A STUDY OF THE DEMOGRAPHIC AND SOCIOECONOMIC FACTORS INFLUENCING THE PLACEMENT OF RETAIL AND URGENT CARE CLINICS

by
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ABSTRACT

CODY SMITH: A Study of the Demographic and Socioeconomic Factors Influencing the Placement of Retail and Urgent Care Clinics
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Urgent care and retail care clinics are a developing model of health care providers that focuses on immediate walk-in care. This paper explores the influence that hospitals, demographic, and socioeconomic factors have on the placement of these clinics. This study employs a comparative quantitative design to explore the association of these variables with the placement of urgent care and retail clinics in Mississippi's Public Health Districts I and II, which comprise the northernmost twenty counties in the state. The findings show that a high population size, high median household income, low percent of families in poverty, and a low uninsured rate in the counties were strong indicators of whether a retail or urgent care clinic would be present in a county. The findings also showed that there was a weak association between the presence of hospitals and the presence of urgent care and retail care clinics. This study demonstrates that urgent care and retail clinics are generally not serving the most rural and poor counties.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

INTRODUCTION

Urgent and retail care clinics have been on the rise for decades. They are a developing model to provide cost effective health care to patients outside of the emergency department for non life threatening illnesses. Urgent care clinics are defined as the delivery of ambulatory medical care that is provided outside of an emergency department on a walk-in basis. Retail clinics are clinics that are established in a retail store, supermarket, or pharmacy in order to provide convenient care to patients. These clinics could serve as a way to increase health care access to underserved populations by providing a cheaper alternative to emergency departments in areas that do not have the infrastructure or health care base to support a hospital. With the increase in the number of urgent care and retail clinics, there should be an exploration in the role they play with increasing health care access and if they are being established in critical need areas.

This study employs a review of literature pertaining to urgent care and retail clinics, demographic and socioeconomic profiles of Mississippi's Public Health Districts I and II, and a comparative quantitative analysis. The findings contribute to understanding what role demographic and socioeconomic factors play in the location of these clinics, and it evaluates whether or not these clinics increase health care access in North Mississippi.

LITERATURE REVIEW

The studies included in this review were chosen to describe urgent care and retail care clinics and to discuss the benefits and challenges of those clinics with providing care. Most of the existing literature focuses on the development of retail and urgent care clinics and how they are serving as an alternative to emergency departments in regards to minor care. Frederick (2013) reported that a visit to an urgent care or retail clinic would cost about 10 times less than a visit to the emergency department, and that retail and urgent care clinics are serving as an alternative to the emergency department. Weinick, Burns, and Mehrotra (2010) show that 14%-27% of all emergency department visits could take place at retail clinics or urgent care centers, with a potential cost savings for the health care system of $4.4 billion a year across the nation. These clinics have the potential to provide cost effective alternatives to emergency departments.

Urgent Care

Frederick (2013) reported that urgent care clinics change the way health care is provided by being more patient centric by providing more flexible hours for patients, and that they are able to go into places to fill in health care voids. Urgent care clinics represent a business model solution to health care access and cost issues. They are providing a cheaper alternative to the emergency department and are able to provide clinics and care in areas that would not be able to support an emergency department or areas that do not

have a strong health care infrastructure. Japsen (2013) showed that there were over 8,000 urgent care clinics and walk-in care clinics in the U.S., and the business is growing by about 10% a year. This is reinforced by the trend of MedExpress, the third largest operator of walk-in clinics in the nation. Nixon (2013) found that MedExpress Urgent Care Clinics has increased from 75 clinics in 2012 to 115 by the end of 2013. Urgent care clinics as a provider of immediate care are growing at a fast rate in the United States.

Patients' responses to urgent care clinics are usually positive. Qin, Prybutok, and Wang (2015) found that urgent care clinics perform well in the experience of technical quality (patients were more confident in the clinic's abilities) in a survey of patients that measured experiences in urgent care clinics, primary care physicians' offices, and hospitals. The results were that urgent care clinics performed better than hospitals, and slightly worse than primary care offices. This shows that patients generally have positive experiences with urgent care and that there are positive responses to urgent care. Qin et al. (2015) also found that there were not statistically significant differences in perceptions of efficiency between urgent care and emergency departments, but that primary care providers were usually perceived as being more efficient by patients. Urgent care clinics were also seen as more accessible in the surveys. According the the surveys, patients are receptive to urgent care, and that they could be used as a substitute for emergency departments in regards to non-life threatening illnesses. The general perception of urgent care clinics is that they are competitive with the quality of care provided as emergency departments, but are more accessible to patients.

