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The Impact of Restricting Abortion Funding on the Infant Mortality Rate

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Abstract

Health data indicates that there is a large discrepancy between the infant mortality rate among different racial groups. Research attributes this disparity to unequal access to health care and services, but the literature defining this relationship has been ultimately inconclusive. This paper expands on past literature by exploring a relationship between state funding for Medicaid through abortion services and infant mortality rate. My results show that limiting funding for abortion services has a much greater impact on the health of black infants than white infants, as this policy increases the black infant mortality rate by 2.214 ($p < 0.01$) and only increases the white infant mortality rate by .657 ($p<0.01$). Further research needs to be done on the potential for an implicit racial bias in the Medicaid program.

1. Introduction

Health research indicates that there is a significant discrepancy in the infant mortality rate (IMR) among different racial and ethnic groups. This gap has existed since data collection on IMR began nearly 100 years ago, and over time has only increased (MacDorman & Mathews 2011). The widening gap in IMR has occurred despite the significant advances in medical technology and understanding, as well as the increase in equality between racial and ethnic groups (MacDorman & Mathews 2011). While this suggests that there is unequal access to medical services for different racial groups, the literature explaining a clearer correlation is lacking (MacDorman & Mathews 2011).

This main purpose of this paper is to explore the relationship between healthcare accessibility and the infant mortality rate among different racial groups, specifically the IMR for non-Hispanic white and non-Hispanic black women. This paper expands on past literature by utilizing the state's abortion restriction requirement as an indicator of how that state values healthcare through the Medicaid program as well as abortion services. Abortion data was compiled between the years 2006-2010 from the Center for Disease Control and the Guttmacher Institute. Additional controls indicating each state's poverty level and educational attainment were included using IPUMS data. The results indicate that limiting funding for abortion has a significantly greater impact on the health of children born to black women than the health of children born to white women. This is potentially due to implicit bias against blacks within the Medicaid program. These results have obvious important policy implications regarding women's reproductive health.

This paper follows a relatively straightforward structure: Section 2 gives background information on abortion legalization, the Medicaid program, and the infant mortality rate as well

as the importance of considering the infant mortality rate as an economic health indicator. Section 3 gives a brief summary on the past literature for these topics. Section 4 gives an explanation of data collection methods as well as summary statistics. Section 5 discusses the theoretical considerations, and the predicted impact of each variable. Section 6 describes the methodology of the model followed by the results and limitations in Section 7, and the final thoughts and conclusions in Section 8.

2. Background

i. Abortion Legalization and Medicaid

According to the Guttmacher Institute, about half of all women will have an unintended pregnancy, and nearly three in ten women will have an abortion by the age of 45 ("Abortion in the United States"). Despite the significant demand for abortion, the stigmatized nature of the subject leaves its discussion taboo. The Supreme Court case *Roe v. Wade* (1973) was the first significant public acknowledgment of the need to regulate and legalize abortion, which deemed any state law that restricted access to abortion in the first trimester unconstitutional, allowing a woman to terminate a pregnancy for any reason during this time (*Roe v. Wade*, 1973).

While *Roe v. Wade* immediately gave women access to safe abortion practices, its vague specifications on the process of actually obtaining an abortion resulted in varying state backlash. The controlling case today, *Casey v. Planned Parenthood*, upheld the *Roe v. Wade* ruling but added that states can impose restrictions as long as it does not impose an undue burden on the woman. The phrase "undue burden," is defined as a "substantial obstacle in the path of a woman seeking an abortion before the fetus attains viability" (*Casey v. Planned Parenthood*, 1991). This definition does not provide an objective platform and as a result states gained substantial power in implementing their own abortion restrictions.

