Demographics and the Insurance Decision: Examining the effect of Section 2001(a) temporally among demographics.

by

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Abstract

This thesis analyzes the impartiality of the policy effect of Section 2001(a) of the Patient Protection and Affordable Care Act ("ACA"). Section 2001(a) amended the Social Security Act expanding Medicaid eligibility to those making up to 138% of the federal poverty line. To do so, this thesis focuses on the population making 100-138% of the federal poverty line and four different groups of states. These groups were non-expansion states (states where Medicaid was never expanded under Section 2001(a) of the ACA), traditional expansion states (states where Medicaid was expanded as intended by Section 2001(a) (i.e. *beginning on January 1, 2014*)), and two groups of "delayed expansion" states: 2015-expansion states, and 2016 expansion states.

The research questions which this paper addresses are:

1. Were certain groups or demographics of the population in the 100-138% of the Federal Poverty Level effected differently by the Medicaid expansion policy of the ACA under Section 2001(a)?
2. Did a state's temporal decision to expand Medicaid result in a substantial difference between the same demographic in a different group of states?
3. If either of the previous two questions are answered in the affirmative, did certain demographics behave differently across groups with respect to Medicaid participation?

I find the legislative action of Section 2001(a) affected no demographic significantly differently than another. I also find that there is no substantial difference in Medicaid adoption between groups depending on expansion date if a state expanded Medicaid. In my findings, there is a puzzling trend occurring in the black and Hispanic demographics in delayed expansion states. These two demographics have decreases in the proportion occurring post-implantation in delayed expansionary environments. It is a puzzling trend I observe only occurs in the delayed expansion groups and only in the black and Hispanic demographics. I offer a specific explanation to why this may happen.

Acknowledgements

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I thank my friends for their support in completing and pursing this endeavor. These types of assignments are not easy, and my friends were great resources for ideation and relaxation throughout this process.

I dedicate this thesis to my sister, Lauren. Your brilliance and devotion to your education inspires me.

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Introduction

An overview of the History of Health Insurance in the United States

The contemporary history of health insurance in the United States is a complex and unique story that dates back to the country's post World War II days in the late 1940s. At the beginning of the Cold War, President Truman convened a council of his most trusted advisors to draft a plan for universal health care as part of his large post war legislative initiative called the Fair Deal (Geselbracht, 1999). Push back prevented this portion of the legislation from passing; thus, corporate sponsored health insurance as it is known in the United States materialized. Moreover, the structurally integrated large health insurance business of the American economy as seen today came to be in 1951 when the Internal Revenue System revised codes that allowed firms that sponsored health insurance premiums on behalf employees as "benefits" to classify these expenses as tax-deductions on their filings with the IRS (Geselbracht, 1999).

The legislative history of universal health care coverage in the United States had some significant developments through the latter half of the 20th Century especially in the Clinton era when, in 1993, then First Lady and later Secretary of State, Hillary Clinton spearheaded the campaign for the Clinton Health Care Plan. This plan was similar in its goals to Truman's original Fair Deal proposition for universal health care coverage by a mechanism of mandatory enrollment in health insurance subsidized by the federal and state governments (Moffitt, 1993).

During the Bush era, several reforms to health insurance in the United States were attempted; however, they pale in comparison to the overhaul of United States federal law that would come under President Obama in 2010 with the passage of the Affordable Care Act (hereafter "ACA" or "Obamacare").

The Affordable Care Act

The ACA was passed in 2010 and was a massive overhaul of with the primary purpose of expanding health insurance for those not insured in the private markets, Medicare, or Medicaid. The legislative mechanisms to achieve this expansion can be boiled down to three major actions (HealthCare.gov, n.d.). They are as follows:

1. Allow children to qualify for coverage on their parent's plans until age 26.
2. Raise the threshold for Medicaid income qualification to 138% of the Federal Poverty Level.
3. The issuance of tax credits for private insurance by way of a federal exchange for families making up to 400% of the Federal Poverty Level.

The legislative success of Obamacare has been hotly debated in political circles. A behemoth of academic and industry research around the mechanisms aforementioned have been formed and the literature on the subject is developing and grows more voluminous daily.

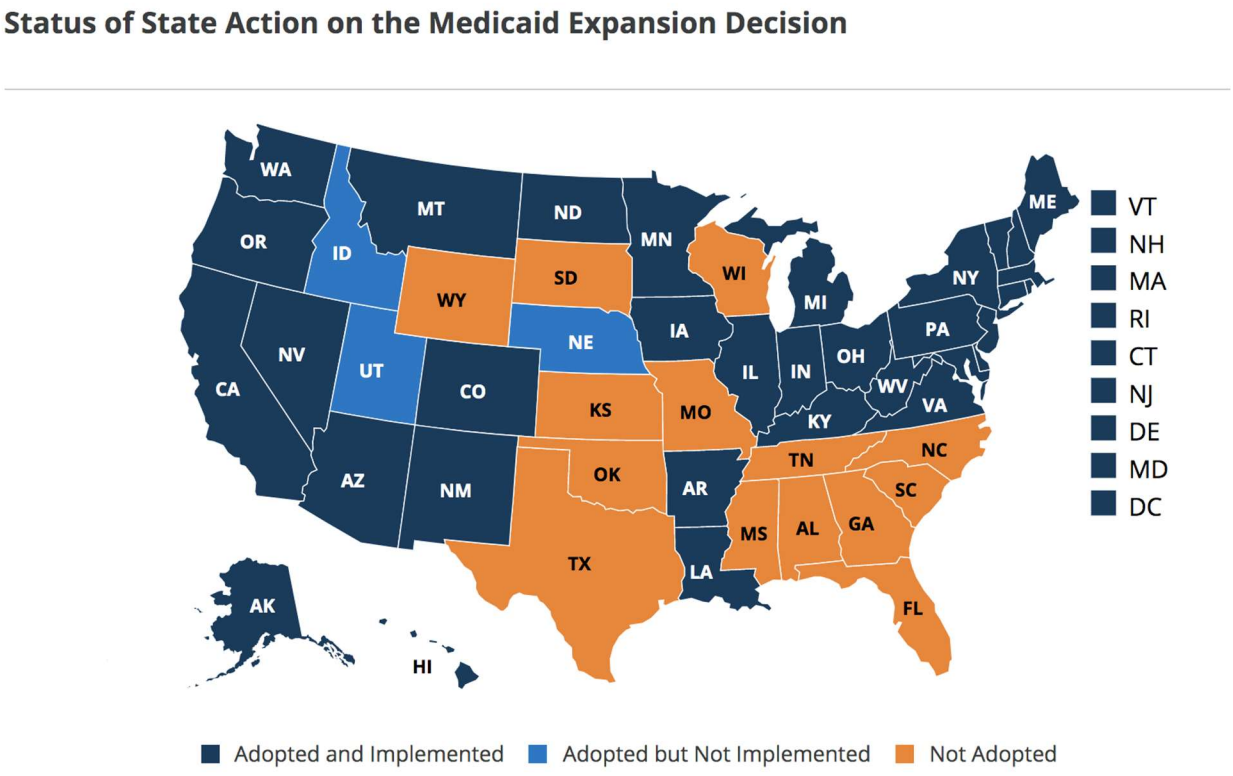
Expansion Provision of the Affordable Care Act; Section 2001(a)

For the research that I am conducting here, I am interested in the expansion provision of ACA. Historically, under Section 1905(b) of the Social Security Act, the Department of Health and Human Services calculates the Federal Medical Assistance Percentages each year. It is a calculation that shows the federal government's obligations to match a state's funding to its Medicaid program. It varies from state-to-state, but the Social Security Act disallows less than a 50% match guarantee. See TCA 33-4-105 Section 1905(d) of the Social Security Act. See 42 CFR. Policy, 100, 8. Generally, it is at least a 1-to-1 match from the federal government.

The Expansion provision of the ACA is essentially two-fold. The first is the legislative mechanism which expanded Medicaid access to those making up to 138% of the federal poverty line. Because this expanded threshold would increase costs to the states, it required state legislature approval for adoption. To incentive adoption, the ACA provided that the federal government would cover 100% of the additional costs during the 2014 to 2016 phase (assuming all states would adopt expanded Medicaid policy in 2014 when the exchange was established) and phase to 90% of total additional costs in 2020 (Geyman, 2015). To further incentivize state legislative approval, the provision mandated that if states did not expand, they would lose all federal Medicaid funding. This was ruled unconstitutional in 2012. See National Federation of Independent Business v. Sebelius, 2012.

Summary of State Medicaid Expansion -- A Timeline

The figure below summarizes expansion by state and is current as of April 5, 2020. The orange states have not adopted Medicaid expansion. The lighter blue states have adopted but not yet implemented Medicaid expansion. The dark blue states have adopted and implemented Medicaid expansion.



Source: The Henry J. Kaiser Family Foundation, published April 5, 2020.

Of the states above in dark blue, most adopted and implemented full Medicaid expansion on January 1, 2014 or shortly thereafter (less than one year). In this proposal, these states are referred to as having a "normal" or "traditional" adoption timeline. States that did not expand in 2014 but did expand in 2015 to 2018 (states that expanded in 2019 are ignored in this analysis) are classified as having a "delayed" adoption timeline.

This thesis uses four groups of states: traditional expansion states (ACA Section 2001(a) took effect in 2014); two groups of delayed expansion states (2015 or 2016 Medicaid expansion); and non-expansion states. The State Medicaid Expansion Summary Appendices shows a summary of these states by group.