Shrank et al. (2014) used quantitative data from medical and prescription claims with health care insurer Aetna to measure the quality of care of urgent care and retail clin-

ics. The study population included commercial members with a visit to a MinuteClinic, Urgent Care facilities, or emergency department for urinary tract infection, ear infection, or strep throat across twenty-five states and the District of Columbia. Quality of care was assessed using the 14 measures constructed from RAND Corporation's Quality Assurance Tools, as well as guidelines from American Academy of Pediatrics and the American Academy of Family Physicians. The researchers assessed the data between the MinuteClinics, urgent care clinics, and the emergency department, using a binomial distribution and logic link. Shrank et al. (2014) found that quality of care was not compromised in urgent care clinics, and even appeared superior in retail clinics for acute conditions, while also costing less to provide care. These results demonstrate that patients are overall supportive of urgent care clinics and that quality of care would not be risked with a transition to these clinics over emergency department care for non-life threatening illnesses.

The Hospitals and Health Network (2015) discovered that urgent care clinics are going through a revolution after the Affordable Care Act. They found that many hospitals have realized the potential of the clinics and are teaming up to provide immediate care without utilizing the emergency department for non-life threatening care. The Hospitals and Health Network (2015) theorized that the higher demand of these quicker and cheaper clinics has risen because of the shift of cost of care to patients because of higher deductibles. Clinics in England have already led to a decrease in the number of visits to the more expensive emergency departments. Arain, Campbell, and Nicholl (2013) found that the opening of a general practice walk-in clinic in Sheffield, England had an 8% reduction in emergency department visits and has the potential to decrease emergency department visits by about 20%. With the high costs of emergency departments to both hospi-

tals and patients, urgent care has become a strong and popular alternative for quick care to patients and hospitals.

Urgent care has the potential to provide more accessible health care at a fraction of the cost of emergency departments for patients with non-life threatening illnesses. This opens up urgent care clinics as a potential solution to increase access to care in areas that lack emergency departments for patients who seek immediate care with non-life threatening conditions. If these clinics set up in areas with underserved populations, they could be beneficial for the local health care infrastructure by providing quick and accessible care. This could further lower costs by improving preventive care by proving a convenient and local place for patients to receive care. If the patient is able to receive quick convenient care, they would be more likely to get care before an illness advances to a stage where the patient would be forced to seek emergency care. Urgent care clinics have the potential to increase access to care without raising costs, and their development could be a cost saving measure for patients, hospitals, and insurers.

Retail Clinics

Retail clinics, or convenient care clinics, are clinics that do not require appointments and that treat minor illnesses, perform vaccinations, and provide screenings at a retail store, supermarket, or pharmacy. Ahmed and Fincham (2011) found that retail clinics are attractive to urban patients because of the location convenience, and if the clinics offer cost savings, patients are more likely to go there than the emergency department. Retail clinics are able to decrease the health care accessibility gap by employing nurse

practitioners and physician's assistants in convenient locations to help provide health care.

McKinlay and Marceau (2012) explained the rise of retail clinics since 2000 in 6 stages: 1) conditions conductive to the emergence of retail clinics, 2) growing public acceptance, 3) professional resistance then capitulation, 4) institutional recognition, 5) concentration of ownership, and 6) the dominant form of primary care. It is becoming more common for the clinics to be a joint venture between hospitals and retail stores, with the retail stores being able to provide the space and lower cost overhead, while the hospitals handle the practice and care of the clinics, which accomplishes the second through fifth conditions that McKinlany and Marceau established. Kaissi and Charland (2013) stated that hospitals could use retail clinics to lower the burdens on emergency departments, by transitioning non emergency cases to the retail clinics. This could provide treatment options with lower overhead, and therefore at a lower cost, than doctor visits and emergency department visits. Hospitals have been acquiring more facilities like retail and urgent care clinics to provide health care, with the percentage of hospital-affiliated physicians increasing from 24% in 2000 to 54% in 2012, according to the Medical Group Management Association (2013). This coupled with the retail clinics, increase the amount of outpatient care hospitals can provide, therefore decreasing the costs of health care. Sussman et al. (2013) found that retail clinics saved $77 over physician's offices, and $121 over hospital inpatient care among CVS Caremark employees and dependents who used retail clinics nationwide.