In 1965, just eight years prior to the legalization of abortion, the Medicaid program was signed in to law in order to provide healthcare to low-income and disabled individuals. As reported by the Henry J. Kaiser Family Foundation, today Medicaid funds "nearly half of all births in the US, [and] accounts for 75% of all publicly funded family planning services" and thus is an important component to women's reproductive health ("Women's Health Insurance Coverage" 2016). However, in 1976, just three years after *Roe v. Wade,* the Hyde Amendment was passed which prohibits Medicaid from covering abortion services except in cases of life endangerment, rape and incest (Boonstra & Sonfield 2000). The Hyde Amendment was one of the most significant policies in favor of pro-life states and individuals, yet even afterwards, funding for abortions continued to be restricted. Although Medicaid is a joint state-federal insurance program, in *Harris v. McRae* (1980), the Supreme Court ruled that the federal government is not obligated to pay for Medicaid abortions, which left the public funding of abortions to the discretion of each state (*Harris v. McRae,* 1980).

Today, some states fund abortions only as defined by the Hyde Amendment, and thus only fund abortions in cases of life endangerment, rape or incest. Other states have eased abortion access by allowing state funding to cover "most medically necessary abortions**"** ("State Policies in Brief" 2016).

Additionally, the abortion rate among different races is notable. In 2008, the rate of abortions was 11 per 1,000 non-Hispanic white women and 50 per 1,000 black women **(**Henshaw & Kost 2008**).** Guttmacher theorizes that a difference in birth control methods, pregnancy and childbearing explains this distinction (Henshaw & Kost 2008).

ii. *Infant Mortality*

Infant death is defined as an infant who dies before his or her first birthday, and thus the infant mortality rate (IMR) is defined as the number of infant deaths per 1,000 live births. Infant mortality is an important indicator of a nation's health, as infant health indicates level of maternal health, the quality of public health training and practices, ease of access to healthcare, and a woman or family's socioeconomic conditions (MacDorman & Mathews 2008). The IMR in the United States has been a cause for concern as it has been unusually higher than other developed countries. For comparison, in 2015, the United States was ranked 27th internationally for the lowest IMR with an estimate of 5.87 deaths per 1,000 live births. Monaco was ranked first with an IMR of 1.82, and Afghanistan was ranked last with an IMR of 115.08 (Central Intelligence Agency 2015). While the US IMR has decreased substantially throughout the 20th century — down from 100 infant deaths per 1,000 live births in 1900 — there is still concern and uncertainty as to why the IMR did not decline between 2000 and 2005, and continues to be higher than other similar countries (MacDorman & Mathews 2008). This 2000-2005 plateau was the first IMR plateau since the 1950s. As a result, the US international ranking has fallen from 12th in 1960 to its current ranking of 27th (MacDorman & Mathews 2008). The CDC has cited improvements in medical care as the main driver of the overall decrease in IMR ("Achievements in Public Health" 1999). However, there is a large discrepancy in the IMR between different races and ethnicities. In 2005, the average IMR for non-Hispanic white women in the US was 5.76, while the average IMR for non-Hispanic black women was 13.63 (MacDorman & Mathews 2008). While the CDC hypothesizes this difference to be attributed to "pre-term and low birth weight delivery, socioeconomic status, and access to medical care", an explanation for the

magnitude of the difference remains largely unexplained by the literature (MacDorman & Mathews 2008).

3. Literature Review

There are many factors to consider when discussing characteristics that impact infant health. Since this paper focuses on Medicaid, we must consider how a pregnant woman's ease of access to Medicaid impacts her involvement in vital services during pregnancy. This includes services such as prenatal care, as well as her ease of access to abortion services if the pregnancy was unplanned or there are health risks for her or the baby. Access to prenatal care has been shown to improve infant health, and funding limitations for abortion services have forced women to carry their children to term. The following are studies that indicate the relationship between Medicaid accessibility, abortion services, and infant mortality.