Statement of the Problem

Unintended Consequences of Public Policy in the Modern Era

In 2015, the United States Congress passed some 115 Public Laws while the People's Republic of Bangladesh's Federal legislature passed 17 Public Laws during 2015. In that same year, the German Parliament, the Bundestag, passed some 250 laws (Brammer, 2016). Within these 115 laws passed by the 114th Congress of the United States, there were millions of policies and rules each with an intended effect.

With Public Policy broadly, there is a tricky balance of ensuring that public funds are appropriated effectively while minimizing unintended consequences observed ex-post. A 2012 dissertation by Andrew Friedson, now an assistant professor of Economics at the University of Colorado Denver, examines three examples of "public polices having consequences other than those intended when they passed. They demonstrate that due to the interconnectedness of the economy, the intended effect of a policy is rarely the sole effect." (Friedson, 2012). Friedson examined the Texas Top 10% Plan, Medical Malpractice Tort Reforms, and the implementation of medical malpractice damage caps in insurance law. In each of these examples, Mr. Freidson demonstrates an unintended policy effect ex-post (Friedson, 2012).

My problem for this thesis is examining potential unintended effects of Section 2001 and Title II of the Affordable Care Act particularly related to racial and demographic disparities in the policy effect.

Racial Disparities in Health Insurance Persist Post ACA Implementation

Since the passage of the ACA, more Americans are insured. Before implementation of the ACA in 2013, some 44.4 million Americans aged 19-64 were uninsured. At year end 2018, 27.9 million Americans in this age demographic were uninsured. This represents about a 6%

decrease in the number of uninsured in this demographic (Tolbert, Oregera, Singer, & Damico, 2019). See Figure 1 for a summary of this data.

Much of this increase in overall coverage is related to health reform; however, disparities still exist in the health insurance coverage in the United States. 50% of blacks, 70% of Hispanics, and 20% of Asians fared worse in post-ACA coverage, access and use of care in the United States compared to whites (Artiga & Oregera, 2019).

This report from Artiga and Oregera also indicates that the Affordable Care Act cumulatively improved health coverage, access and use for 40% of whites, 40% of blacks, 60% of Hispanics, and 20% of Asians (2019). See Figure 2 for a summary of this data.

Problem Statement

The use of care, access, and coverage of blacks, Hispanics, and Asians all cumulatively deteriorated compared to whites since the implementation of the ACA. I am interested to see if Section 2001(a) of the Affordable Care Act plays a role in this disparity.

The Research Question

This thesis attempts to answer a question about the policy effect of the ACA. Defined broadly a policy effect is the effect that government policy and its administrative practices can have on something. My research focuses on ACA Section 2001(a) which raised the minimum Medicaid qualifying threshold to 138% of the Federal Poverty Level.

My research questions are as follows:

1. Were certain groups or demographics of the population in the 100-138% of the Federal Poverty Level effected differently by the Medicaid expansion policy of the ACA under Section 2001(a)?
2. Did a state's temporal decision to expand Medicaid result in a substantial difference in Medicaid adoption between the same demographic in a different group of states?
3. If either of the previous two questions are answered in the affirmative, did certain demographics behave differently across groups with respect to Medicaid participation?

Justification

The legislative intent of Section 2001(a) was that it would take effect on January 1, 2014. All states were heavily incentivized to opt into the program because their federal Medicaid funding was in jeopardy if they refused to do so. See 42 U.S.C Section 1396a(a)10. This provision was ruled unconstitutional by the United States Supreme Court in 2012 (National Federation of Independent Business v. Sebelius, 2012) removing the negative monetary incentive for states to expand Medicaid under Section 2001(a) in their borders.

Relevant to the justification of this topic is the very public, partisan politics arising from the passage and implementation of the ACA. The Republican controlled House and Senate failed to repeal the law numerous times. By July of 2017, either both or one of the United States legislative bodies has attempted to repeal provisions of the ACA at least 70 times (Riotta, 2017). Research done by Marketplace estimates that the cost of single House of Representative vote with a quorum of Representatives to be almost $2 million (Marshall-Genzer, 2012). Although the research is not done by congressional oversight agencies, one could imagine that physically voting on a single resolution is extraordinarily expensive from logistics to paper to congressional aide overtime. If this $2 million-dollar calculation is accurate, it puts the cost of partisan politics on the ACA to be $140 million – just to vote. In 2016, it cost the average type 1 diabetes patient about $5,700 for a year's worth of insulin (Biniek & Johnson, 2019). In other words – using a low-ball estimate of congressional spending, the federal congress spent enough money trying to repeal the ACA to buy enough insulin to treat 24,560 type 1 diabetes patients for a calendar year.

To conclude, the ACA is a complex, highly important piece of American legislation still being disputed in litigation and public opinion today. I am interested in studying the policy effect of Section 2001(a) in temporally delayed environments because the literature is notably less

dense in this space, and the findings could help inform incentives in other pieces of public policy.

Literature Review

Overview

This literature review attempts to narrow my research question by establishing a sound, academic basis for the analysis performed in this thesis. It will note assumptions and findings relevant to my thesis and its conclusion. Provided below are brief executive summaries of each subsection of this literature review.

- Consumers and their difficult health insurance decisions:

  This section looks at a primary assumption of my thesis: all individuals (no matter race, sex, ethnic origin or education level) make insurance decisions the same if they are given the same set of options. This section acknowledges that this assumption is broad and may weaken the findings of this thesis, and in health insurance decisions, consumers may not choose the utility maximizing option. I believe, however, that by narrowing my research question to include just the population of persons qualifying for Medicaid under Section 2001(a) the assumptions are justified as the thesis is just to examine absolute, substantial differences in Medicaid adoption. It does not look at the full insurance choice set offered to the individual.

- Adverse Selection in the health insurance markets and the "Confusing" Insurance Decision:

  This section establishes that I need not worry about adverse selection in my research because there is little evidence to show that it will taint the data that I am examining here. It also poses an interesting question: can consumers choose rationally from a set of "complex and confusing" insurance options (Gruber, 2017, 10)? Gruber along with

another 2015 paper from the National Bureau of Economic Research suggests that they sometimes cannot. I acknowledge this as a part of my findings.

- Section 2001(a) of the Affordable Care Act, A summary of research

  In this section, I examine the efficacy of Section 2001(a) of the Affordable Care Act. I establish the temporal decision of a state's legislature matters from a health perspective.

Consumers and their complex health insurance decision

In health care economics academia, it is widely acknowledged the health insurance decision in the United States is difficult for consumers. It is complex compared to other countries like Switzerland and the United Kingdom where individuals select a plan of coverage from a small choice set, and it pay a yearly premium with some additional costs. In the United States, this is much different for public and private insurance participants. It is important to recognize this major concession in my thesis: the heterogeneity of the insurance decision. Suppose you have two individuals: A and B. They share demographic statistics as they have the same income (102% of the federal poverty level), the same income, same age, and are both single. This being the same individual A lives in a large metropolitan area and B lives in a rural setting. While individual A may have access to myriad of health providers who accept Medicaid, individual B may have to spend a substantial amount of time and money to find and travel to a physician who accepts Medicaid. Individual A and B may face discrimination if they opt for public insurance under the ACA; however, B may face higher transaction costs in choosing Medicaid.

This introduces the interplay that effects all health insurance research in the United States: public versus private insurance choice. While those individuals who choose a Silver tier plan versus Medicaid may face the same cumulative cost of insurance, each has different reasons for their choice which census bureau data does not capture. These reasons are difficult to dissect,

but in his paper, "Delivering Public Health Insurance Through Private Plan Choice in the United States," Johnathan Gruber follows the development of choice and trends in American insurance markets (2017).

In terms of trends, Gruber notes "[e]ven absent Part D, starting in 2010 there was more enrollment in privatized plans. Public insurance in the United States is now primarily a privately-run endeavor, at least in terms of enrollment" (Gruber, 2017, p. 4). Gruber spends the paper discussing the evolution of private insurers participating in this market which has "potentially wide-ranging impacts" (4). Policymakers disagree whether these transitions from single-payer to private participation is efficient for US health insurance markets.

To sum it up, Gruber poses a few questions: (1) whether choice among private insurance options leads to adverse selection and market failures; (2) whether individuals can choose appropriately among a wide range of "complex and confusing options;" (3) whether a privatized approach can deliver the efficiencies proposed by advocates; and finally, (4) examining what policy mechanisms have/could be used to solve the aforementioned problems (Gruber, 2017, p. 5). My literature review focuses on the first two questions listed using both microeconomic theories and the commentary that Gruber offers in his paper.

First is individual choice among private insurance options. This began in the Medicare program with the option for enrollees to join managed care plans in 1985. This model stipulated that private plans would be paid a fixed amount by the government to cover all the medical spending of enrollees and a risk transfer from the government to the managed entity (Gruber, 2017, p. 6). The paper goes on analyzing various developments like Medicare versus Medicare Advantage and Medicare Part D. For the purposes of this paper, I focus on the interesting discussion of adverse selection that exists because of the establishment of the state-based

exchanges under the ACA. Pre-2010, individuals who purchased insurance outside of an employer setting faced a highly fragmented market with imperfect information (Gruber, 2017, p. 5). The ACA tried to abate these issues by establishing a unified state-based exchange with metallic tiers for various plan types; however, there is a clear tradeoff in moving to private plans (Gruber, 2017, p. 6).