Shrank et al. (2011) analyzed claims from 2007 to 2009 from Aetna on 367,448 enrollees who had at least 1 visit to a retail clinic, as well as a random sample of

1,010,910 enrollees in the same markets who did not visit a retail clinic. Ashwood et al. (2011) used logistic regression to predict the likelihood of a patient visiting a retail clinic versus other care sites. They also analyzed the data using the method of predictive margins to estimate the marginal effect of each predictor on retail clinic use. Ashwood et al. (2011) found that retail clinic use increased between January 2007 and December 2009 from a monthly rate of 0.3 visits per 1000 visits to 2.7 visits visits per 1000 visits. The research indicated that convenience was a strong reason for an increase in the use of retail clinics. Angstman, Bernard, Rohrer, Garrison, and MacLaughlin (2012) found that adult patients who had no insurance or high deductibles were more likely to use retail clinics than adults who had insurance that covered both primary care clinics and retail clinics equally. These authors also found that pediatric patients were less likely to have repeat retail clinic visits than the adult population. This shows that retail clinics have the potential to increase the access of care in areas that have lower insurance rates or areas that have patients with higher deductibles (which are qualities that are highly represented in underserved communities).

Retail clinics also have potential for increasing the access of health care for underserved populations. Retail clinics would use a center in a store for onsite care, which increases ease of access for patients. They tend to have lower overhead than urgent care clinics, but usually provide a lower range of service than urgent care clinics (focusing more on vaccinations, physicals, minor injuries, etc.). These clinics are able to provide quick walk-in care for minor illnesses at a fraction of the costs of urgent care clinics and physician offices. They could serve as a strong supplement to patients with primary care physicians, especially in regards to minor illnesses that require immediate care.

Challenges

McKinlay and Marceau (2012) argue that retail clinics will become a dominant form of primary care and that this is in response to more patients seeking quick and convenient care. Retail clinics are well suited to become a major player in primary care; if they can be extended to cover areas where there are underserved populations who are in need of lower cost and convenient care. However, this poses a risk to patients establishing long term medical homes, which would be devastating to the long term health of the patients. These clinics are not well suited for primary care due to their focus on minor care. Such clinics are not designed for comprehensive continual care, but rather for immediate care addressing specific minor illnesses. These clinics would focus on treatment over preventive care in order to generate revenue.

Hatala (2015) stated that the increase in retail and for profit urgent care clinics will lead to a focus of maximizing customers and revenues over quality of health care. The focus on maximizing the number of customers supports the concern that these clinics will pose issues with establishing medical homes. The author also stated that retail clinics will lead to a change of how the patients are viewed, with the concern that the patients will be viewed as "customers" more than "patients". This poses a problem because the idea that "the customer is always right" does not apply to health care. This could lead to a transition of the medical providers telling a patient what they want to hear instead of what they need to hear, like changes in lifestyle. These clinics could bring new challenges to health care by redefining health care as a commodity.

Conclusion

Urgent care clinics and retail clinics are becoming a popular and fast growing response to the rising need in cost effective and convenient care for patients. They are shown to be acceptable to patients for care, and preferred over the more expensive emergency department. Hospitals are also expanding in to the clinics as an offsite alternative to emergency departments as a way to curb costs while also providing care. With the growth in popularity of these clinics since 2000, they are becoming a major part of the health care system.