The literature concerning Medicaid as it relates to the infant mortality rate mainly concerns a state's overall Medicaid expenditures, rather than how they utilize Medicaid specific to abortion procedures. An economic paper published in 1980 by Grossman & Jacobowitz analyzed the impact of Medicaid, subsidized family planning services for low-income women, maternal and infant care projects, and the legalization of abortion on the neonatal mortality rate between the years 1970-1972. Although abortions were legalized nationwide with Roe v. Wade in 1973, some states had already liberalized their abortion laws by then. Their results concluded that, of the variables mentioned, the increase in the legal abortion rate was the most important factor in reducing white and nonwhite neonatal mortality rates (Grossman & Jacobowitz 1981). A later study by Currie & Grogger (2001) examined how the increase in stringent income cutoffs for Medicaid eligibility counteracted the measures taken by each state to encourage use of

prenatal care. They concluded that an increase in welfare use, and thus an increase in prenatal care, is associated with a decrease in infant mortality. These results cannot speak to whether or not the decrease in infant mortality was due to increased access to lifesaving technologies, or increased prenatal care use (Currie & Grogger 2001).

Regarding the composition of people who utilize abortion services, Donohue & Levitt (2000) concludes that teenagers, unmarried women and poor women are most likely to have untimely or unwanted pregnancies, and that a "large proportion" of these will be terminated through abortion. When women are unable to access abortion, these unwanted pregnancies are more likely to receive "poorer prenatal care, greater smoking and drinking during pregnancy, and lower birth weights" (Donahue & Levitt 2000). There is a growing body of evidence that suggests it can be challenging to actually obtain Medicaid funding for abortion, even if the woman qualifies. A study published in 2013 investigated the efficiency of Medicaid in terms of how it translates into actual abortion procedure coverage (Dennis & Blanchard 2013). The study interviewed abortion clinic and hospital employees in ten states that limited funding to rape, incest, or life endangerment (Hyde Amendment restrictions), and five states with less restrictive funding. Their findings concluded that of the states that limited funding as defined by the Hyde Amendment, 46% of "Hyde-qualifying cases" were not reimbursed by Medicaid. Additionally, states with less restrictive abortion requirements did not reimburse 38% of medically necessary abortion cases (Dennis & Blanchard 2013). Another study utilized an anonymous caller approach to Medicaid staff in order to gather information on their understanding of how Medicaid funding for abortions worked. They found, overall, inconsistent reporting from within states on their state's current policy (Dennis & Blanchard 2011).

While these two studies did not incorporate race as a part of their analyses, there is literature that indicates that health treatment varies depending on your race for the same medical conditions. This is what is referred to in the literature as an "implicit bias" from the health care provider. A study conducted by Hall et. al (2015) identifies implicit bias to be a result of "thoughts and feelings that often exist outside of conscious awareness, and thus are difficult to consciously acknowledge and control." After analyzing 15 studies that utilized the Implicit Association Test (IAT) and sampled health care providers or health care providers in training, "low to moderate levels of implicit racial/ethnic bias were found among health care professionals in all but 1 study" (Hall et. al 2015). This bias was shown to impact treatment decisions and patient health outcomes (Hall et. al 2015). Another study by Green et. al (2007) analyzed how implicit bias impacts a physicians decision about treatment for a specific health outcome, thrombolysis. The authors utilized an online survey for physicians that described patient's characteristics and symptoms, followed by three Implicit Association Tests. The authors found that although the physicians did not personally report a preference for white or black patients, their survey results indicated an implicit bias in favor of white individuals and that they view black individuals as less cooperative, both at a statistically significant level. Additionally, as their implicit bias in favor of whites increased, their likelihood of treating white patients over black patients with the same medical condition, thrombolysis also increased (Green et. al 2007).

Some studies focused less on the factors specific to healthcare access and utilization, and focused more on characteristics of a country that impact infant health. A comprehensive study by Asandului et. al. (2014) analyzed the relationship between the infant mortality rate and several economic and social factors for eight Central European Countries from the European Union. These countries were evaluated because of their abnormally high infant mortality rate relative to

the European Union 27 average, as well as their similar socioeconomic background and demographics. Their study took into account independent variables such as GDP growth rate, public health expenditure, average age of female at first birth, and abortion rate (the number of abortions per 1000 women of fertile age). Using a panel model with infant mortality rate fixed effects, they found that health expenditures did not impact infant mortality rate at a statistically significant level, a result consistent with the literature that health expenditures do not impact health outcomes. They did conclude, however, that the health spending did indirectly impact the economic and social factors, both of which had a statistically significant impact on infant mortality (Asandului et. al 2014).

