant fewer economic variables.

Finally, the signs for the abortion policy variables are all in the expected direction. In both regressions, the coefficient for the Medicaid funding variable is positive, and the coefficient for variables for the two-visit requirement is negative. None of these variables reach conventional standards of statistical significance in these models. However, it should be noted that this study analyzes fewer years of abortion data than other studies that have analyzed state level abortion policy.[79] Additionally, during this timespan (1990–2010) only two states, New Mexico and Minnesota, enacted significant changes in their policies regarding Medicaid funding of abortion.[80] This partially explains why the abortion policy variables may not be as strong as they were in other analyses of state abortion policy.

The past two sets of regressions show that contraceptive mandates have little impact on either unintended pregnancy rates or abortion rates; however, as Table 1 indicates, there exists variation within these contraceptive mandates. Most mandates only require that those health insurance plans that cover prescriptions or outpatient services cover contraceptives; however, five states have enacted more comprehensive mandates that require all health insurance plans to cover contraceptives. It is possible that more comprehensive mandates may have a larger impact on public health outcomes. As such, another set of regressions is run to analyze the impact of this set of contraception mandates. The results are presented in Table 5.

Table 5: Regression Results: Analyzing the Effect of State Level Contraception Mandates

Technique: General Least Squares with a Correction for Autocorrelation:
Fixed Effects Model (State and Year Indicator Variables)

	Model 1	Model 2	Model 3

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79.   *See* New, *supra* note 77, at 236.

80.   *Id.* at 235–37.

	ln Unintended Pregnancy Rate	ln Abortion Rate (CDC)	ln Abortion Rate (AGI)
Percent 20–24	0.031 (0.019)	0.041 (0.028)	0.013 (0.035)
Percent 25–29	0.034 (0.020)	-0.057** (0.025)	0.011 (0.025)
Percent 30–34	0.034*** (0.012)	-0.077*** (0.026)	-0.028 (0.030)
Percent 35–39	0.040* (0.024)	-0.050 (0.033)	0.119*** (0.046)
Percent 40–44	0.077*** (0.027)	-0.134*** (0.042)	-0.066 (0.047)
Percent Black	0.035*** (0.011)	0.049** (0.022)	0.023 (0.022)
Percent Hispanic	-0.048*** (0.007)	0.000 (0.009)	-0.020** (0.008)
Percent Native American	0.057 (0.046)	0.020 (0.017)	0.021 (0.020)
Percent Asian	0.009 (0.011)	0.012 (0.010)	0.018 (0.014)
ln (Per Capita Personal Income)	0.533*** (0.166)	-1.411*** (0.337)	1.685*** (0.438)
Percent Change Real Per Capita Personal Income	0.000 (0.003)	0.007** (0.003)	-0.028*** (0.007)
Annual Change in Unemployment Rate	0.011 (0.008)	-0.001 (0.008)	-0.068*** (0.022)

Medicaid Funding of Abortion	---	0.027 (0.082)	0.103 (0.087)
Informed Consent Law (Requiring Two Visits)	---	-0.065 (0.063)	-0.085 (0.065)
Strong Contraception Mandate	0.435 (0.853)	0.055 (0.066)	0.137 (0.125)
Number of Observations	154	956	324
R Squared	0.815	0.902	0.924

* significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

<u>Notes</u>:   Standard errors are in parentheses.

The coefficients for the other economic, demographic, and policy variables exhibit little change from the previous set of regressions; however, what is of most interest is the variable measuring the presence of a broader contraceptive mandate. The regression results indicate that these broader contraception mandates actually appear to increase both the unintended pregnancy rate and the abortion rate. The coefficient for the comprehensive contraceptive mandate variable is positive in all three regressions. Since the coefficient never reaches conventional levels of statistical significance, we cannot be statistically confident that these mandates actually increase the incidence of either abortion or unintended pregnancy; however, there is certainly no evidence they reduce either the abortion rate or the unintended pregnancy rate. As such, these broader mandates appear to offer no discernable public health benefit.

CONCLUSION

The 2012 mandate by the Department of Health and Human Services (HHS) requiring that private health insurance plans cover all FDA-approved contraceptive drugs has certainly generated a great deal of media attention and controversy. Much of the ensuing debate has involved whether this mandate violates the conscience rights of religious groups or religious employers. There has been relatively little public discussion as to the public

health implications of this mandate or whether this mandate serves a compelling state interest.

Since the early 1990s, twenty-eight states have issued similar mandates requiring private health insurance plans to cover contraceptives.[81] As such, an analysis of state level data can provide insights as to the public health implications of these contraceptive mandates. My research, which analyzed data from all fifty states on abortion rates and unintended pregnancy rates, found little evidence that contraception mandates lower either the incidence of abortion or unintended pregnancy. These findings add to a substantial body of research, which finds that programs designed to encourage or facilitate contraceptive use offer little, if any, public health benefit.

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81.   *See Insurance Coverage for Contraception Laws*, *supra* note 71.