Pathways to Parenthood:

Regulating Assisted Reproductive Technologies in the United States

By

Kellee J. Kirkpatrick

Submitted to the graduate degree program in Political Science
and the Graduate Faculty of the University of Kansas
in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

_____
Chairperson Alesha E. Doan

_____
Donald P. Haider-Markel

_____
Allan J. Cigler

_____
Mark R. Joslyn

_____
Joey Sprague

Date Defended: Friday, December 7, 2012

The Dissertation Committee for Kellee J. Kirkpatrick
certifies that this is the approved version of the following dissertation:

Pathways to Parenthood
Regulating Assisted Reproductive Technologies in the United States

_____
Chairperson Alesha E. Doan

Date Approved: Friday, December 7, 2012

Abstract

According to the Centers for Disease Control, approximately 10.8 percent of women and 7.5 percent of men in the United States have sought infertility treatment. With advances in medical technology, treatment options range from drug therapy, to in vitro fertilization, to surrogate parenthood. These new technologies – often referred to as assisted reproductive technologies (ART) – have provided infertile couples with new options for becoming parents. They have also opened the door for non-traditional families to be formed, allowing single women and same-sex couples the opportunities to enter parenthood. While ART appears to present a solution to the heartache of infertility, it also evokes debates about women's rights, gay parenting, and eugenics. Thus, debate over the use of assisted reproductive technologies places itself at the intersection of our greatest hopes and biggest fears.

More than half of the states have some form of regulation of ART, and these policies vary in scope and influence. This dissertation amasses a comprehensive set of data on state regulation of reproductive technologies and addresses three objectives. The first objective is to understand the ways in which states have attempted to regulate the use of ART. These forms of regulation include banning or restricting contracts with surrogate mothers, limiting who can become a surrogate, determining the legal parentage of children conceived using these technologies, regulating the disposition of excess embryos, and preventing single women from using ART. The second objective is to understand why states are passing such legislation and why there is such variation in state regulation. The final objective is to assess the impact of these regulations on access to fertility treatments in a state.

The findings in this analysis show that states have approached the regulation of ART in a variety of ways. Some states have created permissive ART environments with their various legislative and judicial outputs, and some have created restrictive environments. The results suggest that most state regulation does not have a significant impact on the availability of ART options within a state. The results do show, however, that states' efforts to increase access through insurance mandates have increased fertility treatment options.

Acknowledgements

There is an African proverb that says "it takes a village to raise a child." I believe that proverb could be extended to say that it also takes a village to complete a dissertation. I would not have been able to complete this project or my graduate work without the guidance, love, and support of many important people in my life. I would like to extend my gratitude to the many people who helped me achieve this goal.

First, I would like to thank my dissertation committee (Mark Joslyn, Allan Cigler, Don Haider-Markel, and Joey Sprague) for all the valuable feedback during the dissertation process and throughout my graduate career. I appreciate all the thoughtful comments and encouragement along the way.

I would especially like to thank my advisor, Alesha Doan. I cannot express just how much I appreciate all that you have done for me. You definitely went above and beyond in your role as advisor. I knew I could always rely on you for sound advice, encouragement, and some occasional "tough love." You have pushed me to be a better scholar, teacher, and person. I could not ask for a better mentor. I hope you recognize how much of an impact you have on the students at our university. From the bottom of my heart, I thank you.

I would also like to thank the library staff at the University of Kansas, especially Amalia Monroe and John Stratton, for the dissertation workshops and help with finding unique and useful data.

Thank you to all my friends who served as a support system during this project. I am grateful to the members of the Pink Brigade for providing the laughs and stress relief that I so needed. I would also like to thank Kristina Youngblood for the many late night trips to get frozen yogurt and Sarah Kapfer-Dicker for being my trainer/counselor/friend. Also, I would like to thank Heather Yates for being my accountability partner, Dillon's office companion, and soul sister.

Thank you to my family for the support and understanding during this process. I promise that I can now become a contributing member of the family again. Mom and Dad, thank you for teaching me how to work hard and never give up. You raised me to believe that I could achieve anything, and now, thanks to you, I know I can. Thanks to Kody and Holly (and now Teal) for being my own personal cheering section and comic relief team. Also, thanks to my cousins Kip and Ashley for allowing me to live with you during my transition period.

Last, but certainly not least, I want to thank my amazing husband. Jim, I could not have finished this dissertation without you. Thank you for all the late night talks about research and methods, for all the editing, for putting up with my stress, for always knowing what to say, for the many hours spent driving between Texas and Kansas, for being my best friend, and for so much more. I am continually inspired by your drive and passion for what you do, and I am grateful that we are a team.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

The birth of Louise Brown, also known as the first "test tube baby," in 1978 opened the door for greater acceptance of assisted reproductive technologies. Prior to her birth, the public was skeptical and fearful of such practices, labeling them as unethical and vulgar (Andrews and Elster 2000; Markens 2007). Even members of the scientific community were concerned that this first baby born using in vitro fertilization might suffer from a host of birth defects and complications (Henig 2010). Louise Brown, however, was a perfectly healthy, normal baby, and her birth began to change perceptions of assisted reproductive technologies around the world. Since the birth of Louise Brown, it is estimated that more than four million babies have been conceived using in vitro fertilization across the globe (Henig 2010).

In vitro fertilization and other assisted reproductive technology methods have created new pathways for individuals facing childlessness to become parents. According to the Centers for Disease Control and Prevention (CDC), approximately 10 percent of women (6.1 million women) and 7.5 percent of men (4.7 million men) have sought out fertility treatment in the United States. These numbers only reflect those who have sought treatment and do not necessarily reflect the true number of those who are unable to conceive. As of 2010, there were more than 450 fertility clinics in the United States, offering a variety of treatment options to those wanting assistance to become parents. Treatment options can range from drug therapy, to artificial insemination, to in vitro fertilization, to contracting with a surrogate to carry the child through gestation (CDC 2012a; Markens 2007).

These new methods of achieving pregnancy and their increased acceptance have prompted the federal government and state governments to regulate the use of these technologies. Only one federal law, the Fertility Clinic Success Rate and Certification Act of 1992 (FCSRCA), exists. This law requires the CDC to collect data on fertility clinics across the United States and report on fertility treatment use and success rates. It also required the CDC to establish guidelines and fertility lab standards. However, states are allowed to adopt and enforce their own lab guidelines and standards (Lal 1997).

States have approached the regulation of assisted reproductive technologies in varying ways. Some states have adopted legislation that limits the use of these technologies by restricting access to certain populations or even criminalizing the use of surrogate contracts. Other states have passed legislation that increases access to fertility treatments by requiring insurance companies to cover treatments or by recognizing the legality of surrogate contracts. There are a number of states that have chosen not to pass legislation on various aspects of assisted reproductive technologies (ART). In these instances, state courts are left to determine the outcomes of complex, and often bitter, disputes, and these court decisions set important precedents for the future use of ART in the states. This patchwork of legislation and case law within the states creates 50 different unique environments toward ART, some friendlier than others.

Understanding what accounts for the emergence of ART as a social problem worthy of public and legislative attention is the primary focus of this dissertation. This exploration will encompass a variety of analyses that will attempt to understand how states have chosen to regulate ART, what influences the nature of this regulation, and what effects this regulation has had on access to fertility treatments in a state. To begin this exploration, this chapter will

provide a brief history of ART in the United States, discuss the different available treatments and some common terms used when discussing ART, and outline the structure of this exploration of state regulation of assisted reproductive technologies.

History of ART in the United States

Although the first baby using in vitro fertilization was not born until 1978 in England, humans have been exploring the possibilities of assisted reproduction for some time. Assisted reproduction was first used in the fourteenth century to assist in the breeding of animals, namely highly prized Arabian horses (Herman 1981, 2; Mamo 2007). In the sixteenth century, several low technology methods were recommended and used to assist with human conception. In 1550, Eustachius, a well-known physician at the time, claimed to successfully assist a couple with reproduction by recommending that the husband use his fingers to direct the sperm toward the cervix after intercourse (Cusine 1988). Despite these few early documentations of ART, prior to the late nineteenth century, women did not seek out medical solutions to problems of infertility. They instead turned to religion and clergy to understand childlessness (Mamo 2007). Beginning in the eighteenth and nineteenth centuries, issues of women's health and reproduction moved out of the private realm and began to become dominated by the medical community (Gordon 2002; Mamo 2007). During this period, infertility and reproductive issues became medicalized. Medicalization occurs when health issues become labeled as an "illness" or "disease" and become placed under the jurisdiction of medicine. When medicalization of the female body occurred, medical knowledge became privileged and women's knowledge of their own bodies and the knowledge of midwives and "wise women" was downplayed and delegitimized (Gordon 2002; Woliver 2002).

Increased medical knowledge introduced new "solutions" to the medicalized disease of infertility. In 1909, artificial insemination was used as the first reported "cure" for human infertility. Despite the success of this treatment, using donor sperm was considered unnatural, immoral, and even labeled by some as adultery (Hard 1909; Mamo 2007; Pfeffer 1993). By the 1960s, multiple forms of treatments to assist ovulation were developed and began to be extensively used by the 1970s (Chen and Wallach 1994; Mamo 2007).

The 1970s saw the introduction of new methods to treat infertility. As previously mentioned, in 1978, Louise Brown became the first "test tube" baby born as a result of in vitro fertilization outside the womb. Although this scientific breakthrough occurred in England, scientists in the United States were also working toward achieving conception outside the womb, or in vitro, literally meaning "in glass" (Henig 2010). In fact, in 1973, several New York doctors attempted to assist John and Doris Del-Zio by performing fertilization outside the womb. At this time, in vitro fertilization in the United States was in its early stages and had only been practiced on lab mice. Dr. Landrum Shettles, without authorization or hospital privileges, collected gametes from the Del-Zio's, fertilized the egg, and then placed the fertilized egg in an incubator to be implanted into Mrs. Del-Zio four days later. Authorities at Columbia Presbyterian Medical Center soon discovered the test tube in the incubator and discarded it. Several years later, the Del-Zio's filed suit against the hospital. In August 1978, one month after the birth of Louise Brown, the Del-Zio's won their case, but received only $50,000 in damages (Henig 2004; Test Tube Babies 2006).

The birth of Louise Brown, along with the Del-Zio case, opened the door to other reproductive options including the use of donor sperm, donor eggs, and even donor wombs (surrogate parenting). Use of such assisted reproductive technologies has since exploded with a

significant number of fertility clinics opening in the 1980s. Today nearly 450 fertility clinics exist in the United States, and the Centers for Disease Control estimates that in 2010 more than 47,000 babies in the United States were born using some form assisted reproductive technology (CDC 2012b).

Although these technological advances have created new ways for individuals to become parents, they have also been accompanied by controversy and dispute. State legislatures and courts have had to wade through these new waters, addressing this uncharted and growing issue area. One of the most memorable events in ART history was the custody dispute over Baby M, which played out in the New Jersey high courts in 1984 (Markens 2007). Baby M was conceived through a surrogate pregnancy arrangement. This surrogacy arrangement turned into a nationalized dispute when the biological, birth mother of the child fled to Florida rather than relinquish the child to the intended mother and biological father as the contract had stipulated. This case drew national attention (and a made-for-television movie), which sparked discussion and legislation about the legality of surrogacy contracts.

Disputes about custody are only a few of the issues that can occur with the use of ART. States have had to consider what should be done with excess embryos, who should be able to use ART, whether insurance should cover ART procedures, and how courts should consider surrogacy contracts. These considerations are joined by concerns about the morality of ART. The Catholic Church has condemned the use of any form of assisted reproduction that takes the place of natural conception (USCCB 2009), and there is a clear connection between ART and stem cell research, the abortion debate, and gay parenting.

Use of assisted reproductive technologies is also very costly. The price tag for fertility treatments can range anywhere from $10,000 to more than $100,000 per cycle depending on

whether a couple is using donor gametes or involving a surrogate (Spar 2006). These high costs obviously prevent many from taking advantage of fertility treatments. So while ART appears to present a solution to the heartache of childlessness, not all can afford this solution. Those who are able to use these technologies face unmapped territory as many state legislatures and courts have not established clear guidelines for action when disputes arise. This project attempts to understand how states have come to have such varied and sometimes ambiguous stances toward the use of ART.

Treatment Options and Terms

There are a variety of fertility treatments options available. One of the most common treatments is the use of fertility drugs, many of which are intended to increase ovulation (CDC 2012b). Other treatments include surgeries for females or males that attempt to restore proper function of the anatomy. Some individuals choose to use artificial insemination which involves injection of sperm. Individuals can choose to use sperm from a spouse, also known as AIH, or from a known or unknown donor, also referred to as AID (Cusine 1988).

This dissertation primarily focuses on the use of assisted reproductive technologies that involve removing an egg or eggs from a woman's body, fertilizing outside the womb, and implanting the resulting embryos into a woman for gestation (CDC 2012b). The process of fertilizing an egg outside of the womb is known as in vitro fertilization. Individuals can choose to have embryos implanted into the biological mother or a gestational carrier. The process of using a gestational carrier is known as surrogacy.

There are several types of surrogacy. The first type is traditional surrogacy. In a traditional surrogacy arrangement, a surrogate agrees to be artificially inseminated, to carry the child, and to surrender custody of the child upon birth to one or more intended parents. Intended

parents are individuals who enter into a surrogacy agreement with the intent to raise the child that results from the arrangement (CDC 2012b; Arons 2007).

Table 1.1: Glossary of Assisted Reproductive Technology Terms

Term	Definition
Artificial Insemination	A procedure in which a fine catheter (tube) is inserted through the cervix (the natural opening of the uterus) into the uterus (the womb) to deposit a sperm sample from a donor.
Artificial Insemination, Husband (AIH)	Artificial insemination in which the donor is the husband (Cusine 1988).
Artificial Insemination, Donor (AID)	Artificial insemination in which the donor is not the husband (Cusine 1988).
Cryopreservation	The process of cooling and storing cells, tissues, or organs at very low temperatures to maintain their viability.
Embryo	An organism in the early stages of growth and differentiation, from fertilization to the beginning of the third month of pregnancy (in humans).
Fetus	An unborn offspring, from the embryo stage (the end of the eighth week after conception, when the major structures have formed) until birth.
Gamete	Either the egg or the sperm cell; a reproductive cell.
Gestational Surrogate	"A woman who agrees to be impregnanted with another woman's fertilized egg and give birth to a child who will be raised by others" (Arons 2007).
In Vitro Fertilization (IVF)	A laboratory procedure in which sperm are placed with an unfertilized egg in a Petri dish to achieve fertilization. The embryo is then transferred into the uterus to begin a pregnancy or cryopreserved (frozen) for future use.
Intended Parents	"People who use assisted reproductive technologies to create a child whom they intend to parent, whether or not they have a genetic or biological relationship to that child" (Arons 2007).
Ovum	An egg within the ovary of the female.
Traditional Surrogate	"A woman who agrees to be impregnated through artificial insemination and give birth to a child who will be raised by others" (Arons 2007).

Note: All definitions, unless otherwise noted, come directly from MedicineNet.com.

The second type of surrogacy is gestational surrogacy. In this situation, the surrogate is not biologically related to the child. Instead, she agrees to be implanted with an embryo, carry the child, and surrender custody upon birth. Gestational surrogacy can involve the use of donor eggs or donor embryos. This means that the intended parents may or may not be biologically related to the resulting child (CDC 2012b; Arons 2007).

The different types of fertility treatments demonstrate the variety of parental relationships that can be established. They also foretell the many disputes that can arise from the use of ART including disputes over the disposition of embryos, custody disputes, and the enforceability of surrogacy arrangements. This dissertation uses a variety of terms to describe these complex processes. Table 1.1 includes a glossary of commonly used terms in the ART vernacular.

Plan for this Dissertation

The guiding research goal for this dissertation is to understand how reproductive technologies have become a topic worthy of public and legislative attention. This analysis will seek to understand how states have regulated the use of assisted reproductive technologies, what states are more likely to have permissive or restrictive regulation, and how this regulation has impacted access to fertility treatments in the United States.

To begin this exploration, Chapter 2 will address the theoretical approaches to understanding state ART regulation. This chapter will discuss three bodies of literature including body politics, social construction of target populations and morality policy. These literatures will be used as a theoretical framework for developing a set of testable hypotheses.

A new measure of state regulation of ART will be developed in Chapter 3. This measure will provide a comprehensive way to assess whether a state has created a permissive or

restrictive environment toward the use of ART. This measure will be based on all judicial and legislative activity pertaining to assisted reproductive technologies.

Chapter 4 will include a rich, descriptive analysis of state legislation and case law. This chapter will provide an in-depth look at how states are approaching the issue of ART within their borders. The measures developed in Chapter 3 will be tested in Chapter 5. The analysis in this chapter will seek to understand which states are more likely to have permissive or restrictive environments. This analysis will attempt to uncover any patterns among states that have similar policies and case law.

The final analysis in Chapter 6 will examine whether state regulation is having an impact on access to fertility treatments. Specifically, this chapter will seek to understand whether restrictive state environments impact the number of fertility clinics in a state and what treatment options those clinics choose to offer. The final chapter will discuss the overall findings and offer suggestions for future exploration of this ever evolving policy issue. In its entirety, this project seeks a better understanding of how governments have come to regulate a technology that holds the promise of new pathways to parenthood.

Chapter 2

Theoretical Perspectives

Introduction

The issue of assisted reproduction is complex and multi-faceted. It spans issues of health, medical technology, economics, regulation of the body, constructions of family, race, class, sexuality, and gender. Although the issue itself is quite complex and reaches into many areas, it can also be boiled down into simple and easily accessible concepts. At its most basic, the issue of assisted reproductive technology is a multi-billion dollar industry that provides individuals with a potential solution to childlessness.

This simultaneously simple and complicated issue necessitates a complex theoretical approach. No single theoretical approach adequately provides an explanation of the regulation in this issue area. As such, this chapter will draw upon several bodies of literature to develop a framework for understanding state action pertaining to the regulation of assisted reproductive technologies in the United States. Sabatier (2007, 4) reminds us that "given the staggering complexity of the policy process, the analyst must find some way of simplifying the situation in order to have any chance of understanding it. One simply cannot look for, and see, everything." This exploration of theory will provide direction in answering the primary research question of this project: What accounts for the emergence of assisted reproductive technologies (ART) as a social problem worthy of public, legislative, and judicial attention?

The first theoretical approach discusses body politics and explores the development of how bodies have become regulated. This body of literature expands our understanding of how

and why infertility and the use of ART is an issue that has been pulled from the private realm and pushed into the realm of public regulation.

The second theoretical approach discusses the social construction of target populations. Social construction of target populations is the idea that policymakers "construct target populations in positive and negative terms and distribute benefits and burdens so as to reflect and perpetuate constructions" (Ingram, Schneider, and DeLeon 2007, 93). Social construction theory can help to explain why different populations often receive different treatment in terms of public policy and perhaps highlight the reason for the vast differences we see in the types of policies and judicial outcomes concerning the use of ART (Schneider and Ingram 1993).

Finally, this chapter will discuss the role of morality politics in the regulation of ART. While this issue largely remains a private issue, the Vatican has taken an official position against the use of such technologies (Stein and Boorstein 2008). Furthermore, as previously discussed, these technologies are deeply entangled with debates about abortion, stem cell research, and gay parenting. Although these debates are not always the first frames that come to mind when discussing techniques to treat infertility, these connections run just below the surface of the issue. As such, the morality politics literature can also help to further our understanding of the trajectory of ART regulation in the states.

Alone, each of these of theoretical perspectives paints an incomplete picture of ART regulation in the United States. When working in tandem, however, we can construct a more complete narrative of how ART came to be a public issue, why we see such diverse policy among the states, and how moral and economic forces continue to guide the trajectory of state legislation and case law.

Body Politics and Medicalization: How a Private Issue has Become Public

The first theoretical perspective that can help to inform our understanding of state regulation of assisted reproductive technologies is body politics. Body politics refers to the ways in which human bodies are socially constructed. These constructions govern what functions and behaviors of the body are deemed normal or deviant by society and also what information and understandings about the body are privileged (Scott and Morgan 1993). This line of literature can help us to understand how the individual and private choice to seek alternative methods to become a parent has become a public issue that is dominated by the medical community, and thus a target for governmental intervention and regulation.

The process by which a private issue becomes redefined as a medical issue is known as medicalization, and the medicalization of reproductive issues began in the late eighteenth century. Prior to this time period, reproduction and infertility was viewed as a private issue. Although men can also be infertile, women often bore the sole responsibility for infertility and they turned to their clergy for advice and counsel. The inability to bear a child was viewed as an act of God, and seeking treatment was perceived as an act of defiance to God's will (O'Dowd 2011). Even so, women often sought out home remedies such as special potions or herbal teas to try and treat infertility.

The medicalization of infertility began in the late eighteenth century and early nineteenth century as the medical profession began to grow. In an effort to build confidence in the medical field, doctors began to discredit the practical knowledge of midwives and downplay a woman's knowledge of her own body. This served to elevate or privilege medical knowledge, taking the authority over female bodies and placing it in the hands of the male-dominated medical field

(Marsh and Ronner 1996). This process was aided by the invention of the speculum which opened a window to female anatomy.

During this time period, infertility became defined as a "medical condition" rather than a "social state" or act of God (Marsh and Ronner 1996, 2; Cusine 1988). By 1850, doctors had developed surgical techniques to treat infertility and women subjected themselves to these invasive and often ineffective procedures (O'Sullivan and Brandon-Christie 2004; McGregor 1990). The treatment of infertility continued to evolve, and treatment options expanded. In the 1920s, infertility treatments centered on the role hormones played in impeding pregnancy. Although low technological forms of artificial insemination had been around for some time, it became a popular method for assisting in conception in the 1930s (Cusine 1988). In the 1960s, doctors began prescribing fertility enhancing drug regimens, and in 1978, the first child conceived through in vitro fertilization was born (Marsh and Rommer 1996). In 1993, the World Health Organization classified infertility as a disease and categorized it as a condition "requiring medical intervention" (Mamo 2007, 30). This classification further bestowed the medical community with privileged knowledge and increased medical authority over a woman's body, and women's bodies became "viewed as flawed machines requiring expert intervention" (Greil 2002, 102).

Researchers have hypothesized that the medicalization of reproduction has led to the loss of women's control over their own bodies as medicine began to "take on the role of social regulation traditionally performed by religion and the law" (Lupton 1997, 95; Zola 1972; Freidson 1970). The medical field was able to classify and define natural body function, and any activity that deviated from this definition was labeled as a pathology or disease.

The classification of infertility as a disease has added to the intense pressure for women and couples to seek out and submit to any and all available forms of infertility treatments (Inhorn and Birenbaum-Carmeli 2008). The personal desire to have children is strong, and many women and men go to great lengths to grow their families. This personal need to reproduce is reinforced by the medical community which frames assisted reproductive technologies as the "only choice" or "last hope" for becoming pregnant (Lasker and Borg 1987, 17). There are also cultural pressures to seek medical intervention. Society has created normalized ideas of what it means to be female, and for women, "the cultural ideal is almost always focused on motherhood" (Lasker and Borg, 13). Those who are unable to have children or who do not take extreme measures to conceive are "in some way diminished, failed, subjects for pity or even disapproval" (Edwards 1989, 25).

These intense personal desires, coupled with medical and societal pressures, drive women to undergo years of treatments. They sometimes subject their bodies to drug regimens which cause mood swings and induce superovulation, or undergo invasive treatments to harvest gametes and re-implant embryos (Inhorn and Birenbaum-Carmeli 2008). These treatments can put them at risk for health complications, can derail careers, and can jeopardize their financial stability (Cousineau and Domar 2007). With an ever-increasing number of treatment options, individuals undergoing treatment remain hopeful, sometimes developing unrealistic expectations about outcomes. Those undergoing treatment have begun to "define themselves not as childless, but as 'not yet pregnant'" (Whiteford and Gonzalez 1995, 27).

The medicalization of infertility placed this personal, private issue in the hands of the medical community. This process has brought about many new treatment options for those

facing the heartache of childlessness. Medicalization, however, has made assisted reproductive technologies and those who wish to use these methods, a target for government regulation.

Social Construction of Target Populations: Constructing a Diverse Set of Policies

As noted, society has played a role in the creation of ideal images and functions of the female body. Society, along with social policies passed by Congress and state legislatures have also contributed to the definitions of ideal parents and families. These sets of social ideals are known as social constructions, and scholars define a social construction as "a cognitive categorization comprising normative judgment, created by actors to make sense of a situation and to communicate this sense through discourse" (Montpetit, Rothmayr, and Varone 2005). These constructions are often enduring and difficult to change (Ingram, Schneider, and DeLeon 2007).

These normative ideals of family are often based on the ties of biology. Assisted reproductive technologies that allow individuals to conceive children outside the traditional family unit challenge culturally held ideas about family. These new technologies open the door for non-traditional families to be formed, and while ART is "acclaimed for enabling the creation of enduring, affectionate families; equally it can be, and is, condemned for manipulating the dimension of human reproduction and thereby contributing to the breakdown of traditional family life" (Dolgin 1997, 31). These culturally constructed images define the boundaries of who should become parents, and those who deviate from this prescribed image are viewed negatively or are seen as deviants.

The cultural construction of ideal parents has implications for policy outcomes (Powell et al. 2010), and this appears to be exemplified in the issue of ART. Scholarship has found that policy outcomes are affected by social constructions and benefits and burdens of a policy are

distributed to different populations based on whether a population has a positive or negative social construction and whether the target population has strong or weak political power (Schneider and Ingram 1993, 1997; Soss 1999; Rochefort and Cobb 1994).

Table 2.1: Social Constructions and Political Power: Types of Target Populations

Power	Constructions: Positive	Constructions: Negative
Strong	**Advantaged** *The Elderly* *Business* *Veterans* *Scientists*	**Contenders** *The Rich* *Big Unions* *Minorities* *Cultural Elites* *Moral Majority*
Weak	**Dependents** *Children* *Mothers* *Disabled*	**Deviants** *Criminals* *Drug Addicts* *Communists* *Flag Burners* *Gangs*

Source: Recreated from Schneider and Ingram (1993, 336).

Schneider and Ingram (1993) further this line of research by developing a typology of target populations based on the dimensions of social construction and political power. Target populations that are positively constructed and have a strong political power are labeled as the advantaged and often receive the benefits of policy outcomes. Those with negative constructions, but still have strong political power comprise the contenders. This target population will still receive benefits of policy, but these benefits will not be visible to the public. Another possibility is that this group will appear to be regulated, but the burdens of regulation will be small or unenforced. Dependents are described as a target population that has positive

social construction, but weak political power. This group is unlikely to receive benefits due to lack of power, but government action will sometimes take on a protective role. The final type of target population is the deviants. This group has a negative social construction and weak political power. Member of this group will often receive overt and punitive burdens of political action (Schneider and Ingram 1993, 1997; Ingram, Schneider, and DeLeon 2007). Table 2.1 provides a table reconstructed from Schneider and Ingram's 1993 work and gives examples of populations that fall into each target population category.

This same system of classification can be applied to the target populations of ART regulation. This body of literature can help to explain why regulation is inconsistent and privileges some populations while restricting access to others. Table 2.2 takes Schneider and Ingram's (1993, 1997) classifications and applies it to the target populations of ART regulation.

Table 2.2: Assisted Reproductive Technology's Socially Constructed Target Populations

		Constructions	
		Positive	**Negative**
Power	**Strong**	**Advantaged** *Upper-Class Couples* *Heterosexual Couples* *White Couples* *Married Couples* *Fertility Doctors* *Fertility Industry*	**Contenders** *"Unethical" Fertility Doctors*
	Weak	**Dependents** *Embryos* *Surrogate Mothers*	**Deviants** *Single Mothers* *Same-Sex Couples* *Low-Socioeconomic Status Couples*

Source: Schneider and Ingram (1993, 1997, 2007).

The Advantaged

Many of the primary users of ART fall into this category. Because the costs of treatment are so high, those who actually utilize ART tend to be white, married, upper class, heterosexual couples (Inhorn and Fakih 2005). Those who fall into this demographic category tend to be positively constructed and many are sympathetic to their struggles with infertility (Markens 2007).

Fertility doctors and the fertility industry as a whole also fall into this category. As a profession, doctors tend to be positively constructed, but fertility doctors also have the advantage of being seen as offering couples the miracle of conception (Markens 2007). The fertility industry is a powerful and wealthy industry that also is associated with providing a "cure" for those facing childlessness. The literature in social construction suggests that state regulation of ART will not burden members of the advantaged category, but will instead be structured to benefit these populations.

Contenders

Sometimes members of the infertility industry step outside of the bounds of what society or even the medical profession consider ethical or reasonable. For instance, there was public outcry and concern when Nadya Suleman ('Octomom') gave birth to eight children. Many in the public felt it was unethical to transfer so many embryos at one time. Those in the profession were also concerned, as implanting eight embryos at once far exceeded the recommendations of the American Society for Reproductive Medicine. The Medical Board of California investigated Suleman's doctor, but as of yet, no sanctions have been levied (Associated Press 2009). Even when fertility practices exceed culturally acceptable bounds, there is little regulation to restrict such actions.

Social construction literature suggests that populations in this category will see overt policy targeted at them, but policy impacts will be minimal. We see some evidence of this with the Fertility Clinic Success Rate and Certification Act of 1992, which is the only federal attempt to regulate the fertility industry. Although this legislation requires the Centers for Disease Control (CDC) to create fertility lab practices and standards, the act does not require the states to enact or enforce any lab standards (Lal 1997). Further investigation is needed to understand if state regulation follows this same pattern.

Dependents

Social construction literature suggests that populations in this category will not receive benefits of regulation, but regulation may function in a protective way. There is some evidence that this is happening, but a further investigation of state regulation is necessary. State initiatives to grant personhood to embryos provide an example of protective regulation, but further examination is needed to understand the nature of regulation directed at dependent populations (Kounang 2012).

Deviants

The sentiment that there are certain types of people who are more worthy of becoming parents has been a cultural undertone for many years and still persists today (Solinger 2000). President Theodore Roosevelt spoke publicly about his opinion that only certain types of people should reproduce. He gave multiple speeches and wrote several pieces that appeared in print, condemning the "wrong type" of people for having children and contributing to what he termed "race suicide" (Caron 2008). In 1911, Roosevelt had his writings on this topic published in *The Outlook*, where he wrote:

> *Criminals should not have children. Shiftless and worthless people should not marry and have families which they are unable to bring up properly…In our civilization today, the great danger is that there will be failure to have enough children of the marriages that ought to take place. What we most need is insistence upon the duty of decent people to have enough children, and the sternest condemnation of the practices commonly resorted to in order to secure sterility* (Caron 2008, 47).

Although this statement is more than 100 years old, its message still resonates with certain sectors of the public and continues to condemn single mothers, especially black single mothers, and those who come from low socioeconomic backgrounds.

Same-sex couples are another population that has been constructed as deviants. Although attitudes toward homosexuality have become more accepting, the public still has reservations about the impacts of gay parenting (Yang 1997; Powell et al. 2010). Studies have also shown that the healthcare industry is not inclusive of the specific needs of GLBT patients, and many individuals do not discuss their sexual orientation with their healthcare providers because they fear a homophobic reaction (McManus, Hunter, and Renn 2006; Hinchliff, Gott, and Galena 2005).

Theories of social construction suggest that states will impose regulations on those who fall outside of the ideal construction of the family in an attempt to limit their access to assisted reproductive technologies. This body of literature can help to explain why we see such diversity in state regulation of ART. It helps us understand why some states have chosen to not regulate at all and why other states have put access restrictions on certain populations.

Morality Politics: Understanding the Impact of Moral and Economic Forces

Many of the technologies used to assist reproduction are inherently intertwined with some of the biggest morality politics debates today. First, the use of ART has been linked to the controversial practice of stem cell research. In treatments like in vitro fertilization, it is common

practice to harvest and fertilize multiple ova at one time, creating several embryos in the hopes of achieving pregnancy (Cusine 1988). This practice often results in excess embryos that must be donated to other couples, donated for scientific study, stored, or destroyed. The question of how to handle excess embryos continues to evoke debates about when life begins and the ethics of conducting research utilizing embryonic stem cells.

ART further engages the abortion debate with the practice of pregnancy reduction. Again, in an effort to improve the chances of achieving pregnancy, fertility doctors will sometimes implant multiple embryos at once. This can result in multiple pregnancies. Because multiple pregnancies can be high risk, especially for older women, patients can choose selective pregnancy reduction, the practice of eliminating one or more fetuses in utero. Both *The Washington Post* and *The New York Times* have run feature stories detailing the medical and deeply personal considerations that women face when making the decision to selectively reduce a pregnancy (Mundy 2007; Padawer 2011). Other technologies that assist doctors in determining the health of a pregnancy such as amniocentesis and genetic testing naturally lead to the question of what to do with the knowledge gained from these tests (Woliver 2002).

These new technologies have also opened the door for the creation of non-traditional families and thus ART becomes linked to the debates about gay rights and gay parenting. With the option to form families through assisted reproductive technologies, same-sex couples have been able to bypass murky state regulation and case law that govern joint and second-parent adoptions (Mamo 2007).

Despite the undeniable links to traditional morality policy issues, when examined on its own, ART policy does not necessarily exhibit all the distinct traits of typical morality policy issues. Although the literature shows some variation in the tenets of morality policy (Smith

2002; Mooney 2000; Tatalovich and Daynes 2005), morality politics are generally thought to have four distinct characteristics. Morality policies should be conflicts of core moral values, be technically simple, have high levels of salience, and have high levels of citizen participation (Mooney 2001b).

Conflict of Moral Values

First, morality politics tend to center on a conflict of core moral values. While core moral values could be defined in a variety of ways, Mooney (2001, 4) argues that they include aspects of "first principles," or fundamental issues of right and wrong. While not always the case, conflict usually centers on "pre-existing" core religious beliefs (Haider-Markel and Meier 1996, 334). Indeed, the presence of at least one coalition framing the debate in terms of morality is a necessary component of morality policy (Haider-Markel and Meier 1996; Mooney 2000). Deep core values are quite stable and difficult to change (Sabatier and Weible 2007; Carmines and Stimson 1980); thus another key characteristic of morality politics is that they are not amenable to compromise or negotiation.

At first glance, it would be very easy to say that the use of ART does involve a moral conflict due to the ties to the abortion, stem cell research, and gay parenting issues. Furthermore, several religious organizations have taken stances on the morality of using assisted technologies to achieve pregnancy. The Catholic Church, for instance, tends to view the use of ART as an objectification of the body by attempting to "manipulate sexuality to serve the selfish demands of the individual" (Shorto 2006, para. 31). In February of 1987, the Catholic Church issued the "Instruction on Respect for Human Life in Its Origin and on the Dignity of Procreation" in which the Church made its position on assisted reproductive technology clear, stating that "If the technical means facilitates the conjugal act or helps it to reach its natural objectives, it can be

morally acceptable. If on the other hand, the procedure were to replace the conjugal act, it is morally illicit" (Ott 2009, 37; Shannon and Cahill 1988). This statement implicates ART that involve fertilization outside of the constraints of heterosexual marital intercourse. In November of 2009 the United States Conference of Catholic Bishops (USCCB) issued an updated stance on the use of ART, but maintained the position that procedures that replace natural conception are against Church doctrine (USCCB 2009). Other denominations have not taken as hard of a stance against ART as the Catholic Church, however, several protestant denominations share the belief that embryos should be considered as human life and object to excess embryos being used for research, disposed of, or cryogenically frozen and stored (Ott 2009).