4. Data Description and Summary Statistics

Abortion restriction data were obtained from the Guttmacher Institute. The Guttmacher Institute is now in its fifth decade of collecting data, researching, and analyzing policy restrictions regarding sexual and reproductive health. After getting in contact with Guttmacher directly, I obtained abortion restriction data by state between the years 2006 and 2010. 2006 was used as the initial year because it was the earliest that Guttmacher had kept track of the specific restrictions by state in a single document. Overall there are nine categories of abortion restrictions, all of which can be seen in Table 1, but only one is included in this analysis. It is important to note that although Guttmacher indicates if the law was in effect, data on the level of actual enforcement is not available.

Infant mortality data were obtained through the Vital Statistics Cooperative Program of the Center for Disease Control and Prevention's National Center for Health Statistics. This data was collected for each state between the year 2006-2010, by recording data obtained from death certificates compiled from funeral directors, attending physicians, medical examiners and

coroners. The infant mortality rate specific to non-Hispanic black women is also compiled and included in this analysis.

While the CDC also collects demographic and socioeconomic characteristics of both the mother and father such as income and education levels during pregnancy, no geographic identifier is available past the year 2005. Therefore, IPUMS data was utilized to measure education and poverty by state and year. The college variable represents the percent of the state population that have completed four or more years of college. Income is represented by the Medicaid variable, which represents the percent people who are living at or below 133% of the poverty line and therefore qualify for Medicaid.

Both the Guttmacher Institute and the Center for Disease Control provide annual abortion data. However, Guttmacher Institute does not provide consistent data between the years of interest, 2006-2010. When reporting state trend data such as the residential abortion rate as well as overall abortion frequency, Guttmacher omitted the years 2006 and 2009. Thus, the resident abortion ratio by state was compiled using Center for Disease Control Abortion Surveillance Surveys between the years 2006-2010. Data collection and submission were provided by the central health agencies in the 50 states. However, there is no national requirement and data submission is voluntary. As a result, while CDC has more detailed information than Guttmacher for all years between 2006-2010, individual state reporting remains inconsistent. This can be seen in the summary statistics table (Table 2).

Table 2. *Summary Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
statefip	250	29.32	15.65	1	56
year	250	2008	1.42	2006	2010
IMR	250	6.63	1.29	3.75	10.6
IMRwhite	249	5.59	0.85	3.26	7.98
IMRblack	177	13.19	2.74	6.35	28.57
LimitedFunds	250	0.66	0.47	0	1
Medicaid	250	19.36	3.99	11.80	31.33
CollegeGrad	250	19.54	3.85	12.75	30.14
ResidentRatio	222	188.41	81.88	64	488

The summary statistics display the stark contrast in the infant mortality rate among whites and blacks. Between the years 2006-2010, infants born to black women had, on average, 7.61 more infant death per 1,000 live births than infants born to white women. However, several states do not record the IMR for the black population, so there are several data points missing for that calculation. *Medicaid* represents the percent of the state population that qualify for the Medicaid program based on their income level, and *CollegeGrad* represents the percent of the population that have four years of college or more. Looking at the minimum and maximum points for these on the summary statistics table display how the socioeconomic composition of each state is vastly different and emphasizes the importance of including these characteristics as controls in the model. Observing the number of observations for the *ResidentRatio* variable portrays the lacking abortion reporting by state.

5. Theoretical Considerations

Infant mortality is a powerful indicator of women's health and economic development in a country (Asandului et. al 2014). The relationship between Medicaid spending, abortion restrictions, and infant mortality rate is the main focus of this paper; the following are the theoretical considerations predicting the relationship between these variables.

i. Abortion Funding Restrictions and Resident Ratio Control

When discussing the out-of-pocket monetary cost of an abortion in the United States, a woman considers the different costs imposed as a result of varying state requirements. The most obvious out-of-pocket monetary cost of an abortion is the cost of the actual procedure. Funding for abortion differs by state, and in 2010, the last year of interest in this study, 32 states limited their funding as restricted by the Hyde Amendment, and 17 states funded all or most medically necessary abortions ("State Policies In Brief" 2010). An exception is South Dakota, with the most restrictive funding policy, which restricts abortion funding to life-threatening conditions.