This is what my thesis on one hand examines. Suppose two individuals, again, A and B. They again share demographic characteristic like age, sex, family size, race, and income within the range of 100 to 138% of the federal poverty line; however, in this scenario, they are not domiciled in the same state. Person A is a resident of Colorado. Person B is a resident of Pennsylvania. Let's assume both are not eligible for corporate sponsored health insurance, so on January 1, 2014, each has a decision to make. For person A, the choice set contains exchange-based insurance, Medicaid, or no insurance. For person B, the choice set contains exchange-based insurance or no insurance. We assume that both cannot privately purchase insurance.

Around two-and-a-half years later, person B's choice set expands to now include Medicaid eligibility. As Gruber mentions, there are trade-offs in selecting private, publicly subsidized insurance on a state's exchange. These are aforementioned in the paper like choice of physician, accessibility to care, and cost. The silver metallic tier provides people enroll on a state's exchange, pay premiums, and are reimbursed with tax credits when they file. Medicaid has no out of pocket cost other than the tax collected which is unavoidable for either individual in our scenario.

On one hand, the research question posed examines disparities between demographics in the policy effect of Section 2001(a) of the ACA. Although in the analysis no "exchange-based insurance" is analyzed, person B's choice set expansion because of the Pennsylvania state

legislature's choice to expand presents an interesting study of utility versus preference and transaction costs. For example, if person B had elected a silver tier option on the exchange in 2014, would the monthly out of pocket premiums be enough motivation to prompt them to switch to Medicaid. They would have to learn new enrollment procedures, filing procedures, and change the way they file their taxes; furthermore, they also may have a reduced set of healthcare options including finding a new physician.

I only look at trends in adoption and compare 95% confidence intervals in this paper. See *Methodology*. This data could be extrapolated to look at the situation posed above, but this paper will look at the different demographic variables in a narrower scope than the scenario posed. I examine if individuals in Colorado or Pennsylvania (and states like them under Section 2001(a)) made similar health insurance decisions, and if they did not, did different demographic characteristics cause disparities?

Adverse Selection in Health Insurance Markets and the "Confusing" Insurance Decision

Gruber offers some insight on the effect of adverse selection in publicly subsidized private insurance markets under the ACA. Specifically, he points to a 2011 article by Einav and Finkelstein that shows that "while adverse selection exists across insurance plan choices [on the exchanges], it has relatively modest welfare costs"; therefore, suggesting little market failure on the exchange (Gruber, 2017, p. 10). Gruber offers context to why this may happen. Allowing individuals, the choice across plans automatically puts pressure on private insurers to deliver efficient care. In terms of insurance markets, this issue is much more complicated because it is not as easy to define efficiency as it is in the goods markets. Normally, efficiency is defined in terms of, "producing at minimum cost per quality-adjusted unit of output," but in the health insurance market, each enrollee has a different interpretation of quality (Gruber, 2017, p. 10).

Therefore, it is hard to put a value on what counts as efficient. As a result, private insurers are incentivized to "target outcomes that are most valued by the healthiest potential enrollees" (10).

In this section, I reflect on some of the formidable microeconomics concepts at play in the context of this paper which arise in the research that I present in my thesis. In numerous places, Gruber wonders if consumers can choose efficiently between "confusing and complex" insurance options (Gruber, 2017, p. 12). Can consumers adequately choose between their options? The rational consumer assumption is at play; moreover, whether consumers can be completely rational in this environment. In that, if the consumer has a choice, their choice will match their preferences so long as adverse selection is absent.

Adverse selection aside, I found an interesting 2015 paper on this subject which found inconsistencies in choices and preferences where consumers are willing to pay higher premiums to avoid large deductibles (Bhargava, Loewnstein, & Sydnor, 2015). This is congruent to another microeconomics theory: consumer risk aversion. From a behavioral economics lens, the average consumer would rather pay more in monthly premiums than have a large co-pay for a doctor's visit. The aforementioned 2015 paper solidifies this reasoning as consumers feel losses (i.e. a $1000 deductible) more than a smaller but cumulatively higher and inefficient (from a classical economics lens) monthly premium payment. Striking a balance between choices and preferences for risk and health status is examined in the paper, and Gruber looks at three mechanisms to reconcile the issue alluded to in his symposium and perused by the authors of this paper in Bhargava, Loewenstein & Sydnors' paper. First, he suggests compulsory re-enrollment, but finds this does not lead to improved quality of choices. Second, he tests a decision support tool, but it was ineffective as choice suggestions were ignored. Third, he examines the "choice architecture" where smaller choice sets improve consumer decision making (Gruber, 2017, 19). All of these

concepts connect to the rational consumer assumption and risk aversion principle in consumer decision making which are fundamental to any market but play a very important role in matching preferences to choices in complex health insurance markets.

In summary, I pulled data (and inspiration) from the aforementioned research in my thesis. There is ample evidence that suggests that consumers behave irrationally when selecting health insurance. This is an assumption of my thesis.

The Legislative Intent of Section 2001(a) of the Affordable Care Act

In this section, I outline the legislative intent of Section 2001(a) of the Affordable Care Act. 2001(a) and Title II of the ACA addresses the role of public programs in the healthcare reform legislation. Specifically, 2001(a) amended Section 1902(a)(10(A) of the Social Security Act. See 42 U.S.C. 1936a. ACA Section 2001(a) is:

> *COVERAGE FOR INDIVIDUALS WITH INCOME AT OR BELOW 133 PERCENT OF THE POVERTY LINE.—*
>
> *(1) BEGINNING 2014.—Section 1902(a)(10)(A)(i) of the Social Security Act (42 U.S.C. 1396a) is amended—*
>
> *(A) by striking ''or'' at the end of subclause (VI);*
>
> *(B) by adding ''or'' at the end of subclause (VII); and*
>
> *(C) by inserting after subclause (VII) the following:*
>
> *''(VIII) beginning January 1, 2014, who are under 65 years of age, not pregnant, not entitled to, or enrolled for, benefits under part A of title XVIII, or enrolled for benefits under part B of title*

> *XVIII, and are not described in a previous subclause of this clause, and whose income (as determined under subsection (e)(14)) does not exceed 133 percent of the poverty line (as defined in section 2110(c)(5)) applicable to a family of the size involved, subject to subsection (k);''.*

Later in the bill's myriad of amendments, this 133% has a 5% disregard; thus, those making up to 138% of the federal poverty line qualify contingent on state implementation. In 2019, 138% of the federal poverty line was $17,236 for an individual (Garfield, Orgera, & Damico, 2020). The intent of Section 2001(a) is multifold; however, coupled with the individual mandate, it is a social program and an economic efficiency goal. As a social program, the expansion of Medicaid from per-ACA levels provided access to healthcare for the poorest persons. Nearly 10 million Americans have gained coverage under Section 2001(a) (HealthInsurance.org). As a social program, the ACA has offered the poorest an option of public assistance to help pay for medical bills and have the peace of mind that comes with having health insurance. From an economic efficiency goal, insurance depends on large numbers. Paying in a bit now to avoid large, unmanageable payments later works only if many people pay in a bit now. Insurance markets are notoriously complex and have problems with the individual incentive. Opening up insurance access to poor Americans was to prevent large payments if an uninsured individual gets sick with chronic illness. Healthy or not the individual mandate was to expand the insurance pool to prevent a death spiral in premium payments, a result of adverse selection where the lower risk policy holders choose to change policies or be uninsured. Section 2001(a) coupled with the individual mandate required participation in the insurance pool.

To build on intent of Section 2001(a), recent papers from Michigan Ross have linked mortality and Medicaid expansion data. The advisor for this thesis, Dr. Sarah Miller, has published extensively on the ACA. In a 2019 paper, Miller with others "linked federal survey data to administrative death records to investigate the relationship between Medicaid enrollments and mortality. Our analysis compares changes in mortality for near-elderly adults in states with and without Affordable Care Act Medicaid expansions. We identify adults most likely to benefit using survey information on socioeconomic and citizenship status, and public program participation. We find a 0.132 percentage point decline in annual mortality, a 9.4 percent reduction over the sample mean, associated with Medicaid expansion for this population. The effect is driven by a reduction in disease-related deaths and grows over time" (Miller, Alterkuse, Johnson, & Wherry, 2019). This analysis has been widely cited. Local, national, and international media companies have written on the research done by Dr. Miller. For example, a November 2019 article by Carmen Forman in *The Oklahoman* cites Miller's findings in a headline: "Report: 476 older Oklahomans died prematurely because of Medicaid non-expansion" (Forman, 2019). A federal report from the Center of Budget and Policy Priorities bears the title: Medicaid Expansion Has Saved at Least 19,000 Lives, New Research Finds, State Decisions Not to Expand Have Led to 15,000 Premature Deaths" (Broaddus & Aron-Dine, 2019). Broddus and Aron-Dine's report is based on Miller's paper.

Miller's paper establishes a necessary proposition for my thesis. That is the temporal decision of state legislatures to expand Medicaid under Section 2001(a) matters. In this thesis, I analyze a different aspect of this temporal decision.

In summary, I establish the intent of Section 2001(a) to, indeed, expand Medicaid to the poorest in the United States, and it has extended public coverage to some 10 million people. The temporal decision has real effects (life or death). I analyze this decision in a new perspective.

Methodology

This section outlines the methodology and research design for this thesis. The research question is restated below. [I refer to the different questions numerically. For example, "part 1" is "[w]ere certain groups or demographics of the population in the 100-138% of the Federal Poverty Level effected differently by the Medicaid expansion policy of the ACA under Section 2001(a)?"]