The American College of Emergency Physicians (2005) released a report that stated that American hospital emergency departments were facing an overburdened system that has seen a 14% decrease in the number of emergency departments since 1993, but saw a an increase in four million patients in 2003 compared to 2004. Urgent care and retail care clinics have the ability to provide relief to the overburdened hospital emergency department system, as well as increase accessibility to health care in underserved areas. One area where they have the potential to have a major impact is in providing health care is in rural areas. Frederick (2013) reported about a Blue Cross Blue Shield study that showed emergency department visit rates are higher in rural areas at about 200 per 1,000 Blue Cross members, compared to 140 per 1,000 urban members. This demonstrates that there is a need in the rural areas of alternatives to the emergency department in order to lower the cost of health care. These non-traditional clinics may be able to help fill the gap in health care in underserved areas by providing cost effective clinics that are able to treat minor illnesses to prevent them from progressing to serious illnesses that would increase the cost of care on patients, hospitals, and insurers. This makes rural areas

prime areas for retail and urgent care clinics to practice in to fill the health care void that rural areas have, as well as to meet the higher demand on emergency departments.

Hypotheses

Based on the literature review, it was hypothesized that retail and urgent care clinics would be established in areas without access to a hospital. It was also hypothesized that the clinics would be established in areas that need lower cost health care such as areas with low household incomes, high poverty, and high uninsured rates. The literature also noted that the clinics would be established in urban areas where the clinics would be more convenient. The research evaluates the placement of urgent care and retail clinics in the twenty counties of Mississippi's Public Health Districts I and II compared to hospital locations, demographic factors, and socioeconomic factors.

RESEARCH METHODS

The research for this project took place between August, 2015 and April, 2016. This project employed a comparative quantitative research design with county-level aggregate data to evaluate the demographic and socioeconomic characteristics associated with the location of urgent care and retail care clinics.

The geographic scope of this project consists of the first two public health districts of Mississippi which encompasses the northern twenty counties of Mississippi. These districts include Alcorn, Benton, Coahoma, DeSoto, Grenada, Itawamba, Lafayette, Lee, Marshall, Panola, Pontotoc, Prentiss, Quitman, Tallahatchie, Tate, Tippah, Tishomingo, Tunica, Union, and Yalobusha counties. These twenty counties represent a diverse area, from the rich Memphis suburbs of DeSoto County to the rural counties of Benton and Tishomingo and the poor counties of Quitman and Coahoma. Using these diverse counties allowed for an evaluation of the influence demographic characteristics and socioeconomic factors could have on the location of retail and urgent care clinics, while keeping the Southern cultural and Mississippi statewide legal factors constant.

Independent Variables

Data from the United States Census Bureau were gathered from American Factfinder (http://factfinder.census.gov) to build demographic and socioeconomic profiles of the individual counties. Data from the 2010 Decennial Census, which is conducted every

ten years and gathers general information on the population, were used to measure median age, portion of the population living in an urban area, and total population. An urban area is classified by the Census Bureau as a residential area that is settled by at least 2,500 people. The five-year estimates from the 2009-2013 American Community Survey (ACS), which is a summary of sample survey responses gathered aggregated across five years, were used to measure median household income, percent of families below poverty, and the percent of the population uninsured. The Decennial Census data are based on an attempt to count the actual number of people dwelling in the U.S. The ACS collects data every year by mail with follow ups by telephone or in-person interviews. The data concerning the number of hospitals in these counties was gathered from the Mississippi State Department of Health's 2010 Directory of Mississippi Health Facilities.

Dependent Variable

The Mississippi Department of Health does not currently maintain a list of retail and urgent care clinics in Mississippi. Research was needed to gather a list of clinics in the first and second Public Health Districts. This list was composed in 2015 by searching for the clinics through yellow pages and other online searches using key words such as urgent care clinics and retail clinics. This was also verified by contacting the county health departments to check on the presence of retail and urgent care clinics and was verified with urgentcarelocations.com/ms/mississippi-urgent-care which compiles a list of urgent and retail care clinics in Mississippi. Retail care clinics were classified as clinics operating out of a retail store, supermarket, or pharmacy (such as Walmart or Walgreens), and urgent care clinics were classified as clinics that treated walk-in patients during set busi-

ness hours for immediate care that is not serious enough for a hospital's emergency department.