The number of resident abortions per 1,000 live births is incorporated in order to control for abortion culture in each state, as well as additional monetary costs such as the cost of getting to the clinic or hospital. Having a child when a woman is not ready potentially restricts her long-term socioeconomic success, and there are several situations when a woman may consider herself "not ready." If the pregnancy occurs while the mother is still in school or has not yet attended school, a child increases the difficulty of educational attainment, which decreases the likelihood of higher income. An employed woman faces the opportunity cost of foregone income as a result of maternity leave or the direct cost of daycare. Lastly, regardless of educational attainment, there are potential long-term psychological effects of obtaining an abortion due to the

shame as a result of the cultural stigma. If a woman has a planned pregnancy and is considering abortion, it is assumed that this consideration is a result of discovering a life-threatening consequence of carrying the child to term, or discovering a particular health condition of the child. The former example cannot be ignored within this model, as it is not uncommon and would certainly impact infant mortality rate if the abortion were not attainable. While the woman compares the costs just mentioned to the cost of the abortion, this normative analysis does not account for the differing cultural stigmatization by state. A state with a more stigmatized abortion culture will likely have a lower abortion ratio, since a higher level of cultural stigma surrounding abortion within a state will discourage the decision to get an abortion and increase the number of pregnancies carried to term. I predict that this control will have an inverse relationship to the infant mortality rate, with more abortions leading to a lower infant mortality rate.

ii. Medicaid Restrictions

Before applying for government health care coverage, a woman must consider the benefits of participating in Medicaid and whether or not that outweighs the time and effort required to apply. Ease of access to Medicaid will also increase a woman's ability to obtain prenatal care, which likely increases infant health. In this model, a state's emphasis on the importance of Medicaid is controlled through their decision to fund most medically necessary abortions.

The Medicaid qualifier indicator represents the poverty distribution by state. The cutoff for Medicaid qualification was used to represent the efficiency of the Medicaid system. If Medicaid is easily accessible and a simple process, then theoretically, a population with more people who qualify for Medicaid should also indicate more people who are on Medicaid using

their services. This increases the likelihood of a woman within that state to utilize prenatal care services as well as the overall health of the population, and thus decreases infant mortality. Additionally, a state that funds all or most medically necessary abortions may have more efficient and accessible services, and will be more likely to accommodate for other services. Thus, a state that has decided to fund most medically necessary abortions should have better infant health outcomes, and therefore lower IMR.

A variable indicator for level of education is included and is predicted to have an inverse relationship with infant mortality rate, as more educated mothers are more likely to be knowledgeable on the importance of prenatal care. If the woman does not have access to prenatal care, then an educated woman still is likely to be more aware of the impact of smoking, drinking, using illegal drugs, and poor diet on infant health, and will be more likely to abstain from such habits.

6. Methodology

Using panel data by state and year for the years 2006-2010, the model used is a simple linear regression model with the infant mortality rate as the dependent variable. The main policy variable of interest is the limited funds variable, which equals 1 if the state limits funds to rape, incest, or life endangerment, as defined by the Hyde Amendment and 0 if a state funds all or most medically necessary abortions. Year fixed effects were used to control for the unobservable factors that might simultaneously impact the infant mortality rate and explanatory variables across time. Thus, the main regression of interest is:

$$IMR_{st} = \alpha + \beta LimitedFunds_{st} + +Y_t + \varepsilon \quad (1)$$

where s denotes an observation for each state, and thus |S|= 50

where t denotes the time-series dimension, representing 2006-2010, and thus |T|= 5

Y_t indicates year fixed effects.