The Catholic Church is quite strong in its stance on the morality of ART, and is clearly framing ART as a moral issue. Although scholars have said that having at least one coalition frame an issue in terms of morality is a necessary component of morality policy (Haider-Markel and Meier 1996; Mooney 2000), this frame does not seem to resonate with the Catholic population as a whole. Despite multiple statements, Catholics seem to find the Church's stance confusing, and others view the Vatican's position as unsympathetic to those facing infertility (Townsend 2010). ART is not the only issue where the Catholic Church has taken a hard stance. The Church has taken a similarly hard line position on the use of contraception to prevent pregnancy because it interferes with the natural outcomes of marital, heterosexual intercourse. The Church instead endorses natural family planning, sometimes referred to as the "rhythm method" to avoid pregnancy. Despite this, the USCCB estimates that only about 4 percent of married Catholics in the United States utilize natural family planning (National Partnership for Women & Families 2010). When interviewed, Glenn McGee, a scholar at the Center for Practical Bioethics in Kansas City, Missouri likened the issue of contraception use among

American Catholics to the use of ART saying, "American Catholics are no more going to listen to this than they listen to the church about birth control" (Townsend 2010, para. 10). For now, it seems that despite official church opposition, there is not a dominant opposition frame to the use of ART. As technologies continue to emerge, and use of ART becomes more widespread, it is possible that that this frame could become dominant. For now it appears that there is not a clear consensus among the public on the morality of ART (Woliver 2007).

Technical Simplicity

Technical simplicity of an issue is another aspect of the morality policy classification (Doan 2007; Mooney and Lee 2000). While the actual science behind ART is technical and highly complicated, issues of infertility and childlessness are easily accessible to the average person. Thus, understanding of technical or difficult concepts does not preclude the average citizen from participating in the debate. Very technical issues can still be considered morality politics because they can be, and often are, framed in a manner that makes them accessible to a wide audience (Doan 2007). This seems to be the case with ART. In fact, an international survey conducted in 1998 including six European countries, Australia and the United States, revealed that of the 8,194 adults surveyed, approximately 90 percent of respondents reported to know about in-vitro fertilization and more than half (52 percent) knew somebody who had faced issues with infertility (Adashi et al. 2000). This personal connection to those affected by infertility and the knowledge of treatment options demonstrates the public's ability to engage the issue of assisted reproductive technologies and shows that the ART issue conforms to this tenet of morality policy.

High Levels of Salience

High levels of issue salience are another defining characteristic of morality politics. This aspect is a function of the two previous characteristics because the public must see the issue as a moral debate and the issue must be simple enough for the public to become engaged in the debate. Salience measures relative importance of an issue, and Meier (1994, 10) suggests that it can be thought of as "citizen pressure that the political system must respond."

Reproductive technologies were thrust into the public eye when the first "test tube" baby, Louise Brown, was born in 1978 (Cusine 1988). Although these technologies had been developing for some time, the idea of bearing children using ART, especially the use of donor eggs, began to gain legitimacy in the late 1980s (Andrews and Elster 2000; Markens 2007). Prior to that, the use of such technologies had been seen as unethical, vulgar, and frightening (Andrews and Elster 2000). When the public saw that Louise Brown was a healthy, happy child, fears of children born through science seemed to subside (*Test Tube Babies* 2006). Since the birth of Louise Brown, public awareness of ART has grown. The rise in salience can also be attributed to several controversial cases such as the custody battle over Baby M who was born using a surrogate mother, and the recent case of "Octomom," a single mother in California who used in vitro fertilization to conceive and give birth to eight babies in 2009.

Public awareness has also been raised by less controversial celebrities and public figures who have conceived children through the use of such ART including Celine Dion and Sarah Jessica Parker (Oh 2010; Brody 2009). Even the 2012 presidential candidate, Mitt Romney, has two grandchildren conceived through in vitro fertilization and carried by a gestational surrogate (Kounang 2012).

While public awareness is ever increasing, the issue of ART has not necessarily created "citizen pressure that the political system must respond" as Meier (1994, 10) outlined. Although there is not broad social pressure being created by those in favor of or against use of ART, the same survey that found high awareness of in vitro procedures also revealed that 66 percent of American respondents believed that costs incurred for in vitro fertilization treatments should be reimbursed through a healthcare or insurance system (Adashi 2000). While this sentiment has not translated into public pressure to have insurance plans cover the costs of ART, it suggests that a majority of the public does see ART as a legitimate medical treatment. As public awareness of ART continues to grow and technologies advance, we may see more public demand for increased access to ART.

High Levels of Citizen Participation

The final characteristic of a morality policy is the high level of citizen participation. Morality politics involves threat to core values, which tends to mobilize participants in ways that may not be seen in other types of policies (Meier 2001). Unlike the abortion debate, ART has not generated consistent citizen involvement. The public has expressed strong, negative sentiments toward certain ART practices. For instance, when Nadya Suleman, a single, unemployed graduate student gave birth to octuplets conceived with the assistance of in vitro fertilization, the public responded with outrage. Suleman, who already had six children and lived with her parents, received much media attention and public attack. Operators at the hospital where Suleman gave birth received numerous phone calls criticizing the ethics of transferring so many embryos to an unemployed, single mother (Garrison, Yoshino, and Ho 2009). This particular event garnered so much attention that two states, Georgia and Missouri, introduced legislation to limit the number of embryos that could be implanted during one cycle

of in vitro fertilization (Associated Press 2009). The Georgia legislation was referred to subcommittee for more study after those who testified at the hearing stated that the legislation would be detrimental to the fertility industry in the state (McCaffrey 2009b).

In other instances, the public has mobilized around issues of ART, not in opposition, but in support. Several states have recently begun to consider legislation and even constitutional amendments that would grant "personhood" status to embryos. These initiatives have been supported by pro-life groups such as Personhood USA based in Colorado. Despite being a strongly pro-life state, the initiative failed in Mississippi, in part by local, grassroots organizations that feared that the amendment would restrict access to fertility treatments like in vitro fertilization (Grady 2011). This anti-personhood effort, mobilized by Atlee Breland who conceived her daughters through in vitro fertilization, began as a web site and a Facebook page, reaching "tens of thousands" of Mississippi voters (Grady 2011, para. 2). These two examples demonstrate that ART has the potential to illicit strong citizen response and participation. However, these responses are not always long-lived, and are not necessarily mobilized against the use of ART.

Is ART a Morality Policy?

Although the issue of assisted reproductive technology is very closely linked with many issues considered to be morality policy issues, by itself ART does not seem to fit all the tenets of morality politics. Although the Catholic Church has taken a clear stance against the use of ART that replace the act of natural conception, this stance does not seem to be strongly embraced by the larger Catholic population in the United States. That may be partially due to the fact that the public is not necessarily making the connection between the use of ART and the implications. A recent study assessing public opinion on stem cell research provides some evidence for this.

When surveying respondents and conducting focus groups, Levin (2008) found that individuals held contradictory opinions about stem cell research depending on the context in which the issue was presented. For instance, sixty-two percent of respondents agreed with the statement, "An embryo is a developing human life, therefore it should not be destroyed for scientific purposes." However, when asked whether excess embryos created from in vitro fertilization should be used for research, 47 percent of respondents agreed. Levin (2008) concluded that "most Americans simply do not grasp how these different pieces hang together, and therefore respond positively or negatively based on the portion of the larger picture they happen to be presented with." While the morality frame is not necessarily a dominant frame, it is still present.

ART also seems to meet the criteria of being technically simple. While the science behind ART is quite complicated, the issue is easily simplified to the heart break of childlessness and a potential solution. Although infertility and the use of ART is still a private issue, it is becoming a more salient topic. This increased salience has been driven in part by celebrities who have come forward with their stories and cable channels like TLC which air shows like John and Kate Plus 8 that shadow the lives of individuals who have created families through the use of ART. While knowledge and acceptance of ART is growing, the issue has not evolved into a salient public problem creating consistent citizens pressure for elected officials to take action. However, recent scholarship has found that salience is not necessarily a requirement of morality policy (Mooney and Schuldt 2008). Finally, due to the lack of a strong morality frame, with only a few exceptions, there has been little citizen involvement and action on the issue of ART.

Although ART does not completely comply with the tenets of morality politics, this theoretical framework can still be useful for understanding this issue area. Research in morality politics has found that there is increased political responsiveness to morality policy issues when

salience is high (Mooney and Lee 2000). Studies have shown that elected officials often rely on the political branding of groups in the absence of clear policy preferences from the public (Calfano 2010; Doan and McFarlane 2012). Because the public appears to have unclear or mixed views about the morality of ART and the implications of these technologies, politicians may rely on the clear signals sent by the Catholic Church when weighing policy decisions. Furthermore, when issues are new and have low salience or when there is little political opposition, organized interests can have a strong influence on policymaking decisions (Smith 1995; Haider-Markel 1999). Because of the newness of the issue, low salience, and unclear signals from the public, it is expected that increased Catholic populations in a state will have an impact on regulation of ART in a state. Specifically, it is expected that larger Catholic populations in a state will be associated with more restrictive regulation of ART.

Morality policy research can also guide our expectations for situations in which morality concerns and economic interests intersect. Certainly this is the case with the issue of ART. According to Marketdata Enterprises, an independent market research firm, the fertility industry market was valued at about $4.04 billion dollars in 2008 (LaRosa 2009). While this number is expected to see a slight decline due to the recent economic downturn, most fertility clinics are netting huge profits each year. It is estimated that the "average" fertility clinic brings in revenues of approximately $3.2 million dollars per year (PRWeb 2009). With more than 400 clinics in the United States, this equates to massive amounts of profits. California housed the most clinics (59) in 2008, while New York and Texas had the second highest number of clinics, each having 35 (CDC 2008).

Theoretical Expectations

When used alone, these three theoretical perspectives provide an incomplete framework for understanding state regulation of ART. However, when used in tandem, body politics, social construction of target populations, and morality politics help to explain the emergence of ART as a public issue that has come under governmental regulation. Based on the previous discussions of these literatures, several key, testable hypotheses are developed.

Body politics and literature on the medicalization of reproduction and infertility provide an understanding of how infertility continues to evolve from a private to public issue dominated by the medical community. When pulled from the private realm, these treatments have become subject to government regulation. Thus, ART straddles the boundary between personal and public. This leads to the first hypothesis.

> **H_1:** *State governments will regulate assisted reproductive technologies, but regulation will be minimal.*

The nature of ART regulation can be understood by literature exploring the social construction of the target populations. Research in social construction helps to explain why ART regulation is not comprehensive. Federal and state governments have largely left ART unregulated. Social construction theory would suggest that this is due to the fact that those who make use of such technologies tend to be upper class, white, married couples or those with positive and high power constructions (Mamo 2007). This theory also suggests that existing regulation will target negatively constructed populations including same-sex couples, single mothers, and the undeserving. This leads to the second hypothesis.

H_2: *State regulation of assisted reproductive technologies will limit the access of negatively constructed populations including same-sex couples, single mothers, and the undeserving.*

The use of ART can and has been framed in terms of morality politics – gay parenting, destruction of embryos, stem cell research, and abortion – as well as a solution to the social problem of childlessness. Morality politics theory structures expectations of governmental response when these conflicting frames exist, pointing to contentious debates that leave little room for compromise (Mooney and Lee 2000). The Catholic Church has labeled the use of certain ART as immoral and against church theology. Other protestant denominations have not been as vocal on the use of ART, but they do oppose many of the related issues including gay parenting, stem cell research and abortion. Morality politics suggest that elected officials are responsive to citizen pressures on morality issues. This leads to the third hypothesis.

H_3: *States with larger religious populations will have stricter regulation of assisted reproductive technologies.*

Other researchers have pointed out that there are instances when the morality frame of an issue can be superseded by economic interests (Sharp 2005). The fertility industry is a multibillion dollar industry that can contribute to the overall economic health of a state. This leads to the final hypothesis.

H_4: *States with large fertility industries will have fewer regulations on assisted reproductive technologies.*

Each of these hypotheses will be explored and tested in future chapters in an effort to further understand how assisted reproductive technologies have come to be an issue worthy of public attention and state regulation.

Chapter 3

Scoring the States: A Comprehensive Measure of State ART Regulation

Introduction

States' responses to the issue of assisted reproductive technologies are quite literally all over the map. Some states have taken an active role in legislating the production of families through assisted technologies, while other states have legislatively avoided the issue. Through their varied approaches states have constructed environments that can be considered amenable, hostile, and even ambiguous toward the use of ARTs. Not only does legislation vary considerably among the states, but the courts have also presented a diverse array of responses concerning issues arising from the uses of ART.

The diversity of state policy and case law creates a set of opportunities and obstacles for those seeking to understand the regulation of ART in the states. On the one hand, the varied state responses to the issue demonstrate the many ways in which an issue can evolve, be framed, and become regulated within a state. On the other hand, it becomes exceedingly difficult to get a clear understanding of the driving forces behind state legislative decisions without some measure of overall state activity. Furthermore, when multiple pieces of legislation and numerous court cases present conflicting messages, understanding the impact that these laws and court decisions can have on the fertility industry and those seeking ART treatments within a particular state is difficult.

The Need for a Comprehensive Measure

Numerous scholars (see Sabatier 2007; Baumgartner and Jones 2002; DeLeon and Vogenbeck 2007) have noted, and the average person can see, that the policy process is quite

complex. And while there are several theories about how an issue finds itself on the legislative agenda (see Kingdon 1984; Baumgartner 2005), generally speaking, the purpose of public policy is to affect the behavior of individuals or groups in some way. Policies can be designed to encourage, discourage, and even punish certain behaviors. In the case of ART, we can see examples of policies that embody each of these functions. Some states have numerous pieces of legislation that encourage and discourage the use of ARTs simultaneously, sending a very mixed message to individuals and the fertility industry in general. State courts that have addressed ART cases have presented an equally complicated set of precedents that often contradict one another.

The diverse state legislative and judicial activity concerning issues of ART has produced complex political environments. This creates several barriers to understanding the regulation of ART within the states. First, with so many moving parts, it is difficult to identify indicators within a state that influence the policy environment, and we are unable to address basic questions about what prompts a state to regulate the use of ARTs. This limits our ability to uncover legislative motivations as well as make inferences about future state policy adoption. Second, the intricate policy environments hinder the ability to assess the impacts of these policies and court decisions. When there are multiple policies and case laws addressing one policy area within a state, researchers and even stakeholders are unable to decipher the impact of one particular policy because their affects are so interconnected, and their implications can be masked.

Many public policy studies attempt to explain the adoption or impact of one particular policy or type of policy (see Mooney 2001a; Volden 2006; Berry and Berry 1990; Mintrom and Vergari 1998; Walker 1969). In these studies, policy scholars seek to understand the factors

influencing the agenda-setting process or the adoption of a policy and the outcomes. As some policy scholars have noted, this is an incomplete view of the policy process because policy studies need to account for the policy environment created by previously adopted policies. As Meier (1994, 7) notes, policies create feedback loops that influence the policy environment and thus the "demand" for new policy. Berry and Berry (2007) have also addressed the importance of acknowledging existing policy, specifically encouraging scholars to control for previously adopted policies in diffusion models. Despite this, very few studies account for the impact of current policy on the adoption process (see Balla 2001; Soule and Earl 2001; Stoutenborough and Beverlin 2008).

Implementation studies also often ignore the impact of previously existing policies that make up the complex political and policy environment. Doing so mistakenly assumes that policies operate independently of one another or within a vacuum, and this approach "doesn't represent the reality that there might be several policies that concurrently work to achieve a policy goal" (Stoutenborough and Oxley 2012, 16). Target populations are affected by a multitude of policies at any given moment, and while analysis of a singular policy can provide insight, the big picture is not fully captured. In terms of the regulation of ART, it is likely that key players in the fertility industry likely have their fingers on the pulse of public policy within a state when making decisions about opening clinics or deciding what services to offer within that clinic. For example, Connecticut has statutes that require clinics to offer storage for unused embryos. This statute has a definite impact on fertility clinics within the state as they must either have a cryogenic storage facility or contract with one. At the same time, Connecticut has a statute that embryos may not be discarded, mandating that clinics have a greater cryogenic storage capacity. Furthermore, statutes in Connecticut allow unused embryos to be donated to

other childless individuals or donated for research. Each of these individual mandates will influence a clinic's embryo storage considerations, but these mandates are not operating alone. Combined (along with other state ART policies), these policies have a much broader impact on the fertility industry and the clientele it serves.

The Connecticut example is just one of many that describe the complex nature of ART regulation within the states. While studies that look at single policies reveal important relationships, scholarship needs to assess other factors that contribute to the makeup of an issue area. Accounting for all legislative and judicial actions within a state takes us one step closer to constructing the entire policy landscape.

Several scholars have recognized the utility of comprehensive measures, and these measures are frequently used in policy scholarship. One well-known measure is the Green Index created by Bob Hall and Mary Lee Kerr in 1991. This index provides measures and rankings that assess a state's environmental health. The Green Index is composed of 256 indicators within a state and includes "policies and political leadership in place" (Hall and Kerr 1991, 1). This set of measures has been used by policy scholars as an indicator of a state's environmental health and friendliness.

There are other examples of comprehensive measures. Many advocacy groups compile measures that assess a state's friendliness toward particular issues. For example, the Center for Women Policy Studies compiled the *Report Card on State Action to Combat International Trafficking* in 2007. The report card assigns letter grades to the states on five different policy areas including criminalization statutes, victim protection and assistance, task forces, regulation of international marriage brokers, and regulation of travel service providers. This rating system takes into account not only the presence of legislation, but also the nature of the statutes,

particularly the comprehensiveness of state action. This rating system has proven useful for policy scholars examining the determinants of human trafficking legislation within a state (Bouche and Wittmer 2009).

Women in Government, a nationwide organization of women in state legislatures, compiled a similar score for cervical cancer prevention in the states. This measure is based on a set of factors including human papilloma virus (HPV) and cervical cancer rates, access to cervical cancer screening, and legislation proposed and passed concerning HPV vaccination. In this measure, each category was assigned a score of 0, 1 or 2. All of these categories were added together to achieve a comprehensive score which ranged from 0, representing poor cervical cancer prevention, to 22, representing excellent cervical cancer prevention (Women in Government 2010). These scores have been utilized by scholars seeking to better understand this complex policy issue (Fisher and Brundage 2009).

Not only have policy issues been the subject of comprehensive measures, but political indicators such as legislative professionalism (Squire 2007), citizen and government ideology (Berry et al. 1998; Berry et al. 2010), and electoral competition (Holbrook and Van Dunk 1993; Holbrook and LaRaja 2008) have also been compiled to obtain a more complete measure than any one indicator could on its own. These examples demonstrate the need for, and prevalence of, comprehensive measures. However, to date, there is not an index of state assisted reproductive technology regulation. This project seeks to fill that gap.

The Creation of a Comprehensive State ART Regulation Score

Constructing a measure that captures the entire policy landscape surrounding assisted reproductive technologies in a state required multiple steps. The first phase involved collecting all state legislation and court cases regarding assisted reproductive technologies. Several

organizations collect information on state legislative and judicial activity involving assisted reproductive technologies including the Human Rights Campaign, the Center for American Progress, the National Conference of State Legislatures, the American Society for Reproductive Medicine, and the Council for Responsible Genetics. The information from each of these organizations was compiled into one comprehensive list of judicial and legislative activity in each state. To check for any missing case laws or statutes, the LexisNexis Academic search database was utilized. All statutes and cases prior to 2008 were included in the database. This time period corresponds with the Center for Disease Control's most complete annual report on fertility clinics. Only legislation that was passed and signed into law was included in the construction of this comprehensive measure, and thus the database excludes proposed legislation. In addition to case law and statutes, several state Attorneys General issued opinions on the issue of assisted reproductive technologies. Because these opinions are intended to clarify how state law might be applied, seven opinions from six states – two from Kansas and one from Kentucky, Maryland, Oklahoma Oregon, and Washington – were include. Table 3.1 includes a more detailed list and description of the data sources and the nature of the information that was collected.

After all statutes and case law were collected, the content of each was examined. Because statutes and case law often include multiple mandates and precedents, each was dissected into its individual elements. For instance, one Arizona statute[1] not only forbids surrogate parent contracts (both traditional and gestational), but also states that if a child is born from a surrogacy arrangement, the surrogate is the legal mother of the child and the surrogate's husband is the father. As such, this particular Arizona statute was coded for four elements: the ban on gestational surrogacy contracts, the ban on traditional surrogacy contracts, naming the

[1] ARIZ. REV. STAT. § 25-218 (2008)

Table 3.1: Sources for State Judicial and Legislative Activity

Source	Title(s)	Nature of Information
Human Rights Campaign	*State Laws & Legislation*	State laws and court decisions concerning parenting including "adoption," "custody and visitation," "donor and insemination," and "surrogacy."
Center for American Progress	*Future Choices: Assisted Reproductive Technologies and the Law*	State laws and court decisions concerning use of assisted reproductive technology including "disposition of frozen embryos," "egg and embryo donation," "posthumous creation of a child," "insurance coverage of infertility treatments," "surrogacy," and "parentage determinations."
National Conference of State Legislatures	*State Laws Related to Insurance Coverage for Infertility Treatment*	State laws concerning insurance coverage of fertility treatments.
	Embryo and Gamete Disposition	State laws concerning the status of embryos and gametes including posthumous creation of children, parentage determination, status of embryos and gametes, embryo storage and research.
American Society for Reproductive Medicine	*State Infertility Insurance Laws*	State laws concerning insurance coverage of fertility treatments.
Council for Responsible Genetics	*Surrogacy in America*	State laws and court decision concerning surrogacy including parentage, embryo disposition, and surrogacy contracts.
LexisNexis *Academic* Database	Legal Case and Statute Databases	State court cases and statutes concerning the use of assisted reproductive technologies. Search terms included several iterations of the concepts of assisted reproductive technology, surrogacy, in vitro fertilization, embryo disposition, cryogenic preservation, and insurance coverage of fertility treatment.

surrogate as the legal mother, and naming the surrogate's husband as the legal father. Because each statute and case law has multiple elements, the number of factors coded does not correspond to the number of statutes and case law examined. Once each of the elements was identified, states were coded as "1" for having this element and "0" if they did not have this element.

Once all statutes and case law were broken down into their individual factors and each state was coded as having or not having these factors, the elements were sorted into categories of regulation. These categories naturally emerged around the types of regulation present in the states including regulation of the disposition of embryos, regulation of surrogacy, and regulation of insurance coverage for assisted reproductive technologies. The first category, the disposition of embryos, primarily addresses the status of an embryo in a state. This includes legal status or standing of an embryo, parentage and custody determinations, how unused embryos can be handled, regulation of embryo use after the death of one of the genetic donors, and whether embryos and/or children born posthumously are legal heirs to an estate or could receive social security benefits.

The insurance category addresses regulation of insurance coverage of fertility treatments. Several states require that certain fertility treatments are covered by insurance, while other states mandate that optional insurance coverage be offered. Among states that require coverage, there are conditions to coverage such as age limits, marital status, the number in vitro cycles that are covered, and the types of services covered. Furthermore there are states that allow exemptions for religious employers and government insurance programs such as Medicaid.

The final category of surrogacy regulation includes regulation of surrogacy contracts, parentage and custody issues developing from the use of donor eggs or embryos, penalties for

Table 3.2: Description of Factors Identified in State ART Statutes and Case Law

Category	Description of Factors	Factors
Disposition Case Law	*Legal status/standing of an embryo, who makes decisions about use of embryos, enforcement of agreements on use of embryos, posthumous benefits granted to children born from stored embryos.*	6
Disposition Statutes	*Provision of disposition information to clients, required disposition options for embryos (store, discard, donate to others, donate to research), actions prohibited (selling, destroying, donating, researching), parentage rights, enforcement of agreements, posthumous benefits, legal status/standing.*	20
Insurance Statutes	*Required coverage, required optional coverage, coverage exclusions (age limit, marriage requirement, use own gametes, certain services), government and religious exemptions.*	9
Surrogacy Case Law	*Parentage and custody determination (who are legal parents, who is listed on birth certificate, domestic (ex)partner rights, process for second-parent adoption), legality and enforcement of contracts or agreements (paid and non-paid contracts, renegotiation of contracts).*	23
Surrogacy Statutes	*Legality and enforcement of contracts or agreements (paid and non-paid contracts, judicial authorization requirements, breach of contract procedures), regulation of payment to surrogates, punishment and criminalization of surrogacy arrangements, regulation of surrogacy "arrangers," surrogate selection and requirements (age restriction, mental health, prior delivery, surrogates on public assistance, medical evaluations, genetic counseling), condition of surrogacy (prove infertility, medical evaluation, home study, one parent genetically related, married, use of donor eggs/embryos, residency requirements, legal representation), who makes medical decisions, parentage and custody determination (who are legal parents, time period after birth to terminate contract).*	43
Total Factors		101

breach of contracts, selection of surrogates, and conditions for entering surrogate contracts.

Within each of these three categories, regulation was further divided into case law and statutes

creating five categories including disposition case law, disposition statutes, insurance statutes, surrogacy case law, and surrogacy statutes. To date, cases dealing with insurance coverage of ART have been federal cases. Consequently, there is not a category for state insurance case law. Table 3.2 provides a more thorough description of the factors present in each category of regulation.

The next step in the creation of a comprehensive measure of state regulation was to code these factors as either creating a restrictive or permissive environment concerning the use of ART within a state. Each factor was coded on a scale from -2 through 2. In this coding scheme, a "2" represents a statute or case law that could positively impact the use of ART within a state. For example a court case that upheld a surrogacy contract or a statute that recognizes intended parents as legal parents in a surrogacy agreement would be coded as a "2."

As previously noted, many states have avoided legislating or ruling on ART issues. While these states may not have laws or precedents that regulate the use of ART, a significant amount of ambiguity remains. There are no precedents or legal guidance for the courts to follow in the case of a dispute, and thus outcomes are unpredictable. Therefore, state legislatures and courts that have addressed ART issues are providing guidelines for the fertility industry and those who choose to use ART. Due to this, factors that help to clarify a state's stance on the use of ART are coded as "1." Even though some of these statutes and case law may create more restrictions on the use of ART, these restrictions are not negative in nature and simply provide clarification. For instance, in *Davis v. Davis* (1992) the Tennessee Supreme Court ruled that in the absence of a written agreement, embryos cannot be donated if one of the gamete donors objects. This court precedent could put restrictions on what can be done with excess embryos, but it does not necessarily restrict the use of ART. It simply clarifies what should be done in the

case of a dispute between gamete donors. In addition to clarifying statutes and case law, states that require the distribution of information on embryo disposition or availability of insurance coverage options are also coded as "1."

Table 3.3: Statute and Case Law Coding Scheme

Code	Description	Example
-2	Discriminatory Statute or Case Law	Statute: Only married couples can enter into a surrogacy contract (Nevada, New Hampshire, Texas, Utah).
-1	Could Negatively Impact Access to ART	Case Law: Court found that surrogacy contracts violated state law (Delaware).
0	No State Legislative or Judicial Action	
1	Clarifying Statute or Case Law	Statute: Oocytes or embryos cannot be sold for medical research or therapies (California)
2	Could Positively Impact Access to ART	Case Law: Court upheld unpaid surrogacy contract (Kentucky)

Sources: NEV. REV. STAT. § 126.045; N.H. REV. STAT. ANN. §§ 168-B:1-B:32; TEX. FAM. CODE ANN. §§ 160.754; UTAH CODE ANN. § 78B-15-801; *Hawkins* v. *Frye* 1988; CAL LAW; *Commonwealth of Kentucky* v. *Surrogate Parenting Associates* 1998

Factors that could negatively impact access to ART are coded as "-1." In general, these types of statutes and case law restrict the use of ART. One example of a case law that fit this criterion is *Hawkins v. Frye* (1988). In this case, a Delaware court ruled that contracts that terminated parental rights were against state law, making any surrogacy contract illegal. While this case did not specifically deal with a surrogacy, the court referenced the famous *Baby M* case from New Jersey that involved a custody dispute resulting from a paid surrogacy contract. While the ruling does not specifically address the legality of surrogacy itself, it does disallow surrogate

contracts. Without a valid, enforceable contractual agreement, surrogacy arrangements become risky and hold the potential to evolve into bitter custody battles.

Statutes and case law elements that are discriminatory in nature were coded as "-2." Five states were coded as "-2" for having discriminatory insurance coverage statutes. Arkansas, Hawaii, Maryland, Rhode Island, and Texas each allow insurance companies to deny coverage of fertility treatment to the unmarried including those who are single or those who are in same-sex relationships. States that do not have case law or statutes that address the factors identified were coded as "0." An outline of the coding scheme and more examples can be seen in Table 3.3.

After each factor was identified, sorted into categories, and coded on a scale of "-2" to "2," the coded factors were combined to create a series of state ART regulation scores. This was simply done by adding together the scores for each factor for each state and dividing by the total number of factors in a category. These scores represent an average of the impact of regulation within a state and flow on a continuum between -2 and 2. Thus states with lower scores have more restrictive ART regulation, and states with higher scores are more permissive.

Because there are many different ways to look at state ART regulation, 11 different scores were created. These different scores were organized by either the substance of the regulation (disposition, insurance, and surrogacy) or the source of the regulation (the legislature and the courts). The first three scores address regulation of the disposition of embryos, and a score was created for each state for disposition case law, disposition statutes, and the combination of all disposition regulation in a state. The next score created was for state insurance statutes. As previously noted, there are currently no state cases that have dealt with the insurance coverage of ARTs. As such, this was the only score created for insurance. The next set of scores created addressed the regulation of surrogacy in a state and includes scores for

surrogacy case law, surrogacy statutes, and the combination of the two. To understand if the courts or the legislature were having more impact on the fertility industry, two more scores were created. A combined case law score including all factors in each substantive area was created as was a similar score for all statutes. Finally, a combined score including all identified factors was created to represent the entirety of ART regulation in a state.

Table 3.4: Insurance Coverage Score Coding Scheme

Code	Description	States
0	No Insurance Statutes	
1	Requires Insurance Companies to Offer Optional Fertility Treatment Coverage	California, Texas
2	Requires Insurance Companies to Cover Certain Fertility Treatments	Arkansas, Connecticut, Hawaii, Illinois, Maryland, Massachusetts, Montana, New Jersey, New York, Ohio, Rhode Island, West Virginia

Note: For states that are coded as "2," not all insurance policies are required to cover fertility treatment. Most mandates state that if an insurance policy covers certain illnesses, then them they must also cover fertility treatment. In other words, if individuals choose to purchase less comprehensive health coverage policies, state legislation may not require coverage of fertility treatment. Each state has specific treatment exclusions.

One additional score was created to model insurance regulation. Only 17 states[2] have any legislation that pertains to insurance coverage. Fourteen of those states[3] mandate that coverage be provided or offered, and three states[4] exempt government agencies from coverage of ART even though no coverage mandates exist. Clearly, insurance coverage mandates are quite rare, and although some mandates include discriminatory coverage exclusions (i.e. age or marital status), it is important to recognize that any coverage of fertility treatment in a state expands

[2] Arkansas, California, Connecticut, Hawaii, Illinois, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New York, Ohio Oklahoma, Pennsylvania, Rhode Island, Texas, and West Virginia.
[3] Arkansas, California, Connecticut, Hawaii, Illinois, Maryland, Massachusetts, Montana, New Jersey, New York, Ohio, Rhode Island, Texas, and West Virginia.
[4] Minnesota, Oklahoma, and Pennsylvania.

access to ART. Thus, an alternative score for insurance coverage was created to account for the fact that any insurance coverage is creating a more permissive environment. This score is labeled as the "insurance coverage" score and is coded on a scale of 0 to 2. In this coding scheme a "0" represents no legislation on insurance coverage, "1" represents states that require that optional coverage be offered, and "2" represents states that require insurance companies to cover fertility treatments. Table 3.4 provides a summary of this coding scheme.

The insurance coverage score does not account for government exclusions, religious exemptions, or requirements of age, marriage, or the use of one's own gametes. While this score is certainly less nuanced than the insurance statute score, it does capture government intent to expand access to certain populations. The scores that result highlight the importance of creating two different measures of insurance access. In several instances, states that have a negative insurance statute score due to the discriminatory nature of their coverage mandates have a positive insurance coverage score. The insurance statute score is the only score used to calculate the total statute score and the overall ART regulation score. Tables 3.5 and 3.6 show the various regulation scores for each state.

Practical Applications for ART Regulation Scores

On their own, these scores provide a lot of information about ART regulation in the states. First we can see that there is quite a lot of variation among the states in terms of permissive or restrictive case law and statutes. We also see variation in how state courts and legislatures are approaching the issue of assisted reproductive technologies. Although these scores provide a wealth of descriptive information about the regulation of ART within a state, they have a broader utility. A more in-depth descriptive discussion of state ART regulation is examined in chapter 4.