1. Were certain groups or demographics of the population in the 100-138% of the Federal Poverty Level effected differently by the Medicaid expansion policy of the ACA under Section 2001(a)?
2. Did a state's temporal decision to expanded Medicaid result in a substantial difference between the same demographic in a different group of states?
3. If either of the previous two questions are answered in the affirmative, were certain behaviors abnormal than other demographics depending on the group?

Data

All of the data used was from the American Community Survey. The American Community Survey (ACS) is "an ongoing survey that provides vital information on a yearly basis about our nation and its people. Information from the survey generates data that help determine how more than $675 billion in federal and state funds are distributed each year" (United States Census Bureau, n.d.). It is administered by the United States Census Bureau.

I accessed this data using a service provided by the Minnesota Population Center at the University of Minnesota called IPUMS USA. IPUMS "collects, preserves and harmonizes U.S. census microdata and provides easy access to this data with enhanced documentation. Data

includes decennial censuses from 1790 to 2010 and American Community Surveys (ACS) from 2000 to the present" (Minnesota Population Center, University of Minnesota, n.d.).

I created a custom dataset that contained nine samples and 38 variables. The nine samples are the ACS microdata years 2010 through 2018. In total, there were 28,260,215 individual observations in the nine samples selected. Filtering this to just individuals falling in the 100-138% of the federal poverty line, the dataset that I worked with contained 1,856,890 individual observations. For each of these 1.857 million observations, I had 38 variables of information; they are listed in the chart below. The highlighted variables are the variables we use in the analysis.

Chart 1: List of Variables

Variable	Label
YEAR	Census year
SAMPLE	IPUMS sample identifier
SERIAL	Household serial number
CBSERIAL	Original Census Bureau household serial number
HHWT	Household weight
CLUSTER	Household cluster for variance estimation
STATEFIP	State (FIPS code)
METRO	Metropolitan status
STRATA	Household strata for variance estimation
GQ	Group quarters status
MORTGAGE	Mortgage status
HHINCOME	Total household income
PERNUM	Person number in sample unit
PERWT	Person weight
SEX	Sex
AGE	Age
RACE (general)	Race [general version]
RACED (detailed)	Race [detailed version]
HISPAN (general)	Hispanic origin [general version]
HISPAND (detailed)	Hispanic origin [detailed version]
RACAMIND	Race: American Indian or Alaska Native
RACASIAN	Race: Asian

RACBLK	Race: black or African American
RACPACIS	Race: Pacific Islander
RACWHT	Race: white
HCOVANY	Any health insurance coverage
HCOVPRIV	Private health insurance coverage
HINSEMP	Health insurance through employer/union
HINSPUR	Health insurance purchased directly
HINSTRI	Health insurance through TRICARE
HCOVPUB	Public health insurance coverage
HINSCAID	Health insurance through Medicaid
HINSCARE	Health insurance through Medicare
EDUC (general)	Educational attainment [general version]
EDUCD (detailed)	Educational attainment [detailed version]
INCTOT	Total personal income
FTOTINC	Total family income
POVERTY	Poverty status

The citation for my specific dataset is Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas and Matthew Sobek. IPUMS USA: Version 10.0 [dataset]. Minneapolis, MN: IPUMS, 2020.

Methodology of Analysis

I began by formatting my data. I downloaded the aforementioned dataset into Stata, and created some variables to separate each of the observations into groups. The groups were based on "statefip" (a state residency variable) and Medicaid expansion status / date. Four groups were created: "tradexpand" (states with 2014 Medicaid expansion), "nonexpand" (states with no Medicaid expansion), "expand15" (states with 2015 Medicaid expansion), and "expand16" (states with 2016 Medicaid expansion). I also created a binary variable that indicated whether an observation had attained a GED or high school diploma or not. Lastly, I filtered the data to only include individuals aged 19 to 64. This was all created in a .do file called

"expansiongroupseperators." Each time an analysis was run so was this .do file. See data appendix 1.

For each of these four groups of states, I created proportions of people enrolled in Medicaid by demographic. The demographics analyzed were white, black or African American, Asian American, Hispanic, GED attainment, male, and female. I did this using the "collapse" function referencing the variable "hiscaid" which indicates whether or not an individual is a Medicaid enrollee for that year. Thus, 9 proportions were generated for each line of code. These 9 proportions corresponded to the year of ACS data. For example, the first line of code in data appendix 2 generated the percentage of whites, in nonexpansion states, enrolled in Medicaid from the years 2010 to 2018. Thus, 9 individual, related proportions were generated from a single line of code. See data appendices 1 through 5 for the full code with annotation.

After doing this, I aggregated the data on Excel, created regressions, and generated 95% confidence intervals for the trends of the proportions. I compared each of the 95% confidence intervals and concluded.

Summary of Assumptions

Before presenting the findings, this section summarizes the assumptions made throughout this thesis and its analysis. In the literature review, assumptions made for the data and analysis of this thesis and its research questions were documented. I aggregate them here for reader ease.

1. All individuals (no matter race, sex, ethnic origin or education level) make insurance decisions the same if they are given the same set of options.
2. Adverse selection in United States health insurance will not substantially impact my decisions.
3. The state's temporal decision to expand, delay, or not expand Medicaid to 138% of the federal poverty line matters.
4. American Community Survey respondents understood their responses and completed them honestly.

Findings

After running the data and collecting it in Excel. The following charts show the 95% confidence interval for the slope of the linear regression by demographic for each group of states. It also shows a total increase in the Medicaid enrollment proportion. The Medicaid enrollment proportion is: $Medicaid\ propotion = \frac{Number\ of\ individuals\ enrolled\ in\ Medicaid}{Total\ sample\ size}$. All of the confidence intervals were extremely significant having virtually no p-value.

Table 1: Non-expansion States, List of Regression Trend Confidence Intervals by Demographic

Non Expansion States			
List of Confidence Intervals			
Demographic	Lower Bound	Upper Bound	Total Increase (Decrease)
White	0.006165909	0.009547424	0.05785
Black	0.006203797	0.011308869	0.07052
Asian	0.002818386	0.01354228	0.04461
GED	0.006330366	0.0098993	0.05652
NonGED	0.005592275	0.009772725	0.0677
Hispanic	0.005223212	0.007782454	0.04628
Male	0.006039942	0.010153058	0.05736
Female	0.005351167	0.0092765	0.05439

Table 2: Traditional Expansion States, List of Regression Trend Confidence Intervals by Demographic

Traditional Expansion States			
List of Confidence Intervals			
Demographic	Lower Bound	Upper Bound	Total Increase (Decrease)
White	0.02580459	0.047320073	0.24003
Black	0.020821318	0.037607349	0.19772
Asian	0.024159964	0.047853702	0.24006
GED	0.025129991	0.046790675	0.2343
NonGED	0.025206792	0.045474208	0.24564
Hispanic	0.026496604	0.04904973	0.2462
Male	0.025423661	0.045867005	0.24064
Female	0.024147078	0.046209255	0.22775

Table 3: 2015 Expansion States, List of Regression Trend Confidence Intervals by Demographic

2015 Expansion States			
Summary of Confidence Intervals			
Demographic	Lower Bound	Upper Bound	Total Increase (Decrease)
White	0.020025066	0.039894934	0.20192
Black	0.013059979	0.040085021	0.15052
Asian	0.015247468	0.056058866	0.26467
GED	0.019300182	0.041369818	0.20026
NoGED	0.019331446	0.035508887	0.19914
Hispanic	0.01456802	0.038091647	0.17788
Male	0.018970537	0.037627796	0.18748
Female	0.019405468	0.041441865	0.20478

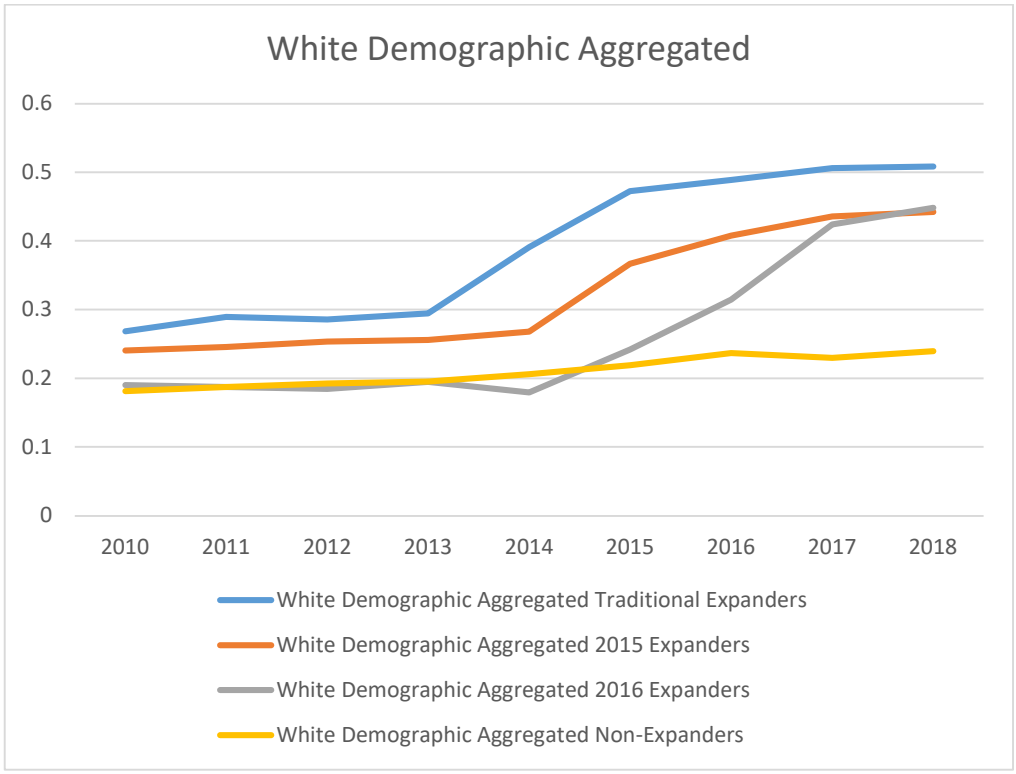
Table 4: 2016 Expansion States, List of Regression Trend Confidence Intervals by Demographic