The policy variable *LimitedFunds* does not change during the time period of interest, so state fixed effects were not controlled for. However, I include *Medicaid, CollegeGrad,* and *ResidentRatio* as controls to help reduce confounding factors at the state-year level, as past literature has shown these controls to have an impact on infant health.

$$IMR_{st} = \alpha + \beta_1 LimitedFunds_{st} + \beta_2 Medicaid_{st} + \beta_3 CollegeGrad_{st} + \beta_4 ResidentRatio_{st} + Y_t + \varepsilon \quad (2)$$

where s denotes an observation for each state, and thus |S|= 50

and t = the time-series dimension, representing 2006-2010, and thus |T|= 5

The last model explored in this analysis is the impact of these controls on the infant mortality rate for the white and black population. The regression is the same except with a new dependent variable:

$$IMRwhite_{st} = \alpha + \beta_1 LimitedFunds_{st} + \beta_2 Medicaid_{st} + \beta_3 CollegeGrad_{st} + \beta_4 ResidentRatio_{st} + Y_t + \varepsilon \quad (3)$$

$$IMRblack_{st} = \alpha + \beta_1 LimitedFunds_{st} + \beta_2 Medicaid_{st} + \beta_3 CollegeGrad_{st} + \beta_4 ResidentRatio_{st} + Y_t + \varepsilon \quad (4)$$

t = the time series dimension, representing 2006-2010, and thus |T|= 5.

However, due to data availability by state |S| ≠ 50

7. Results

The results for regression (2) can be seen in Table 3. After including all control variables as well as year fixed effects, my results indicate that a state that limits funding for abortion to only Hyde-qualifying cases increases the infant mortality rate by 1.023 per 1,000 live births. Before controlling for year fixed effects (Extension 4), each control is statistically significant, and the *LimitedFunds* remains statistically significant ($p<0.01$) and relatively consistent in magnitude. Adding year fixed effects only causes the *CollegeGrad* control to become statistically insignificant, while *Medicaid* and *ResidentRatio* remain significant and the interest variable, *LimitedFunds,* continues to be both statistically and economically significant.

When we partial out the infant mortality by race, we get different results. The full results can be seen in Table 4 and Table 5, but for discussion I will be analyzing Table 6, which displays the key results side by side. In Table 6, I eliminated the states that did not have black IMR data for comparison purposes. While both cohorts are impacted by limited funds to abortion services in the base model, the end result is strikingly different. The final regression indicates that the white IMR is .657 ($p<0.01$) higher in states that limit funding for abortion services, however, the black IMR is 2.214 deaths higher per 1,000 live births higher in states that limit funding to abortion restrictions compared to states that fund all or most medically necessary abortions. Additionally, increasing the Medicaid population results in worse health outcomes for white infants, and increasing the abortion resident ratio improves health outcomes for black infants.

These results are striking, and a possible explanation is not immediately obvious. It is important to remember that while the *LimitedFunds* variable was 1 for states that limited funding for Hyde-qualifying abortion cases, and 0 for states that funded "all or most medically necessary abortions." In both instances, state funding is restrictive and women can be denied funding in

both cases. Consistently, black women obtain more abortions than white women, so there is not immediate indication that black women are denied funding more often than white women or are less likely to seek abortion services. Theoretically, if a black and a white woman have the same qualifications, then both should either be denied or approved for Medicaid funding. However my results may indicate otherwise. Since there is no data on how many women attempt to attain an abortion and are denied, my following argument is speculative. Since more black women obtain abortions than white, it is also likely that more black women are denied abortions than white women. Within this model, a woman can be denied an abortion for both specifications of the *LimitedFunds* variable (if *LimitedFunds* is either 0 or 1). The decision to deny funding is up to the discretion of the physician. My results suggest that white women are proportionally more likely to be approved funding for Hyde-qualifying cases than black women, which implies the potential for an implicit bias issue within Medicaid. If this is true, then a black woman who is denied Medicaid for her abortion is also likely to have increased difficulty in obtaining prenatal care through Medicaid, which has shown to have a statistically significantly detrimental impact on infant health. Additionally, past research by Donohue & Levitt (2000) indicate that women who carry unwanted pregnancies to term are also more likely to engage in unhealthy and careless habits such as drinking and smoking. Thus, the consequences of the potential for implicit bias within the Medicaid program create a synergistic effect on prenatal health habits of black women, and therefore decreased infant health outcomes.