Table 3.5: State Scores for Access to Assisted Reproductive Technologies

State	Disposition Case Law	Disposition Statutes	Disposition Combined	Insurance Statutes	Insurance Coverage	Surrogacy Case Law	Surrogacy Statutes	Surrogacy Combined
Alabama	0	0	0	0	0	.087	0	.030
Alaska	0	0	0	0	0	.087	0	.030
Arizona	.333	0	.077	0	0	.087	-.233	-.121
Arkansas	0	0	0	-.333	2	.087	.047	.061
California	0	.400	.307	.111	1	.174	0	.061
Colorado	0	.150	.115	0	0	0	0	0
Connecticut	0	.250	.192	-.222	2	.304	0	.106
Delaware	0	0	0	0	0	-.087	0	-.030
Florida	-.333	.150	.038	0	0	-.174	-.047	-.091
Georgia	0	0	0	0	0	0	0	0
Hawaii	0	0	0	-.222	2	0	0	0
Idaho	0	0	0	0	0	.087	0	.030
Illinois	0	0	0	.111	2	0	-.047	-.030
Indiana	0	0	0	0	0	0	-.163	-.106
Iowa	.333	0	.077	0	0	0	0	0
Kansas	0	0	0	0	0	-.043	0	-.015
Kentucky	0	0	0	0	0	.043	-.047	-.015
Louisiana	0	.050	.038	0	0	0	-.047	-.030
Maine	0	0	0	0	0	0	0	0
Maryland	0	.250	.192	-.333	2	.043	0	.015
Massachusetts	.333	.200	.230	.111	2	0	0	0
Michigan	0	0	0	0	0	.043	-.140	-.076
Minnesota	0	0	0	-.111	0	.087	0	.030
Mississippi	0	0	0	0	0	0	0	0
Missouri	0	0	0	0	0	0	0	0
Montana	0	0	0	.111	2	0	0	0
Nebraska	0	0	0	0	0	0	-.163	-.106
Nevada	0	0	0	0	0	0	-.070	-.045

Table 3.5: State Scores for Access to Assisted Reproductive Technologies (Continued)

State	Disposition Case Law	Disposition Statutes	Disposition Combined	Insurance Statutes	Insurance Coverage	Surrogacy Case Law	Surrogacy Statutes	Surrogacy Combined
New Hampshire	0	0	0	0	0	0	-.326	-.212
New Jersey	.333	.150	.192	-.222	2	-.043	0	-.015
New Mexico	0	0	0	0	0	0	-.093	-.061
New York	.333	0	.077	.222	2	.043	-.209	-.121
North Carolina	0	0	0	0	0	0	0	0
North Dakota	0	.150	.115	0	0	0	0	0
Ohio	0	.050	.038	.111	2	.130	0	.045
Oklahoma	0	.020	.153	-.111	0	-.043	0	-.015
Oregon	0	0	0	0	0	-.087	0	-.030
Pennsylvania	0	0	0	-.111	0	.130	0	.045
Rhode Island	0	0	0	-.333	2	0	0	0
South Carolina	0	0	0	0	0	.087	0	.030
South Dakota	0	0	0	0	0	0	0	0
Tennessee	.166	0	.038	0	0	.174	0	.061
Texas	.333	.100	.153	-.444	1	0	-.163	-.106
Utah	0	0	0	0	0	-.087	-.326	-.242
Vermont	0	0	0	0	0	0	0	0
Virginia	0	.100	.077	0	0	0	.023	.015
Washington	.333	.100	.154	0	0	.043	-.047	-.015
West Virginia	0	0	0	.222	2	0	0	0
Wisconsin	0	0	0	0	0	.087	0	.030
Wyoming	0	.050	.038	0	0	0	0	0

Table 3.6: State Scores for Access to Assisted Reproductive Technologies

State	Case Law Combined	Statute Combined	Combined Score	State	Case Law Combined	Statute Combined	Combined Score
Alabama	.069	0	.020	Montana	0	.014	.010
Alaska	.069	0	.020	Nebraska	0	-.097	-.069
Arizona	.138	-.139	-.059	Nevada	0	-.042	-.030
Arkansas	.069	-.014	.010	New Hampshire	0	-.194	-.139
California	.138	.125	.129	New Jersey	.034	.014	.020
Colorado	0	.042	.030	New Mexico	0	-.060	-.040
Connecticut	.241	.042	.099	New York	.103	-.097	-.040
Delaware	-.069	0	-.020	North Carolina	0	0	0
Florida	-.207	.014	-.050	North Dakota	0	.042	.030
Georgia	0	0	0	Ohio	.103	.028	.050
Hawaii	0	-.028	-.020	Oklahoma	-.034	.042	.020
Idaho	.069	0	.020	Oregon	-.069	0	-.020
Illinois	0	-.014	-.010	Pennsylvania	.103	-.014	.020
Indiana	0	-.097	-.069	Rhode Island	0	-.042	-.030
Iowa	.069	0	.020	South Carolina	.069	0	.020
Kansas	-.034	0	-.010	South Dakota	0	0	0
Kentucky	.034	-.028	-.010	Tennessee	.172	0	.050
Louisiana	0	-.014	-.010	Texas	.069	-.125	-.069
Maine	0	0	0	Utah	-.069	-.194	-.158
Maryland	.034	.028	.030	Vermont	0	0	0
Massachusetts	.069	.070	.069	Virginia	0	.042	.030
Michigan	.034	-.083	-.050	Washington	.103	0	.030
Minnesota	.069	-.014	.010	West Virginia	0	.028	.020
Mississippi	0	0	0	Wisconsin	.069	0	.020
Missouri	0	0	0	Wyoming	0	.014	.010

One of the primary reasons that these scores are so useful is that there are no other measures of this kind. While comprehensive measures can be found in other policy issue areas such as environmental policy, there is currently no measurement of the state of ART regulation. Another unique aspect is that these scores account for both legislative and judicial activity. This is especially important in this policy issue area due to the fact that in some states very little legislation exists and most regulation is occurring at the judicial level. These scores also break down regulation across three substantive areas: embryo disposition, insurance coverage or ART services, and surrogacy. This allows the scores to be tailored to the needs of future researchers who may choose to look at one substantive area, isolate only judicial or legislative activity, or examine a number of combinations. Finally, these measures are fairly easy to update. This is an important feature for several reasons. First, as science continues to advance, new techniques will continue to emerge. Second, unique cases of ART use will continue to arise, and finally, salience will continue to grow. New legislation and court cases will follow these scientific advances, increases in salience, and exceptional cases. Thus it is important that these scores be updated to reflect the ever-changing ART policy landscape, and track the evolution of this police area over time.

Although there are many positive aspects of the ART regulation scores, there are several weaknesses that need to be noted. First, one could argue that these are blunt measures. This is an obvious drawback of any comprehensive measure. To combat this, several measures were created that parsed ART regulation into the substantive categories and source of regulation. While this method allows researchers to use disaggregated measures of ART regulation, the impact of any one piece of regulation will be muted by the other regulation within a state.

Despite this drawback, the ability to look at a policy issue in its entirety is the primary benefit of this set of ART regulation scores.

Another drawback of these scores is that they may be missing some pieces of legislation that could have an impact on the use of ART within a state. Although the compilation of regulation directly addressing ART use is comprehensive and complete, there are many laws and court cases that could be applied to ART. For instance, several states have human trafficking laws that prohibit the sale of children. In a few instances, these laws have been applied to court cases involving paid surrogates who use their own gametes. In these cases, courts have equated paying surrogates to paying for children. So, while court cases of this nature would be included in the scores, all state human trafficking laws were not. Because legislation can be interpreted and applied in many ways, it is impossible and impractical to include any and every regulation that *could* impact the use of ART within a state.

Despite potential drawbacks, these scores have many potential applications. One of the most obvious applications is the ability to assess which states are more likely to strictly regulate or promote the use of ART. This type of analysis will allow scholars to identify patterns of similarities between states and how they regulate the use of ART. In specific, these scores allow for the testing of several hypotheses. For instance, are morality or economic factors correlated with ART regulation? Or, is ART regulation correlated with a state's ideological or partisan leanings? While adoption studies are common in policy research, this type of model differs because it goes beyond trying to understand the impact of certain characteristics on the adoption of one particular policy. These scores allow for the identification of connections between state characteristics and the overall approach to an entire policy issue area. This research question is the focus of chapter six.

Another potential use for this set of scores is to assess the impact of state regulation on the fertility industry. Policy studies often focus on the inputs of the policy process, but there are far fewer studies that examine effects of policy outputs. There are multiple ways to understand the effects of policymaking in this issue area, and one way is to assess the impacts of state ART regulation on the fertility industry in a state. While scholars could attempt to examine the impact of one particular policy, it is nearly impossible to isolate the effects of one piece of legislation or judicial ruling. By using these state ART score, scholars can look at the entire policy landscape. With the passage of the 1992 Fertility Clinic Success Rate and Certification Act (FCSRCA), the Centers for Disease Control is required to collect data on fertility clinics across the United States. Among this information is the types of fertility services that each clinic offers including cryopreservation, offering donor eggs or embryos, surrogacy, or treating single women. Chapter seven focuses on this question, seeking to understand whether ART policy is having an effect on the number of clinics that reside in a state and what services those clinics choose to offer. More simply, chapter seven addresses the impact of regulation on access to treatment within a state.

These state ART regulation scores could also be used to determine if regulation of ART is related to other issue areas. As previously noted, assisted reproductive technologies are inherently related to the issues of abortion, stem cell research, and gay parenting. Scholars studying these issue areas could benefit from a comprehensive measure of the regulation of a related issue area. These state ART scores are the first of their kind and provide endless opportunities for scholars to further delve into this and related policy issue areas.

Chapter 4

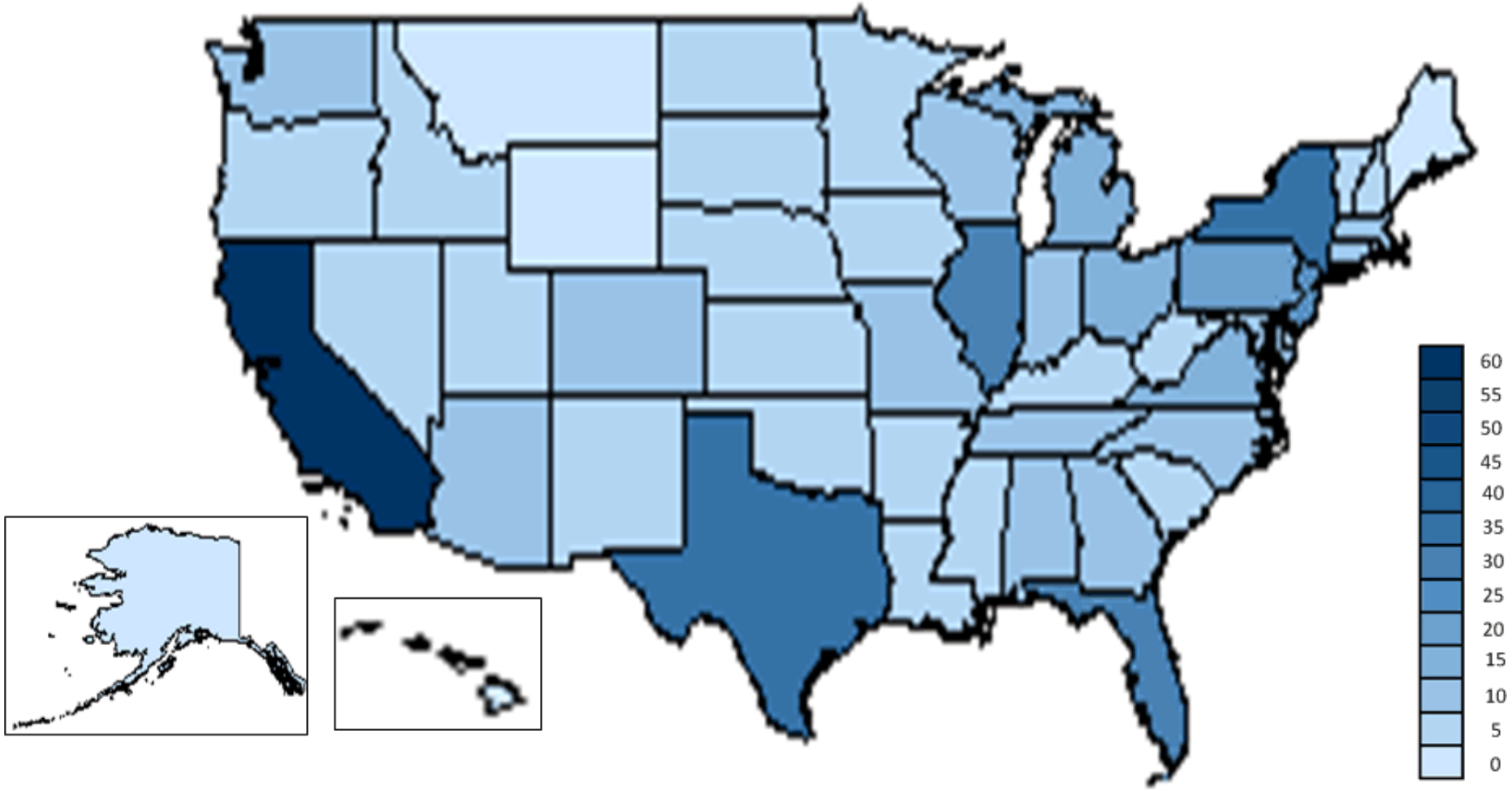
The Regulation of ART in the States: A Descriptive Analysis

The federal system of government in the United States allows states to address many policy issues in the way that they see fit. States often pursue a variety of policy agendas and outcomes based on the needs and desires of their citizens as well as the opportunities and constraints of their own unique policy landscapes. Federalism can result in a diverse set of policy approaches to any given issue. This outcome is exemplified in state regulation of assisted reproductive technologies.

The previous chapter focused on quantifying state legislative and judicial approaches in regulating the use of ART. This quantification led to a set of scores that classified states as either permissive or restrictive toward the use of assisted reproductive technologies. This chapter expands on this effort in two ways. First, this chapter takes a closer look at the scores created in chapter 3 and graphically displays the scores on maps. These maps should allow for identification of any existing patterns in regulation. For instance, the maps could show that states in a certain region tend to be more restrictive or permissive.

The second goal of this chapter is to provide a deeper descriptive analysis of state regulatory activity. This chapter will follow the organization of the previous chapter by looking at the different types of regulation in a state: embryo disposition, insurance coverage, and surrogacy. Table 3.2 in chapter 3 provides a description of the different types of regulation that fall into each of these categories. Each of these categories will be further discussed in terms of judicial and legislative activity.

Figure 4.1: Fertility Clinics in the United States



Before looking closely at state regulation, understanding the distribution of clinics across the United States is important. Figure 4.1 show how the 436 different clinics in 2008 were distributed across the states. Table 6.1 in chapter 6 gives the exact number of clinics in each state, but this geographical display shows us that clinics seem to be located in states that are larger and more densely populated such as California, Texas, Florida, and New York. States in the Midwest, with the exception of Illinois, tend to have fewer clinics. There does not seem to be a regional pattern or a pattern among more progressive or conservative states.

The following sections will address the different categories of ART case law and legislation, identifying any geographical patterns that exist and providing a description of how states are regulating ART in each of the United States.

State Regulation of Embryo Disposition

Embryo disposition refers to the legal status or standing of an embryo. While regulation of embryo disposition does not always directly relate to the use of assisted reproductive technologies, the implications are inherently linked (Grady 2011; Kounang 2012). The main reason for this link is that certain assisted reproductive technologies result in the creation of excess human embryos that must be stored, offered for adoption, donated to research, or cryogenically frozen and stored. Both state courts and legislatures have attempted to regulate the status of human embryos. With more than half a million frozen embryos being stored in U.S. fertility clinics, this is sure to be an issue that will continue to gain attention (Arons 2007).

Embryo Disposition Case Law

There have not been an extraordinary number of state cases addressing the disposition of embryos. With only a couple of exceptions, current case law involving disposition have not resulted in a restrictive nature for states involved. As Figure 4.2 shows, only nine states' courts

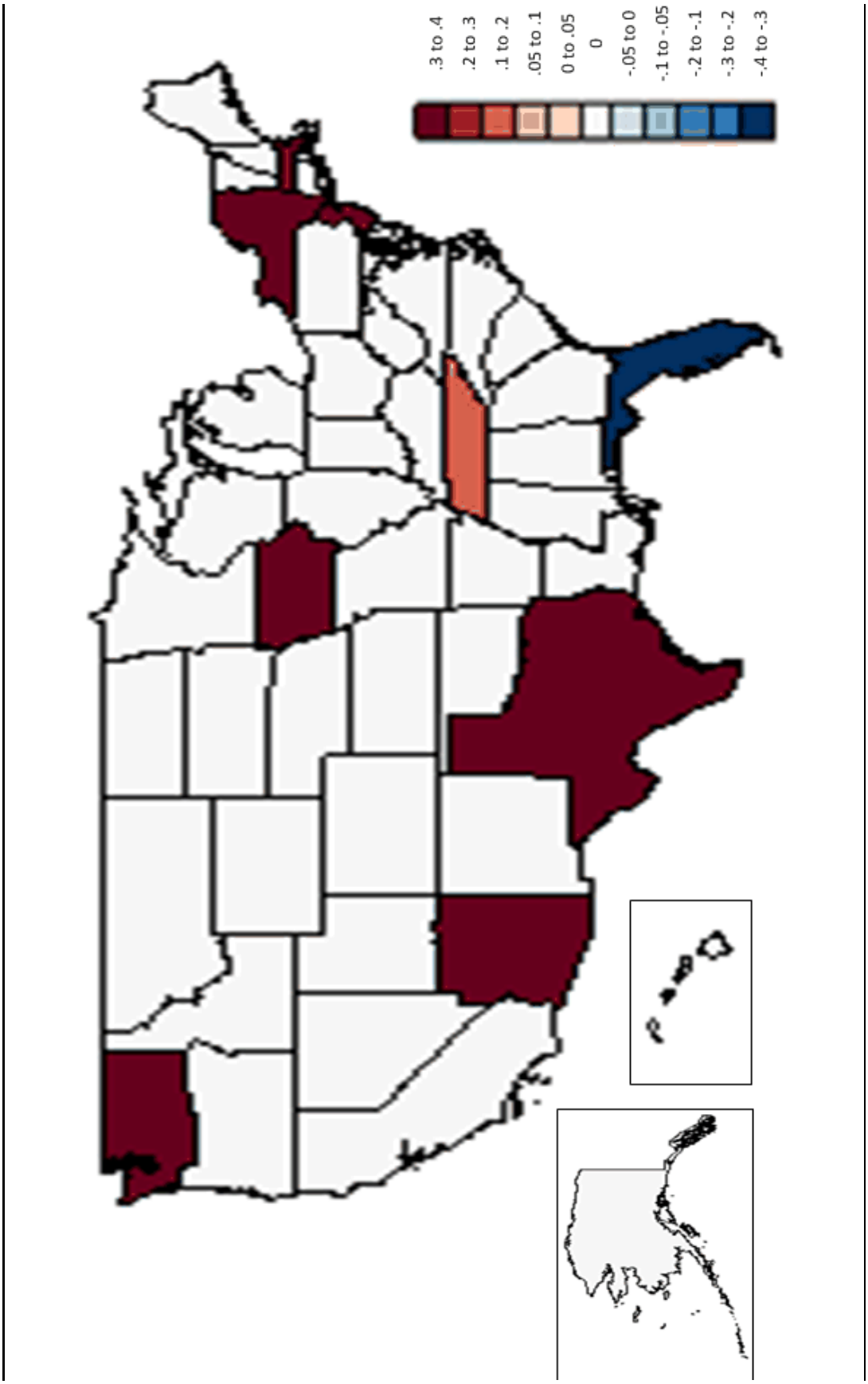


Figure 4.2: Disposition Case Law in the United States

have heard disposition cases, and eight of these states still have a positive ART score for disposition case law. These ART scores are based on a number of factors present in state case law and legislation. State ART scores could range from -2, which indicates a restrictive and discriminatory environment toward the use of ART, to 2, which represents a permissive environment toward ART use. Because no states were completely restrictive or permissive, and because all ART scores fell between .4 and -.4, the maps were created with this index range to better show the variation in state ART environments.[5]

Tennessee was one of the first states to hear a case on embryo disposition, in *Davis v. Davis* (1992). In this case, the Tennessee Supreme Court had to resolve a dispute between a divorced couple who had undergone IVF treatment, producing multiple embryos. Because the couple had no contractual agreement on the future handling of the embryos, the court was called upon to resolve the dispute between Mrs. Davis who wanted to donate the embryos, and Mr. Davis who no longer wanted to be a father. The court ultimately ruled that Mr. Davis' desire to not become a parent outweighed Mrs. Davis' desire to see her embryos become children. In addition to this outcome, the court set several important precedents in the official opinion. Although the court did not fully recognize embryos as persons, it created a special "interim" category that "entitles them to special respect because of their potential for human life" (*Davis v. Davis* Tenn. 1992, 597). Although this categorization of an embryo in this "interim" stage has not yet been tested, it does open the door for increased protection of embryos' rights. Like those in Mississippi recognized, increased embryonic rights could impact access to ART treatments, especially if it resulted in regulation of the creation of excess embryos (Grady 2011; Kounang

[5] All ART score maps were created using the same scale ranging from .4 to -.4. The only exception is the alternative coding scheme for insurance statutes. A full description of how ART scores are calculated can be found in Chapter 3.

2012). It also has the potential to significantly raise costs of ART treatments if couples must pay to have embryos stored indefinitely.

Davis v. Davis (Tenn. 1992) established two other precedents. First, embryos cannot be donated without express permission from both parties. Second, the court ruled that both the male and female donors have equal control over the outcome of their gamete donations, even if the process for donation and harvesting is more taxing on a woman's body. This recognition of equal control over gamete donations could have implications for equal responsibility for children born from gamete donations. Neither one of these precedents creates a more restrictive environment toward the use of ART, but they do clarify the court's position on the disposition of embryos, especially in the absence of a contractual agreement between gamete donors.
Several other state courts have considered cases involving embryo disposition including Iowa, Massachusetts, New Jersey, New York, Texas, and Washington.[6] In each of these cases the state courts ruled that contractual agreements concerning the future of embryos should be enforced. Although each case outlined its own specific caveats, these cases go a long way to making the use of ART within these states less risky because couples entering contractual agreements can be more confident that their intentions will be upheld by the courts.

The final area where state courts have ruled over disposition cases deals with posthumous birth and conception of children and whether these children are entitled to inheritance and Social Security benefits. Only two states, Arizona and Florida, have heard cases on this issue. In *Gilett-Netting v. Barnhart* (9th Cir. 2004), an Arizona court decided that a child conceived by in vitro fertilization and born after the death of the genetic father was considered a legitimate child and thus entitled to Social Security benefits. A Florida court, on the other hand ruled differently

[6] *In re Witten* (Iowa 2003); *A.Z. v. B.Z.* (Mass. 2000); *J.B. v. M.B.* (N.J. 2001); *Kass v. Kass* (N.Y. 1998); *Litowitz v. Litowitz* (Wash. 2002); *Roman v. Roman* (Tex. App. 2006), respectively.

in *Stephen ex rel. Stephen v. Barnhart* (M.D. Fla. 2005), stating that the child was not a dependent at the time of the parent's death. These cases are likely just the beginning of disputes over posthumous inheritance claims. Fertility clinics are beginning to see military families store gametes for future use in the event that a soldier does not return from deployment. In 2007, a Virginia clinic reported that it was storing sperm for more than 500 servicemen (Kramer 2007). This issue will likely have to be considered further in the future.

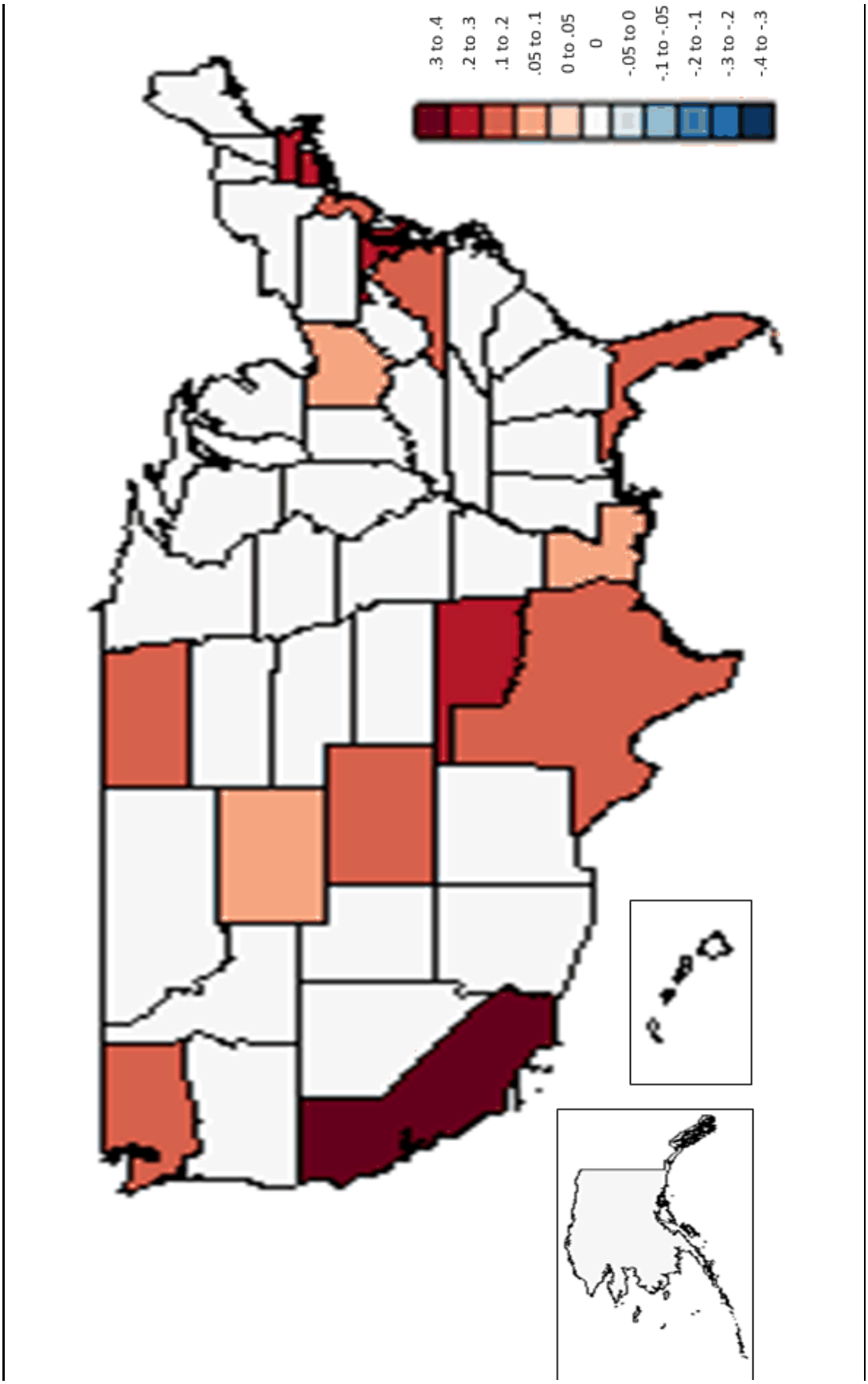
Embryo Disposition Statutes

Statutes concerning the disposition of an embryo are much more numerous than the cases, but many states still remain silent on this issue. Only 17 states[7] have passed legislation that fit this category of ART regulation. Figure 4.3 shows the geographical mapping of state scores for disposition statutes. As the figure shows, most states either have established permissive or clarifying policies or have not legislated at all in this area of ART. This map is based on scale of -.4 to .4. States with higher scores are more permissive, while states with lower scores are more restrictive. States that have a score of 0 either have a neutral approach or have not passed legislation addressing embryo disposition.

As the figure shows, most legislation tries to clarify the state's position on embryo disposition. For instance, California, Connecticut, Maryland and Massachusetts each require that fertility clinics provide clients with information about their options for excess embryos created during the in vitro fertilization process. Other states mandate that clients be given the option to store[8], discard[9], donate to research[10], or offer excess embryos for adoption.[11] Other states

[7] California, Colorado, Connecticut, Florida, Louisiana, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oklahoma, Texas, Virginia, Washington, and Wyoming.
[8] California, Connecticut, Louisiana, Maryland, Massachusetts, and New Jersey.
[9] California, Connecticut, Maryland, Massachusetts, and New Jersey.
[10] California, Connecticut, Maryland, Massachusetts, and New Jersey.
[11] California, Connecticut, Louisiana, Maryland, Massachusetts, New Jersey, and Oklahoma.

Figure 4.3: Disposition Statutes in the United States



expressly forbid the destruction of excess embryos[12] or the selling of embryos for research or adoption[13]. California law also mandates that the state maintain a database of all embryos donated for research.

States have also clarified the role of predetermined agreements about embryo use. For instance, California, Connecticut, Florida, Maryland, New York, Oklahoma and Texas require that clients sign a written agreement about the future status of all embryos created in the ART process. Colorado and North Dakota allow either donor to withdraw consent prior to implantation, while six other states[14] clarify the parentage of a child conceived through ART in the case of divorce or death of a donor. Each of these state laws serve a clarifying role in determining the status of an embryo, and it appears that the intent of such legislation is to prevent dispute rather than limit use of ART.

As of 2008, only one state had passed legislation directly addressing the legal status of an embryo. In 2007, Louisiana passed legislation that defined an embryo as a "biological human" with "juridical rights" meaning that a person could bring suit on behalf of an embryo.[15] This statute, as well as the recent personhood initiatives proposed in several states, has the ability to decrease access to fertility treatments within the state. These laws could prevent the creation of excess embryos or require that embryos be stored indefinitely, causing the already high costs of fertility treatments to increase.

Embryo Disposition Regulation

Figure 4.4 shows the ART scores for the states when considering case law and statutes together. As the figure demonstrates, regulation tends to be more permissive than restrictive

[12] Louisiana.
[13] California and Louisiana.
[14] Colorado, Florida, Louisiana, North Dakota, Virginia, and Washington.
[15] LA. REV. STAT. ANN. §§ 9:121-9: 133 (2007).

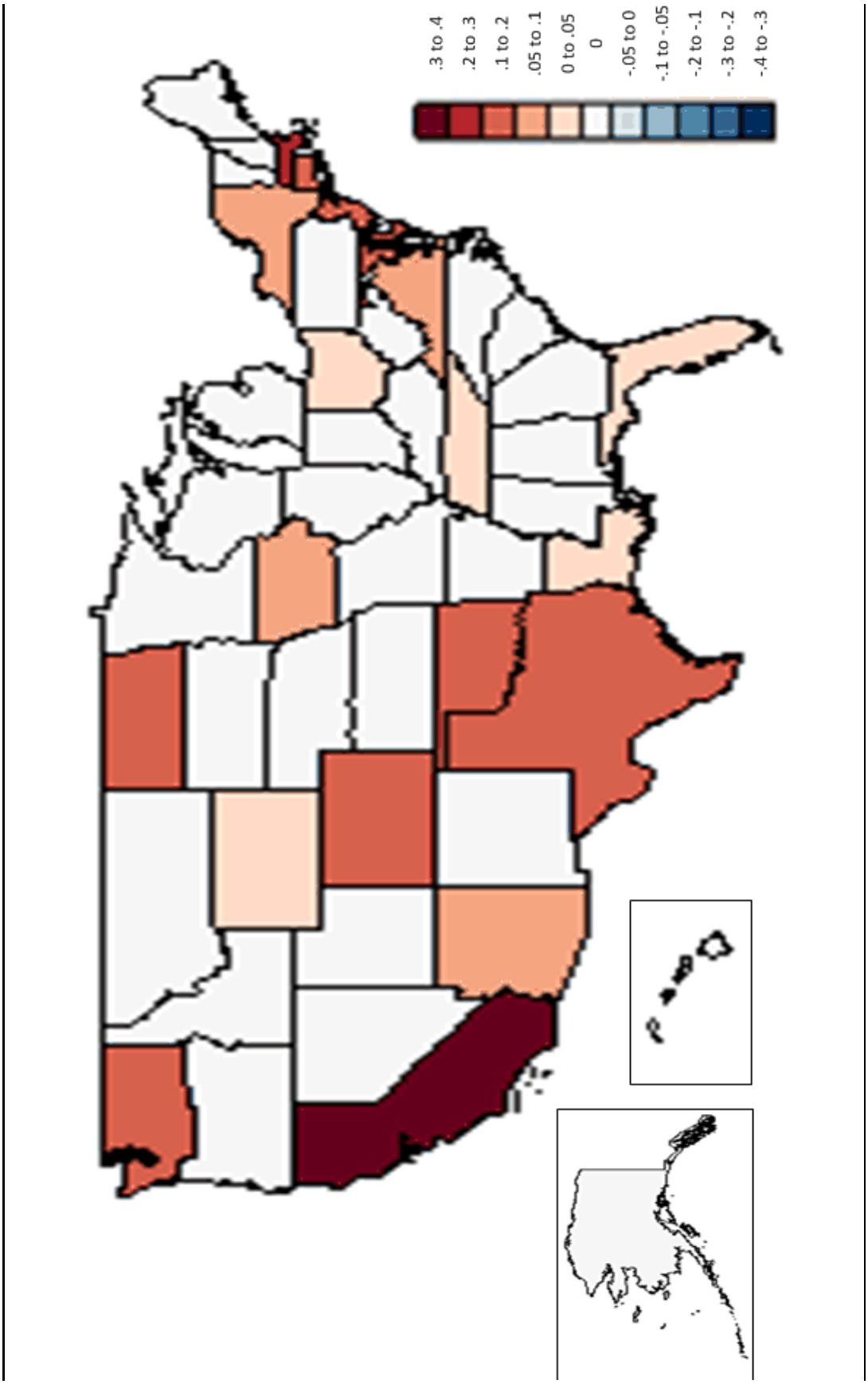


Figure 4.4: Disposition Regulation in the United States

with California being the most permissive state. This result may suggest that California's thriving fertility industry may be influencing state regulation. Still, there are many states that have not gotten involved in the regulation of embryo disposition. This map follows the same index where a negative score indicates a more restrictive environment and a positive score represents a more permissive environment for the use of ART.

State Regulation of ART Insurance Coverage

The high costs associated with fertility treatments serve as a significant barrier to access, and very few insurance programs offer coverage of treatments. Costs can range anywhere from $10,000 to more than $100,000 per cycle depending on the treatment options chosen, and most individuals require multiple cycles of treatment in order to achieve pregnancy (Goodwin 2010; Spar 2006). Only 17 states have addressed the issue of insurance coverage of ART through state legislation, and their approaches are quite diverse.

Insurance Regulation Statutes

Figure 4.5 displays the state insurance regulation statutes. This map suggests that some states have created more permissive environments for the use of ART while other states have created less friendly environments through insurance coverage legislation. Again, states with negative scores have more restrictive insurance policies, and states with positive scores have more permissive insurance legislation.

Twelve[16] states require some form of insurance coverage, and each of these states varies on what type of treatments must be covered. For instance, Arkansas requires insurance coverage for only in vitro treatments, New York requires coverage of infertility drug treatment buy not in vitro, and the other states require multiple treatment options. California and Texas do not

[16] Arkansas, Connecticut, Illinois, Maryland, Massachusetts, New Jersey, Rhode Island, Hawaii, New York, Montana, Ohio, and West Virginia.

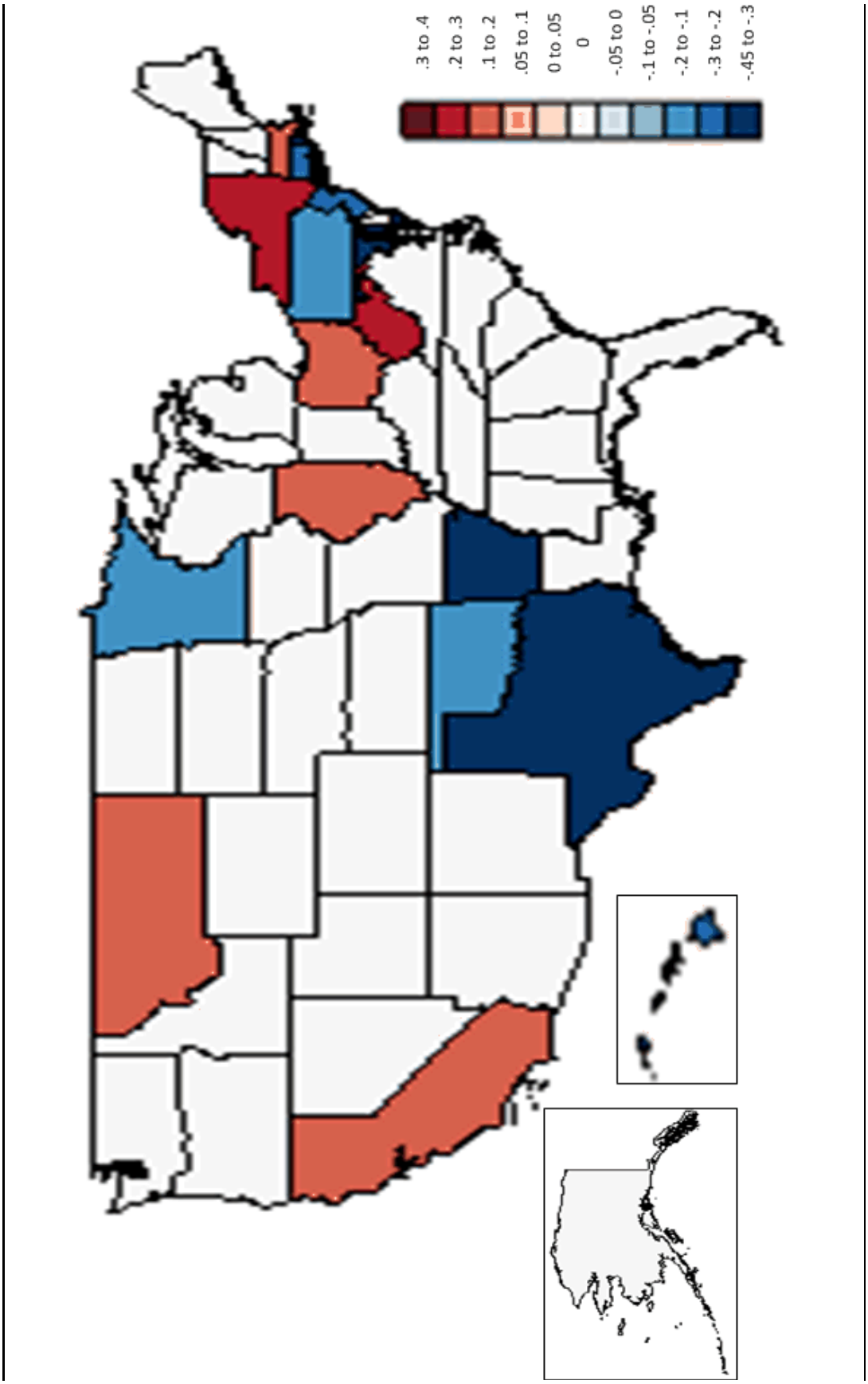


Figure 4.5: ART Insurance Statutes in the United States

mandate coverage of infertility treatments, but they do require that insurance companies offer optional coverage which individuals may purchase if they desire. California's mandate requires that insurance companies specifically provide information to consumers about their fertility treatment coverage options. The presence of such mandates increases access to fertility treatments, but, obviously, only to those who have health insurance. While these mandates do not prevent insurance companies from covering infertility treatments, they do set the minimum coverage requirements of the state.