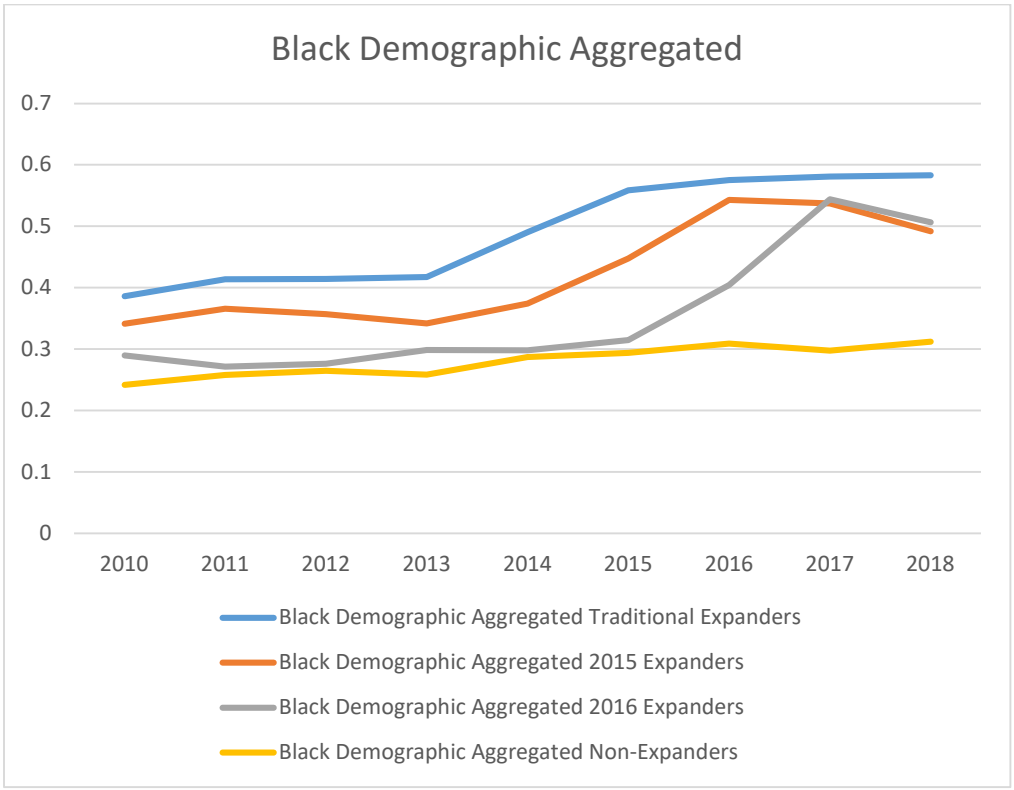
2016 Expansion States			
Summary of Confidence Intervals			
Demographic	Lower Bound	Upper Bound	Total Increase (Decrease)
White	0.016995057	0.051325277	0.25837
Black	0.01513865	0.050028684	0.21644
Asian	0.010582561	0.046073106	0.30749
GED	0.01833471	0.04940429	0.25195
NoGED	0.015163979	0.051221355	0.23328
Hispanic	0.013144572	0.039302761	0.16505
Male	0.014054029	0.042708971	0.1989
Female	0.018608048	0.053287618	0.26649

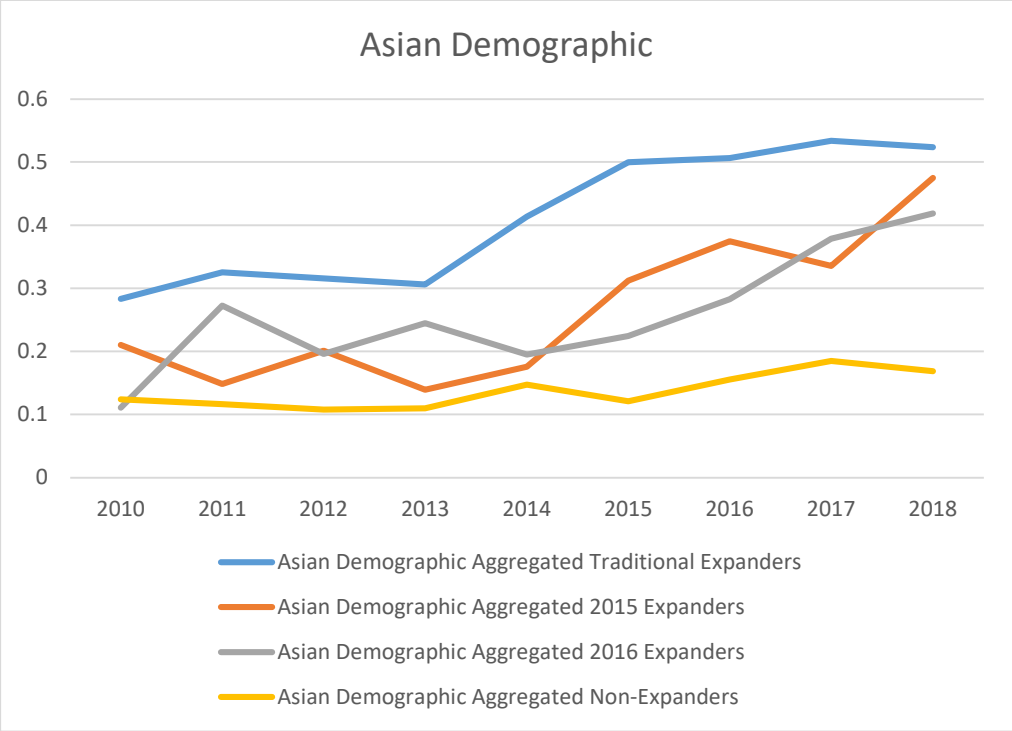
To answer the first part of my research question, no demographics were affected differently by the Medicaid expansion under Section 2001(a) among the same group. All of the confidence intervals overlapped. For example, the white demographic in traditional expansion group had a regression confidence interval [0.0258, 0.0473], 2015 expansion states for whites was [0.02003, 0.03989] and 2016 expansion states [0.017, 0.0513]. Thus, we answer part 2 of the

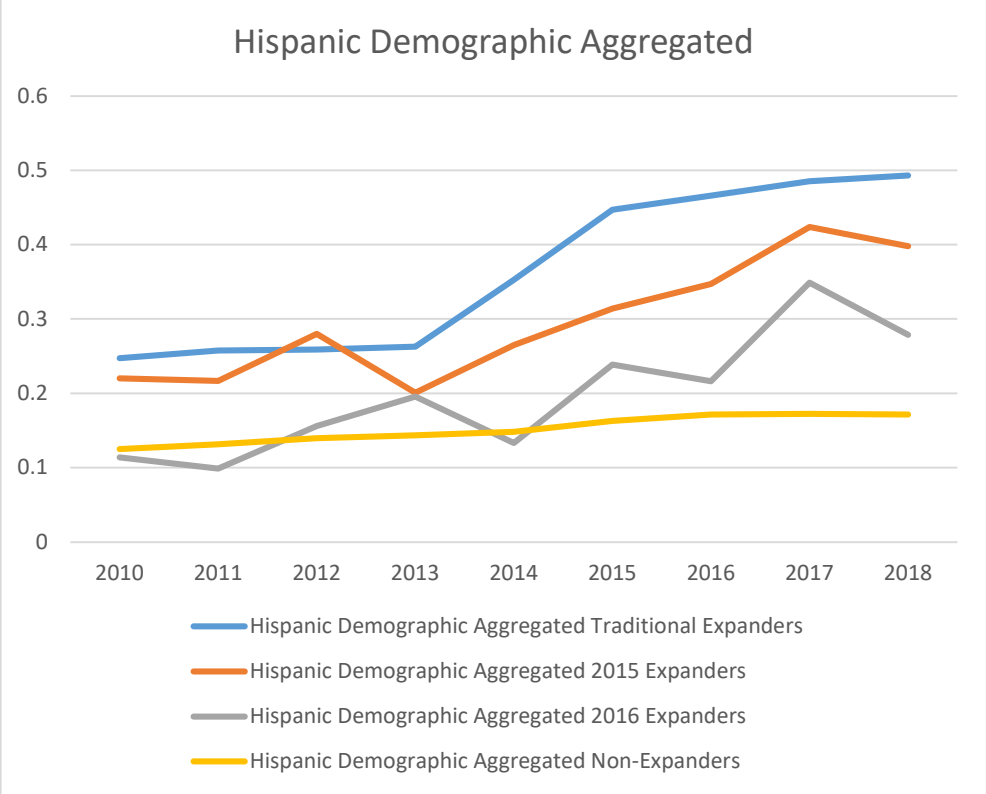
research the same as part 1. A state's temporal decision did not seem to have much of an impact on regression trends of Medicaid participation between groups.