i. *Limitations and Expansions*

While meaningful results can be obtained from these regression results, it is important to identify the limitations of the model. The most obvious is the relatively small number of

observations in each regression due to data restrictions. The small time interval is a result of two data sources, as Guttmacher does not provide abortion restriction data prior to 2006, and the CDC does not provide infant mortality data linked to states after 2010. Even within this time frame there are data gaps. Since reporting for abortion data is not required there is no data for several states, which is why there is a gap in the observations when I add in the control for the abortion ratio. Additionally, there is a large discrepancy between the number of observations between the different race regressions. This is because many states do not report the black infant mortality rate. Additional data limitations included the inability to use datasets that recorded the use of prenatal health care by women because geographic location is not linked after 2005. Lastly, Medicaid in practice varies substantially by state and my oversimplified model may not have captured this fact. My results leave room for further research on this topic, although expansions may be limited due to data limitations. However, further research and data compilation can be done to investigate the differing treatment among different racial groups within the Medicaid system.

8. Conclusion

This paper attempts to find a relationship between infant mortality, Medicaid, and abortion restrictions and how this relationship differs among different racial groups. Historically, there has been a significant discrepancy in the infant mortality among different racial groups. This discrepancy has continued despite advancements in medical technology and medical understanding. While it has been attributed to differences in birth control methods, pregnancy, and childbearing, the explanation for this is largely not understood. Using data from Guttmacher, CDC, and IPUMS, I run a simple linear regression model and find a statistically significant impact between restricting funding for abortion on the black infant mortality rate. My results indicate that states with restrictive abortion policies increase IMR for black women by 2.214 infant deaths per 1,000 live births. As there is no literature that can indicate exact cause for this result, I theorize that it is as consequence of implicit bias in favor of white individuals in the Medicaid system. This result lays the foundation for further investigative research to be conducted

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Table 1. Explanation of Abortion Restrictions in 2010

Abortion Restriction	**Description**
Physician Laws	38 states require the abortion procedure to be performed by a licensed physician; 19 states require a second physician to be present after a certain point in time in the pregnancy.
Hospital Laws	19 states require the abortion to be performed in a hospital instead of a clinic after a certain point in time in the pregnancy.
Life or Health Endangerment	38 states prohibit the abortion to be performed at all unless in instances of life or health endangerment after a certain point in time of the pregnancy.
Partial Birth Abortion	12 states have banned partial birth abortion completely, 4 states have banned partial birth abortion postviability
Public Funding of Abortion	32 states limit funding to life endangerment, rape and incest. 17 states fund all or most medically necessary abortions.
Providers May Refuse to Participate	46 states allow for an individual provider to participate, 43 states allow an institution to refuse to participate for any or religious reasons.
Mandated Counseling	After an initial consultation, an institution may be required to give the woman information on the link between abortion and breast cancer, alternative options to abortion, and/or the fetus's ability to feel pain
Waiting Period	24 states have a waiting period requirement after the initial consultation and abortion procedure.
Parent Involvement Required for Minors	34 states have either parental notification or parental consent laws for minors obtaining an abortion.

Source: Guttmacher Institute State Policies in Brief

Table 3. *Regression (2) results*

VARIABLES	(1) IMR	(2) IMR	(3) IMR	(4) IMR	(5) IMR	(6) IMR	(7) IMR	(8) IMR
LimitedFunds	1.219***	0.944***	0.878***	0.993***	1.219***	0.895***	0.942***	1.023***
	(0.155)	(0.145)	(0.158)	(0.153)	(0.153)	(0.136)	(0.149)	(0.144)
Medicaid		0.130***	0.117***	0.128***		0.154***	0.165***	0.174***
		(0.0172)	(0.0215)	(0.0212)		(0.0166)	(0.0218)	(0.0215)
CollegeGrad			-0.0255	-0.0747***			0.0187	-0.0232
			(0.0243)	(0.0282)			(0.0240)	(0.0282)
ResidentRatio				0.00352***				0.00269***
				(0.00105)				(0.00101)
Constant	5.824***	3.482***	4.287***	4.249***	6.025***	3.335***	2.744***	2.677***
	(0.126)	(0.329)	(0.833)	(0.813)	(0.190)	(0.335)	(0.829)	(0.810)
Year FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	250	250	250	222	250	250	250	222
R-squared	0.199	0.350	0.353	0.452	0.238	0.436	0.437	0.528