These insurance coverage statutes do not come without strings attached. Several states have imposed limitations and exemptions to their coverage mandates, and some of these limitations are discriminatory in nature. For instance, four states impose age restrictions on coverage. Connecticut sets its age limit at less than 40, New Jersey's limit is 46, New York restricts coverage to those between 21 and 44, and Rhode Island only mandates coverage for those between 25 and 40. Rode Island's age limit is even more specific and more unequal because the age limit only applies to women.

Other state coverage mandates discriminate against those who are single, or those whose marriages are not legally recognized because they are limited to those who are married. These states include Arkansas, Hawaii, Maryland, Rhode Island and Texas. Other states only require coverage if individuals use their own gametes. In these states, including Arkansas, Hawaii, Maryland and Texas, those who wish to use donor gametes or embryos are excluded. While this could apply to a variety of individuals, it directly excludes same-sex couples who require the use of one or more donor gametes to create families through the use of ART.

While not discriminatory in nature, states have included several other types of exemptions from coverage mandates. California, Connecticut, Illinois, Maryland,

Massachusetts, New Jersey and Texas provide a religious exemption for employers who offer insurance. Two of these exemptions carry special caveats. For instance, the Massachusetts exemption only applies to diocese employers and the New Jersey exemption only applies to certain treatments. Eight states[17] have passed legislation that exempts certain government insurance programs, including Medicaid, from having to cover infertility treatments. Three of these states, Oklahoma, Minnesota, and Pennsylvania, do not have any other insurance statutes. Since these exemptions do limit access to those with certain types of insurance, they are not discriminatory in nature.

Insurance Coverage Statutes

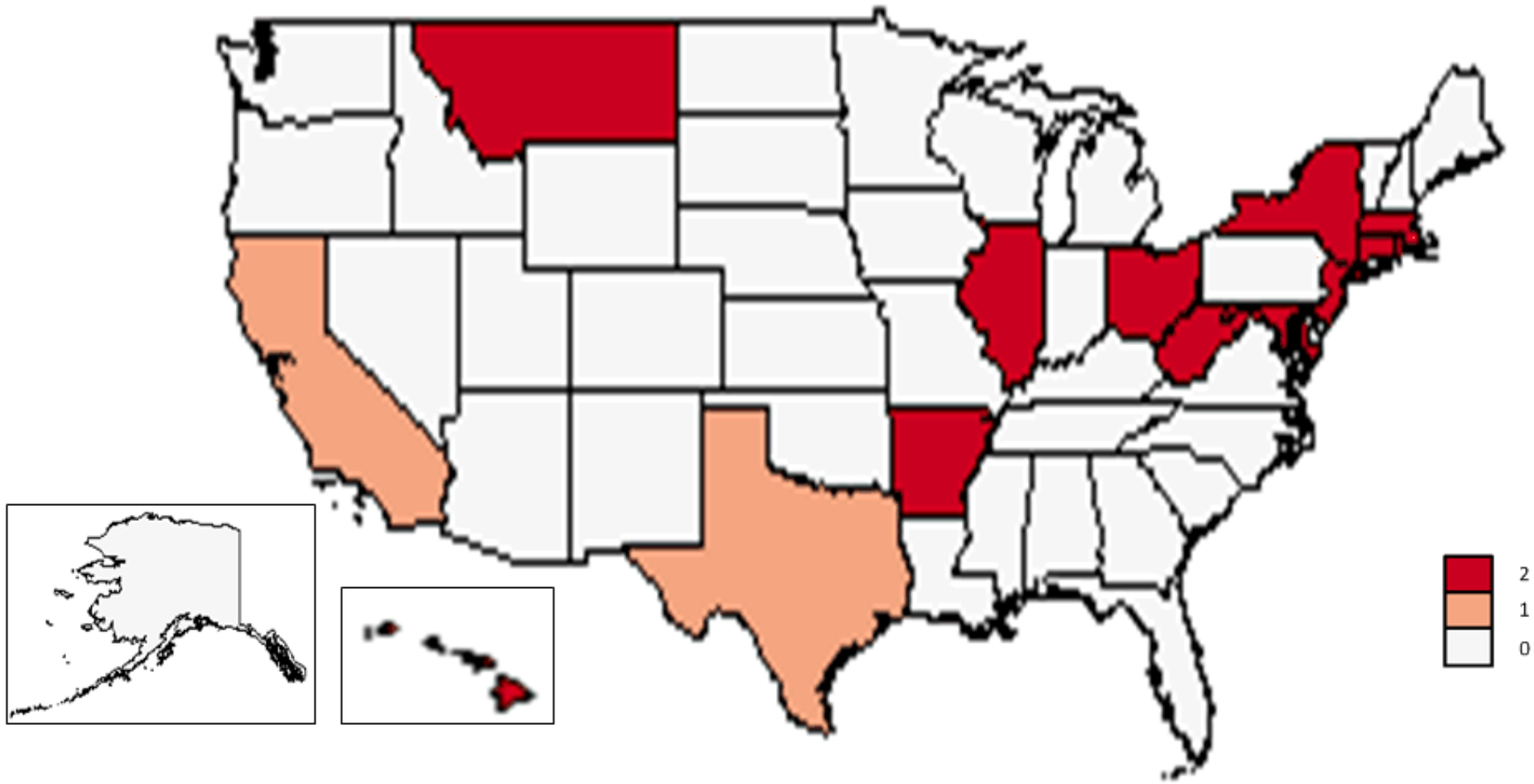
Figure 4.6 offers another way of looking at insurance coverage statutes in the United States. As noted in chapter 3, insurance coverage of infertility treatments is rare, and states that take steps toward increasing access are creating environments that are friendlier toward the use of ART. While the exemptions included in some statutes exclude certain populations based on age, marital status and sexual orientation, this map simply displays states that require insurance companies to cover or offer coverage for infertility treatments. The ART scores for this measure range from 0 to 2. In this alternative coding scheme, a 0 represents states that have no insurance statutes, a 1 represents states that require insurance companies to offer optional coverage, and a 2 indicates that states have policies that mandate insurance companies to cover certain types of ART. This figure suggests a more permissive ART environment in terms of insurance coverage than Figure 4.5.

State Regulation of Surrogacy

State regulation of surrogacy has taken on a variety of forms. This category of regulation includes fertility treatments that involve the use of a volunteer or paid party who agrees to carry

[17] Arkansas, Minnesota, Montana, New Jersey, Ohio, Oklahoma, Pennsylvania, and Rhode Island.

Figure 4.6: ART Insurance Coverage Statutes in the United States



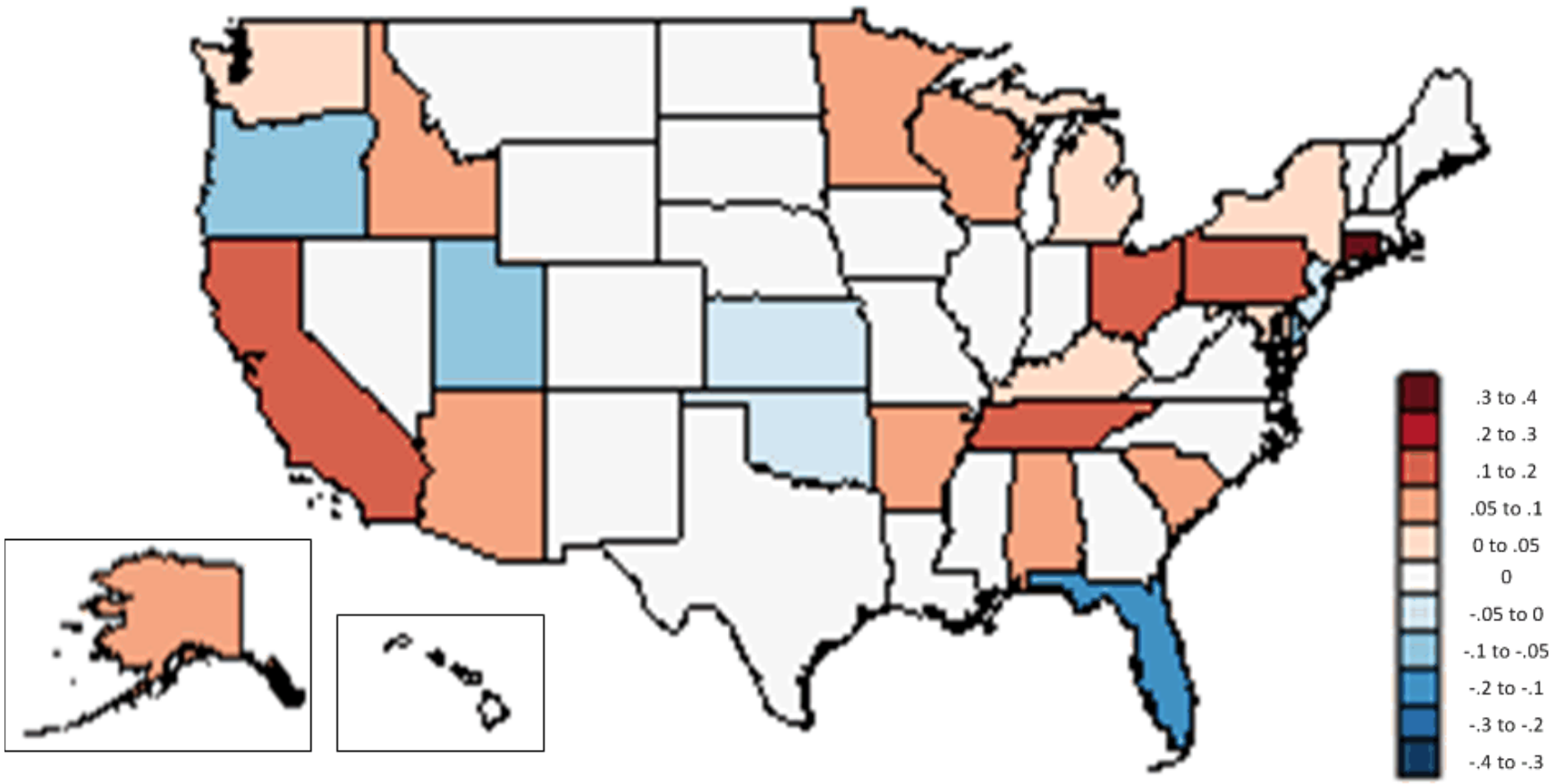
and give birth to a child for another individual. The statutes and precedents in this category of regulation have the potential to reach beyond the bounds of surrogacy because much of this regulation deals with determinations of parentage and custody rights. For instance, the decision of California courts to recognize the rights and responsibilities of intended parents has been applied to same-sex couple adoptions. Thus, this regulation has the potential to exceed the bounds of individual use of surrogacy as a fertility treatment option.

Surrogacy Case Law

There are several well-known and important cases that involve the use of surrogacy. As previously discussed, one of the most famous surrogacy cases happened in New Jersey in 1985 when a surrogate mother, Mary Beth Whitehead, fled the state with the child she had promised to give to the Stern couple. This story captured the nation's attention as the courts were left to decide how to maneuver through uncharted territory (Arons 2007; Markens 2007). The New Jersey courts are not the only state courts that have had to address the issue of surrogacy. Figure 4.7 shows the ART scores that capture the states' judicial approaches to surrogacy regulation. As the figure indicates, many states have a permissive judicial environment toward surrogacy. There are several states, however, including New Jersey, that have set precedents that contribute to a more restrictive environment concerning the use of surrogacy. This map is also based on a scale of -.4 to .4, where a positive score indicates a more permissive environment and a negative score represents states with restrictive environments.

State surrogacy case law can be grouped into two main categories, cases involving surrogacy agreements or contracts, and the determination of parentage in surrogacy agreements. The first category of cases deals with questions regarding the validity of contracts between intended parents and surrogates. Some state courts have determined that contracts are illegal or

Figure 4.7: Surrogacy Case Law in the United States



that the courts should consider contracts as void. Delaware courts have taken the most decisive stand, ruling that surrogacy violates Delaware state law. Other state courts[18] have determined that contracts or agreements that include payment to the surrogate are void. Several state Attorneys General have written position statements that outline how their state courts would and should address surrogacy agreements based on state law and previous court decisions. The statement from the Kansas Attorney General states that surrogacy contracts would be illegal and unenforceable. Other state Attorneys General have stated that contracts that involve payment would be void including Kansas, Kentucky, Maryland, Oklahoma and Oregon. The Kansas Attorney General clarified that payment for living expenses could be permissible, but that payment for surrogate services would not be permitted. While these statements are not binding and do not carry the same weight as precedent, they could serve as influential legal briefs that outline a strong legal case against the validity of surrogacy agreements.

Courts in both Florida and New Jersey have taken strong stances against certain types of surrogacy. In the Baby M[19] case, the New Jersey court set a precedent that traditional surrogacy arrangements are not valid. Traditional surrogacy involves the surrogate also being the biological egg donor, and the surrogate is usually artificially inseminated with the intended father's sperm. This precedent can add an extra burden to those seeking to assist reproduction through surrogacy because it requires a donor egg or embryo, significantly increasing the cost of utilizing surrogacy. Florida courts also set a restrictive precedent in the case of *Lowe v. Broward County* (Fla. Dist. Ct. App. 2000) where the courts ruled that only married couples have the right to enter into a surrogacy contract. This court decision clearly creates a restrictive environment for same-sex couples wanting to utilize surrogacy to become parents.

[18] Delaware, Massachusetts, Michigan, New Jersey, New York, and Oregon.
[19] *In the Matter of Baby M*., 537 A.2d 1227 (N.J. 1988).

Some state courts have been more accepting of surrogacy contracts. An Alaska court likened a traditional surrogate contract to adoption agreements. In this case,[20] the surrogate tried to gain custody of the child. The court ruled that the surrogacy agreement was just like an adoption agreement and that the surrogate needed to file the petition for custody within a year, as required by Alaska adoption laws. While this precedent does allow the opportunity for the traditional surrogate to back out of a contract within one year, it also provides validity for agreements. In 1998, the Connecticut Supreme Court set a similar precedent when it ruled that adoption agreements could include a surrogate mother's termination of parental rights.[21] While this outcome provides more support for surrogacy arrangements, the court was careful to point out that this decision was not a ruling on the validity of surrogacy contracts. Although Connecticut courts are careful not to make a direct statement about the validity of surrogate contracts, in the same year, the court upheld a surrogacy arrangement in favor of the intended mother in *Doe v. Doe* (Conn.1998). This outcome further suggests that Connecticut courts view surrogacy contracts as valid. However, once again, the court made a statement that this decision was not a ruling on surrogacy contracts.

Connecticut courts are not the only courts that are hesitant to make explicit rulings on surrogacy contracts. In 2006, the Pennsylvania Superior Court ruled that a gestational surrogate did not have standing to sue for custody of children resulting from a surrogate arrangement. The court explicitly stated that this decision was not to be interpreted as a validation of surrogacy agreements, stating, "that task is for the legislature" (*J.F. v. D.B.* Pa. Super. Ct. 2006). Other state courts have also made decisions that suggest that surrogacy contracts would be honored. For instance, the Tennessee Supreme Court ruled that "in disputes as to embryos, any prior

[20] *In re T.N.F.*, 781 P.2d 973 (Alaska 1989).
[21] *Doe v. Roe*, 717 A.2d 706 (Conn. 1998).

agreement would be honored" (*Davis v. Davis* Tenn. 1992). Finally, Kentucky courts made a clear distinction between child trafficking and surrogacy contracts. One of the arguments against surrogacy contracts, especially ones that involve monetary compensation, is that they violate human trafficking laws because it involves the exchange of children for money. In *Surrogate Parenting Assocs. v. Commonwealth ex. Rel. Armstrong* (Ky. 1986), the courts held that surrogacy contracts and trafficking are not the same because surrogacy contracts involve arrangements before conception and thus do not involve putting pressure on mothers facing unplanned pregnancy and financial hardship.

Other state courts have made decisions in relation to surrogate contracts, specifically acknowledging that there should be exceptions to these legal contracts. For instance, two courts found that there should be a waiting period before the agreement becomes legal, allowing a surrogate mother to back out of the agreement. The Massachusetts[22] court said there must be a four-day waiting period and the New Jersey[23] court allows for 72 hours after birth before the surrogate mother surrenders custody to the intended parents.

The second category of state surrogacy statutes involves the determination of parentage and custody. Several state courts have decided cases in favor of the intended parents. California was one of the first states in which a court established the importance of the intent to become a parent when a surrogacy is involved. In *Johnson v. Calvert* (Cal. 1993), Anna Johnson acted as a surrogate for Mark and Crispina Calvert. At the time of the birth, the Calvert's had decided to separate, and a custody battle over the child began. The court found that although Johnson had carried and given birth to the child, custody should be granted to Mrs. Calvert because she was the woman who intended to create and raise the child. Although this was a gestational surrogacy

[22] *R.R. v. M.H.*, 689 N.E.2d 790 (Mass. 1998).
[23] *A.H.W. v. G.H.B.*, 772 A.2d 948 (N.J. Super. 2000).

case, where Mrs. Calvert was the biological, but not the gestational mother, this case established an important precedent in recognizing that intent to parent qualifies one to be considered the natural parent. Since that 1993 case, thirteen state courts[24] have decided cases recognizing the parental rights of intended mothers and fathers.

Two of these same states have had court decisions that favor the biological surrogate. California and Ohio each have such outcomes. These seemingly contradictory court outcomes point to the complex nature of cases involving surrogacy. There are multiple individuals that can and do claim legal rights to a child that results from a surrogacy arrangement. Some courts have dealt directly with the complicated situations that can emerge, and ended up setting some interesting precedents. A Pennsylvania court, for instance, held that three individuals (two biological gamete donors and a gestational surrogate) could have biological connections to a child, and decided that all three could be listed on a child's birth certificate. A California court was not willing to go that far and held that only two individuals could be listed as parents on a birth certificate. A Maryland court, on the other hand, ruled that a mother did not have to be listed on the birth certificate. Massachusetts and New Jersey courts ruled that intended parents could be listed on the birth certificate of the child. The Massachusetts court, however, stipulated that the intended parents also be the biological parents and obtain the permission of the surrogate.

In some states, courts have considered custody and parentage in cases involving same-sex couples. In California and Connecticut, for instance, the courts determined that two women or two men could be legal parents of children resulting from surrogacy. A Washington court also extended parental rights to an ex-partner who was not biologically related to the child. While

[24] Alabama, Arkansas, Arizona, California, Connecticut, Idaho, Michigan, Minnesota, New York, Ohio, South Carolina, Tennessee, and Wisconsin.

these states create a more permissive environment for the use of surrogacy by same-sex couples, courts in Utah and Florida have decided cases that deny custody rights to ex-partners in cases where a child was conceived using surrogacy.

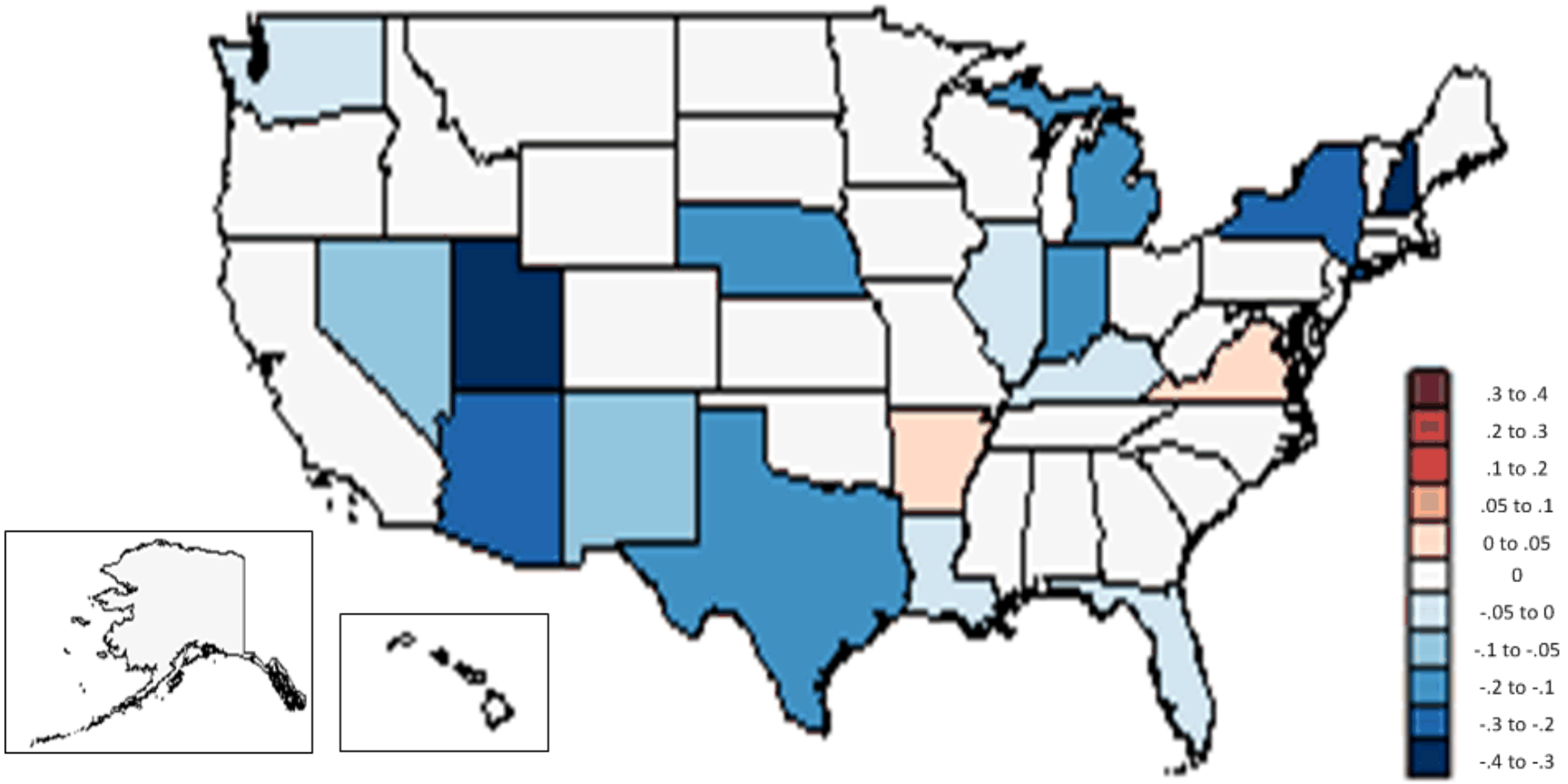
Surrogacy Statutes

As Figure 4.8 illustrates, surrogacy statutes appear to be much more restrictive than state case law. The ART scores in this map range from -.4 to .4. Like the other maps, a positive score indicates more permissive surrogacy statutes, and a negative score indicates restrictive surrogacy policies. There are many different types of regulation of surrogacy in the states including policies that address the legality and parameters of surrogacy contracts, establish punishment for those that violate contract laws, place restrictions on who can be a surrogate, and develop other conditions and requirements for using surrogacy such as establishing residency or being married.

State legislatures have taken a variety of approaches toward the regulation of surrogate contracts. Arizona and Washington, as well as Washington, D.C., have banned surrogate contracts. These bans restrict the use of surrogacy within the state, but they do not necessarily make surrogacy illegal. Individuals may still choose to utilize surrogacy, but they may not create a legally binding contract. Other states have passed legislation that would declare surrogacy contracts as void should they be disputed. These pieces of legislation vary in their scope. For instance, four state policies void paid contracts,[25] seven states void paid traditional contracts,[26] and four void paid gestational contracts.[27] Other state legislation voids non-paid surrogacy contracts,[28] non-paid gestational contracts,[29] and non-paid traditional surrogacy contracts.[30]

[25] Indiana, Michigan, Nebraska, and New York.
[26] Indiana, Kentucky, Louisiana, Michigan, Nebraska, New York, and North Dakota.
[27] Indiana, Michigan, Nebraska, and New York.
[28] Indiana, Michigan, Nebraska, and New York.
[29] Indiana, Michigan, Nebraska, and New York.
[30] Indiana, Kentucky, Louisiana, Michigan, Nebraska, New York, and North Dakota.

Figure 4.8: Surrogacy Statutes in the United States



South Dakota legislation, however, does specifically state that it will recognize some gestational contracts. While these policies do not prevent individuals from using surrogacy as a fertility treatment, they raise the risk for future custody disputes. Four states, New Hampshire, Virginia, Texas and Utah, have state policies that require judicial authorization of certain surrogacy contracts in order to be considered valid. New Hampshire also outlines provisions for those who breach these contracts. Illinois also requires that both the intended parents and surrogates have independent legal consultation. While these policies may create an added burden, they help to reduce the potential for future conflict over the surrogacy contract.

Several states have taken steps to increase compliance with surrogate contract laws by criminalizing contracts or imposing fines. The severity of punishment varies significantly. In New York, for example, there is only a fine of up to $500 attached to violation of surrogate contract law. In Michigan and Washington, those involved in certain contracts can face misdemeanor charges, and in Michigan this can be accompanied by one year of prison and/or a $10,000 fine. Michigan and New York also punish those who arrange surrogate contracts. Arrangers are generally agencies that help connect intended parents and potential surrogates and then broker a contract for a fee. In Michigan,[31] arrangers can be charged with a felony offense and receive a $50,000 fine. New York[32] has a similar policy where arrangers receive a $10,000 fine on the first offense and are charged with a felony on the second offense.

State policy has also attempted to regulate who can become a surrogate. Florida, Michigan and Washington have all passed legislation banning surrogate contracts with minors. The Michigan and Washington policies also disallow those who are mentally ill or developmentally challenged from entering surrogacy contracts. These two states also assign a

[31] Mich. Comp. Laws §§ 722.851-.863 (2007).
[32] N.Y. Law Dom. Rel. §§ 121-124 (2007).

hefty fine, $10,000 in Washington and $50,000 in Michigan, for those who violate this law. While these state policies are intended to protect vulnerable populations, New Hampshire and Utah have adopted even more restrictive policies requiring that all individuals entering into a surrogate contract be 21 years old. This includes not only the surrogate, but also both of the intended parents. While forcing people to wait until 21 to enter a surrogate contract may not necessarily be an undue burden, these policies make a statement about the ideal age of parents.

State policy in Florida also requires that surrogates undergo a medical evaluation before becoming a surrogate, and New Hampshire requires that surrogates over 35 receive genetic counseling. New Hampshire, Texas and Utah also stipulate that surrogates must have had one healthy delivery prior to becoming a surrogate. Only one state has passed legislation that addresses the socioeconomic status of the surrogate. Utah prevents anyone receiving Medicaid benefits from entering a surrogate contract. While the intention of this law may be to prevent surrogates from receiving subsidized medical care, it prohibits reproductive independence for those who require financial assistance.

Other state legislation establishes a variety of different conditions for surrogacy arrangements. Some of these policies have seemingly little impact on access to surrogacy within a state. For instance, New Hampshire, Texas and Utah require parties in a surrogate contract to establish residency within a state before entering into a contract. Texas and Utah also allow surrogates to retain autonomy over all major medical decisions.

Some states attempt to regulate who is fit to become parents with policies that require individuals to submit to psychological evaluations[33] and home studies[34] before being allowed to enter surrogacy contracts. These policies appear to be requiring individuals to prove that they

[33] Illinois, New Hampshire, and Utah.
[34] New Hampshire, Texas, and Utah.

are fit to become a parent, a process that is not required of those entering parenthood through traditional conception.

States also attempt to regulate the use of gametes by individuals in surrogate contracts. Illinois, Texas and Utah do not allow the surrogate to donate her own egg, requiring that the gamete be from the intended mother or a donor egg or embryo. New Hampshire, in contrast, does not allow the use of donor eggs. New Hampshire, along with Florida, Illinois, and Utah, also require that at least one parent be genetically related to the resulting child. The combination of these requirements significantly limits the options of same-sex couples electing to use surrogacy as an option to begin a family.

Other states are more direct in their exclusion of same-sex couples from surrogacy. For instance, in Nevada, New Hampshire, Texas and Utah, only those who are married may enter into surrogacy arrangements, excluding those who are single or who are not able to be legally married in the state. Florida, New Hampshire, Texas and Utah also require that individuals wanting to use surrogacy must demonstrate that they are infertile. There are multiple reasons why individuals may want use surrogacy even if they are not medically determined to be infertile. Some individuals have opted for surrogacy due to health issues such as diabetes, or they are concerned about passing genetic diseases such a multiple sclerosis. Additionally, those wishing to become single parents or same-sex couples may want to use surrogacy to begin a family, but they are not medically defined as infertile. These state laws prevent these individuals from entering surrogate contracts because they are unable to prove infertility.

The final category of surrogacy statutes includes the determination of parentage and custody of resulting children. Just like case law, some of these statutes have come down in favor of the intended parents, and others favor the surrogate. Each of these statutes attempts to

establish parenthood when there is a complicated intermingling of biology and intent to be a parent. Arizona has one of the strongest laws in favor of the surrogate mother. This policy determines that the surrogate is the legal mother of the child and also that the surrogate's husband is the legal father, regardless of biology. North Dakota has a similar policy, but this legislation only declares the surrogate as the legal mother if she is also the biological mother. Like the Arizona law, the surrogate's husband is the legal father, regardless of biological relationship to the child.

Nebraska's policy still recognizes biology, but also weighs intent. This policy states that legal parentage belongs to the biological father and his wife. While this policy does give consideration to intent to parent, it is unclear what happens when donor sperm is used or what happens when the intended parents are not married or are in a same-sex relationship. North Dakota's policy also recognizes the intended parents as the legal parents, but only if they are the donors of both gametes. Arkansas legislation recognizes the intended mother as the legal parent, but only if using anonymous sperm. These state policies are an attempt to make parentage determinations, but they end up establishing unclear guidelines for the courts and those seeking to enter surrogacy arrangements.

Three states have passed policies that recognize intended parents as the legal parents of children resulting from surrogacy. Virginia and Illinois each have legislation that directly awards custody to the intended parents. Moreover, Illinois is the only state that allows this relationship to be determined before the birth of the child, meaning that the intended parents' names are listed on the original birth certificate. Florida has an interesting law that states that intended parents must accept the child under all circumstances. While this law does not state

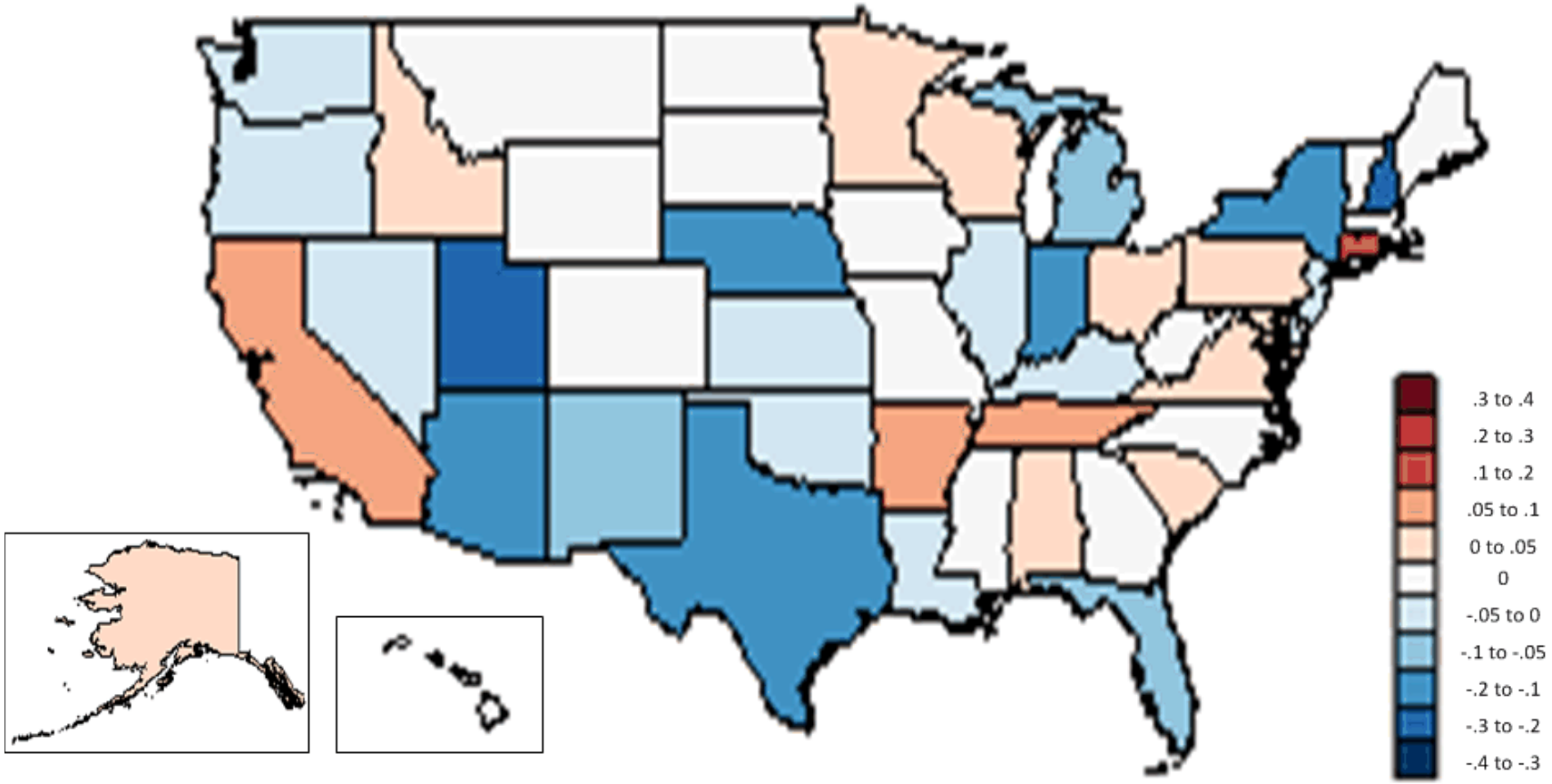
what would happen if there was a dispute over custody, it does suggest that intent to parent equates to responsibility for the child.

Several states have tried to establish provisions for instances of a custody dispute. New York and Indiana statutes add more ambiguity, stating that surrogacy contracts are not the only thing that should be considered in these disputes. These statutes essentially say that surrogacy contracts are not binding, which allows the courts to consider other arguments for custody including biological relation.