Statistical Analysis

All data were analyzed with IBM's Statistical Package for the Social Sciences (SPSS) software to assess whether the demographic and socioeconomic characteristics of a county and the presence of hospitals were associated with the location of urgent care and retail clinics. The demographic and socioeconomic variables were recoded into quartile categories for crosstabulation analysis. The first quartile represents the lowest scoring five counties and the fourth quartile represents the highest scoring five counties on each of the variables being analyzed.

Crosstabulation tables with column percentages were created to investigate the bivariate associations, and Cramer's V was used to measure the strength of association between these variables. Cramer's V is an index ranging from 0 to 1, with higher scores representing a stronger association ($V < 0.1$ is considered weak, V between 0.1 and 0.3 is moderate, and $V > 0.3$ is strong). Lambda was also used to evaluate the ability to predict the possibility of a clinic to be placed in a region, given the values of the independent variables. Lambda is measured from 0 to 1, and gives the reduction of errors made in predicting the dependent variable when the independent variable is known. Although Cramer's V and Lambda do not measure the direction of a relationship (positive or negative), the patters were inferred by comparing column percents in the crosstabulations.

Significance testing was not a major focus of this project, given that with the exception of ACS estimates, the data represented populations and characteristics in a com-

mon geographic region, rather than randomly sampled people, groups, or places. However, since some readers may find meaning in p-value tests, the p-values are represented with the tables. Given the low number of counties (twenty counties) in this study, an alpha cutoff of ≤ 0.1 should be considered statistically significant. In other words, when $p \leq 0.1$, it is considered that the probability of finding an association this strong or stronger (according to the V or Lambda value) if the null hypothesis of no association was actually true is low. This then lends support to the research hypothesis.

There are a few caveats with the methodology that should be acknowledged. One weakness with the methodology was the way the urgent care and retail care clinics were discovered. As previously mentioned, the Mississippi Health Department does not currently maintain or publish a list of urgent care and retail care clinics within Mississippi, so there is no official list. Another weakness with the research is the limited number of cases analyzed. Though the northern twenty counties of Mississippi represent a diverse area, it is still a small sample that could skew the results. Finally, it should also be noted that since the ACS data re based on sample surveys, there are corresponding margins of error for the estimates. These are not accounted for in the hypothesis test, because that would go beyond the scope of this study.

FINDINGS

Locations of Urgent Care Clinics, Retail Care Clinics, and Hospitals

Research found that there were only three retail care clinics in Public Health Districts I and II, with two located in DeSoto County and one located in Lafayette County. With finding urgent care clinics, half of the counties did not have an urgent care clinic (Table 1). Of the ten that did: Itawamba, Grenada, Pontotoc, and Prentiss had one each; Panola had two; Alcorn had three; Lee, Lafayette, and Union had four; and DeSoto had six (Table 1). With the research focusing on the comparison of counties that had at least one of these clinics, compared to the counties that did not, ten counties had one or more retail and urgent care clinics and ten counties did not (Table 1). According to the Mississippi Department of Health: Benton, Itawamba, and Tunica were the only counties that did not have a hospital. Of the counties that did have hospitals, DeSoto had two while the rest of the counties had one (Table 1).

Demographic and Socioeconomic Profile of the Counties in Mississippi Public Health Districts I and II

The 2010 county populations ranged in size from the populous 161,252 in DeSoto to the less populous 8,223 in Quitman and 8,729 in Benton (Table 2 & Figure 1). Out of twenty of the counties, only four (Coahoma, DeSoto, Lafayette, and Lee) had half or more of their residents considered urban while two counties (Benton and Tishomingo)

had 0% of their inhabitants considered urban (Table 2 & Figure 2). The median age of the counties ranged from 27.7 in Lafayette and 32.1 in Tunica to 42.0 in Tishomingo and 40.6 in Yalobusha (Table 2 & Figure 3).

The 2013 American Community Survey estimated that during the timeframe of 2009-2013, the median household income ranged from $22,863 (90% margin of error +/- $2,222) in Quitman to a much higher $58,505 (+/- $1,077) in DeSoto (Table 3 & Figure 4). The percentage of families in poverty for the 2009-2013 timeframe in the area ranged from 7.4% (+/- 0.9%) in DeSoto to 36.7% (+/- 5.6%) in Quitman (Table 3 & Figure 5). The uninsured rate for 2009-2013 ranged from 11.8% (+/- 1.8%) in Itawamba County to 22.9% (+/- 3.2%) in Quitman (Table 3 & Figure 6). As these ranges show, there are major disparities between the counties of these two health districts which provides for a strong comparative analysis between the locations of urgent and retail care clinics in the Mississippi Public Health Districts I and II.