The third part of the research question is the most difficult to answer; however, we do observe an abnormality 2015 and 2016 expanders which is visualized below. For the following graphs, I aggregated all of the proportions by demographic and created scatter plots. See data appendices 6 through 13 for the raw data for the graphs below and other demographics not race. I focus on race for the next part of this discussion.


White Demographic Aggregated
0.6
0.5
0.4
0.3
0.2
0.1
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
White Demographic Aggregated Traditional Expanders
White Demographic Aggregated 2015 Expanders
White Demographic Aggregated 2016 Expanders
White Demographic Aggregated Non-Expanders


Black Demographic Aggregated
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Black Demographic Aggregated Traditional Expanders
Black Demographic Aggregated 2015 Expanders
Black Demographic Aggregated 2016 Expanders
Black Demographic Aggregated Non-Expanders


Asian Demographic
0.6
0.5
0.4
0.3
0.2
0.1
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Asian Demographic Aggregated Traditional Expanders
Asian Demographic Aggregated 2015 Expanders
Asian Demographic Aggregated 2016 Expanders
Asian Demographic Aggregated Non-Expanders


Hispanic Demographic Aggregated
0.6
0.5
0.4
0.3
0.2
0.1
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
Hispanic Demographic Aggregated Traditional Expanders
Hispanic Demographic Aggregated 2015 Expanders
Hispanic Demographic Aggregated 2016 Expanders
Hispanic Demographic Aggregated Non-Expanders

A Puzzling Trend Difference

In the 2015 expansion and 2016 expansion groups, I note a strange trend post expansion. In the black and Hispanic demographics, we see Medicaid enrollment decrease even with Section 2001(a) implementation. Most significantly in 2017, significant drops in the Medicaid proportion occur in the Hispanic demographic in the 2015 and 2016 expansion groups. The raw data below shows this decrease.

Hispanic Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.24723	0.22022	0.11364	0.125
2011	0.25762	0.2167	0.09901	0.13161
2012	0.25879	0.28009	0.15596	0.13948
2013	0.2627	0.20088	0.19565	0.14359
2014	0.35255	0.26489	0.13333	0.14829
2015	0.447	0.31403	0.23846	0.16267
2016	0.46611	0.34694	0.21642	0.1714
2017	0.48517	0.42384	0.34884	0.17232
2018	0.49343	0.3981	0.27869	0.17128

For the 2015 expansion group, the Hispanic proportion dropped nearly 2.5% from 2017 to 2018. In the 2016 expansion group, this proportion dropped 7%. For the black demographic, I observe the same puzzling trend.

Black Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.38598	0.34128	0.28958	0.24181
2011	0.41359	0.36533	0.27155	0.25746
2012	0.41421	0.35674	0.27612	0.26457
2013	0.41696	0.34153	0.29854	0.25819
2014	0.48987	0.37367	0.29778	0.28668
2015	0.5581	0.44708	0.31439	0.29374
2016	0.57495	0.54276	0.40385	0.30894
2017	0.58071	0.53689	0.5442	0.29713
2018	0.5832	0.4918	0.50602	0.31233

For the 2015 expansion group, the black Medicaid proportion decreased 4.5% from 2017 to 2018. In the 2016 expansion group, this proportion dropped about 4% over 2017. It is odd that we do not see a drop in the same groups for every race demographic. It is just in the Hispanic and black demographics. I allude to some reasons for why this may occur in previous sections in this paper, but a significant one might be access to Obamacare and Medicaid. For example, suppose the following. Individual A lives in Montana, a 2016 expansion state, makes 115% of the federal poverty line, and is Hispanic. They enrolled in Obamacare and received publicly subsidized, private insurance through their state's exchange. At year end, they would collect a tax credit for the premiums they paid throughout that year. Louisiana expands Medicaid, so they enroll in 2016. Something happens and they may return to the exchange when Medicaid and Obamacare enrollment comes at the end of 2016 for 2017. We must imagine that if this is true for individual A, then why is it not happening across all demographics?

This result is really puzzling. Why are we seeing a specific behavior in the insurance decision in Hispanics and blacks but not whites or Asians? Evidence does not suggest that much changed in healthcare in 2017. Physicians accepting Medicaid stayed relatively stable across the board, and there were not large changes in the number of hospitals in the states that expanded in 2015 and 2016.

I am not sure why it is occurring, and to try and answer this question would be outside the scope of my thesis. Part III of my research question does attempt to analyze behavioral differences across demographics in the insurance decision, but unfortunately, there is not enough data to say anything about these trends in the black and Hispanic demographics.

I see this trend occurring and am comfortable to say that it is not true across all race demographics in this study; rather, it only happens in the Hispanic and black demographics. There is no legislative piece or action that could have caused this trend specifically in these demographics. In 2017, a new president inaugurated, but I find it hard to point to this as a cause for a person like Individual A to change their health insurance from Medicaid to something else. In short, I am puzzled, and can only offer guesses about why this happens in the black and Hispanic demographics.

To conclude, Medicaid adoption trends are consistent in expansionary environments across demographics. There is no evidence that Section 2001(a) of the ACA contributed to racial or demographic disparities seen in health insurance coverage. I note an unusual trend occurring in 5 states: Montana, Louisiana, Alaska, Pennsylvania, and Indiana where blacks and Hispanics are enrolling in Medicaid at expansion outset, but then switching to different types of insurance coverage. This primarily occurs in the 2018 enrollment period. I do not see this trend in other groups or in traditional expansion states.

Next Steps

For next steps, I would suggest finding out why we see Hispanics and blacks unenrolling in Medicaid in 2015 and 2016 expansion states. Finding this out would help promote more equitable coverage and care among these groups. Section 2001(a) has no race related language; however, its implementation has affected races differently and maybe significantly differently.

I think a study examining these odd trends in the Medicaid proportion among blacks and Hispanics would be a good follow-up to this thesis.

State Medicaid Expansion Summary Appendices

Appendix 1: 2014 Expansion States ("Traditional" Expansion States)

Year	State
2014	Arizona
2014	Arkansas
2014	California
2014	Colorado
2014	Connecticut
2014	Delaware
2014	Hawaii
2014	Illinois
2014	Iowa
2014	Kentucky
2014	Maryland
2014	Massachusetts
2014	Michigan
2014	Minnesota
2014	Nevada
2014	New Hampshire
2014	New Jersey
2014	New Mexico
2014	New York
2014	North Dakota
2014	Ohio
2014	Oregon
2014	Rhode Island
2014	Vermont
2014	Washington
2014	Washington DC
2014	West Virginia

Appendix 2: 2015 and 2016 Expansion States ("Delayed" Expansion States)

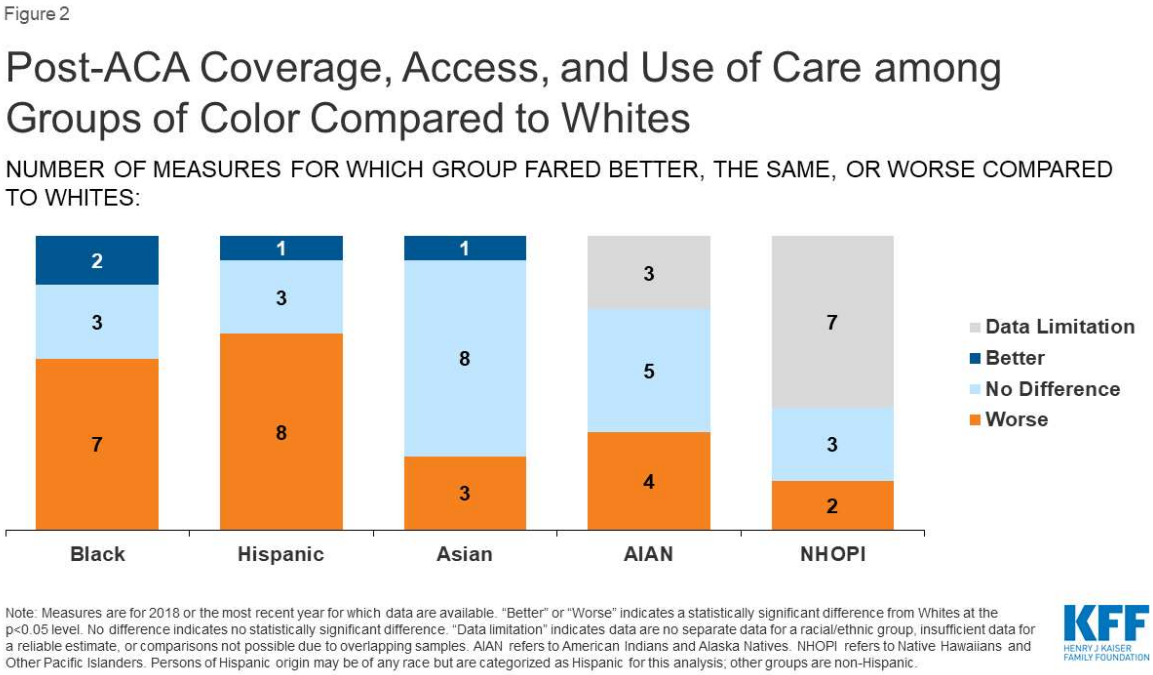
Year	State
2015	Alaska
2015	Pennsylvania
2015	Indiana
2016	Montana
2016	Louisiana