Like the courts, state legislation also establishes time periods in which a surrogate can dispute custody or back out of the surrogate agreements. Florida and New Hampshire allow 48 and 72 hours, respectively, for the surrogate to back out of a surrogate agreement. Illinois allows the surrogate up to 12 months to challenge custody. Virginia takes a different approach, allowing a surrogate to terminate the surrogacy contract within the first six months of pregnancy. While these state laws attempt to clarify custody determinations, they create a potentially risky situation for those entering surrogacy contracts.

Figure 4.9 displays the map for all surrogacy case law and statutes combined into one score. The map seems to suggest that states are more restrictive than permissive when regulating the use of surrogacy as a treatment for childlessness. This result could indicate that surrogacy is an option that most challenges our constructions of family. Because it requires the involvement of volunteer or paid parties to produce a child, surrogacy confronts the conceptions of biological relations, maternity, and motherhood. The public often has difficulty understanding how an individual could carry and give birth to a child for someone else. This sentiment was captured in a 2000 survey of more than 3,000 individuals. When asked if they approved of the use of surrogacy, 30 percent of respondents said that it was acceptable and 20 percent did not approve.

Figure 4.9: Surrogacy Regulation in the United States



However, many respondents (40 percent) stated that surrogacy was acceptable for others, but did not believe that it was an acceptable choice for them (Virginia Slims Poll 2000). This result suggests that the public might be able to accept surrogacy in theory, but not in practice. Divided public acceptance, coupled with several salient surrogacy custody disputes, makes surrogacy a target for regulation. Despite this, there are several states that are classified as having permissive regulation.

State Regulation of ART

The final three maps display the combined ART scores for all case laws, all statutes, and all regulation. Figure 4.10 graphically displays the scores for all case law regarding assisted reproductive technologies in the United States. As the map shows, state case laws have mostly resulted in friendly ART environments, and there does not appear to be a prominent pattern for states that have more restrictive case law outcomes. The fact that there is not an overwhelming pattern in court output is not surprising. The role of the court is to be a nonbiased arbiter of disputes, and thus should not be influenced by political, social, or economic forces. One could argue that there is a relationship between the number of clinics and favorable case law. Several of the states with the highest number of fertility clinics are classified as more permissive including California (59 clinics), New York (35 clinics), Texas (35 clinics), New Jersey (21 clinics), and Pennsylvania (19 clinics). However, Florida (29 clinics) has the most restrictive score, and Illinois (27 clinics) has a neutral score. While there is a potential connection between the strength of the fertility industry and permissive case law, there are certainly deviations from this pattern.

Figure 4.11 displays the ART score for the combination of all statutes. This map paints a different picture of ART regulation in the states, and provides evidence for why researchers

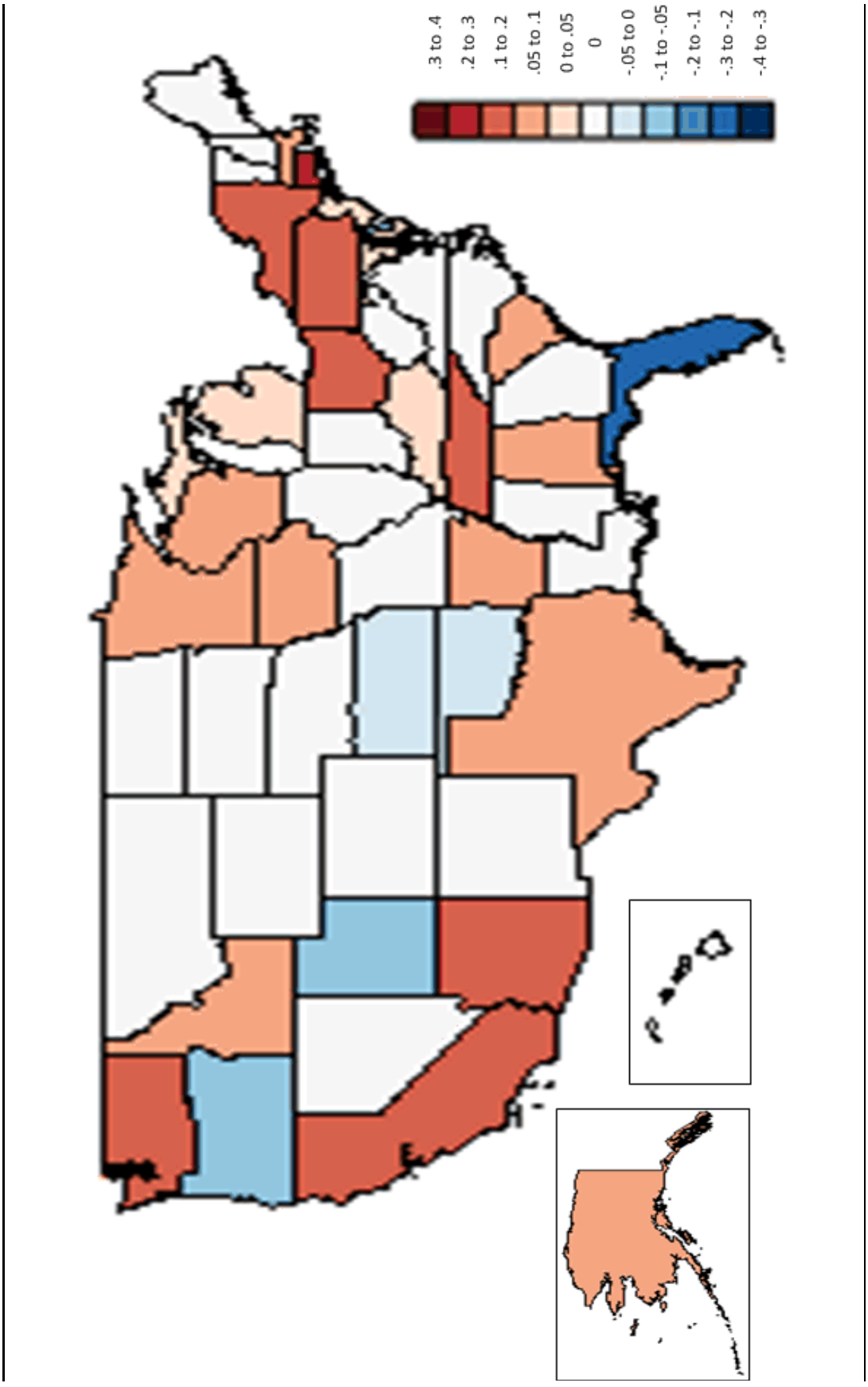


Figure 4.10: ART Case Law in the United States

should examine both judicial and legislative output. As the figure shows, when looking at all state legislation, state environments appear to be much more restrictive toward the use of assisted reproductive technologies. Several states including Texas, Pennsylvania, Arizona, Michigan, Minnesota and Arkansas, have more permissive case law, but appear to be more restrictive in their statutes. This could be an indication that these states have set more clear guidelines, and thus have fewer instances where the court has to impose restrictions on ART use from the bench. Other states such as Florida and Oklahoma are exactly the opposite. These two states have more restrictive case law and more permissive statutes. This too could be a function of the clarity of statutes. It is interesting to note that California, the state with the largest fertility industry, also has more permissive ART statutes.

The scores for all ART regulation are mapped in Figure 4.12. In this map we can see the overall state approach to regulating ART. This is a useful measure because it provides a comprehensive assessment of the level of ease or difficulty for an individual seeking fertility treatment in a state. Solely looking at state case law or statutes would provide an incomplete picture of the states' approaches to regulating the fertility industry. As the figure indicates, there is a relatively equal distribution of permissive and restrictive states and a handful of states that have not regulated ART. We also see that when statutes and case law are taken together, there are very few states that reach into the deep blue or deep red categories. In other words, when all regulation is combined, states are closer to neutral in their approach to ART regulation. This means that states have a combination of permissive and restrictive statutes and case laws that balance their approaches. Even so, California remains the most permissive state, while Utah and New Hampshire emerge as the most restrictive states.

Figure 4.11: ART Statutes in the United States

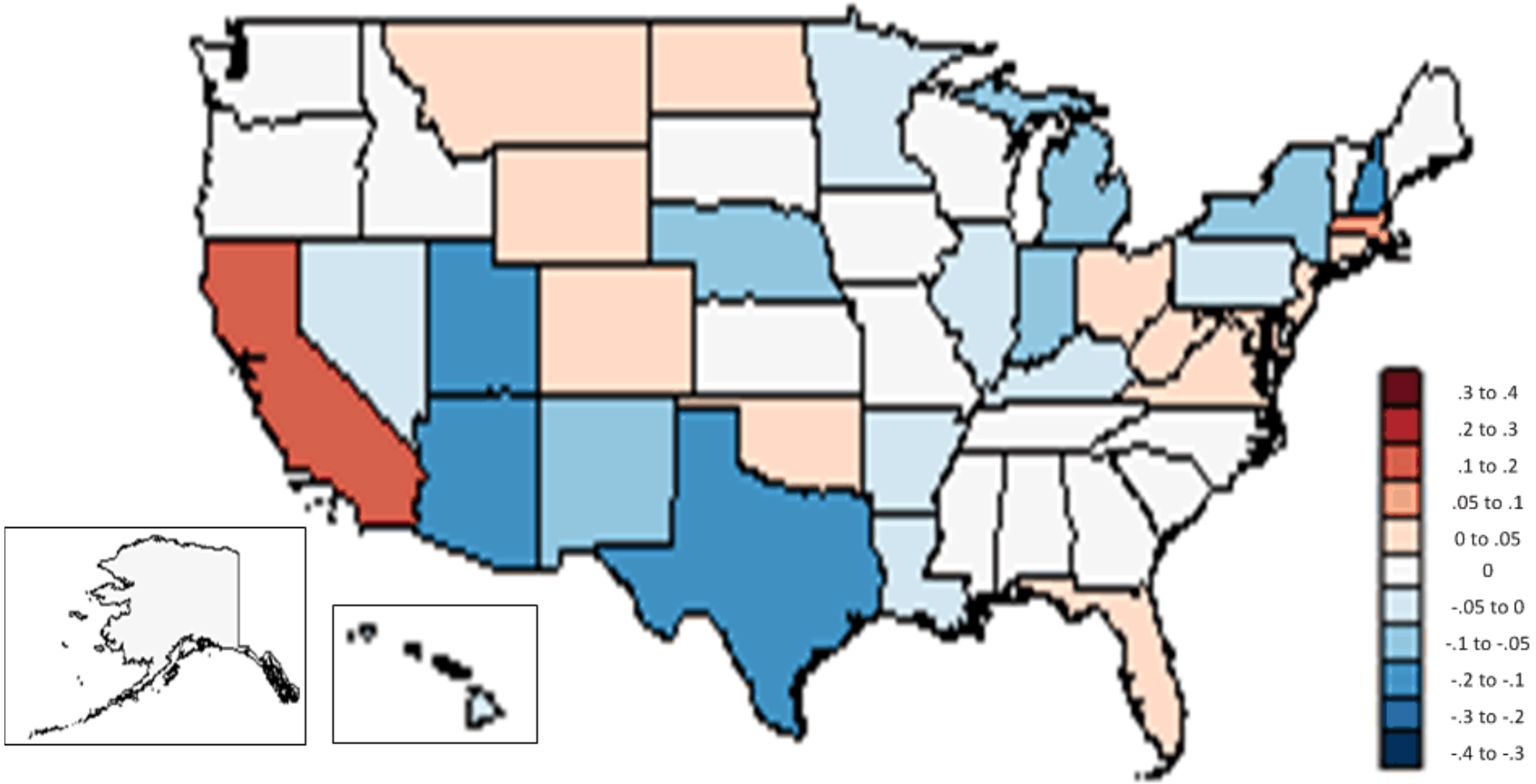
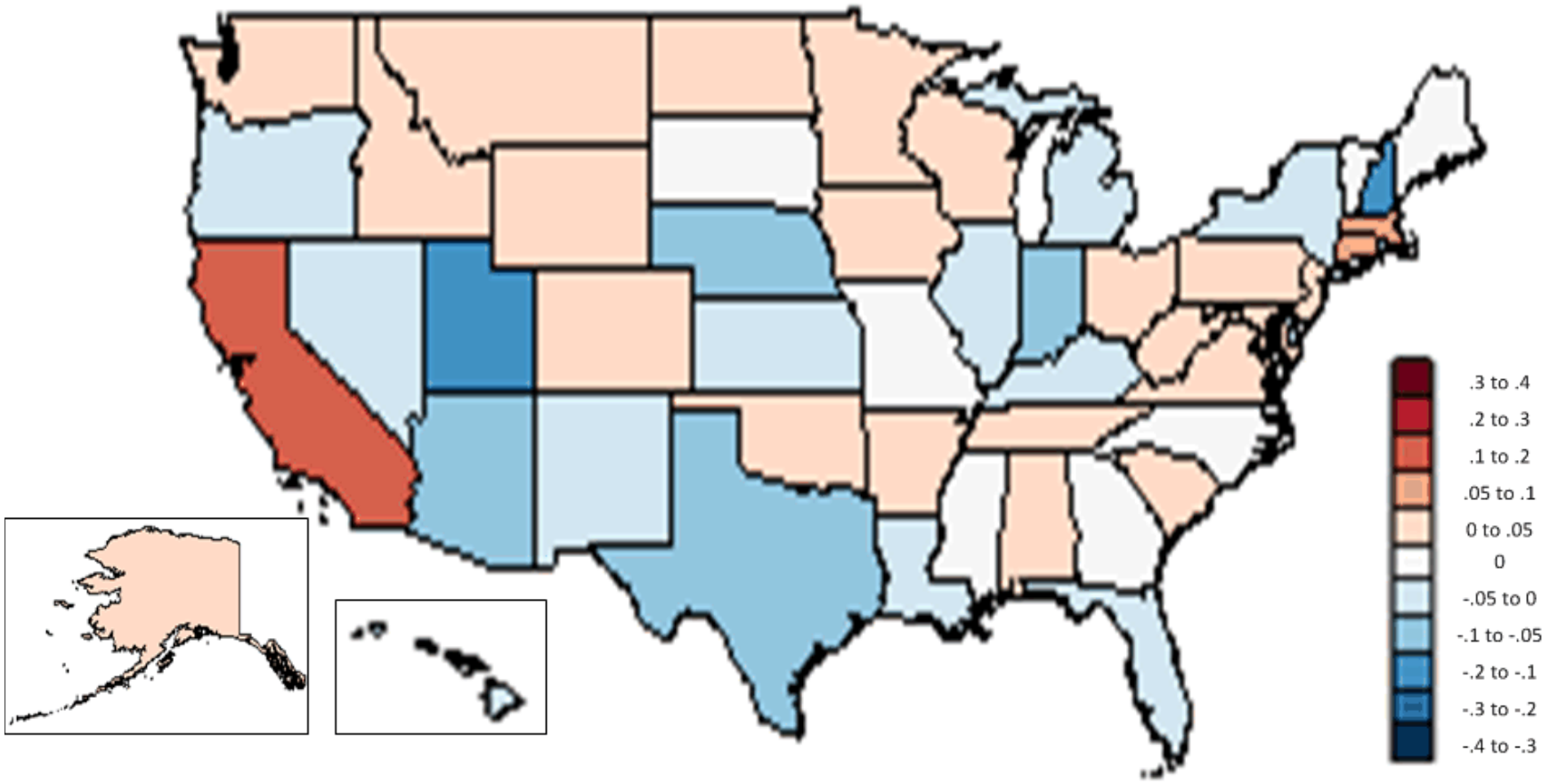


Figure 4.12: ART Regulation in the United States



Conclusion

As this analysis demonstrates, state approaches to the regulation of assisted reproductive technologies vary significantly. This analysis also shows that while some states are engaging this policy issue, many states remain silent, choosing not to legislate. By mapping the ART scores established in the previous chapter, we can see that there do not seem to be any patterns of legislation. In other words, it is not clear that conservative or liberal states are regulating ART in a similar manner. Chapters 5 will further explore whether or not significant patterns exist using quantitative analysis.

There also appears to be some support for the hypotheses established in Chapter 2. Although many different policies and case law were discussed in this chapter, no state had comprehensive legislation concerning the use of ART. In fact, much of the legislation appeared to be minimal and case law reactionary. This provides support for the first hypothesis, which contends that states would have minimal regulation of assisted reproductive technologies.

There is also support for the second hypotheses which stated that state regulation of ART will limit access to negatively constructed populations including same-sex couples, single mothers, and the undeserving. There were multiple case law outcomes and legislation discussed in this analysis that limited access to same-sex couples and single parents including the requirement of marriage in order to enter a surrogate contract. State legislation also tried to limit certain populations from using surrogacy by establishing age restrictions or requiring psychological evaluations and home visits. While it is difficult to identify the actual intent of these regulations, they do have the effect of limiting access for certain populations.

The goal of this descriptive analysis was to better understand state regulation of assisted reproductive technologies through further exploration specific pieces of legislation and cases

within a state. This analysis provided a more rich description of state judicial and legislative action, contributing to our understanding of how states have approached the issue of assisted reproductive technologies.

Chapter 5

The Leaders, the Laggards, and the Laissez-Faire: Uncovering the Determinants of Permissive and Restrictive State ART Policy

Introduction

For the past 20 years, state regulation of ART has been on the rise. As previously discussed, the types of regulation vary from banning or restricting contracts with surrogate mothers to regulating who can be listed on the birth certificates of children conceived using these technologies (Markens 2007). More recently, several states have taken direct steps to control the use of assisted reproductive technologies by attempting to regulate the number of embryos that can be implanted at one time (McCaffrey 2009a; 2009b). Other states have attempted to restrict the use of these technologies to married women (Mamo 2007; Andrews and Elster 2000). Any one of these regulations can impact access to fertility treatment. However, looking at the entirety of state regulation, created by elected officials and through the rulings of the courts, provides insight into the state environment surrounding the use of ARTs. The primary objective of this chapter is to understand what types of states are more or less likely to have permissive or restrictive ART regulation in place.

Methodology

To address this question, a series of analyses were conducted using the ART scores developed in chapter 4. These scores provide a comprehensive measure of the restrictive or permissive nature of state regulation. These scores are further broken down into subcategories based on the source of the regulation (the legislature or the court) as well as by the substantive nature of the regulation (embryo disposition, insurance coverage, and surrogacy). These scores

serve as the dependent variables for a series of models that attempt to uncover the determinants of permissive and restrictive state ART policy.

The first set of models examines the impact of a number of state characteristics that influence the regulation of embryo disposition. As discussed in chapter 4, the embryo donation regulation scores are based on a number of case laws and statutes that determine the regulation of use, storage, and legal status of an embryo. The regulation scores for disposition are broken down into three categories. The first looks at only case law, the second looks at only statutes, and the third looks at the combination of all case law and statutes dealing with disposition. Because the scores are continuous in nature on a scale from -2 to 2, an ordinary least square regression is used for each of these models.

The second set of analyses looks at the regulation of insurance coverage for ART treatments. Insurance coverage statutes are modeled in two different ways. The first model looks at the actual nature of the insurance statutes within a state. As previously noted, some states mandate coverage of treatment, but only for certain populations, primarily married couples. The first model accounts for these exclusions and the discriminatory nature of the legislation. Because the dependent variable for this model is continuous on a -2 to 2 scale, an OLS regression is the appropriate method of analysis. Insurance coverage is also modeled in a second analysis to account for the rarity of state laws mandating coverage. While some state coverage legislation excludes specific populations, having any legislation at all creates more access and thus a more permissive environment. The dependent variable is coded 0 for states with no statutes, 1 for states that require states to offer optional ART coverage, and 2 for states that mandate coverage of ART procedures. Based on this coding scheme, an ordered logistic

regression was used. As all case law in this area of ART regulation has been at the federal level, state case law could not be modeled.

Regulation of surrogacy within a state is the focus of the third set of models. The dependent variable follows that same pattern as the embryo disposition scores, and like the disposition analyses, an OLS regression was used. The first model looks at case law, the second looks at statutes, and the third combines the two.

Table 5.1: Summary of Dependent Variables

Variable	Description
Disposition Case Law Score	Compiled score which considers the nature of all case law addressing embryo disposition.
Disposition Statue Score	Compiled score which considers the nature of all statutes addressing embryo disposition.
Total Disposition Score	Compiled score which considers the nature of all case law and statutes addressing embryo disposition.
Insurance Statute Score	Compiled score which considers the nature of all statutes addressing insurance coverage of ART. *
Insurance Offered	Ordinal categorization of states prohibiting, offering, or mandating insurance coverage for ART. 0 = No Insurance Statutes 1 = Requires Insurance Companies to Offer Optional Coverage 2 = Requires Insurance Companies to Cover Certain Treatments
Surrogacy Case Law Score	Compiled score which considers the nature of all case law addressing surrogacy.
Surrogacy Statute Score	Compiled score which considers the nature of all statutes addressing surrogacy.
Total Surrogacy Score	Compiled score which considers the nature of all case law and statutes addressing surrogacy.
Total Case Law Score	Compiled score which considers the nature of all case law addressing ART.
Total Statute Score	Compiled score which considers the nature of all statutes addressing ART.
Total Regulation Score	Compiled score which considers the nature of all case law and statutes addressing ART.

*Note: There were no state cases identified that addressed insurance coverage of ART.

The final set of models follows a slightly different pattern. Instead of looking at the restrictive or permissive nature of state regulation by substantive category, these models look solely at the source of the regulation. The first model in this series looks at all case laws and the second examines all statutes. The final model combines all case law and all statutes into one comprehensive measure. Due to the continuous nature of the dependent variable, an OLS regression analysis is the appropriate model for each of these three models. A description of the dependent variable used in each model can be seen in Table 5.1.

Each of the models seeks to answer one overarching question. What types of states are more likely to be permissive in their regulation of assisted reproductive technologies? As discussed in chapter 2, several theories of the policy process guide this research and help to shape the expected outcomes. Theories of social construction and morality policy, as well as more general theories of policymaking, suggest that several categories of influence should be accounted for. Thus, this analysis includes several categories of independent variables including demand considerations, characteristics of the state environment, morality influences, and economic considerations. These independent variables are expected to have an impact on the nature of ART regulation in the states.

Demand Considerations

The first set of independent variables accounts for the potential influence of demand for ART services on policymaking. Several theories recognize the importance of the "nature of the good" being regulated (See Ostrom 2007; Sabatier and Weible 2007). Whether the good is excludable, in abundance, or in demand can affect the choices that officials make. In this case, the good is ART fertility treatments, and demand within a state can be measured in several ways. The first way is to look at the urbanization of a particular state. It is assumed that demand for

fertility treatment will be higher in urban areas due to higher concentrations of people. Because the fertility industry is highly profitable, it is likely that clinics will be located in cities with larger urban areas. State urbanization is coded as the percentage of population living in urban areas[35]. It is expected that decision makers will consider this higher demand and that more urbanized states will be associated with more permissive ART regulation.

College education and income are two more measures of the demand for ART. As noted, the use of assisted reproductive technologies is quite costly. Costs can range from $15,000 for a single cycle of in vitro treatments, to $30,000 for individuals using donor eggs, to more than $100,000 for those using both donor eggs and a surrogate (Barnum 2005). It often takes multiple cycles of in vitro to achieve pregnancy. Due to the high costs associated with ART, it is expected that income will be positively related to permissive state regulation. Income is measured as the percentage of households within a state that have a combined income of $200,000 or more. These models also account for the percentage of college graduates within a state. Although many do not have the income necessary to afford ART fertility treatments, those with affluence are more likely to have access to financing options. As such, it is expected that states with higher rates of college graduates will be more likely to have permissive ART regulation.

State Environment

Multiple theories of the policy process call attention to the importance of social, economic, and political contexts. Berry and Berry (2007), call these contextual elements internal determinants while Sabatier and Weible (2007) identify them as "relatively stable parameters." Different state environmental factors may be influencing the dynamics of ART regulation. These analyses contain six different state environment variables including citizen

[35] A table of all variables and coding can be found in the Appendix.

ideology, legislative professionalism, GLBT equality, the number of "out" officials, and the percent of women in the legislature.

Citizen ideology is measured on a scale from zero to 100 where "0" represents a perfectly conservative citizenry, and "100" represents a perfectly liberal citizenry (Berry et al. 2010). Although the use of assisted reproductive technology has not been constructed as a conservative or liberal issue, ART is inherently linked to several issues that are ideologically divided such as gay parenting, stem cell research, and abortion. Support for each of these issues is generally associated with a more liberal ideology, and because of this link, it is expected that states with a more liberal citizenry will have more permissive state regulation (Dolgin 2006).

The level of professionalism of a state legislature is another important state characteristic in these analyses. This analysis utilizes the measure created by Squire (2007) which is based on three indicators including state legislative staff resources, legislative salaries and benefits, and the number of days in session. Scholars have found that more professional legislatures are better equipped and willing to address complicated and technical issues (Ka and Teske 2002) and are more responsive to citizen demands (Maestas 2000; 2003). Furthermore, in states with little legislative guidance, several courts have called upon their state legislatures to address issues of ART (Arons 2007). Thus, it is assumed that states with more professional legislatures are more equipped to address the complicated issue of ART and produce more permissive regulation.

Another important state environmental characteristic is the status of gay rights. Assisted reproductive technology and gay rights are inherently linked because these technologies open new doors for same-sex couples to become parents (Mamo 2007). Whether intentional or not, some state policies have made it more difficult for same-sex individuals to access these treatments. For instance, statutes that make marriage a condition for insurance coverage, or for

entering a surrogacy contract, essentially limit access for individuals in the GLBT community. To account for the link between GLBT issues and ART, the analysis includes a measure for GLBT equality in each state. This measure was created by the Movement Advancement Project and is a ranking based on a variety of factors including marriage and relationship recognition, employment non-discrimination laws, housing non-discrimination laws, second-parent adoption laws, stepparent adoption laws, foster care laws and regulations, parental recognition, de facto parenting statutes, safe school laws, hate crime laws, birth certificate laws, medical decision-making policies, and state medical leave laws (Snapshot 2012). In this ranking, states with high equality are coded as "3," medium equality is coded "2," and low equality is coded as "1." It is expected that states with higher GLBT equality will have more permissive state ART regulation.

Not only is it important to account for the overall status of gay rights within a state, it is also necessary to account for the number of openly gay officials. Scholarship has shown that the presence of "out" officials can have a significant impact on the adoption of gay-friendly policy (Haider-Markel, Joslyn, and Kniss 2000). Because ART has several positive implications for gay parenting, it is expected that states with more "out" officials will have more permissive ART regulation. This measure, also collected by the Movement Advancement Project, counts the number of openly gay elected officials within a state (Out LGBT Officials 2011).

The presence of women legislators is another important state characteristic in these analyses. There is strong evidence that women legislators are more attentive to certain issues than their male counterparts. This gender difference tends to be most pronounced when addressing policies that focus on women, children, and families (Carroll 2001). The presence of women legislators, measured as a percentage of total legislators is expected to be positively associated with permissive ART regulation.

Morality Influence

Assisted reproductive technologies are slowly gaining salience. Due to popular television shows like John and Kate Plus 8 and endorsements from celebrities such as Celine Dion, Sarah Jessica Parker and Mariah Carey, the use of ART is slowly infiltrating popular culture. Although several celebrities have chosen to go public with their use of ART, for the average person, infertility is still a private issue. While ART may not have high salience like typical morality issues like abortion, some religious organizations have strong stances on ART. The Catholic Church, for instance, opposes the use of in vitro fertilization, embryo cryopreservation, and "other forms of infertility care that separate reproduction from sexuality" (Dolgin 2006, 37). This position, coupled with the inherent link to issues such as abortion, gay parenting, and stem cell research, highlights the potential for ART to develop into a morality policy issue. Morality scholars (Norrander and Wilcox 1999) have found that state policies on abortion issues tend to be congruent with public opinion, finding more anti-abortion policies in more conservative states. As such, two indicators of morality influence are included in this analysis. The rate of adherents of Catholics and Evangelical Christians, obtained from The Association of Religion Data archives, were both used to measure potential opposition to ART use.

Economic Considerations

The final consideration in these analyses is economic in nature. Assisted reproductive technologies are very costly, and in the United States, the fertility business has grown into a multi-billion dollar industry (Spar 2006). Thus, the health of the fertility industry can be a strong consideration for policymakers. The number of fertility clinics in each state was included in the analyses to account for the influence of the fertility industry. It is expected that states with more clinics will be more likely to have permissive ART regulation.

Results

The analyses of a state's permissiveness or restrictiveness of assisted reproductive technologies are presented below. To simplify the presentation of these results, the analyses will be divided into four categories. The first three are associated with the substantive typologies of ART regulations – embryo disposition, insurance regulations, and surrogacy regulations. The final category features analyses of policies based upon the originating institution – the courts or state legislature – and includes a final model examining the permissiveness of all ART policies without regard for substantive typologies or originating institution.

Embryo Disposition

The results from the first set of models that examine the influence on state regulation of embryo disposition can be seen in Table 5.2. The first model in this set specifically addresses state case law concerning embryo disposition. As Table 5.2 shows, none of the variables achieved statistical significance, and in fact, the model itself is statistically insignificant. The second model looking at disposition statutes did reach statistical significance with one significant variable, income. The variable of income performed as expected, and the results suggest that as the percentage of households making $200,000 or more increases, statutes toward embryo disposition become more permissive. This result seems to indicate that state legislatures are sensitive to the demand from affluent populations for more permissive fertility treatment regulation. The final model which looks at all disposition case law and statutes combined reveals similar results. Income, once again, is positively related to more permissive statutes and case law. In addition, the number of out officials in a state is positively correlated with more permissive regulation, indicating that as the number of out officials in a state increases, so does the permissive nature of embryo disposition regulation.

Table 5.2: Understanding State Regulation of Embryo Disposition

	Disposition Case Law Score		Disposition Statute Score		Total Disposition Score	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Demand						
Urban	-.0008 (.001)	.658	-.0002 (.0009)	.756	-.0004 (.0007)	.588
College Education	.001 (.009)	.892	.004 (.006)	.496	.003 (.004)	.455
Income	.012 (.025)	.625	.031 (.014)	.031	.027 (.010)	.015
State Environment						
Citizen Ideology	-.002 (.001)	.109	-.0001 (.0007)	.861	-.0007 (.0005)	.214
Legislative Professionalism	.150 (.315)	.636	-.013 (.148)	.929	.024 (.132)	.854
GLBT Equality	.053 (.047)	.268	-.007 (.017)	.684	.006 (.014)	.633
Out Officials	.013 (.013)	.311	.009 (.005)	.124	.010 (.004)	.033
Women Legislators	-.002 (.004)	.607	-.001 (.002)	.418	-.001 (.001)	.271
Morality Influence						
Catholic	.0001 (.0002)	.341	-.000002 (.00008)	.978	.00004 (.00008)	.612
Evangelical	.00009 (.0001)	.613	.00007 (.0001)	.564	.00008 (.0001)	.418
Economic Influence						
Number of Clinics	-.0009 (.004)	.835	.001 (.002)	.403	.001 (.001)	.466
Constant	.077 (.210)	.715	-.077 (.118)	.518	-.041 (.092)	.657
Number of Cases	50		50		50	
F-Test	.91	.536	3.64	.001	4.83	.0001
R^2	.253		.506		.608	
RMSE	.127		.070		.053	

Notes: Models are estimated using OLS regression. Robust standard errors are in parentheses. Two-tailed test.
Dependent Variables: Disposition Case Law Score, Disposition Statute Score, and Combined Disposition Score. These scores measure the permissiveness of state regulation. The development of the ART scores is outlined in Chapter 3.

Insurance Coverage

State regulation of insurance coverage of assisted reproductive technology is modeled in the next set of results which can be seen in Table 5.3. The first model looks at the insurance statute score which is coded on a scale from -2 to 2 where "-2" indicates discriminatory state policy and "2" equates to permissive ART policies. The results of the OLS regression suggest that the urbanization of a state and the presence of evangelical Christians in a state are negatively associated with insurance coverage. More specifically, the more urbanized a state is, the more restrictive its insurance policies. Although this relationship is in the opposite direction of what was expected, the results could be uncovering the influence of insurance companies. It is presumed that more urban areas would result in more demand for ART services. Perhaps insurance companies operating in more urbanized states have applied pressure, either directly or indirectly, in an effort to decrease their liability for coverage. In addition to urban populations, the rate of evangelical Christians in a state was significantly associated with more restrictive insurance coverage statutes. This is consistent with expectations.

The second model in Table 5.3 examines insurance coverage statutes in a slightly different manner. The first model looked at the substantive content of state insurance statutes, taking into consideration the discriminatory nature of some statutes. For instance, some statutes extend access to coverage for ART services, but at the same time exclude unmarried individuals or same-sex couples from this coverage. The second model examines insurance coverage in a less nuanced manner. Because insurance coverage of ART is rare, and state mandates for coverage are even rarer, it is important to model states who have attempted to expand coverage in any manner, regardless of the exclusions. The results of the ordered logistic regression indicate that different set of factors is influencing whether states mandate coverage of ART

Table 5.3: Understanding State Regulation of ART Insurance Coverage

	Insurance Statute Score*			Insurance Offered†	
	Coefficient	Prob.		Coefficient	Prob.
Demand			**Demand**		
Urban	-.003 (.001)	.084	Urban	.044 (.036)	.222
College Education	-.001 (.008)	.868	College Education	-.393 (.275)	.152
Income	-.030 (.020)	.156	Income	.642 (.546)	.239
State Environment			**State Environment**		
Citizen Ideology	-.001 (.001)	.146	Citizen Ideology	.109 (.055)	.049
Legislative Professionalism	.421 (.324)	.201	Legislative Professionalism	-8.051 (7.493)	.283
GLBT Equality	.042 (.029)	.150	GLBT Equality	-.151 (.835)	.856
Out Officials	.008 (.013)	.556	Out Officials	.424 (.256)	.098
Women Legislators	-.004 (.003)	.225	Women Legislators	-.085 (.086)	.324
Morality Influence			**Morality Influence**		
Catholic	-.0003 (.0002)	.152	Catholic	.005 (.004)	.267
Evangelical	-.0006 (.0002)	.013	Evangelical	.005 (.010)	.594
Economic Influence			**Economic Influence**		
Number of Clinics	.0008 (.004)	.843	Number of Clinics	.034 (.061)	.572
Constant	.522 (.189)	.009	/Cut 1	6.084 (7.145)	-
			/Cut 2	6.459 (7.181)	-
Number of Cases	50		Number of Cases	50	
F-Test	3.09	.004	Wald Chi^2	45.82	.0000
R^2	.373		Pseudo R^2	.354	
RMSE	.117		Log Pseudolikelihood	-22.830	

Notes: Robust standard errors in parentheses. Two-tailed analysis.
* OLS regression analysis.
† Ordered logistic regression analysis.
Dependent Variables: Insurance Statute Score and Insurance Coverage Score. These scores measure the permissiveness of state regulation. The development of the ART scores is outlined in Chapter 3.

services. First, as expected, there is a positive relationship between citizen ideology and insurance coverage statutes. This result suggests that states with more liberal citizens are more likely to mandate insurance coverage of ART services. Second, the results indicated that there is a positive relationship between the number of out officials and state insurance mandates. In other words, state legislatures with more openly gay elected officials are more likely to have policies that mandate insurance to cover ART.

Surrogacy

Understanding the determinants for restrictive or permissive surrogacy regulation is the goal of the next set of models which can be seen in Table 5.4. The first model looks specifically at case law surrounding surrogacy and reveals several statistically significant relationships. Once again there is a negative relationship between the percent of urban areas in a state and surrogacy case law. In other words, more urban states are less likely to have permissive court decisions concerning the use of surrogacy. While there seems to be a feasible explanation for the relationship between urbanization and insurance coverage statutes, the relationship between increased urbanization and surrogacy court decisions is interesting and in the opposite direction than was hypothesized. College education also has a negative relationship with case law, indicating that more college graduates in a state is associated with more restrictive case law. Although a theoretically compelling explanation for these results remains elusive, one possible explanation for these results is that increased demand has created more situations in which the court has been called upon to make difficult decisions. Income, on the other hand, performs as expected. As the number of households making over $200,000 increases, the courts are making decisions and setting precedents that are more permissive toward the use of ART. Finally, the results of the model indicate a positive relationship between more professional legislatures and

permissive surrogacy case law. This relationship is in the expected direction, indicating that more professional legislatures are creating better policy allowing the courts to operate with less ambiguity.