Crosstabulations

Table 1. Association between location of retail and urgent care clinics and demographic and socioeconomic characteristics in Mississippi counties in Public Health Districts I & II

	Cramer's V Value	Lambda Value
Hospitals	0.140 (p= 0.531)	0.077 p= 0.808
Population	0.600 (p= 0.066)	0.360 (p= 0.060)
Percent Urban	0.140 (p= 0.531)	0.280 (p= 0.174)
Median Age	0.200 (p= 0.849)	0.120 (p= 0.508)
Median Household Income	0.600 (p= 0.066)	0.360 (p= 0.039)
% Families in Poverty	0.600 (p= 0.066)	0.360 (p= 0.039)
% Uninsured	0.447 (p= 0.261)	0.280 (p= 0.174)
N= 20 Counties		

Sources: United States Census Bureau 2010: Decennial Census and 2009-2013 American Community Survey; Research for the Clinics; 2010 Mississippi Department of Health Directory of Mississippi Health Facilities for Hospitals. Table by Author.

The research showed that there was a weak positive association between the presence of hospitals and the presence of the urgent care and retail clinics with the Cramer's V value being 0.140 and the Lambda value being 0.077. Of the counties that had no hospital, two had no clinics and one county did have a clinic, and of the counties that had hospitals, nine had clinics and eight did not (Figure 7).

There was a strong positive association between population size and the presence of the clinics with a Cramer's V of 0.600 and a Lambda value of 0.360. The first quartile of counties (i.e. those with the lowest populations) had no counties with a retail or urgent

care clinic, the second and third quartiles both had three counties with clinics and two counties with no clinic, and the fourth quartile (i.e. those with the highest populations) had four counties with clinics and one county without a clinic (Figure 8).

There was a weak to moderate positive association between the presence of clinics and the percentage of the population that was urban, with a Cramer's V value of 0.140 and a Lambda value of 0.280. The first quartile of counties had three counties with a retail or urgent care clinic and two that did not, the second quartile of counties had one county that had a clinic while four did not, the third quartile had two counties that had a clinic while three counties did not, and the fourth quartile had four counties that contained a clinic while one county did not have a clinic (Figure 9).

There was a moderate negative association between median age and the presence of the clinics with a Cramer's V of 0.200 and a Lambda value of 0.120. The first quartile of counties had two counties that had clinics and three that did not, the second and third quartiles of counties each had three counties that had a clinic while one did not, and the fourth quartile had two counties that contained at least one clinic while three county did not have a clinic. (Figure 10).

There was a strong positive association between median household income and the presence of the clinics with a Cramer's V of 0.600 and a Lambda value of 0.360. The first quartile of counties had no counties with a clinic, the second and third quartiles of counties both had three counties that had a clinic while two did not, and the fourth quartile had four counties that contained at least one clinic while one county did not have a clinic (Figure 11).

Similarly, there was a strong negative association between the percent of families in poverty and the presence of the clinics with a Cramer's V of 0.600 and a Lambda value of 0.360. The first quartile of counties had one county with a clinic and four counties without a clinic, the second and third quartiles of counties had three counties that had a clinic while two did not, and the fourth quartile had no counties with a clinic (Figure 12).

There was a moderate to strong positive association between the uninsured level and the likelihood of a retail or urgent care clinic being present with a Cramer's V value of 0.447 and a Lambda value of 0.280. The first quartile of counties had three counties with a clinic and two counties without a clinic, the second quartile had four counties with a clinic and one county without a clinic, the third quartile of counties had two counties that had a clinic while three did not, and the fourth quartile had one county with a clinic and four counties without clinics (Figure 13).