Appendix 3: Non-Expansion States

Year	State
Adopted not Implemented	Nebraska
Not Adopted	Wyoming
Not Adopted	South Dakota
Not Adopted	Kansas
Not Adopted	Oklahoma
Not Adopted	Texas
Not Adopted	Missouri
Not Adopted	Wisconsin
Not Adopted	Tennessee
Not Adopted	Mississippi
Not Adopted	Alabama
Not Adopted	Georgia
Not Adopted	Florida
Not Adopted	South Carolina
Not Adopted	North Carolina

Figures Appendices

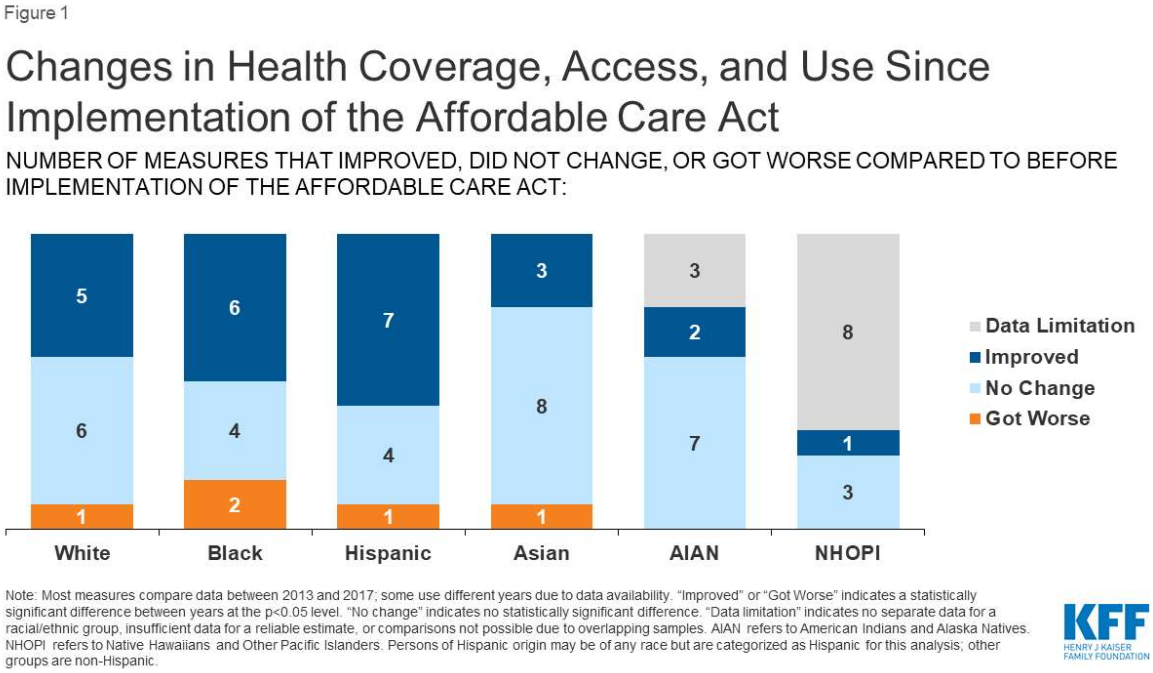
Figure 1



This figure shows the Post-ACA Coverage, Access and Use of Care among Groups of Color Compared to Whites. Across all racial and ethnic demographics, a deterioration of access, coverage and use of care compared to whites occurs

Taken from: Henry J. Kaiser Family Foundation, "Figure 2: Post-ACA Coverage, Access, and Use of Care among Groups of Color Compared to Whites" by Artiga & Oregera (2019).

Figure 2



This figure shows the relative improvement by racial or ethnic demographic post ACA reform with all groups improving slightly lead cumulatively by Hispanics (60%) followed by whites (40%) and blacks (40%) then Asians (20%).

Taken from: Henry J. Kaiser Family Foundation, "Figure 1: Changes in Health Coverage Access, and Use Since Implementation of the Affordable Care Act" by Artiga & Oregera (2019).

Data Appendices

Data Appendix 1: expansiongroupseperators .do file

```
**Expanders in 2016, Montana and Lousiana

generate expand16=0
replace expand16=1 if statefip==30
replace expand16=1 if statefip==22

**Expanders in 2015, Alaska 02, Pennsylvania 42, Indiana 18

generate expand15=0
replace expand15=1 if statefip==02
replace expand15=1 if statefip==42
replace expand15=1 if statefip==18

**Nonexpanders: Wyoming 56, South Dakota 46, Kansas 20, Oklahoma 40, Texas
48, Missouri 29, Wisconsin 55,Tennesee 47, Mississippi 28, Alabama 01,
Georgia 13, Florida 12, South Carolina 45, North Carolina 37

gen nonexpand=0
replace nonexpand=1 if statefip==56
replace nonexpand=1 if statefip==46
replace nonexpand=1 if statefip==20
replace nonexpand=1 if statefip==40
replace nonexpand=1 if statefip==48
replace nonexpand=1 if statefip==29
replace nonexpand=1 if statefip==55
replace nonexpand=1 if statefip==47
replace nonexpand=1 if statefip==28
replace nonexpand=1 if statefip==01
replace nonexpand=1 if statefip==13
replace nonexpand=1 if statefip==12
replace nonexpand=1 if statefip==45
replace nonexpand=1 if statefip==37

**traditional expanders: Washington 53, California 06, Nevada 32, Colorado
08, Arizona 04, New Mexico 35, Hawaii 15, North Dakota 38, Minnesota 27,
Iowa 19, Arkansas 05, Michigan 26, Illinois 17, Kentucky 21, Ohio 39, West
Virginia 54, Maryland 24, Delaware 10, New York 36, Washington DC 11, New
Jersey 34, Connecticut 09, Rhode Island 44, Massachusetts 25, New
Hampshire 33, Vermont 50, Oregon 41

gen tradexpand=0
replace tradexpand=1 if statefip==53
replace tradexpand=1 if statefip==06
replace tradexpand=1 if statefip==32
replace tradexpand=1 if statefip==08
replace tradexpand=1 if statefip==04
replace tradexpand=1 if statefip==35
replace tradexpand=1 if statefip==15
replace tradexpand=1 if statefip==38
replace tradexpand=1 if statefip==27
```

```
replace tradexpand=1 if statefip==19
replace tradexpand=1 if statefip==05
replace tradexpand=1 if statefip==26
replace tradexpand=1 if statefip==17
replace tradexpand=1 if statefip==21
replace tradexpand=1 if statefip==39
replace tradexpand=1 if statefip==54
replace tradexpand=1 if statefip==10
replace tradexpand=1 if statefip==36
replace tradexpand=1 if statefip==11
replace tradexpand=1 if statefip==34
replace tradexpand=1 if statefip==09
replace tradexpand=1 if statefip==25
replace tradexpand=1 if statefip==33
replace tradexpand=1 if statefip==50
replace tradexpand=1 if statefip==41

**this variable will generate whether or not someone has attained a GED

gen GED=0
replace GED=1 if educd > 62


** filters only to 100-138% of FPL
keep if poverty > 99 & poverty < 139

**add an age line that keeps only those with 19-64 in age
keep if age > 18
keep if age < 65
```

Data Appendix 2: Nonexpansion States, Demographic Analysis Stata Code

```
**Data Appendix 1 -- For Nonexpansion states White vs. Nonwhite Medicaid
Adoption by Year

**For each iteration, a dataset was uploaded and filtered using the
"expasiongroupseperators" .do file and the master data cited as IMPUS
__________.

**this output gives us a proportion of white persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racwht == 2

**this output gives us a proportion of non-white persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racwht == 1



**Data Appendix 2 -- For Nonexpansion states Black vs. Nonblack Medicaid
Adoption by Year

**this output gives us a proportion of Black persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racblk == 2

**this output gives us a proportion of Non-black persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racblk == 1



**Data Appendix 3 -- For Nonexpansion States Asian vs. Nonasian Medicaid
Adoption by Year

**this output gives us a proportion of Asian persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racasian == 2

**this output gives us a proportion of non-Asian persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & racasian == 1



**Data Appendix 4 -- For Nonexpansion States GED (or High School Dimploma)
Attainment vs Non-GED attainment
```

```
**this output gives us a proportion of GED education in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & GED == 1

**this output gives us a proportion of no GED education in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & GED == 0


**Data Appendix 5 -- For Nonexpansion States Hispanic vs. Non-hispanic
Medicaid Adoption by Year

**this output gives us a proportion of Hispanic persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & hispan > 0

**this output gives us a proportion of non-Hispanic persons in non-
expansion states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & hispan == 0


**Data Appendix 6 -- For Nonexpansion States Male vs. Female Medicaid
Adoption by Year

**this output gives us a proportion of male persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & sex == 1

**this output gives us a proportion of female persons in non-expansion
states adoption of Medicaid
collapse hinscaid, by(year), if nonexpand == 1 & poverty > 99 & poverty <
139 & sex == 2
```