The second model addressing surrogacy regulation looks specifically at state legislation. As the results show, there is a completely different set of variables influencing regulation by the legislature compared to the regulation created by the courts. First, a more liberal citizenry is associated with more permissive legislation. Second, the results suggest that there is a positive relationship between the rates of evangelicals within a state and more permissive surrogacy laws. In other words, as the rate of evangelicals rises, states are producing more permissive legislation. This relationship is in the opposite direction of what was predicted and is also opposite of the relationship we saw between evangelical populations and insurance statutes. With insurance statutes we saw that more evangelicals equated to more discriminatory policies. In this model, we see that more evangelicals actually translates into more permissive policies. While this is not the hypothesized relationship, this result highlights the dual nature of the evangelical stance toward fertility treatments. While this population tends to support the use of fertility treatments, it opposes the use of such treatments by certain populations like single mothers and same-sex couples (Andrews and Elster 2000, Rao 1995). This result may also reflect a more general hostility toward government interference into citizens' lives or the pro-business stance of the Evangelical population. The final variable to achieve statistical significance is the number of fertility clinics in a state, but the relationship is in the opposite direction as hypothesized. The results indicate that states with more clinics are more likely to have restrictive statutes. While it was hypothesized that legislatures would be sensitive to economic benefits of a strong fertility industry, it could be that states with more clinics have encountered more issues which call for

Table 5.4: Understanding State Regulation of Surrogacy

	Surrogacy Case Law Score		Surrogacy Statute Score		Total Surrogacy Score	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Demand						
Urban	-.002 (.0009)	.010	-.0005 (.001)	.748	-.001 (.001)	.284
College Education	-.010 (.004)	.048	.001 (.006)	.829	-.002 (.004)	.576
Income	.039 (.022)	.091	.009 (.012)	.471	.019 (.010)	.067
State Environment						
Citizen Ideology	-.0009 (.0007)	.208	.002 (.001)	.078	.001 (.0009)	.166
Legislative Professionalism	.362 (.117)	.004	.174 (.143)	.231	.239 (.107)	.032
GLBT Equality	-.018 (.014)	.221	-.007 (.022)	.741	-.011 (.015)	.464
Out Officials	.001 (.006)	.761	.002 (.006)	.753	.002 (.004)	.662
Women Legislators	.0009 (.001)	.601	-.0006 (.002)	.833	-.00008 (.002)	.966
Morality Influence						
Catholic	.0001 (.00009)	.222	-.0001 (.0001)	.458	-.00003 (.0001)	.758
Evangelical	.00003 (.0001)	.760	.0003 (.0001)	.083	.0002 (.0001)	.100
Economic Influence						
Number of Clinics	-.002 (.001)	.218	-.002 (.001)	.094	-.002 (.001)	.054
Constant	.241 (.106)	.030	-.219 (.158)	.175	-.059 (.111)	.600
Number of Cases	50		50		50	
F-Test	3.13	.004	2.09	.045	2.84	.008
R^2	.343		.336		.381	
RMSE	.070		.078		.058	

Notes: Models are estimated using OLS regression. Robust standard errors are in parentheses. Two-tailed test.
Dependent Variables: Surrogacy Case Law Score, Surrogacy Statute Score, and Combined Surrogacy Score. These scores measure the permissiveness of state regulation. The development of the ART scores is outlined in Chapter 3.

legislative attention or legislators recognize the potential for future issues associated with the use of ART.

The final model in Table 5.4 looks at the combination of state legislation and case law. This analysis reveals similar results to the previous two models. Again we see that as the number of wealthy households within a state rises, states produce more permissive regulation of surrogacy. More professional legislatures are also associated with more permissive case law and legislation. Like the statute model, this combined analysis also reveals a statistically significant relationship between regulation and the rate of evangelicals in state. Again, states with higher rates of evangelical adherents are more likely to have permissive ART regulation. Finally, an increased number of clinics within a state equates to more restrictive regulation.

Institutional and Full Models

The final set of models differs slightly than the previous sets of analyses. While the first three sets of analyses look at the substantive nature of regulation—disposition, insurance, and surrogacy—the final table looks at the source of the regulation: state courts and state legislatures. The first model, seen in Table 5.5, examines determinants of case law within a state. The results of this analysis reveal a similar pattern of influence. First, more urban states are more likely to have restrictive case law decisions. This relationship is not in the expected direction, but is consistent with the findings of several previous models. The analysis also suggests that states with more wealthy households were more likely to have permissive case law. Finally, legislative professionalism is positively related to permissive case law.

The second analysis in Table 5.5 examines all state legislation. Interestingly, when state legislation is aggregated into one measure, the results do not reveal any significant indicators. The final model looks at the combined score for all state regulation, including all case law and all

Table 5.5: Understanding State Regulation of Assisted Reproductive Technologies

	Total Case Law Score		Total Statute Score		Total Regulation Score	
	Coefficient	Prob.	Coefficient*	Prob.	Coefficient	Prob.
Demand						
Urban	-.002 (.0009)	.036	-.0007 (.001)	.450	-.001 (.0006)	.087
College Education	-.007 (.005)	.145	.001 (.004)	.711	-.0009 (.003)	.793
Income	.033 (.011)	.007	.010 (.008)	.218	.017 (.007)	.037
State Environment						
Citizen Ideology	-.001 (.0007)	.094	.001 (.0009)	.180	.0005 (.0005)	.310
Legislative Professionalism	.318 (.138)	.027	.153 (.111)	.178	.200 (.093)	.039
GLBT Equality	-.003 (.016)	.827	-.0009 (.015)	.948	-.001 (.011)	.878
Out Officials	.004 (.005)	.438	.004 (.004)	.277	.004 (.003)	.223
Women Legislators	.0002 (.002)	.902	-.001 (.002)	.479	-.0009 (.001)	.487
Morality Influence						
Catholic	.0001 (.0001)	.232	-.0001 (.0001)	.300	-.00004 (.00007)	.581
Evangelical	.00005 (.0001)	.690	.0001 (.0001)	.322	.0001 (.00008)	.239
Economic Influence						
Number of Clinics	-.001 (.001)	.144	-.0007 (.001)	.573	-.001 (.0008)	.211
Constant	.207 (.121)	.096	-.087 (.113)	.445	-.002 (.082)	.974
Number of Cases	50		50		50	
F-Test	2.08	.046	2.88	.007	2.52	.017
R^2 (Adjusted R^2)	.375 (.195)		.308		.422 (.254)	
RMSE	.062		.056		.042	

Notes: Models are estimated using OLS regression. Standard errors are in parentheses. * denotes robust standard errors were estimated. Two-tailed test.
Dependent Variables: Total Case Law Score, Total Statute Score, and Combined Regulation Score. These scores measure the permissiveness of state regulation. The development of the ART scores is outlined in Chapter 3.

legislation. The results of this analysis are identical to the case law model, suggesting that states that are more urban, have more wealthy households and less professional legislatures are more likely to have restrictive ART regulation.

Discussion

The primary objective of these analyses was to identify any systematic influence on state regulation of assisted reproductive technologies. While the goal was not to explain state motivation to adopt specific regulations, the results of the analysis can help us better understand what types of states are more likely to have more permissive or restrictive legislation. To answer this question, the analysis utilized state regulation scores developed in previous chapters. The results of the analysis reveal a patchwork of findings.

The analysis highlights the importance of examining state regulation both comprehensively and disaggregated into different categories. The analysis revealed that the determinants of state regulation were different depending on the substantive area of regulation and also depending upon whether the source of regulation was state case law or statutes. The source of regulation seems to indicate a different trajectory of regulation or at least a different trajectory for factors that influence regulation. These results suggest that future policy studies, especially those seeking to examine a large issue area, would benefit from modeling techniques that utilize both a comprehensive measure of policy action within a state as well as disaggregated measures that take into account the substance of the policy and the source of regulation. With more detailed measures, policy researchers can tell a more nuanced narrative of regulation.

Not only were the determinants different based on the type of regulation, but in the case of evangelical populations, the direction of the relationship varied depending on the substance of the regulation. For instance, when considering insurance statutes, increased evangelical

populations within a state were associated with more discriminatory insurance statutes that only extend insurance coverage to married and/or heterosexual couples. However, in several other models, increased evangelical populations were associated with more permissive ART regulation. This finding emphasizes that researchers should not necessarily treat religious denominations as monolithic organizations. These results reveal that the impact of evangelicals on ART regulation is nuanced, and while this organization may support the availability of fertility treatments, it may not support increased access for all populations. Further support for this notion is seen in the second insurance model which only took into account whether a state had insurance coverage legislation and did not account for the discriminatory nature of the mandate. When examined in this manner, evangelical populations were no longer a significant determinant of state insurance legislation.

Another interesting outcome from this analysis is that there are a large number of variables that are statistically correlated with case law outcomes. In several case law models, urban populations, education, income and legislative professionalism had significant correlations with the outcomes of the courts. Although many judges are elected, the courts are viewed as impartial institutions insulated from outside influence. However, these results suggest that may not necessarily be the case. While the analysis does not allow us to make direct causal links between these variables and the output of the court, the fact that these correlations exist adds evidence to the existing literature. The other interesting finding in the case law models is the impact of legislative professionalism on the permissiveness of court decisions. The results suggest increased legislative professionalism is associated with more permissive court decisions. This result seems to support the idea that courts are being forced to make difficult decisions in the absence of legislative direction. Perhaps professional legislatures are creating more

comprehensive policy, giving the courts some guidance rather than forcing judges to legislate from the bench. This notion seems to have support given the example of the Tennessee court that concluded a ruling with "a plea for legislative action to govern future cases" (Arons 2007, 22).

Several variables performed in unexpected ways including urban, college education, and number of clinics. Each of these variables emerged as significant indicators in several models and, contrary to expectations, each was negatively associated with ART regulation. In other words, states with more urban and college educated populations and more fertility clinics were more likely to have restrictive ART regulation. States with more urban populations and more affluent, educated populations have a higher demand for fertility services, creating a potentially strong market for the fertility industry. However, neither this potential market nor the number of established clinics seemed to dissuade states from creating restrictive ART regulation. Anecdotal evidence suggests that the health of the fertility industry within a state is of concern to lawmakers. In 2009, Georgia legislators considered a bill to limit the number of embryos that could be implanted during a single fertility treatment, but the bill did not get far due to the fears that such legislation would have a negative impact on the fertility industry and on couples seeking treatments in the state (McCaffrey 2009b). That being said, income was a significant predictor of permissive ART regulation suggesting that the ability of a population to actually afford fertility treatment may have a stronger influence on state officials. It also makes sense that states with fewer clinics simply do not have a need to regulate the fertility industry. Policy makers in states with more clinics, on the other hand, may have been forced to respond to problems that have emerged and thus have more restrictive regulations.

The results of the models examining regulation of embryo disposition did not yield many significant findings, and this was unexpected. Additionally, the analysis examining case law was insignificant, the statute model only revealed the influence of income, and the combined model only showed the influence of income and the presence of gay elected officials. There are several possible explanations for this. First, this particular area of ART has not been highly regulated, and the regulation that has been produced seems, on the surface, very benign. The regulation of embryo storage has not garnered much attention. This area, however, has the potential to be one of the most hotly debated areas of ART. The decisions made about future storage, destruction, or scientific use of embryos has implications for stem cell research and the abortion debate. Recent state legislation aimed at granting personhood to embryos highlights the potential for this area of ART regulation to become much more active. As this analysis suggests, embryo disposition, as it relates to fertility clinic regulation, has not been framed in terms of morality in the same way that stem cell research has.

While these analyses do reveal some interesting findings, the results are not overwhelming. This is not entirely unexpected and there are several reasons for this. The first reason is the nature of the dependent variable, the ART regulation scores. These score are based on an aggregation of numerous statutes and case law that have developed in an incremental manner. It is possible that an analysis on any one of the individual statutes or case law could have revealed some significant predictors of state action. When these statutes are aggregated into one measure, or even a set of measures, the predictive power of the analysis is diminished. Furthermore, these measures aggregate policymaking over a broad spectrum of time. Because of this, it is impossible to model the impact of time or important events in the issue area. There is anecdotal evidence that state legislatures are reacting to significant events such as the case of

Nadya Suleman, popularly known as "Octomom," who gave birth to eight babies through the use of in vitro fertilization. Lawmakers in several states including Georgia and Missouri proposed legislation to limit the number of embryos implanted at one time and more closely follow the guidelines established by the American Association for Reproductive Medicine. It appears that the actions of these two states was more than pure coincidence as evidenced by the March 5, 2009 Associated Press story with the headline "'Octomom' Spawns Bills Limiting Embryo Implants" (McCaffrey 2009a).

Another explanation for the limited findings is the nature of state regulation of assisted reproductive technologies. ART is slowly gaining salience, and much of this has come as a result of significant cases including Nadya Suleman or the famous New Jersey surrogacy custody battle over Baby M. The rise in salience can also be attributed to popular media. Not only has the Baby M case been immortalized in a Lifetime Network movie, but reality television shows such as John and Kate Plus 8 have put ARTs in the public eye. Celebrities such as Sarah Jessica Parker, Celine Dion, Mariah Carey, and Kelley Preston (wife of John Travolta), also have recently gone public with their experiences with fertility treatments, further adding to the acceptance of ARTs. This relatively low salience coupled with the strong economic interests of the fertility industry and positively constructed consumers of ART has allowed and even encouraged policymakers to avoid the issue all together. Instead, as the Nadya Suleman case demonstrates, states have legislated in a seemingly random and reactionary manner. Because of this, we see an inconsistent patchwork of state legislation. When conflict arises, the courts are left with unclear legal guides which have produced an equally haphazard set of legal precedents.

This analysis provided a good starting point for a systematic analysis of state regulation of assisted reproductive technologies. While the analysis produced some interesting results,

there is still much work that needs to be done to add to the narrative of regulation within the states. The next major step needed to advance our understanding is to look at policy adoption over time. It has been well established that political, economic, and social context plays a strong role in policymaking, and expanding this analysis to account for these contextual changes would provide a more nuanced narrative. Furthermore, a time-series analysis would allow future research to account for significant events within the subsystem that are likely having an influence on policy considerations. It appears that these salient events could be having an impact, and a more comprehensive analysis could uncover this potential relationship.

Chapter 6

The Impacts of State Regulation on Access to Fertility Treatments

Introduction

According to the Centers for Disease Control, approximately 10 percent of women and 7.5 percent of men in the United States have sought out some type of infertility treatment. With advances in medical technology, treatment options can range from drug therapy, to in vitro fertilization, to surrogate parenthood (CDC 2012; Markens 2007). These new technologies have provided many infertile couples with new options for becoming parents. At the same time, these technologies have opened the door for non-traditional families to be formed, providing single women and same-sex couples with opportunities to enter parenthood. While ARTs appear to present a solution to the heartache of infertility, it also evokes debates about women's rights, gay parenting, and eugenics.

Although these technologies have been developing for some time, the idea of bearing children using assisted reproductive technologies, especially the use of donor eggs, began to gain legitimacy in the late 1980s (Andrews and Elster 2000; Markens 2007). Prior to that, the use of such technologies had been seen as unethical and vulgar (Andrews and Elster 2000). With gradual acceptance, the types of treatment options have expanded and can include utilizing drug therapy, fertilizing embryos outside of the womb, using donor embryos, eggs, and sperm, and contracting with surrogates to serve as gestational mothers. While use of such technologies has gained more acceptance, many ethical, health, moral, and legal concerns exist, which has prompted federal and state governments to take an active role in trying to regulate the use of these technologies.

The primary focus of this chapter is to assess the effects of state regulation on the availability of fertility treatment options. While much of the literature in policy studies focuses on explaining the formulation and adoption of policies, this chapter will attempt to understand the impact of state policy and judicial activity on access to ART. Specifically, this analysis seeks to determine whether state regulation has an impact on the availability and access to fertility treatments.

Methodology

To answer this question, several sets of analysis were conducted using data collected by the Centers for Disease Control and Prevention. Each year, the CDC collects and compiles data on fertility clinics in the United States and annually publishes the "Assisted Reproductive Technology Success Rates Report." This report is available to the public and was started as a result of the 1992 Fertility Clinic Success Rate and Certification Act (FCSRCA). The first report was published in 1995. Preliminary data for 2010 became available in 2012 and the full report is expected by the end of 2012 or early 2013. The CDC collects a variety of data on fertility clinics in the United States including the number of clinics and locations, services offered at each clinic, and the success rates of various fertility treatments at each clinic. A comprehensive list of the number of clinics in a state and the services offered can be seen in Table 6.1.

This analysis will be broken into two parts. The first part will assess the impact of state ART regulation on the availability of clinics in a state. The dependent variable will be the number of clinics within a state in 2008. This year was chosen because it was the most complete CDC report with all finalized data. Because the dependent variable is a count, a negative

Table 6.1: Number of Clinics and Services Offered in the States, 2008

State	Number of Clinics	Cryopreservation	Donor Eggs	Donor Embryos	Single Women	Surrogates
Alabama	6	6	5	4	4	4
Alaska	1	1	0	0	1	1
Arizona	10	10	10	9	10	9
Arkansas	1	1	1	1	1	1
California	59	56	54	41	56	54
Colorado	7	6	6	4	6	4
Connecticut	7	7	6	4	7	6
Delaware	2	2	2	2	2	2
Florida	29	28	26	20	27	26
Georgia	9	9	8	4	8	6
Hawaii	5	4	4	2	4	2
Idaho	1	1	1	1	1	1
Illinois	27	26	24	17	24	23
Indiana	9	9	8	6	8	7
Iowa	2	2	2	2	2	2
Kansas	5	5	5	4	4	5
Kentucky	3	3	3	2	3	2
Louisiana	5	4	4	4	4	4
Maine	0	0	0	0	0	0
Maryland	6	5	5	1	5	5
Massachusetts	8	8	7	3	8	7
Michigan	14	13	11	8	11	10
Minnesota	5	5	5	3	5	5
Mississippi	2	2	2	2	0	2
Missouri	8	8	7	5	8	5
Montana	0	0	0	0	0	0
Nebraska	2	2	2	1	2	2
Nevada	4	4	4	3	4	4
New Hampshire	1	1	1	1	1	1
New Jersey	21	21	19	15	21	19
New Mexico	1	1	1	1	1	1
New York	35	34	33	18	34	19
North Carolina	10	10	10	5	9	7
North Dakota	1	1	1	1	1	1
Ohio	12	10	10	10	10	9
Oklahoma	3	3	3	3	1	1
Oregon	4	4	4	4	4	4
Pennsylvania	19	19	18	14	19	15
Rhode Island	1	1	1	1	1	1
South Carolina	4	4	4	3	4	4
South Dakota	1	1	1	1	1	1

Table 6.1: Number of Clinics and Services Offered in the States, 2008 (Continued)

State	Number of Clinics	Cryopreservation	Donor Eggs	Donor Embryos	Single Women	Surrogates
Tennessee	7	7	7	6	3	6
Texas	35	35	30	20	30	31
Utah	2	2	2	1	1	2
Vermont	1	1	1	0	1	1
Virginia	13	13	13	11	12	13
Washington	10	10	10	7	9	8
West Virginia	3	3	2	1	3	1
Wisconsin	9	8	7	6	8	7
Wyoming	0	0	0	0	0	0
DC	4	4	3	2	4	1

Source: Centers for Disease Control

binomial regression was utilized.[36] It is expected that states with more permissive ART regulation will have more clinics due to the fact that there are fewer barriers for clients to access these clinics.

The second part of the analysis will seek to understand the effects of ART regulation on the services that are available at clinics within a state. Each clinic must make decisions about what services it is going to offer. There are undoubtedly many factors that can impact this decision including available resources, facilities, demand, and the training and specializations of doctors and staff. This analysis seeks to uncover whether state ART regulation is also an important factor. This section will contain five different sets of models each looking at the number of clinics that offer cryogenic preservation, donor eggs, donor embryos, services to single women, and surrogacy, respectively. Like the first set of analyses, each of these models will be estimated using a negative binomial regression.

It is expected that in states with more permissive ART regulation, clinics will offer more services. With fewer legal barriers to access, it is assumed that clinics will be likely to expand

[36] A negative binomial regression was chosen as opposed to poisson due to the presence of overdispersion in the data.

services due to a more open market. Conversely, some states have made access more difficult. For instance, while few jurisdictions have addressed the legality of surrogacy, nearly half of the states have passed legislation attempting to regulate the surrogacy process including banning contractual agreements and prohibiting payment to surrogate mothers. Furthermore, several state courts have addressed custody cases involving surrogacy contracts, while other state legislation and court decisions have addressed the disposition of eggs and embryos and treatment of single women. What impact have these varying state policies and court rulings had on the availability of surrogacy options? Are clinics being influenced by the actions of state officials?

In order to assess the impact of regulation on the availability of clinics and a broad range of services, the primary independent variable in each of the models is the permissive or restrictive nature of state ART regulation, and this is modeled using the state ART regulation scores developed in chapter four. These scores provide several ways in which to model state regulation. The first way looks at regulation based not only on the substance of the regulation but also the source of the regulation. Thus, the first model in each set of analysis looks at ART regulation aggregated into five categories including disposition case law, disposition statutes, insurance statutes, surrogacy case law, and surrogacy statutes. The second method of modeling ART regulation combines regulation into the three substantive categories including disposition, insurance, and surrogacy. The next method aggregates regulation based on the source of the regulation including case law and statutes. The final method combines all regulation into one comprehensive ART regulation score. To better understand the various ways regulation can impact the fertility industry, each analysis includes four models to account for the four ways in which ART regulation is measured.

This analysis also controls for a variety of competing explanations for the number of clinics and fertility services offered within a state. Several theories of the policy process help to inform this exploration and highlight several factors that are important to account for. As such, this analysis includes several categories of independent variables including demand considerations, characteristics of the state environment, and morality influences. These independent variables are expected to have an impact on the size and the nature of the fertility industry in the states.

Demand Considerations

The fertility industry is a multi-billion dollar industry, making the potential profits quite substantial, especially when demand is high. Because this industry is profit-driven, it is important to account for the influence of demand on the growth of the fertility industry. Three different variables – state urbanization, college education, and income – are included to capture the impact of demand. First, urbanization is expected to be positively associated with more clinics and services offered. More urban areas are generally indicative of a larger market for fertility treatment, and urban areas are usually seen as centralized hubs of commerce. Fertility treatments of all kinds usually involve multiple visits to the clinic (Engmann et al. 1999), and this makes it more likely that clinics would open in centralized locations and less likely that clinics would open in rural areas. For this analysis, state urbanization measures were collected from the U.S. Census Bureau and are coded as the percentage of population living in urban areas within a state.[37]

College education and income are two additional measures of the demand for ART. As previously discussed, ART treatments are very expensive and often require multiple treatments. While demand may be high in certain areas, it is important to also account for populations that

[37] A table of all variables and coding can be found in the Appendix.

can actually afford to pay for the services. Therefore, it is expected that states with larger high-income populations will be more likely to have more clinics that offer a wide array of services. Income is measured as the percentage of households within a state that have a combined income of $200,000 or more. While only a limited number of individuals will be able to personally finance fertility treatment, some individuals are more likely to have access to financing options than others. To account for affluent populations that may be able to obtain financing, these models control for the number of college graduates within a state. States with more college graduates are expected to have more clinics and more service options available.

State Environment

Several variables were also included to account for the overall state environment toward and the openness to the fertility industry and those who may use fertility treatments. The first measure of state environment is citizen ideology which is measured on a scale from zero to 100 where "0" represents perfectly conservative citizenry, and "100" represents a perfectly liberal citizenry (Berry et al. 2010). With the ever-present link to the abortion, stem cell research, and gay rights debates, ART has the potential to be constructed as an ideological issue. Although no prominent groups have emerged in opposition to ART, it is expected that more liberal states will create friendlier environments for clinics. It is also expected that more conservative states will be less likely to have clinics that offer certain services. Since conservatives are generally associated with views in opposition to stem cell research and gay parenting, it is expected that clinics in more conservative states will be less likely to offer services that allow same-sex couples to become parents.

The status of gay rights is another important state environmental factor that could impact the fertility industry within a state. Assisted reproductive technology and gay rights are

inherently linked because these technologies open new doors for same-sex couples to become parents (Mamo 2007). As previously mentioned, some state policies have made it more difficult for same-sex individuals to obtain fertility treatment. These analyses include a measure for GLBT equality in each state to control for this potential relationship. This measure, created by the Movement Advancement Project, is coded on a 1 to 3 scale where "3" indicates high equality, "2," stands for medium equality and "1" represents states with low equality. It is expected that states with higher GLBT equality will have more clinics that offer a wider range of services.

Morality Influence

As mentioned in previous chapters, ART is slowly gaining salience as it becomes more prominent in popular culture. Although this increased salience has led to a more "normalized" view of fertility assistance, there are still some populations that are opposed to the underlying tenets of assisted reproduction. The Catholic Church's stance toward ART is negative due to the Church's views on life, family planning, and sexuality. While salience is generally low, and opposition is somewhat muted, there is still the potential for certain populations to create a less hospitable environment for the fertility industry. To account for this effect, two indicators of morality influence are included in this analysis including the rate of Catholic and Evangelical Christian adherents. It is expected that states with higher evangelical and Catholic populations will have fewer clinics that offer fewer service options.

Results

The results of the analyses of the impact of state ART regulation are presented in the tables below. Each table includes the results for the four different analyses conducted for each dependent variable including the impact of ART regulation on the number of clinics in each state

as well as the impact on services offered by these fertility clinics including cryopreservation, donor eggs, donor embryos, services to single women, and surrogacy.

State Clinics

The results of the first set of analyses can be found in Table 6.2. Each of the four models reveals fairly consistent results. The first model examines the impact of state regulation on the number of fertility clinics and utilizes the disaggregated ART state regulation scores. In other words, this model breaks down fertility regulation into five categories including disposition case law, disposition statutes, insurance statutes, surrogacy case law, and surrogacy statutes. The models reveal several statistically significant results.

First, the only regulation measure that achieves statistical significance is the score for insurance statutes. The results suggest that there is positive relationship between insurance statutes and the number of fertility clinics within a state. In other words, states with more permissive, and inclusive, insurance statutes are more likely to have a greater number of fertility clinics. This relationship is in the expected direction, and while this analysis does not tell us whether the statutes or the fertility clinics came first, it does demonstrate that fertility clinics are more likely to be in states where citizens are more likely to have insurance coverage.

While this was the only regulation variable to achieve statistical significance, the results reveal several other statistically significant relationships. The percentage of urban populations is positively associated with the number of clinics, which is in the expected direction. As anticipated, citizen ideology is also positively correlated with the number of clinics, indicating that states with more liberal citizens are likely to have an increased number of fertility clinics. Performing in an unexpected manner, the results also reveal that an inverse relationship exists between GLBT equality and fertility clinics. Finally, states with higher rates of evangelicals are

Table 6.2: The Impact of State Regulation on Access to Fertility Treatment

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	1.059 (.969)	.274	-	-	-	-	-	-
Disposition Statutes	1.029 (1.415)	.467	-	-	-	-	-	-
Insurance Statutes	2.278 (.979)	.020	-	-	-	-	-	-
Surrogacy Case Law	1.120 (1.522)	.462	-	-	-	-	-	-
Surrogacy Statutes	-2.054 (1.580)	.194	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.184 (1.905)	.252	-	-	-	-
Insurance Score	-	-	2.113 (.973)	.030	-	-	-	-
Surrogacy Score	-	-	-1.956 (1.989)	.325	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	1.959 (1.419)	.167	-	-
Statute Score	-	-	-	-	-.353 (1.864)	.850	-	-
Total Regulation Score	-	-	-	-	-	-	.836 (2.398)	.727
Demand								
Urban	.073 (.012)	.000	.067 (.010)	.000	.069 (.012)	.000	.065 (.013)	.000
College Education	-.043 (.046)	.356	-.066 (.050)	.184	-.080 (.051)	.118	-.097 (.051)	.062
Income	.161 (.123)	.190	.196 (.128)	.127	.199 (.152)	.191	.240 (.165)	.148
State Environment								
Citizen Ideology	.025 (.008)	.002	.021 (.008)	.011	.018 (.010)	.077	.014 (.009)	.142
GLBT Equality	-.413 (.170)	.015	-.380 (.152)	.013	-.235 (.162)	.147	-.222 (.163)	.175
Morality Influence								
Catholic	.0001 (.001)	.940	.0007 (.001)	.621	-.0002 (.001)	.890	.0003 (.001)	.852
Evangelical	.005 (.001)	.001	.005 (.001)	.003	.003 (.001)	.025	.003 (.001)	.032
Constant	-5.250 (1.460)	.000	-4.268 (1.480)	.004	-3.806 (1.675)	.023	-3.181 (1.650)	.054
Number of Cases	50		50		50		50	
Wald Chi^2	92.80	.0000	97.89	.0000	67.42	.0000	72.25	.0000
Log Pseudolikelihood	-133.394		-134.856		-137.703		-138.334	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state.

more likely to have more fertility clinics. This is not in the predicted direction, but it is consistent with the models from chapter six that found a strong correlation between evangelicals and more permissive state regulation of ART.

The second model in this set of analysis examines the impact of ART regulation on the number of clinics in a state in a slightly different way. This model utilizes the ART regulation scores that organize regulation by substance combining them into three different categories including disposition regulation, insurance regulation, and surrogacy regulation. The results of this model are very similar to the first model. Again, we see that the insurance score is positively associated with more clinics.[38] Mirroring the results in the first model, urban population, citizen ideology, GLBT equality, and evangelicals are all significantly related to the number of clinics in a state. The results suggest that states with more urbanization, more liberal citizenry, less GLBT equality, and more evangelicals are more likely to have more clinics.

Focusing on the source of ART regulation, the third model reveals similar results to the previous two with two exceptions. First, the results reveal no relationship between regulation and the number of clinics when the regulation is divided into case law and statutes. These results highlight the importance of properly constructing measures of state regulation. Like the previous two models, urban population, citizen ideology, and evangelicals are positively correlated with the number of clinics within a state. However, unlike the previous two models, GLBT equality is not a significant predictor or the number of clinics.

The final model looks at all regulation combined into one score, and the results suggest that this score is not a significant predictor of clinics in a state. Urban and evangelical populations are associated with more clinics. This model reveals a different variable that was not a significant factor in previous models. College education is negatively correlated, suggesting

[38] Because there is no state level case law, the insurance score in this model is the same as the first model.

that as the number of college educated people in a state increases, states are less likely to have clinics. The direction of this relationship is unexpected.

Cryopreservation

The next set of models looks at the impact of state ART regulation on the number of clinics that offer cryogenic preservation services. This analysis follows the same format as the previous with the first model looking at the disaggregated ART regulation scores, the second model aggregating them into substantive area, the third looking at the source of regulation, and the final model combining all ART regulation into one comprehensive measure. The results of the analysis can be seen in Table 6.3.

The first model reveals several significant predictors of cryopreservation services among fertility clinics. The only ART regulation score that is significant is the insurance statute score. The results suggest that as insurance statutes become more permissive and inclusive, fertility clinics are more likely to offer cryopreservation as an option for storing unused embryos. Urban population, citizen ideology, and evangelical populations are also positively associated with the offering of cryopreservation services. This means that states with more urban populations, more liberal citizens, and more evangelicals are more likely to have fertility clinics that offer cryopreservation. GLBT equality, on the other hand, is negatively correlated with the dependent variable, suggesting that more equality is associated with fewer clinics that offer cryopreservation services.

The next model aggregates ART regulation into the three substantive categories of disposition, insurance, and surrogacy. The results of this model are very similar to the first, with one substantive exception. Again, insurance regulation is the only significant predictor of the number of clinics offering cryopreservation, and the results show a positive correlation. Like the

Table 6.3: The Impact of State Regulation on Availability of Cryopreservation Services

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	1.126 (.954)	.238	-	-	-	-	-	-
Disposition Statutes	.979 (1.449)	.499	-	-	-	-	-	-
Insurance Statutes	2.250 (.999)	.024	-	-	-	-	-	-
Surrogacy Case Law	.984 (1.524)	.518	-	-	-	-	-	-
Surrogacy Statutes	-2.143 (1.579)	.175	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.156 (1.924)	.263	-	-	-	-
Insurance Score	-	-	2.056 (.993)	.039	-	-	-	-
Surrogacy Score	-	-	-2.208 (2.017)	.274	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	1.882 (1.431)	.188	-	-
Statute Score	-	-	-	-	-.634 (1.881)	.736	-	-
Total Regulation Score	-	-	-	-	-	-	.468 (2.415)	.846
Demand								
Urban	.071 (.012)	.000	.065 (.011)	.000	.067 (.012)	.000	.063 (.013)	.000
College Education	-.046 (.047)	.335	-.068 (.051)	.179	-.081 (.052)	.118	-.097 (.052)	.062
Income	.178 (.121)	.141	.215 (.127)	.093	.220 (.152)	.150	.262 (.166)	.115
State Environment								
Citizen Ideology	.025 (.008)	.002	.020 (.008)	.011	.018 (.010)	.082	.014 (.009)	.152
GLBT Equality	-.411 (.174)	.018	-.373 (.156)	.017	-.227 (.164)	.167	-.214 (.166)	.197
Morality Influence								
Catholic	.00003 (.001)	.981	.0006 (.001)	.657	-.0003 (.001)	.834	.0002 (.001)	.901
Evangelical	.005 (.001)	.001	.005 (.001)	.003	.003 (.001)	.024	.003 (.001)	.030
Constant	-5.112 (1.480)	.001	-4.128 (1.489)	.006	-3.728 (1.683)	.027	-3.090 (1.651)	.061
Number of Cases	50		50		50		50	
Wald Chi^2	92.86	.0000	100.02	.0000	66.21	.0000	70.88	.0000
Log Pseudolikelihood	-132.291		-133.785		-136.526		-137.176	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state offering cryopreservation services.

first model, urban population, liberal citizens, and evangelicals are positively correlated and GLBT equality is negatively associated with cryopreservation services being offered. This model, however, also reveals a positive correlation with income. This means that as the number of households making $200,000 or more in a state increases, states are more likely to have fertility clinics that offer cryopreservation.

The third model examines ART regulation based on whether it is the product of the legislature or the courts. The table shows that this method of regulation aggregation does not result in a significant relationship between ART regulation and the availability of cryopreservation services. As seen in previous models, urban population, liberal citizens, and evangelicals are associated with more clinics that offer this service within a state. Unlike previous models, neither income nor GLBT equality were significant predictors.

The final model combines all ART regulation into one measure. Taken all together, the results suggest that ART regulation is not having a significant impact on the number of clinics that offer cryopreservation services. Urban population and the rate of evangelical adherents, however, are positively correlated to cryopreservation services. This model also reveals a negative relationship between college educated citizens and cryopreservation services. In other words, as the number of college graduates in a state increases, the likelihood of clinics offering cryopreservation services decreases. This relationship is not in the expected direction. As previously discussed, it was expected that college educated populations would increase demand for services. These results suggest that this is not necessarily the case.