Table 4. *Regression (3) results*

VARIABLES	(1) IMRwhite	(2) IMRwhite	(3) IMRwhite	(4) IMRwhite	(5) IMRwhite	(6) IMRwhite	(7) IMRwhite	(8) IMRwhite
LimitedFunds	0.806***	0.622***	0.481***	0.507***	0.804***	0.584***	0.522***	0.527***
	(0.102)	(0.0937)	(0.100)	(0.106)	(0.0985)	(0.0853)	(0.0929)	(0.0978)
Medicaid		0.0885***	0.0597***	0.0753***		0.106***	0.0916***	0.110***
		(0.0111)	(0.0136)	(0.0147)		(0.0104)	(0.0136)	(0.0146)
CollegeGrad			-0.0541***	-0.0451**			-0.0248*	-0.00763
			(0.0153)	(0.0195)			(0.0150)	(0.0191)
ResidentRatio				0.000452				-0.000137
				(0.000729)				(0.000683)
Constant	5.054***	3.460***	5.168***	4.581***	5.177***	3.310***	4.094***	3.390***
	(0.0828)	(0.214)	(0.528)	(0.563)	(0.124)	(0.211)	(0.517)	(0.551)
Year FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	249	249	249	221	249	249	249	221
R-squared	0.203	0.366	0.396	0.399	0.264	0.485	0.491	0.501

Table 5. *Regression (4) Results*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	IMRblack	IMRblack	IMRblack	IMRblack	IMRblack	IMRblack	IMRblack	IMRblack
LimitedFunds	2.533***	2.851***	2.133***	2.216***	2.536***	2.643***	2.180***	2.214***
	(0.370)	(0.421)	(0.464)	(0.514)	(0.355)	(0.410)	(0.456)	(0.501)
Medicaid		-0.0721	-0.168***	-0.161***		-0.0242	-0.0991*	-0.0859
		(0.0462)	(0.0536)	(0.0564)		(0.0463)	(0.0569)	(0.0592)
CollegeGrad			-0.203***	-0.146**			-0.140**	-0.0680
			(0.0616)	(0.0716)			(0.0634)	(0.0733)
ResidentRatio				-0.00469*				-0.00590**
				(0.00283)				(0.00278)
Constant	11.29***	12.47***	18.87***	18.45***	12.04***	12.43***	16.87***	16.50***
	(0.313)	(0.818)	(2.102)	(2.174)	(0.442)	(0.860)	(2.177)	(2.223)
Year FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	176	176	176	158	176	176	176	158
R-squared	0.212	0.223	0.269	0.289	0.293	0.294	0.314	0.343

Table 6. *Comparison Table*

	Base Model		Control Model	
VARIABLES	IMRwhite	IMRblack	IMRwhite	IMRblack
LimitedFunds	0.666***	2.216***	0.657***	2.214***
	(0.138)	(0.514)	(0.127)	(0.501)
Medicaid	0.0592***	-0.161***	0.0907***	-0.0859
	(0.0154)	(0.0564)	(0.0153)	(0.0592)
CollegeGrad	-0.0370*	-0.146**	-0.00749	-0.0680
	(0.0195)	(0.0716)	(0.0190)	(0.0733)
ResidentRatio	-4.79e-05	-0.00469*	-0.000400	-0.00590**
	(0.000743)	(0.00283)	(0.000691)	(0.00278)
Constant	4.751***	18.45***	3.752***	16.50***
	(0.585)	(2.174)	(0.568)	(2.223)
Year FE	No	No	Yes	Yes
Observations	162	158	162	158
R-squared	0.480	0.289	0.571	0.343