Data Appendix 3: Traditional Expansion States, Demographic Analysis Stata Code

```
**Data Appendix 1 -- For Traditional Expansion states White vs. Nonwhite
Medicaid Adoption by Year

**For each iteration, a dataset was uploaded and filtered using the
"expasiongroupseperators" .do file and the master data cited as IMPUS
__________.

**this output gives us a proportion of white persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racwht == 2

**this output gives us a proportion of non-white persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racwht == 1



**Data Appendix 2 -- For Traditional Expansion states Black vs. Nonblack
Medicaid Adoption by Year

**this output gives us a proportion of Black persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racblk == 2

**this output gives us a proportion of Non-black persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racblk == 1



**Data Appendix 3 -- For Traditional Expansion States Asian vs. Nonasian
Medicaid Adoption by Year

**this output gives us a proportion of Asian persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racasian == 2

**this output gives us a proportion of non-Asian persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & racasian == 1



**Data Appendix 4 -- For Traditional Expansion States GED (or High School
Dimploma) Attainment vs Non-GED attainment
```

```
**this output gives us a proportion of GED education in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & GED == 1

**this output gives us a proportion of no GED education in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & GED == 0


**Data Appendix 5 -- For Traditional Expansion States Hispanic vs. Non-
Hispanic Medicaid Adoption by Year

**this output gives us a proportion of Asian persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & hispan > 0

**this output gives us a proportion of non-Asian persons in Traditional
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & hispan == 0

**Data Appendix 6 -- For Traditional Expansion States Male vs. Female
Medicaid Adoption by Year

**this output gives us a proportion of male persons in Traditional
expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & sex == 1

**this output gives us a proportion of female persons in Traditional
expansion states adoption of Medicaid
collapse hinscaid, by(year), if tradexpand == 1 & poverty > 99 & poverty <
139 & sex == 2
```

Data Appendix 4: 2015 Expansion States, Demographic Analysis Stata Code

```
**Data Appendix 1 -- For 2015 Expansion states White vs. Nonwhite Medicaid
Adoption by Year

**For each iteration, a dataset was uploaded and filtered using the
"expasiongroupseperators" .do file and the master data cited as IMPUS
__________.

**this output gives us a proportion of white persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racwht == 2

**this output gives us a proportion of non-white persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racwht == 1



**Data Appendix 2 -- For 2015 Expansion states Black vs. Nonblack Medicaid
Adoption by Year

**this output gives us a proportion of Black persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racblk == 2

**this output gives us a proportion of Non-black persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racblk == 1



**Data Appendix 3 -- For 2015 Expansion States Asian vs. Nonasian Medicaid
Adoption by Year

**this output gives us a proportion of Asian persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racasian == 2

**this output gives us a proportion of non-Asian persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & racasian == 1



**Data Appendix 4 -- For Nonexpansion States GED (or High School Dimploma)
Attainment vs Non-GED attainment
```

```
**this output gives us a proportion of GED education in 2015 Expansion
adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & GED == 1

**this output gives us a proportion of no GED education in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & GED == 0


**Data Appendix 5 -- For 2015 Expansion States Hispanic vs. Non-Hispanic
Medicaid Adoption by Year

**this output gives us a proportion of Asian persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & hispan > 0

**this output gives us a proportion of non-Asian persons in 2015 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & hispan == 0


**Data Appendix 6 -- For 2015 Expansion States Male vs. Female Medicaid
Adoption by Year

**this output gives us a proportion of male persons in 2015 expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & sex == 1

**this output gives us a proportion of female persons in 2015 expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand15 == 1 & poverty > 99 & poverty <
139 & sex == 2
```

Data Appendix 5: 2016 Expansion States, Demographic Analysis Stata Code

```
**Data Appendix 1 -- For 2016 Expansion states White vs. Nonwhite Medicaid
Adoption by Year

**For each iteration, a dataset was uploaded and filtered using the
"expasiongroupseperators" .do file and the master data cited as IMPUS
__________.

**this output gives us a proportion of white persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racwht == 2

**this output gives us a proportion of non-white persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racwht == 1



**Data Appendix 2 -- For 2016 Expansion states Black vs. Nonblack Medicaid
Adoption by Year

**this output gives us a proportion of Black persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racblk == 2

**this output gives us a proportion of Non-black persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racblk == 1



**Data Appendix 3 -- For 2016 Expansion States Asian vs. Nonasian Medicaid
Adoption by Year

**this output gives us a proportion of Asian persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racasian == 2

**this output gives us a proportion of non-Asian persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & racasian == 1


**Data Appendix 4 -- For Nonexpansion States GED (or High School Diploma)
Attainment vs Non-GED attainment
```

```
**this output gives us a proportion of GED education in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & GED == 1

**this output gives us a proportion of no GED education in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & GED == 0


**Data Appendix 5 -- For 2016 Expansion States Hispanic vs. Non-Hispanic
Medicaid Adoption by Year

**this output gives us a proportion of Hispanic persons in 2016 Expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & hispan > 0

**this output gives us a proportion of non-Hispanic persons in 2016
Expansion states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & hispan == 0


**Data Appendix 6 -- For 2016 Expansion States Male vs. Female Medicaid
Adoption by Year

**this output gives us a proportion of male persons in 2016 expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & sex == 1

**this output gives us a proportion of female persons in 2016 expansion
states adoption of Medicaid
collapse hinscaid, by(year), if expand16 == 1 & poverty > 99 & poverty <
139 & sex == 2
```

Data Appendix 6: White Demographic, All Proportions Aggregated

White Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.26866	0.24063	0.19015	0.18161
2011	0.28926	0.24564	0.18741	0.18724
2012	0.28546	0.25337	0.18455	0.1924
2013	0.2945	0.25568	0.19477	0.19518
2014	0.391	0.2678	0.17951	0.20576
2015	0.47233	0.36665	0.24203	0.21905
2016	0.48847	0.40774	0.31449	0.23652
2017	0.50585	0.43571	0.42374	0.22987
2018	0.50869	0.44255	0.44852	0.23946

Data Appendix 7: Black Demographic, All Proportions Aggregated

Black Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.38598	0.34128	0.28958	0.24181
2011	0.41359	0.36533	0.27155	0.25746
2012	0.41421	0.35674	0.27612	0.26457
2013	0.41696	0.34153	0.29854	0.25819
2014	0.48987	0.37367	0.29778	0.28668
2015	0.5581	0.44708	0.31439	0.29374
2016	0.57495	0.54276	0.40385	0.30894
2017	0.58071	0.53689	0.5442	0.29713
2018	0.5832	0.4918	0.50602	0.31233

Data Appendix 8: Asian Demographic, All Proportions Aggregated

Asian Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.28343	0.21019	0.11111	0.12378
2011	0.32508	0.14835	0.27273	0.11619
2012	0.31575	0.20118	0.19608	0.10775
2013	0.30623	0.13953	0.24444	0.11001
2014	0.41361	0.17582	0.19512	0.14719
2015	0.49963	0.31183	0.22414	0.12092
2016	0.50613	0.37438	0.28261	0.15536
2017	0.53375	0.33562	0.37838	0.18494
2018	0.52349	0.47486	0.4186	0.16839

Data Appendix 9: GED Holders, All Proportions Aggregated

GED Holders Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.26629	0.23916	0.18543	0.1767
2011	0.28562	0.24078	0.19605	0.18202
2012	0.28404	0.24789	0.19102	0.18763
2013	0.28782	0.24154	0.20973	0.19118
2014	0.38396	0.26013	0.18957	0.20652
2015	0.46483	0.36573	0.25264	0.21686
2016	0.48435	0.40245	0.32685	0.23426
2017	0.49983	0.43603	0.43265	0.22931
2018	0.50063	0.43942	0.43738	0.23322

Data Appendix 10: No-GED Attainment, All Proportions Aggregated

No-GED Attainment Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.32413	0.31102	0.33948	0.22834
2011	0.36356	0.33603	0.28736	0.24418
2012	0.35178	0.36326	0.34011	0.25327
2013	0.36103	0.36299	0.35281	0.24271
2014	0.45466	0.37211	0.35749	0.26151
2015	0.53567	0.4064	0.33941	0.27184
2016	0.54172	0.50293	0.44169	0.28548
2017	0.55801	0.51133	0.57692	0.27866
2018	0.56977	0.51016	0.57276	0.29433

Data Appendix 11: Hispanic Demographic, All Proportions Aggregated

Hispanic Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.24723	0.22022	0.11364	0.125
2011	0.25762	0.2167	0.09901	0.13161
2012	0.25879	0.28009	0.15596	0.13948
2013	0.2627	0.20088	0.19565	0.14359
2014	0.35255	0.26489	0.13333	0.14829
2015	0.447	0.31403	0.23846	0.16267
2016	0.46611	0.34694	0.21642	0.1714
2017	0.48517	0.42384	0.34884	0.17232
2018	0.49343	0.3981	0.27869	0.17128

Data Appendix 12: Male Demographic, All Proportions Aggregated

Male Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.24546	0.22957	0.21231	0.1664
2011	0.27452	0.23866	0.19921	0.17596
2012	0.27151	0.2485	0.21088	0.17788
2013	0.27716	0.2494	0.2381	0.18423
2014	0.36832	0.26232	0.19931	0.20579
2015	0.45332	0.35004	0.26271	0.2102
2016	0.46122	0.40242	0.31205	0.22638
2017	0.48138	0.41851	0.42599	0.22042
2018	0.4861	0.41705	0.41121	0.22376

Data Appendix 13: Female Demographic, All Proportions Aggregated

Female Demographic Aggregated				
	Traditional Expanders	2015 Expanders	2016 Expanders	Non-Expanders
2010	0.31139	0.2731	0.23258	0.20896
2011	0.33162	0.27658	0.23095	0.21476
2012	0.32493	0.28568	0.23565	0.224
2013	0.32947	0.27477	0.23988	0.21792
2014	0.42751	0.29427	0.2415	0.22919
2015	0.50407	0.39196	0.27652	0.24431
2016	0.52768	0.43481	0.37937	0.2609
2017	0.53815	0.47353	0.48656	0.25512
2018	0.53914	0.47788	0.49907	0.26335

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