Donor Egg

Results for the models looking at the availability of donor egg services reveal a very similar pattern to the cryopreservation models and can be seen in Table 6.4. The results of the

Table 6.4: The Impact of State Regulation on Availability of Donor Egg Treatment Options

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	1.059 (.956)	.268	-	-	-	-	-	-
Disposition Statutes	.935 (1.431)	.513	-	-	-	-	-	-
Insurance Statutes	2.301 (.967)	.017	-	-	-	-	-	-
Surrogacy Case Law	1.102 (1.542)	.475	-	-	-	-	-	-
Surrogacy Statutes	-2.009 (1.583)	.204	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.080 (1.896)	.273	-	-	-	-
Insurance Score	-	-	2.144 (.966)	.027	-	-	-	-
Surrogacy Score	-	-	-1.957 (2.029)	.335	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	1.964 (1.423)	.167	-	-
Statute Score	-	-	-	-	-.491 (1.891)	.795	-	-
Total Regulation Score	-	-	-	-	-	-	.706 (2.439)	.772
Demand								
Urban	.073 (.012)	.000	.066 (.011)	.000	.068 (.013)	.000	.064 (.013)	.000
College Education	-.026 (.045)	.571	-.049 (.051)	.332	-.060 (.050)	.233	-.077 (.052)	.138
Income	.153 (.121)	.205	.191 (.128)	.137	.191 (.154)	.216	.234 (.168)	.165
State Environment								
Citizen Ideology	.024 (.008)	.003	.019 (.007)	.015	.016 (.010)	.099	.012 (.009)	.186
GLBT Equality	-.392 (.173)	.024	-.356 (.155)	.022	-.209 (.163)	.199	-.194 (.165)	.239
Morality Influence								
Catholic	.00003 (.001)	.982	.0006 (.001)	.651	-.0003 (.001)	.850	.0002 (.001)	.882
Evangelical	.005 (.001)	.001	.005 (.001)	.003	.004 (.001)	.018	.003 (.001)	.025
Constant	-5.554 (1.486)	.000	-4.542 (1.535)	.003	-4.160 (1.670)	.013	-3.487 (1.680)	.038
Number of Cases	50		50		50		50	
Wald Chi^2	93.93	.0000	99.60	.0000	68.33	.0000	73.00	.0000
Log Pseudolikelihood	-129.333		-130.844		-133.734		-134.407	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state offering donor egg services.

first model looking at the impact of the disaggregated ART regulation scores on clinics offering donor egg treatments shows that only insurance statutes are a significant predictor. Once again, states with more permissive and inclusive insurance statutes are more likely to have clinics that offer donor eggs to clients. In addition, the results show that states with more urban populations, more liberal citizens, less GLBT equality, and more evangelicals are more likely to have clinics that offer donor eggs.

Insurance is a significant predictor in the second model that aggregates ART regulation into the three substantive categories. Results for the control variables are identical to the first model with urban population, liberal citizenry, and evangelical adherents being positively correlated and GLBT equality being negatively correlated to the availability of donor egg treatment options in the states. The third model in this series does not reveal a significant relationship between ART regulation and clinics offering donor eggs. Several control variables, including urban population, citizen ideology, and evangelical adherents, are positively related donor egg services. The final model, which combines all ART regulation into one measure, suggests that only urban and evangelical populations positively impact the availability of donor eggs within a state.

Donor Embryo

While the previous set of analyses examined the availability of clinics that offer donor eggs, this set of models focuses on the availability of donor embryos. As Table 6.5 presents, the results of this analysis are quite similar to previous models. The first model in the analysis finds a significant and positive relationship between insurance statutes and the availability of donor embryos in a state. This result suggests that in addition to impacting the number of clinics in a state and the number of clinics that offer donor embryos, as insurance statutes become more

Table 6.5: The Impact of State Regulation on Availability of Donor Embryo Treatment Options

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	1.701 (1.101)	.288	-	-	-	-	-	-
Disposition Statutes	1.015 (1.466)	.489	-	-	-	-	-	-
Insurance Statutes	2.450 (1.087)	.024	-	-	-	-	-	-
Surrogacy Case Law	1.008 (1.489)	.498	-	-	-	-	-	-
Surrogacy Statutes	-.685 (1.863)	.713	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.099 (1.916)	.273	-	-	-	-
Insurance Score	-	-	2.249 (1.021)	.028	-	-	-	-
Surrogacy Score	-	-	-.607 (2.051)	.767	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	2.009 (1.363)	.140	-	-
Statute Score	-	-	-	-	.980 (1.895)	.605	-	-
Total Regulation Score	-	-	-	-	-	-	2.478 (2.447)	.311
Demand								
Urban	.080 (.014)	.000	.073 (.011)	.000	.075 (.013)	.000	.072 (.013)	.000
College Education	-.051 (.051)	.317	-.067 (.055)	.222	-.078 (.054)	.153	-.092 (.056)	.103
Income	.101 (.138)	.461	.134 (.138)	.332	.122 (.166)	.461	.153 (.171)	.369
State Environment								
Citizen Ideology	.017 (.008)	.056	.012 (.008)	.125	.009 (.010)	.339	.006 (.009)	.480
GLBT Equality	-.406 (.189)	.032	-.360 (.162)	.027	-.228 (.169)	.177	-.217 (.171)	.205
Morality Influence								
Catholic	.0006 (.001)	.665	.001 (.001)	.465	.0002 (.001)	.863	.0007 (.001)	.683
Evangelical	.005 (.001)	.002	.005 (.001)	.006	.004 (.001)	.021	.003 (.001)	.031
Constant	-5.366 (1.711)	.002	-4.496 (1.695)	.008	-4.063 (1.778)	.022	-3.511 (1.779)	.049
Number of Cases	50		50		50		50	
Wald Chi^2	98.82	.0000	112.20	.0000	83.98	.0000	80.73	.000
Log Pseudolikelihood	-115.992		-116.995		-119.685		-120.056	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state offering donor embryo services.

permissive in a state, the likelihood of fertility clinics offering donor embryos also increases. This model also reveals a positive relationship with urban populations, citizen ideology, and evangelical adherents. Again, the unexpected negative relationship between increased GLBT equality and clinics that offer donor embryos is present in this analysis.

Moving to the second model, we again see that the state insurance regulation score is positively related to the offering of donor embryos. The model also suggests that states with more urban populations, less GLBT equality, and more evangelicals are more likely to have fertility clinics that offer donor embryos. The third and fourth models looking at the legal category of regulation and a comprehensive measure of ART regulation, respectively, have identical results. Neither of the models shows a relationship between ART regulation and whether clinics offer donor embryos. Urban populations and evangelical adherents, however, both have a significant and positive relationship, indicating that states with more urban populations and evangelical adherents are more likely to have fertility clinics that offer donor embryos as an option for those seeking fertility treatment.

Single Women

Table 6.6 displays the results for the models exploring the relationship between ART regulation and clinics that offer fertility treatments to single women. This set of analysis is structured in the same manner as the previously discussed models, and the results follow a very similar pattern. The first two models indicate that insurance statutes are also having a significant and positive influence on clinics' decisions to treat single women. This means that more permissive and inclusive insurance statutes are increasing the likelihood that clinics will treat single women. These first two models also show that urban populations, liberal citizens, and

Table 6.6: The Impact of State Regulation on Availability of Fertility Services for Single Women

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	1.113 (1.006)	.268	-	-	-	-	-	-
Disposition Statutes	.981 (1.532)	.522	-	-	-	-	-	-
Insurance Statutes	2.189 (1.040)	.035	-	-	-	-	-	-
Surrogacy Case Law	1.054 (1.647)	.522	-	-	-	-	-	-
Surrogacy Statutes	-1.936 (1.706)	.257	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.146 (2.003)	.284	-	-	-	-
Insurance Score	-	-	1.987 (1.027)	.053	-	-	-	-
Surrogacy Score	-	-	-1.926 (2.082)	.355	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	1.943 (1.549)	.210	-	-
Statute Score	-	-	-	-	-.402 (1.983)	.839	-	-
Total Regulation Score	-	-	-	-	-	-	.757 (2.535)	.765
Demand								
Urban	.072 (.013)	.000	.065 (.011)	.000	.068 (.013)	.000	.064 (.013)	.000
College Education	-.045 (.048)	.348	-.067 (.051)	.188	-.079 (.052)	.127	-.095 (.052)	.067
Income	.162 (.129)	.209	.198 (.134)	.142	.203 (.156)	.192	.245 (.169)	.147
State Environment								
Citizen Ideology	.028 (.008)	.001	.022 (.008)	.006	.020 (.010)	.051	.016 (.010)	.095
GLBT Equality	-.427 (.173)	.014	-.388 (.154)	.012	-.256 (.164)	.119	-.241 (.164)	.141
Morality Influence								
Catholic	.00009 (.001)	.952	.0007 (.001)	.630	-.0002 (.001)	.888	.0003 (.001)	.847
Evangelical	.004 (.001)	.010	.004 (.001)	.023	.003 (.001)	.106	.002 (.001)	.123
Constant	-5.198 (1.532)	.001	-4.211 (1.516)	.005	-3.864 (1.730)	.026	-3.223 (1.684)	.056
Number of Cases	50		50		50		50	
Wald Chi^2	88.64	.0000	97.35	.0000	62.76	.0000	67.34	.0000
Log Pseudolikelihood	-130.150		-131.404		-133.631		-134.191	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state offering services for single women.

evangelicals are positively affecting the treatment of single women, while GLBT equality is having a negative influence.

The third model does not reveal any relationship between ART regulation and fertility treatment options for single women. This model does suggest, however, that more urbanized states and states with more liberal citizens are more likely to have fertility clinics that provide services to single women. The final model, which combines all ART regulation into one measure, also does not show any relationship between regulation services to single women. Like the previous model, urban populations and citizen ideology is positively related to the dependent variable. In addition, the results suggest that states with more college educated citizens are less likely to have clinics that treat single women. This result is consistent with several other models, but it is not in the expected direction.

Surrogacy

The final analysis addresses clinics that offer surrogacy treatments, and the results of this set of analysis can be found in Table 6.7. Like all the previous models, the first model in this series shows that the permissiveness of insurance statutes in a state is positively correlated with the number of clinics that offer surrogacy. Urban populations, liberal citizens, and evangelicals are also positively correlated with clinics that offer surrogacy. This model also suggests a link between increased GLBT equality and fewer clinics that perform surrogacy treatments. In the second model, ART regulation is aggregated into substantive categories, and the results show that the insurance score is positively related to surrogacy treatment availability. Identical to the first model, the results show that states with more urban populations, more liberal citizens, more evangelical adherents, and less GLBT equality are more likely to have clinics that offer surrogacy as a fertility treatment option.

Table 6.7: The Impact of State Regulation on Availability of Surrogacy Treatment Options

	Disaggregated Model		ART Category Model		Legal Category Model		Total Score Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Disaggregated Score								
Disposition Case Law	.724 (.980)	.460	-	-	-	-	-	-
Disposition Statutes	1.082 (1.625)	.505	-	-	-	-	-	-
Insurance Statutes	1.822 (1.046)	.082	-	-	-	-	-	-
Surrogacy Case Law	1.114 (1.564)	.476	-	-	-	-	-	-
Surrogacy Statutes	-1.795 (1.565)	.251	-	-	-	-	-	-
ART Category Score								
Disposition Score	-	-	2.080 (2.098)	.321	-	-	-	-
Insurance Score	-	-	1.724 (1.017)	.090	-	-	-	-
Surrogacy Score	-	-	-1.366 (1.975)	.489	-	-	-	-
Legal Category Score								
Case Law Score	-	-	-	-	1.706 (1.447)	.238	-	-
Statute Score	-	-	-	-	.164 (1.942)	.932	-	-
Total Regulation Score	-	-	-	-	-	-	1.331 (2.435)	.585
Demand								
Urban	.071 (.013)	.000	.066 (.012)	.000	.070 (.013)	.000	.066 (.013)	.000
College Education	-.019 (.050)	.699	-.041 (.055)	.454	-.043 (.052)	.405	-.055 (.054)	.303
Income	.156 (.126)	.216	.183 (.125)	.144	.176 (.144)	.223	.207 (.152)	.172
State Environment								
Citizen Ideology	.019 (.008)	.021	.014 (.007)	.056	.012 (.010)	.229	.009 (.009)	.338
GLBT Equality	-.367 (.171)	.032	-.349 (.151)	.021	-.239 (.162)	.141	-.229 (.161)	.155
Morality Influence								
Catholic	.0003 (.001)	.820	.0008 (.001)	.577	.00005 (.001)	.971	.0004 (.001)	.756
Evangelical	.005 (.001)	.003	.004 (.001)	.010	.003 (.001)	.030	.003 (.001)	.040
Constant	-5.311 (1.608)	.001	-4.392 (1.637)	.007	-4.289 (1.723)	.013	-3.765 (1.726)	.029
Number of Cases	50		50		50		50	
Wald Chi^2	76.55	.0000	87.19	.0000	60.28	.0000	62.51	.0000
Log Pseudolikelihood	-125.344		-126.262		-128.082		-128.488	

Notes: Models were estimated using a negative binomial regression due to overdispersion. Robust standard errors in parentheses. Two-tailed test.
Dependent Variable: Number of clinics in a state offering surrogacy services.

The final two models reveal only two significant predictors for clinics that offer surrogacy, urban population and evangelical adherents. Each is positively correlated, suggesting that states with more urban and evangelical populations are more likely to have fertility clinics that provide surrogacy implantation. Like the previous models in the analyses, these final two models do not reveal any relationship between ART regulation and clinics that offer surrogacy. Both of these models also suggest a positive relationship between urban populations and evangelicals.

Discussion

The goal of these analyses was to better understand the impact of state policy and case law on the fertility industry and access to fertility treatment in the states. The first analysis investigated whether ART regulation affected the number of clinics within a state. This was an important question to ask for several reasons. First, it helps us understand if state action is influencing clinics' decisions to open within a state. Second, it delves into the deeper issue of access to fertility treatment. If state regulations are discouraging clinics from opening, this can have a large impact on access to treatment within a state. The second sets of analyses proceeded in a similar manner, asking whether ART regulation impacts the services fertility clinics choose to offer including cryopreservation, donor eggs, donor embryos, treatments for single women, and surrogacy.

The analysis provides several interesting findings, but the most noticeable outcome is the consistency of the results among all the models. With few exceptions, six primary variables (insurance scores, urban population, college education, citizen ideology, GLBT equality, and evangelical adherents) emerged as significant predictors of the number of fertility clinics in a state and the services offered by these clinics. There was very little variation in outcomes

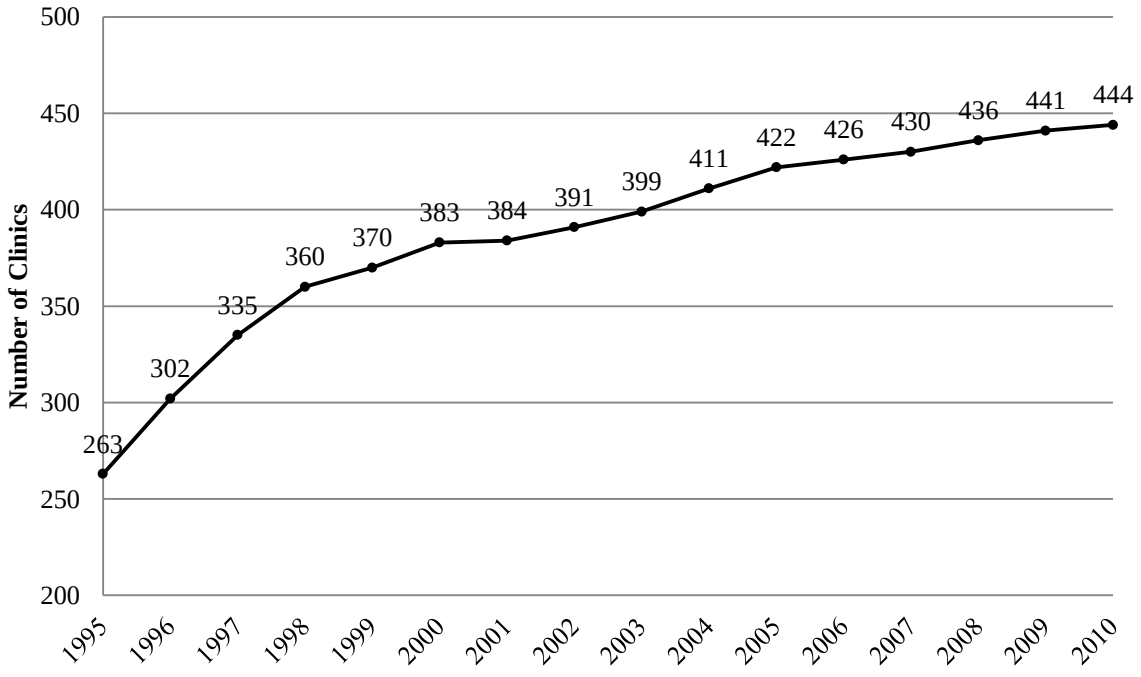
between the models, suggesting that fertility clinics are not more or less deterred from offering certain services. Of course, each fertility clinic considers a variety of factors when determining which services to offer. However, this analysis suggests that there may not be certain factors that influence one service, but not another.

One of the most consistent finding was the relationship between insurance statutes and the availability of fertility treatment options within a state. The results suggest that even controlling for other intervening factors, states with more permissive and inclusive insurance statutes were more likely to have more fertility clinics and those clinics were more likely to offer cryopreservation, donor eggs, donor embryos, services to single women, and surrogacy. These results imply that clinic owners and operators are driven by profit motives. The insurance coverage likely increases the population of potential clients by greatly reducing the largest hindrance to utilizing ART – money. With clients having their treatment partially subsidized by insurance companies, clinics are likely to turn a profit even if there is competition within their region. This may also help to explain why the control for income was only marginally statistically significant in one model.

As discussed, these models used the insurance statute score that takes the inclusiveness of the statute into consideration. In this measure, states with discriminatory statutes that exclude certain populations were coded as a "-2" while states that mandate insurance coverage without such exclusions were coded as "2." Chapter four outlines an alternative measure of insurance statutes that codes states that mandate coverage as "2," states that mandate offering optional coverage as "1," and states with no coverage mandates as "0." This alternative coding was included to account for the fact that insurance coverage is rare and even statutes that discriminate against certain populations are still increasing access to fertility treatment. The coding scheme

used in this analysis, however, is a much more rigorous test of the impact of insurance statutes and thus provides more meaningful results. The fact that insurance statutes were still a significant predictor of the number of clinics in a state and the services offered, despite the negative weighting of discriminatory statutes, suggests that clinics are quite responsive to the expanded number of people in a state with a means to pay for fertility treatment.

Figure 6.1: Number of Fertility Clinics in the United States, 1995-2010



Source: Centers for Disease Control

Another interesting finding is that no other measures of ART regulation had a statistically significant relationship with the number of clinics or services offered. There are several potential explanations for this finding. The first explanation could be that this analysis does not account for time. Certainly, the fertility industry has grown over the years. As Figure 6.1 shows, the total number of clinics has grown from 263 clinics in 1995 to 444 in 2010. Additionally,

regulation and case law have accumulated over time. Unfortunately, this analysis does not allow us to observe the growth of regulation and the impact on the fertility industry over time.

While the addition of time could reveal a relationship between regulation and the fertility industry, a more persuasive explanation exists. As the results of this analysis seem to suggest, it is likely that the fertility industry is simply not reacting to the activities of state legislatures and courts. To date, there is really no need to. While there has been legislative and judicial activity in this issue area, the fertility industry has remained largely unregulated (Spar 2006). The court decisions and regulations that exist do not necessarily interfere with the operations of clinics in a state nor do they strongly interfere with the industry's primary consumer. Regulation instead appears to be a patchwork of seemingly random and reactionary legislation and court decisions that attempt to control the use of fertility services by those deemed unworthy of parenthood or those who have ventured beyond the bounds of what is considered acceptable use of ART (i.e. "Octomom"). Because there is not a clear, consistent message coming from state lawmakers, the fertility industry understandably is not making substantial changes to its mode of operation.

Another consistent result was the influence of certain demand influences, primarily urban population. While income was found to be related to clinics who offer cryopreservation in one model, urban population was found to a positive influence in all 24 models. This result suggests that fertility clinics are more likely to emerge and offer services in urbanized states. This result is in the expected direction, and it is not surprising that full service clinics are established where demand is likely higher. What is surprising is that college education emerged as a negative influence on the number of clinics and services offered in three of the 24 models. Because those with affluence are more likely to be able to afford or find ways of financing the high costs of fertility treatments, it was hypothesized that college education would be positively associated

with clinics and services offered in a state. It is possible that the aggregation of all of the ART regulations removed the explanatory power associated with these regulations enough to allow college education to capture some of this influence. Regardless, future research should further investigate this relationship.

An unanticipated finding is the relationship between increased GLBT equality within a state and fewer clinics and services. This relationship was found to be statistically significant in 12 of the 24 models. It was hypothesized that more GLBT friendly states would be correlated with a stronger presence of the fertility industry. One possible explanation for this result is that the growth of the fertility industry is outpacing the expansion of gay rights in the states. As this analysis suggests, demand and the ability to pay is the key predictor of a strong fertility industry in a state. This means that clinics are moving into states despite the lack of gay-friendly policy. This result also highlights the fact that demand for ART is still highest among heterosexual couples.

In 16 of the 24 different models in this analysis, citizen ideology emerged as a significant predictor of clinics and services offered in a state. This fairly consistent result suggests that states with more liberal citizens are more likely to have more fertility clinics, and these clinics are more likely to offer cryopreservation, donor eggs and embryos, treatment for women, and surrogacy services. This result provides an insight into who is more likely to have access to fertility treatments. This analysis doesn't necessarily allow us to make causal assumptions, but it does appear that having a liberal citizenry creates a friendlier environment for the fertility industry.

Finally, this analysis found that in all but two of the models, the rate of evangelical adherents was positively associated with more clinics and more services offered in a state. This

is also a curious result considering the link between ART and abortion. This result is consistent with the models in chapter four that found evangelicals to be associated with more permissive ART regulation. This result suggests that while evangelicals may hold beliefs that contradict with the some of the underlying issues associated with ART, they are generally supportive. This idea is substantiated by other studies that have found that "ART procedures that apparently contradict some religious commitments nevertheless win the support of religious people" (Traina et. al 2008, 78). This positive correlation between evangelical populations and number of clinics and services offered could also be attributed to the public's inability to connect all the pieces together. As public opinion researchers found, the public provided contradictory opinions about approval of stem cell research when presented in different contexts (Levin 2008). These results could also simply be that the desire for a family overshadows the poorly articulated connection between abortion and assisted reproductive technologies. This could also explain why Catholic adherents were not correlated with fertility clinics and services in a state. Despite some unexpected results, the prevailing narrative that emerges from this analysis is that demand and the ability to pay for fertility therapy are significant factors in whether fertility clinics are present in a state and whether these clinics offer a wide array of services.

Chapter 7

Conclusion

The ability to have children and grow one's family is something that can easily be taken for granted. Many of those who are unable to have children have gone to great lengths to achieve pregnancy or search for alternative methods to add to their families. Scientific advancements have created new ways for individuals seeking pathways to parenthood. These new technologies have begun to work their way into contemporary culture, but due to the high costs, and in some states certain regulations, these pathways are blocked for many. This project has sought to understand how assisted reproductive technologies have come to be an issue worthy of government attention and to examine the ways in which states have tried to regulate their use.

Primary Findings

This project began by outlining the development and history of assisted reproductive technologies paying particular attention to some of the major events and court cases in the United States. Although the United States was not the first country to pioneer the use of these technologies, the U.S. fertility industry has grown steadily since the 1970s, and in 2010, there were nearly 450 fertility clinics spread across the states. The steady development of this industry has likely led to an increased need for regulation.

While there is only one federal law that attempts to regulate the fertility industry, some state legislatures have adopted laws pertaining to the regulation of ART. State courts have also contributed to the regulation of ART through various legal cases. These court decisions have settled disputes and have also set legal precedents for future outcomes of ART related cases.

The combination of legislative and judicial output has created a patchwork of regulation in the states. Chapter 2 outlined several theoretical frameworks that can help to explain why states have become involved in the regulation of ART regulation. These three theoretical frameworks, body politics, social construction, and morality politics also aid in understanding the trajectory of state legislative and judicial regulations. Using these frameworks as a guide, four different hypotheses were developed, outlining the expectations of state ART regulation.

Considering the diversity of state approaches to the regulation of ART, Chapter 3 addressed the need for a comprehensive way to examine legislative and judicial outcomes. Previous scholarship has recognized that policy does not happen in a vacuum and that previously adopted policies can impact future policy outputs (Berry and Berry 2007; Meier 1994). These existing legislative and judicial outcomes work together to create the current policy landscape, and it is important to be able to assess the nature of the policy environment within a state. It is likely that members of the fertility industry are attuned to important state legislation and case law outcomes that could affect their livelihoods. State ART regulation could also be impacting individuals' decisions to pursue ART treatments or ability to access these treatments. Chapter 3 attempts to fill this need for a comprehensive measure of state regulation of ART by developing a set of ART scores that assess the restrictive or permissive nature of state legislative and judicial output. This set of scores includes comprehensive measures of state case law and legislation and also measures the different categories of regulation including embryo disposition, insurance coverage and surrogacy. These scores provide researchers with a new way to understand this policy environment and could be applied to other related policy issue areas such as stem cell research.

A rich description of state ART regulation is provided in Chapter 4. Through this descriptive narrative, we are able to better understand the myriad ways that states have approached the issue of assisted reproductive technologies. Some state policies and case law have served to increase access ART. For instance, some states have mandated that medical insurance companies cover or offer coverage for these treatments. Other states, on the other hand have taken steps to restrict access to ART by requiring that individuals be married in order to enter surrogacy arrangements.

Chapter 4 provides support for the first hypothesis contending that states would regulate ART, but that regulation would be minimal in nature. Not all states have taken measures to regulate ART, and comprehensive legislations does not exist in the states that have opted to regulate ART. Much of the regulation focuses on small pieces of the larger issue, such as embryo storage or the provision of insurance. State courts, by their very nature, are reactionary institutions that respond to issues that arise from the use of ART. The courts have been careful not to legislate from the bench. In fact, one Tennessee court included with its decision a plea for the legislature to provide guidance for the courts through policy adoption (Arons 2007). Although the analysis in this chapter does not necessarily tell us why states have not gotten very involved in this policy domain, this analysis does show that state response has been minimal. This finding is consistent with the literature on the body politics and medicalization of the body. Although assisted reproductive technologies are becoming more salient, infertility and reproduction are still very personal and private issues. It is likely that states are slow to regulate technologies that have the potential to provide a solution to the very private, and often heartbreaking, issue of childlessness. Recently, several celebrities have started to publicly discuss their struggles with infertility and use of assisted reproductive technologies. As this

topic becomes more prevalent in American popular culture, future research should examine whether growing salience is correlated with increased state regulation.

The social construction literature provides further insight into the finding that states tend to have minimal regulation of ART. Due to the high costs associated with ART, those who seek these treatments tend to be upper-class, affluent, white, married couples. Social construction scholarship suggests that these populations, which are positively constructed and have high levels of political power, tend to receive the benefits of policy and very little regulation (Schneider and Ingram 1993, 1997). State officials may recognize that policies that regulate the ART would burden those positively constructed populations as well as the very profitable fertility industry.

The analysis in Chapter 4 also provides support for the second hypothesis that anticipated state regulation would attempt to limit ART access for negatively constructed populations such as same-sex couples or single mothers. Table 7.1 provides a summary of the hypotheses proposed in this project and whether each was supported or not. There are numerous examples of how states attempt to limit access to ART for populations by requiring that individuals be married to qualify for insurance coverage mandates or even to enter into surrogacy arrangements. Other legislation attempts to prevent same-sex couples from using surrogacy by disallowing the use of donor eggs or embryos or requiring that both intended parents be gamete donors. There are also several states that have age restrictions for surrogacy contracts or insurance coverage. Finally, some states require psychological evaluations and home visits for those wanting to enter into surrogacy arrangements, which may prevent some from being able to utilize all available options to grow their families. Again, this finding is consistent with the literature in social

construction that suggests that the burdens of public policy will be directed at populations with negative constructions and low political power.

Table 7.1: Evidence of Support for Hypotheses

Hypothesis	Supported or Not Supported	Explanation
H_1: *State governments will regulate assisted reproductive technologies, but regulation will be minimal.*	Supported	There were no states with comprehensive legislation or case law addressing use of assisted reproductive technologies. (Chapter 4)
H_2: *State regulation of assisted reproductive technologies will limit access of negatively constructed populations including same-sex couples, single mothers, and the undeserving.*	Supported	Several states have legislation and case law outcomes that limit the use of assisted reproductive technologies by same-sex couples and single women. Other states require psychological evaluations, home visits or impose age restrictions. (Chapter 4)
H_3: *States with larger religious populations will have stricter regulation of assisted reproductive technologies.*	Not Supported	Catholic populations were not a significant predictor of permissive or restrictive ART policy. In some cases, higher Evangelical populations were correlated with more permissive ART policies and case law. This is in the opposite direction of expectations. (Chapter 5)
H_4: *States with large fertility industries will have fewer regulations on assisted reproductive technologies.*	Not Supported	Larger fertility industries were correlated with more restrictive surrogacy legislation and overall surrogacy regulation. This is in the opposite direction of expectations. (Chapter 5)

The next two chapters apply the ART scores developed in Chapter 3 to better understand the nature of state regulation. Chapter 5 addresses the question of which states are more likely to have restrictive or permissive ART regulation. In other words, the primary objective was to identify any systematic influences on state regulation of ART. Two hypotheses guided the expectations for this analysis. First, it was hypothesized that states with more religious populations would have more restrictive policy due to the connection between the use of ART and certain morality issues including abortion, gay parenting, and stem cell research. Not only are assisted reproductive technologies related to human reproduction and sexuality, but the Catholic Church has also taken a moral stance against the use of certain ART treatments, including in vitro fertilization and surrogacy. Because of this, it was expected that states with more religious populations, especially Catholic populations, would be more likely to have restrictive policies. The analysis in this chapter did not support this hypothesis. Catholic population did not have a statistically significant impact on the nature of state regulation. Interestingly, a larger Evangelical population in a state was correlated with more permissive state regulation.

There are several potential explanations for this unexpected finding. First, despite the underlying link with abortion and stem cell research, the morality framing of ART is not a dominant issue frame. Although the Catholic Church frames the use of ART as a moral issue, this definition is not resonating with the public or with those who want to use ART as a potential solution to childlessness. Even though it is not the dominant frame, it is still prudent to think about ART in terms of morality policy because the issue has the potential to develop into a contentious morality debate. The underlying connections to sex and sexuality as well as the stem cell research, abortion, and gay parenting debates create an opportunity for a variety of alternate,

dominant issue frames to emerge. Like the issue of contraception, ART has remained a fairly private issue. However, contraception has become contentious during different political contexts. Most recently, contraception has been framed in terms of morality due to the inclusion of insurance coverage mandates in federal healthcare legislation, and Catholic groups around the country are actively fighting this mandate (Kliff 2012; Baynes 2012). As ART continues to develop and increase in salience, certain political contexts may potentially foster the development and ascendancy of new contentious frames.

The debates over legislation to make the human papilloma virus (HPV) vaccination mandatory for school attendance provide another example of how an issue can quickly destabilize when a morality frame emerges. Kirkpatrick and Doan (*Forthcoming*) found that although originally framed as a public health issue, the framing of the HPV vaccination changed rapidly when concerns about teenage sexuality and encroachment on parental autonomy began to become salient with the public. Although legislation to make the vaccine mandatory was considered in 24 states, only one state (Virginia) actually adopted compulsory vaccination legislation (NCSL 2008). The potential for a similar evolution in framing exists with the issue of ART.

There is a second explanation for the lack of relationship between Catholic populations and restrictive state ART policy. Morality policy scholars have found that when economic and morality concerns come into conflict, the economic interests can "be as important as or more important than moral considerations" (Sharp 2005, 197). The results of this analysis suggest that this might be the case with state ART regulation; state officials may recognize the economic advantages of having a thriving fertility industry within the state.

Economic considerations are also related to the fourth hypothesis which anticipated that states with larger fertility industries will be less likely to have restrictive ART regulation. This idea is exemplified by the case of Georgia, which had nine fertility clinics in 2008. As previously discussed, Georgia legislators opted against a bill that would limit the number of embryos that could be transferred in a single session of in vitro fertilization because of the potential harm the bill could inflict on the state's fertility industry. Indeed, one fertility doctor told reporters, "What this bill will effectively do is shut us down. Patients seeking reproductive care in Georgia will go to Tennessee or South Carolina or Alabama. They will just leave" (Cohen and Gross 2009, para. 11). Although there was much public outrage about 'Octomom," in the end, the economic interest of the fertility industry prevailed. It seems that policymakers are acutely aware of the benefits of having a strong fertility industry, and because of this it is expected that states with larger fertility industries will have less restrictive regulation of ART. Despite this evidence, the results of the analysis reveal that states with larger fertility industries are more likely to have more restrictive surrogacy statutes. The size of the fertility industry was not correlated with the nature of embryo disposition or insurance coverage regulation. One potential explanation for this finding is that states with larger fertility industries are providing more surrogacy treatments, and thus these states have encountered more disputes over the use of surrogacy and legislatures have been forced to react. Furthermore, surrogacy is the most controversial of ART treatments. It requires a third party to agree to carry a child and then relinquish parental rights to an intended parent or set of parents. Public opinion polls have shown that surrogacy is a difficult concept for people to accept, and 40 percent of respondents in a 2000 opinion poll said that surrogacy was an acceptable practice for others, but not for them (Virginia Slims Poll 2000).

Future research should seek to better understand why surrogacy legislation is affected by the size of the fertility industry, but other types of state legislation and case law are not. This line of research may require examining individual policies rather than aggregating all surrogacy policy into one measure. This approach would allow researchers to determine if there are specific types of surrogacy policy that are more impacted by the size of the fertility industry than others. Researchers should first disaggregate the ART surrogacy scores into different types of surrogacy policies such as parentage determination, or the regulation of contracts and surrogate selection. One of these subcategories of surrogacy policy could be driving this result.

The analysis in Chapter 5 examined the determinants of state ART regulation. Chapter 6 took a different approach to the examination of ART regulation and addressed the important question of what impact this regulation has on the availability of fertility treatment in a state. Understanding why states are adopting certain policies or why state courts are making specific decisions is important, but it is also necessary for scholarship to take a further step and examine the substantive impacts of legislative and judicial output. As previously discussed, state approaches to the regulation of ART vary significantly. The analysis in Chapter 6 provides an examination of whether these differing approaches are affecting the fertility industry in each state and consequently how state regulation affects the availability of fertility treatments in a state. Table 7.2 provides a summary of the impacts of state regulation on the number of clinics in a state as well as the availability of certain types of ART treatments including cryopreservation, the option to use donor eggs or embryos, treatment for single women and the option to use surrogacy.

The results of this analysis suggest that the only area of state regulation that had an impact on access to treatment was insurance coverage. States with more permissive insurance

Table 7.2: The Impact of State Regulation on Access to ART Treatments

Access to ART Treatment	State Regulation	Other Factors
Clinics in a State	More Permissive Insurance Scores were Correlated with More Clinics	Urban Population (+) College Education (-) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)
Cryopreservation	More Permissive Insurance Scores were Correlated with More Clinics that Offer Cryopreservation	Urban Population (+) College Education (-) Income (+) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)
Donor Eggs	More Permissive Insurance Scores were Correlated with More Clinics that Offer Donor Eggs	Urban Population (+) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)
Donor Embryos	More Permissive Insurance Scores were Correlated with More Clinics that Offer Donor Embryos	Urban Population (+) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)
Treatment for Single Women	More Permissive Insurance Scores were Correlated with More Clinics that Offer Treatment for Single Women	Urban Population (+) College Education (-) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)
Surrogacy	More Permissive Insurance Scores were Correlated with More Clinics that Offer Surrogacy as a Treatment Option	Urban Population (+) Citizen Ideology (+) GLBT Equality (-) Evangelical Population (+)

coverage statutes were significantly more likely to have more fertility clinics and these clinics were more likely to offer an array of different services. Although the results of this analysis suggest a correlation between state legislation and the behavior of the fertility industry, the results do not necessarily show that the fertility industry is acting in response to state policy.

States could be passing permissive policy due to the economic benefits of a strong fertility industry in the state.

Interestingly, no other types of policy or case law were associated with a larger fertility industry or broader access to services. This result suggests that state regulation is not affecting whether clinics open in a state or choose to offer specific treatments. As previously discussed, aggregating state policy and case law into a few measures of ART regulation are potentially masking the impact of individual policies. Future research should examine whether specific policies are impacting access to treatment. For instance, future research should seek to understand whether policies that specifically ban or void surrogacy contracts affect whether clinics choose to offer surrogacy as an option. This is just one example of a specific policy that could be impacting whether clinics offer certain services. By looking at individual policies, future scholarship may be able to determine if there are certain types of regulation that are having more of an impact than others. While looking at the entire regulative environment is important, a more complete narrative of the impact of state ART policy can be achieved by examining this issue area from both the macro and micro levels.

The analysis in Chapter 6 also reveals that demand for treatment, measured by the percent of the state population living in urban areas, is significantly correlated with the size of the fertility industry and the availability of treatment options. This suggests that fertility clinics are drawn to areas that have a strong market. This, coupled with the finding that permissive insurance statutes are correlated with larger fertility industries, suggest that clinics are drawn to areas with high demand and with populations that can pay for these pricey treatments.
The most surprising result from this analysis is that larger populations of evangelicals in a state were positively related to more clinics offering a variety of treatment options. Based on the

morality policy literature, it was expected that states with more religious populations would have fewer number of clinics and that do not offer as many services. Explaining the lack of relationship between Catholic populations and access to treatment is easier. This result could simply indicate that the fertility industry is more focused on potential profits than potential opposition. This result could also indicate that despite the negative view of ART by the Catholic Church, members of this faith are not opposed to the use of ART. Explaining why evangelical populations are positively correlated with stronger fertility industries in the states is more difficult. Future research should further investigate this relationship to identify why this correlation exists.

The most consistent narrative that emerges from these analyses is that regulation of ART varies greatly across the states. The existing legislation and case law create a patchwork of inconsistent, and sometimes contradictory, regulation. In many ways, existing regulation conforms to the patterns suggested in the social construction literature. Scholars of social construction suggest that the burdens of regulation will be targeted at deviant populations who have little political power and are negatively constructed while those who have high power and positive constructions will be afforded the benefits of regulation or will have very little regulation imposed upon them at all (Schneider and Ingram 1993, 1997). Although some state regulation has the effect of restricting access for single parents or same-sex couples, with minimal regulation, it appears that states are avoiding placing too much burden upon the profitable fertility industry and the upper-class, white, married couples who seek ART treatments.

One of the major objectives of this project was to explore a policy issue area from the macro level. Policy research should continue to examine how individual policies get on the

agenda, to understand why states adopt specific policies, and to explore the impacts of specific policies. However, scholars should also attempt to measure how policies work together and contribute to the overall policy environment. This is especially important for research that attempts to understand the impacts of policy because these policies do not operate in a vacuum. Instead, these policies work together, creating environments that can encourage or discourage certain behaviors.

This project also makes clear that policy scholars need to examine judicial as well as legislative outcomes. Court decisions play an important role in shaping the political environment, and accounting for the impact that these case outcomes can have is necessary. Scholars who seek a full understanding of a policy issue are should be sure to include the important precedents set by the courts.

The findings in this dissertation also confirms and expands our theoretical understandings of the policy making process. First, this analysis provides support for some of the major tenets of social construction theory. This policy issue area has gone largely unregulated and the regulation that exists does little to stifle the activities of those populations which are positively constructed. Populations with negative constructions, including those who are unmarried or who are in same-sex relationships, are prescribed the policy burdens of being denied insurance coverage or the ability to use surrogacy as a treatment option.

Second, the results help to further refine our understanding of morality policy. Scholars have found that it is not the substance of a policy that determines whether an issue is a morality policy (Mooney 2001b), but rather that at least one coalition is framing the issue in terms of morality (Haider-Markel and Meier 1996). In the case of ART, the Catholic Church and the United States Conference of Catholic Bishops have condemned the use of ART, and it seems

clear that this is being framed in terms of morality. Despite this clear frame, the results of this analysis show that morality considerations are not associated with more restrictive state regulation. This result could indicate that states are not as responsive to their constituents' desires as the morality policy literature suggests they should be. A more likely explanation is that the morality framing put forth by the Catholic Church is not resonating with the broader Catholic population. This finding suggests although an issue may be framed in terms of morality, that frame, even when supported by an entity as powerful as the Catholic Church, must be embraced by a broader population before the politics typically associated with morality policy, including government responsiveness and policy congruence, actually occur.

Finally, this analysis lends support for Sharp's (2005) classification of "material morality" policy in which one coalition frames the issue in terms of economics. This literature suggests that economic interests can outweigh morality interests. This analysis shows that demand considerations are a significant predictor of permissive ART regulation, suggesting that states are responding to the economic interests and benefits of a healthy fertility industry.

Directions for Future Research in ART Regulation

While this project revealed some interesting findings, there is still much work to be done to fully understand ART regulation in the United States. The next major step will be to explore the regulation of this issue over time. Judicial and legislative regulation has likely been affected by major events in this issue area. For instance, the high profile *Baby M* case in New Jersey likely caused other states to consider how their courts would handle such an incident. Future exploration of this issue area should attempt to account for some of these major focusing events. Analysis over time would also allow researchers to understand how the increase in salience has impacted state regulation. The first step toward a temporal analysis is to create yearly ART

scores. This would allow scholars to see how state environments have evolved over time and examine whether certain events and growing salience contributed to more restrictive or more permissive regulation.

Public opinion is another area that should be explored in future analyses of ART regulation. As other studies have demonstrated, the public's understanding of ART and its connection to other issues such as stem cell research is limited (Virginia Slims Poll 2000; Levin 2008). The next step for scholars is to examine public opinion toward ART and seek to understand how these opinions are formed and how they shape the political debate surrounding ART regulation.

Finally, the narrative of ART regulation is not complete without an understanding of how regulation is affecting individuals seeking fertility treatments within the states. While this analysis suggests that most regulation is not having a strong impact on the number of clinics and treatment options in a state, there is little understanding of how these regulations affect and shape individual choices. For instance, how are individuals affected by state policies that ban surrogacy agreements? Are individuals forging ahead without the protection of a legally binding contract or are they seeking treatment in other states or giving up this option all together? These individual narratives need to be sought out in order to have a true understanding of the impacts of state regulation.

The issue of ART regulation is one that is sure to grow. As assisted reproductive technologies become more salient, their use will increase, new issue frames will emerge, and regulation will likely follow. New technological advances will also bring new pathways to parenthood for those facing the heartache of infertility and childlessness. These pathways will

usher in new social concerns and regulations that shape what methods individuals can use to become parents in the United States.

Works Cited

Adashi, E.Y., J. Cohen, L. Hamberger, H.W. Jones, Jr., D.M. de Kretser, B. Lunenfeld, Z. Rosenwaks, and A. Van Steirteghem. 2000. "Public Perception on Infertility and Its Treatment: An International Survey." *Human Reproduction* 15(2): 330-334.

Andrews, Lori, and Nanette Elster. 2000. "Regulating Reproductive Technologies." *Journal of Legal Medicine* 21: 35.

Arons, Jessica. 2007. "Future Choices: Assisted Reproductive Technologies and the Law." *Center for American Progress*. www.americanprogress.org. (December 2, 2009).

Associated Press. 2009. "'Octomom' spawns bills limiting embryo implants." *USA Today*, March 5. http://usatoday30.usatoday.com/news/nation/2009-03-04-octo-bill_N.htm (April 3, 2010).

Balla, Steven J. 2001. "Interstate Professional Associations and the Diffusion of Policy Innovations." *American Politics Research* 29(3): 221-245.

Barnum, Alex. 2005. "For Infertile Couples, It's California or Bust: State Has Become Major Destination for Making Babies." *San Francisco Chronicle*, 15 August.

Baumgartner, Frank R. and Bryan D. Jones. 2002. *Policy Dynamics*. Chicago: University of Chicago Press.

Baumgartner, Frank R. and Bryan D. Jones. 2005. *The Politics of Attention: How Government Prioritizes Problems*. Chicago: University of Chicago Press.

Baynes, Terry. 2012. "U.S. Catholic groups sue to block contraception mandate." *Reuters*, May 21. http://www.reuters.com/article/2012/05/21/us-usa-healthcare-contraception-idUSBRE84K19R20120521 (October 12, 2012).

Berry, Frances Stokes, and William D. Berry. 2007. "Innovation and Diffusion Models in Policy Research." In Paul A. Sabatier, ed., *Theories of the Policy Process*, 2nd Edition. Boulder, CO: Westview Press.

Berry, Francis Stokes, and William D. Berry. 1990. "State Lottery Adoptions as Policy Innovations: An Event History Analysis." *American Political Science Review* 84(2): 395-415.

Berry, William D., Evan J. Ringquist, Richard C. Fording and Russell L. Hanson. 1998. "Measuring Citizen and Government Ideology in the American States, 1960-93." *American Journal of Political Science* 42(1):327-48.

Berry, William D., Richard C. Fording, Evan J. Ringquist, Russell L. Hanson and Carl E. Klarner. 2010. "Measuring Citizen and Government Ideology in the American States: A Re-appraisal." *State Politics and Policy Quarterly* 10(2): 117-35.

Bouche, Vanessa and Dana Whittmer. 2009. "Human Trafficking Legislation Across the States: The Determinants of Comprehensiveness" Presented at the First Annual Interdisciplinary Conference on Human Trafficking, Lincoln, NE. http://digitalcommons.unl.edu/humtraffconf/6/ (June 11, 2012)

Brody, Jane E. 2009. "Much Has Changed in Surrogate Pregnancies." *The New York Times*, July 20. http://www.nytimes.com/2009/07/21/health/21brod.html (September 1, 2012).

Carmines, Edward G., and James A. Stimson. 1980. "The Two Faces of Issue Voting." *American Political Science Review* 74(1): 78-91.

Carroll, Susan J. 2001. "Introduction." In *The Impact of Women in Public Office*, ed. Susan J. Carroll. Bloomington, IN: Indiana University Press.

Center for Women Policy Studies. 2007. *Report Card on State Action to Combat International Trafficking*. May.

Centers for Disease Control and Prevention (CDC). 2012a. "Infertility FAQ's." *Centers for Disease Control and Prevention*. http://www.cdc.gov/reproductivehealth/Infertility/index.htm (October 1, 2012).

Centers for Disease Control and Prevention (CDC). 2012b. "What is Assisted Reproductive Technology?" *Centers for Disease Control and Prevention*. http://www.cdc.gov/ART/ (October 1, 2012).

Chen, Serena H., and Edward E. Wallach. 1994. "Five Decades of Progress in Management of the Infertile Couple." *Fertility and Sterility* 64(4): 665-685.

Cohen, Elizabeth, and Doug Gross. 2009. "Georgia 'Octomom bill' would limit embryo implants." *CNN*, March 3. http://edition.cnn.com/2009/US/03/03/georgia.octomom.bill/index.html (September 1, 2012).

Cousineau, Tara M., and Alice D. Domar. 2007. "Psychological Impact of Infertility." *Best Practice & Research Clinical Obstetrics and Gynaecology* 21(2): 293-308.

Cusine. Douglas J. 1988. *New Reproductive Techniques: A Legal Perspective*. Brookfield, VT: Gower.

DeLeon, Peter, and Danielle M. Vogenbeck. 2007. "The Policy Sciences at the Crossroads." In Frank Fischer, Gerald J. Miller, and Mara S. Sidney, eds., *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. Boca Raton, FL: CRC Press.

Doan, Alesha E. 2007. *Opposition and Intimidation*. Ann Arbor, MI: University of Michigan Press.

Doan, Alesha E., and Deborah R. McFarlane. 2012. "Saying No to Abstinence-Only Education: An Analysis of State Decision-Making." *Publius* 42(4): 613-635.

Dolgin, Janet L. 1997. *Defining the Family: Law, Technology, and Reproduction in an Uneasy Age*. New York: New York University Press.

Dolgin, Janet L. 2006. "Surrounding Embryos: Biology, Ideology, and Politics." *Health Matrix* 16(27): 27-64.

Edwards, Robert. 1989. *Life Before Birth: Reflections on the Embryo Debate*. New York: Basic Books, Inc.

Engmann, Lawrence, Noreen Maconochie, Jinan S. Bekir, Howard S. Jacobs, and Seang Lin Tan. 1999. "Cumulative Probability of Clinical Pregnancy and Live Birth after a Multiple Cycle IVF Package: A More Realistic Assessment of Overall and Age-Specific Success Rates?" *BJOG: An International Journal of Obstetrics and Gynaecology* 106(2): 165-170.

Fisher, Joslyn W. and Susan M. Brundage. 2009. "The Challenge of Eliminating Cervical Cancer in the United States: A Story of Politics, Prudishness, and Prevention." *Women & Health* 49(2-3): 246-261.

Freidson, Eliot. 1970. *Professional Dominance: The Social Structure of Medical Care*, Chicago, IL: Aldine

Garrison, Jessica, Kimi Yoshino, and Catherine Ho. 2009. "Octuplets' birth spawns outrage from public: As the economy sours, many express concern over the many costs associated with the event." *Los Angeles Times*, February 7. http://articles.latimes.com/2009/feb/07/local/me-octuplets7 (September 2, 2012).

Goodwin, Michele Bratcher. 2010. "Baby Markets." In *Baby Markets: Money and the New Politics of Creating Families*, ed. Michele Bratcher Goodwin. Cambridge: Cambridge University Press.

Gordon, Linda. 2002. *The Moral Property of Women: A History of Birth Control Politics in America*. Urbana, IL: University of Illinois Press.

Grady, Denise. 2011. "Medical Nuances Drove 'No' Vote in Mississippi." *The New York Times*, November 14. http://www.nytimes.com/2011/11/15/health/policy/no-vote-in-mississippi-hinged-on-issues-beyond-abortion.html?ref=assistedreproductivetechnology (September 2, 2012).

Greil, Arthur L. 2002. "Infertile Bodies: Medicalization, Metaphor, and Agency." In *Infertility Around the Globe: New Thinking on Childlessness, Gender, and Reproductive Technologies*, eds. Marcia C. Inhorn and Frank Van Balen. Berkeley, CA: University of California Press.

Haider-Markel, Donald P. 1999. "Redistributing Values in Congress: Interest Group Influence Under Sub-Optimal Conditions." *Political Research Quarterly* 52(1): 113-144.

Haider-Markel, Donald P., and Kenneth J. Meier. 1996. "The Politics of Gay and Lesbian Rights: Expanding the Scope of Conflict." *Journal of Politics* 58(2): 332-349.

Haider-Markel, Donald P., Mark R. Joslyn, and Chad J. Kniss. 2000. "Minority Group Interests and Political Representation: Gay Elected Officials in the Policy Process." *The Journal of Politics* 62(2): 568-577.

Hall, Bob, and Mary Lee Kerr. 1991. 1991-1992 Green Index: *A State-By-State Guide to the Nation's Environmental Health*. Washington, D.C.: Island Press.

Hard, Addison Davis. 1909. "Artificial Impregnation." *Medical World* (April): 163-164.

Henig, Robin Marantz. 2004. *Pandora's Baby: How the First Test Tube Babies Sparked the Reproductive Revolution*. Boston: Houghton Mifflin Company.

Henig, Robin Marantz. 2010. "In Vitro Revelation." *New York Times*, October 5.

Herman, Harry A. 1981. *Improving Cattle by the Millions: NAAB and the Development and Worldwide Application of Artificial Insemination*. Columbia: University of Missouri Press.

Hinchliff, Sharron, Merryn Gott, and Elisabeth Galena. 2005. "'I daresay I might find it embarrassing': General practitioners' perspectives on discussing sexual health issues with lesbian and gay patients." *Health and Social Care in the Community* 13(4): 345-353.

Holbrook, Thomas M., and Emily Van Dunk. 1993. "Electoral Competition in the American States." *American Political Science Review* 87(4): 955-962.

Holbrook, Thomas M., and Raymond J. LaRaja. 2008. "Parties and Elections." In Virginia Gray and Russell L. Hanson, eds., *Politics in the American States: A Comparative Analysis*, 9th Edition. Washington, DC: CQ Press.

Ingram, Helen, Anne L. Schneider, and Peter DeLeon. 2007. "Social Construction and Policy Design." In *Theories of the Policy Process, 2nd ed*, ed. Paul A. Sabatier. Boulder, CO: Westview Press.

Inhorn, Marcia C., and Daphna Biernbaum-Carmeli. 2008. "Assisted Reproductive Technologies and Culture Change." *Annual Review of Anthropology* 37: 177-196.

Inhorn, Marcia C., and Michael Hassan Fakih. 2005. "Arab Americans, African Americans and Infertility: Barriers to Reproduction and Medical Care." *Fertility and Sterility* 85(4): 844-852.

Ka, Sangjoon, and Paul Teske. 2002. "Ideology and Professionalism: Electricity Regulation and Deregulation over Time in the American States." *American Politics Research* 30(3): 323-343.

Kingdon, John W. 2011. *Agendas, Alternatives, and Public Policies*. Boston: Longman.

Kirkpatrick, Kellee J. and Alesha E. Doan. *Forthcoming*. "Giving Girls a Shot: An Examination of Mandatory Vaccination Legislation." *Policy Studies Journal*.

Kliff, Sarah. 2012. "Five facts about the health law's contraceptive mandate." *The Washington Post*, August 1. http://www.washingtonpost.com/blogs/ezra-klein/wp/2012/08/01/five-facts-about-the-health-laws-contraceptive-mandate/ (October 12, 2012).

Kounang, Nadia. 2012. "Could 'personhood' bills outlaw IVF?" *CNN Health*, August 30. http://www.cnn.com/2012/08/03/helath/ivf-outlawed/index.html (September 1, 2012).

Kramer, Linda. 2007. "'He Looks Just Like His Dad': Long After Her Husband Died in Iraq, Maria Sutherland Has a Baby – Using Sperm He Froze Before He Deployed." *People*, September 10. http://www.people.com/people/archive/article/0,,20060250,00.html (September 1, 2012).

Lal, Meena. 1997. "The Role of the Federal Government in Assisted Reproductive Technologies." *Santa Clara Computer & High Technology Law Journal* 13(2): 516-543.

LaRosa, John. 2009. "U.S. Fertility Clinics & Infertility Services Market Tops $4 Billion, But Recession Damps Demand." *Marketdata Enterprises*, August 4. http://www.marketdataenterprises.com/pressreleases/FertilityClinicsPR-08-04-2009.pdf (October 12, 2012).

Levin, Yuval. 2008. "Public Opinion and the Embryo Debates." *The New Atlantis* 20(Spring): 46-62.

Lupton, Deborah. 1997. "Foucault and the Medicalisation Critique." In *Foucault: Health and Medicine*, eds. Alan Petersen and Robin Bunton. London, UK: Routledge.

Maestas, Cherie. 2000. "Professional Legislature and Ambitious Politicians: Policy Responsiveness of State Institutions." *Legislative Studies Quarterly* 25(4); 663-690.

Maestas, Cherie. 2003. "The Incentive to Listen: Progressive Ambition, Resources, and Opinion Monitoring among State Legislators." *Journal of Politics* 65(2): 439-456

Mamo, Laura. 2007. *Queering Reproduction: Achieving Pregnancy in the Age of Technoscience*. Durham, NC: Duke University Press.

Markens, Susan. 2007. *Surrogate Motherhood and the Politics of Reproduction*. Berkeley, CA: University of California Press.

Marsh, Margaret, and Wanda Ronner. 1996. *The Empty Cradle: Infertility in America from Colonial Times to the Present*. Baltimore: Johns Hopkins University Press.

McCaffrey, Shannon. 2009a. "'Octomom' Spawns Bills Limiting Embryo Implants." *Associated Press*, March 5.

McCaffrey, Shannon. 2009b. "Bill to Limit Embryo Implants Kicked to the Side." *Associated Press*, March 6.

McGregor, Deborah Kuhn. 1990. *Sexual Surgery and the Origins of Gynecology: J. Marion Sims, His Hospital, and His Patients*. New York: Garland.

McManus, Alison J., Lauren P. Hunter, and Hope Renn. 2006. "Lesbian Experiences and Needs During Childbirth: Guidance for Health Care Providers." *Journal of Obstetric, Gynecologic & Neonatal Nursing* 35(1): 13-23.

MedicineNet. n.d. http://www.medicinenet.com/script/main/hp.asp (October 15, 2012).

Meier, Kenneth J. 1994. *The Politics of Sin*. Armonk, NY: M.E. Sharpe.

Meier, Kenneth J. 2001. "Drugs, Sex, and Rock and Roll: A Theory of Morality Politics." In *The Public Clash of Private Values*, ed. Christopher Z. Mooney. New York, NY: Seven Bridges Press.

Mintrom, Michael, and Sandra Vergari. 1998. "Policy Networks and Innovation Diffusion: The Case of State Education Reforms." *Journal of Politics* 60(1): 126-148.

Montpetit, Éric, Christine Rothmayr, and Frédéric Varone. 2005. "Institutional Vulnerability to Social Constructions: Federalism, Target Populations, and Policy Design for Assisted Reproductive Technology in Six Democracies." *Comparative Political Studies* 38(2): 119-142.

Mooney, Christopher Z. 2000. "The Decline of Federalism and the Rise of Morality-Policy Conflict in the United States." *Publius* 30(1-2): 171-188.

Mooney, Christopher Z. 2001a. "Modeling Regional Effects on State Policy Diffusion." *Political Research Quarterly* 54(1): 103-124.

Mooney, Christopher Z. 2001b. "The Public Clash of Private Values." In *The Public Clash of Private Values*, ed. Christopher Z. Mooney. New York, NY: Seven Bridges Press.

Mooney, Christopher Z. and Richard G. Schuldt. 2008. "Does Morality Policy Exist? Testing a Basic Assumption." *Policy Studies Journal* 36(2): 169-218.

Mooney, Christopher Z., and Mei-Hsien Lee. 2000. "The Influence of Values on Consensus and Contentious Morality Policy: U.S. Death Penalty Reform, 1956-82." *The Journal of Politics* 62(1): 223-239.

Mundy, Liza. 2007. "Too Much to Carry?" *The Washington Post*, May 20. http://www.washingtonpost.com/wp-dyn/content/article/2007/05/15/AR2007051501730.html (September 10, 2012).

National Conference of State Legislatures (NCSL). 2008. "HPV Vaccine." *National Conference of State Legislatures.* http://www.ncls.org/programs/health/HPVvaccine.htm (March 5, 2008).

National Partnership for Women & Families. 2010. "Catholic Bishops work to Clarify Church Teachings On Assisted Reproductive Technology." *Medical News Today*, February 24. http://www.medicalnewstoday.com/releases/180199.php (August 16, 2012).

Norrander, Barbara, and Clyde Wilcox. 1999. "Public Opinion and Policymaking in the States: The Case of Post-Roe Abortion Policy." *Policy Studies Journal* 27(4): 707-722.

O'Dowd, Michael J. 2001. *The History of Medications for Women*. New York: Parthenon Publishing.

O'Sullivan, Colleen, and Jennifer Brandon-Christie. 2004. "Approaches to Infertility Through the Ages: You've Come a Long Way Baby!" In *Proceedings of the 13th Annual History of Medicine Days*, ed. W.A. Whitelaw. Calgary, AB: Health Sciences Centre.

Oh, Eunice. 2010. "Céline Dion Calls Pregnancy 'Physically and Emotionally Exhausting.'" *People Magazine*, May 31. http://www.people.com/people/article/0,,20390113,00.html (August 10, 2011).

Ostrom, Elinor. 2007. "Institutional Rational Choice: An Assessment of the Instututional Analysis and Development Framework." In *Theories of the Policy Process, 2nd ed*, ed. Paul A. Sabatier. Boulder, CO: Westview Press.

Ott, Kate M. 2009. *A Time to Be Born: A Faith-Based Guide to Assisted Reproductive Technologies.* Westport, CT: Religious Institute.

Padawer, Ruth. 2011. "The Two-Minus-One Pregnancy." *The New York Times*, August 10. http://www.nytimes.com/2011/08/14/magazine/the-two-minus-one-pregnancy.html?pagewanted=all (September 10, 2012).

Pfeffer, Naomi. 1993. *The Stork and the Syringe: A Political History of Reproductive Medicine*. Cambridge, U.K.: Polity.

Powell, Brian, Catherine Bolzendahl, Claudia Geist, and Lala Carr Steelman. 2010. *Counted Out: Same-Sex Relations and Americans' Definitions of Family*. New York: Russell Sage Foundation.

PRWeb. 2009. "U.S. 'Baby Business' (Infertility Services) Worth $4 Billion: New study finds temporary slump in demand, due to recession." *PRWeb*, August 17. http://www.prweb.com/releases/2009/08/prweb2750574.htm (October 1, 2012).

Rao, Radhika. 1995. "Assisted Reproductive Technology and the Threat to the Traditional Family." 47 Hastings L.J. 951.

Rochefort, David A., and Roger W. Cobb. 1994. *The Politics of Problem Definition: Shaping the Policy Agenda*. Lawrence, KS: University Press of Kansas.

Sabatier, Paul A. 2007. "The Need for Better Theories." In *Theories of the Policy Process, 2nd ed*, ed. Paul A. Sabatier. Boulder, CO: Westview Press.

Sabatier, Paul A. and Christopher M. Weible. 2007. "The Advocacy Coalition Framework: Innovations and Clarifications." In *Theories of the Policy Process, 2nd ed*, ed. Paul A. Sabatier. Boulder, CO: Westview Press.

Schneider, Anne, and Helen Ingram. 1993. "Social Construction of Target Populations: Implications for Politics and Policy." *American Political Science Review* 87(2): 334-347.

Schneider, Anne, and Helen Ingram. 1997. *Policy Design for Democracy*. Lawrence, KS: University Press of Kansas.

Scott, Sue, and David Morgan. 1993. "Introduction." In *Body Matters: Essays on the Sociology of the Body*, eds. Sue Scott and David Morgan. London, UK: The Falmer Press.

Shannon, Thomas A. and Lisa Sowle Cahill. 1988. *Religion and Artificial Reproduction: An Inquiry into the Vatican "Instruction on Respect for Human Life in Its Origin and on the Dignity of Human Reproduction."* New York: Crossroad.

Sharp, Elaine B. 2005. *Morality Politics*. Lawrence, KS: University Press of Kansas.

Shorto, Russell. 2006. "Contra-Contraception." *The New York Times*, May 7. http://www.nytimes.com/2006/05/07/magazine/07contraception.html?pagewanted=all&_r=0 (January 10, 2012).

Smith, Kevin B. 2002. "Typologies, Taxonomies, and the Benefits of Policy Classification." *Policy Studies Journal* 30(3): 379-395.

Smith, Richard A. 1995. "Interest Group Influence in the U.S. Congress." *Legislative Studies Quarterly* 20: 89-139.

Solinger, Rickie. 2000. *Wake Up Little Susie: Single Pregnancy and Race Before Roe v. Wade*. New York: Routledge.

Soss, Joe. 1999. "Lessons on Welfare: Policy Design, Political Leaning, and Political Action." *American Political Science Review* 93(2): 363-380.

Soule, Sarah A., and Jennifer Earl. 2001. "The Enactment of State-Level Hate Crime Law in the United States: Intrastate and Interstate Factors." *Sociological Perspectives* 44(3): 281-305.

Spar, Debora L. 2006. *The Baby Business: How Money, Science and Politics Drive the Commerce of Conception*. Boston: Harvard Business School Press.

Squire, Peverill. 2007. "Measuring State Legislative Professionalism: The Squire Index Revisited." *State Politics & Policy Quarterly* 7(2): 211-227.

Stein, Rob and Michelle Boorstein. 2008. "Vatican Ethics Guide Stirs Controversy." *The Washington Post*, December 13. http://www.washingtonpost.com/wp-dyn/content/article/2008/12/12/AR2008121200774.html?sub=AR (September 10, 2012).

Stoutenborough, James W. and Douglas R. Oxley. 2012. "Improving the Likelihood of Successful Policy Outcomes: A Theory of Policy Diffusion Policy Analysis." Presented at the Seventh Annual State Politics and Policy Conference, Houston.

Stoutenborough, James W., and Matthew Beverlin. 2008. "Encouraging Pollution-Free Energy: The Diffusion of State Net Metering Policies." *Social Science Quarterly* 89(5): 1230-1251.

Tatalovich, Raymond, and Byron W. Daynes. 2005. "Social Regulations and the Policy Process." In *Moral Controversies in American Policy: Cases in Social Regulatory Policy, 3rd ed.*, eds. Raymond Tatalovich and Byron W. Daynes. Armonk, NY: M.E. Sharpe.

Test Tube Babies. Directed by Chana Gazit and Hilary Klotz Steinman. 2006. Boston: Public Broadcasting Service, 2006. DVD.

Townsend, Tim. 2010. "Catholic Bishops hold fast in rejecting fertility technology." *The Washington Post*, February 20. http://www.washingtonpost.com/wp-dyn/content/article/2010/02/19/AR2010021904923.html (August 1, 2012).

Traina, Cristina, Eugenia Georges, Marcia Inhorn, Susan Kahn, and Maura A. Ryan. 2008. "Compatible Contradictions: Religion and the Naturalization of Assisted Reproduction." *Philosophy and Medicine* 98(2): 15-85.

USCCB. 2009. "Life-Giving Love in an Age of Technology." *United States Conference of Catholic Bishops*. http://www.usccb.org/beliefs-and-teachings/what-we-believe/love-and-sexuality/life-giving-love-in-an-age-of-technology.cfm (September 21, 2012).

Virginia Slims Poll 2000, May, 1999. Retrieved Nov-1-2012 from the iPOLL Databank, The Roper Center for Public Opinion Research, University of Connecticut. http://www.ropercenter.uconn.edu.www2.lib.ku.edu:2048/data_access/ipoll/ipoll.html

Volden, Craig. 2006. "States as Policy Laboratories: Emulating Success in the Children's Health Insurance Program." American Journal of Political Science 50(2): 294-312.

Walker, Jack L. 1969. "The Diffusion of Innovations among the American States." *American Political Science Review* 63(3): 880-899.

Whiteford, Linda M., and Lois Gonzalez. 1995. "Stigma: The Hidden Burden of Infertility." *Social Science & Medicine* 40(1): 27-36

Woliver, Laura R. 2002. *The Political Geographies of Pregnancy*. Urbana, IL: University of Illinois Press.

Women in Government. 2010. "A Roadmap for Success: The State of Cervical Cancer Prevention in America 2010." *Women in Government*. http://www.womeningovernment.org/oncology/hpv/state_report/2010 (June 11, 2012)

Yang, Alan S. 1997. "The Polls-Trends. Attitudes Toward Homosexuality." *Public Opinion Quarterly* 61(3): 477-507.

Zola, Irving. 1972. "Medicine as an Institution of Social Control." *Sociological Review*, 20: 487-503.

Cases Cited

A.H.W. v. G.H.B., 772 A.2d 948 (N.J. Super. 2000).

A.Z. v. B.Z., 725 N.E.2d 1051 (Mass. 2000).

Davis v. Davis, 842 S.W.2d 588 (Tenn. 1992).

Doe v. Doe, 710 A.2d 1297 (Conn. 1998).

Doe v. Roe, 717 A.2d 706 (Conn. 1998).

Gillet-Netting v. Barnhart, 371 F.3d 593 (9th Cir. 2004).

In re Baby M., 537 A.2d 1227 (N.J. 1988)

In re T.N.F., 781 P.2d 973 (Alaska 1989).

In re Witten, 672 N.W.2d 768 (Iowa 2003).

J.B. v. M.B., 783 A.2d 707 (N.J. 2001).

J.F. v. D.B., 897 A.2d 1261 (Pa. Super. Ct. 2006).

Johnson v. Calvert, 851 P.2d776 (Cal. 1993).

Kass v. Kass, 696 N.E.2d 174 (N.Y. 1998).

Litowitz v. Litowitz, 48 P.3d 261 (Wash. 2002).

Lowe v. Broward County, 766 So. 2d 1199 (Fla. Dist. Ct. App. 2000).

R.R. v. M.H., 689 N.E.2d 790 (Mass. 1998).

Roman v. Roman, 193 S.W.3d 40, 48 (Tex. App. 2006).

Stephen v. Commissioner of Social Sec., 386 F. Supp. 2d 1257 (M.D. Fla. 2005).

Surrogate Parenting Assocs. v. Commonwealth ex. Rel. Armstrong, 704 S.W.2d 209 (Ky. 1986).

Statutes Cited

FLA. STAT. § 742.17 (2007)

LA. REV. STAT. ANN. §§ 9:121-9: 133 (2007).

Mich. Comp. Laws §§ 722.851-.863 (2007).

N.Y. Law Dom. Rel. §§ 121-124 (2007).

Appendix

Table A.1: Variable Coding Scheme

Variables	Description	Coding	Source
Urban	Percent of population living in urban areas.	Percent	U.S. Census Bureau (2000)
College Education	Persons age 25 and over who have completed a bachelor's degree.	Number in 1,000s	U.S. Census Bureau (2007)
Income	Percentage of households making $200,000 or more.	Percentage	U.S. Census Bureau (2007)
Citizen Ideology	State citizen ideology for 2008.	100 = Perfectly Liberal 0 = Perfectly Conservative	Berry et al. (2010)
Legislative Professionalism	Percentage of professionalism of a state legislature compared to that of Congress in 2003.	Percentage	Squire (2007)
GLBT Equality	Measurement of equality based on a variety of factors.	3 = High 2 = Medium 1 = Low	Movement Advancement Project (2011)
Out Officials	Number of "out" elected officials within a state.	Raw Number	Movement Advancement Project (2011)
Women Legislators	Percentage of women legislators per state legislature.	Percentage	U.S. Census Bureau (2008); National Conference of State Legislators (2008)
Catholic	Rates of adherents per 1,000 population.	Rate per 1,000	The Association of Religion Data Archives (2000)
Evangelical	Rates of adherents per 1,000 population.	Rate per 1,000	The Association of Religion Data Archives (2000)
Number of Clinics	Number of clinics per state.	Number of Clinics	Centers for Disease Control (2008)
Cryopreservation	Number of fertility clinics in a state that offer cryopreservation of embryos.	Raw Number	Centers for Disease Control (2008)

Table A.1: Variable Coding Scheme (Continued)

Variables	Description	Coding	Source
Donor Egg	Number of fertility clinics in a state that offer donor eggs.	Raw Number	Centers for Disease Control (2008)
Donor Embryo	Number of fertility clinics in a state that offer donor embryos.	Raw Number	Centers for Disease Control (2008)
Single Women	Number of fertility clinics in a state that offer treatment for single women.	Raw Number	Centers for Disease Control (2008)
Surrogacy	Number of fertility clinics in a state that offer surrogacy as a treatment option.	Raw Number	Centers for Disease Control (2008)