Conclusion

The findings show that a higher population size, higher median household income, lower percent of families in poverty, and a lower uninsured rate in the counties were strong indicators of whether a retail or urgent care clinic would be present in a county, which refutes the hypothesis that clinics would be established in limited resource socioeconomic areas. The measurement of hospital was harder to establish due to the high number of counties that had a hospital. The research also showed that the percentage of a county's population living in an areas classified as urban did not have a strong association with whether or not a clinic would be present, which refutes the hypothesis that the clinics were being established in urban areas where they would be more convenient.

The findings also show that there is a moderate association between a low median age and the presence of a clinic.

DISCUSSION AND CONCLUSION

The findings from this research demonstrates that demographic and socioeconomic factors have a moderate association with the presence of retail and urgent care clinics in North Mississippi. There is a stronger association between population size, household income, poverty levels, and uninsured rate than there was for hospitals, median age, and percent urban. This shows that the clinics are following the market where there is a higher insured populace, higher median household income, and a lower poverty rate. In other words, while urgent care and retail clinics may have the potential to help fill health care gaps in traditionally underserved areas, they are currently less likely to locate in these areas. The results also highlight that though there was a strong association between the uninsured rate and the the presence of a retail or urgent care clinic, there was a lower likelihood for a clinic to be located in counties with lower levels of uninsured residents, which refutes the literature and hypothesis.

One interesting finding was that there is a moderate association between the median age and the presence of a clinic. This could be explained by the relative convenience of the clinic and their focus on minor care. Older populations require more extensive and constant care, while younger individuals are focused on quick and convenient care for temporary illnesses. This could pose an issue in the establishment of medical homes for younger individuals, however. Access to cheap and convenient care provides less incentive for establishing medical homes. McKinlay and Marceau (2012) theorized that retail

clinics are in the stage where they become a dominant form of primary care and that this is in response to more patients seeking quick and convenient care. If these clinics are used by younger individuals, it could provide evidence that these authors were correct in that the clinics may become a major provider of primary care, at the risk of establishing long term medical homes for younger individuals. One way to prevent retail and urgent care clinics from preventing the establishment of medical homes would be to offer insurance incentives to promote medical homes for continuous care. Urgent care and retail clinics should be focused on a cheaper alternative to emergency departments for minor illnesses, and not as an alternative to continual primary care.

Ahmed and Fincham (2011) stated that retail and urgent care clinics were attractive to urban residents, and the findings showed that there was a weak to moderate association between percent of the county population living in an urban center and the location of a clinic. These clinics were more likely to be located in areas with higher urban percentages (Figure 9). This reinforces the hypothesis that the clinics are attracted to concentrated population centers, but there is not a strong association for this, which could be explained by the generally limited number of metropolitan areas.. This does, however, pose the question how can these clinics be attracted to a more rural setting? One theory could be that urban areas are busier than rural areas, so quick and convenient care is more attractive in these areas.

The literature review showed how beneficial these clinics could be to areas that are underserved, but the empirical research showed that the clinics are not located in the higher status and more developed socioeconomic areas and are not covering the underserved at any higher rates. The business model that these clinics are based on could ex-

plain why the clinics are not being established in areas that do not have strong socioeconomic profiles. Expansion of these clinics to the underserved areas could improve access to affordable health care in North Mississippi. The data used in this research were collected during the implementation of the Patient Protection and Affordable Care Act, which is increasing insurance coverage, so the uninsured rate should be decreasing. Under the business model that the clinics follow, this does expand the potential customer base and market for the clinics in the underserved areas, which may lead to the clinics developing in these areas.

Because of the high number of counties that have hospitals, it was harder to establish a strong association. More research is needed in areas with more disparity between counties that have hospitals and counties that do not have hospitals, and attention should be paid to hospital scale and scope. The current research is weak due to the proliferation of hospitals in the first and second public health districts of Mississippi. However, according to the research, there was a majority of counties that did have a hospital did have a retail and/or urgent care clinic, while a majority of the counties that did not have a hospital did not have a retail and/or urgent care clinic. This shows that the clinics are going to areas that already have established health care infrastructure with hospitals. The clinics and hospitals are likely being established in the same areas because of their attraction to population centers.

New health care policies could be created to encourage the establishment of these clinics in areas without hospitals, or policies could be created to replace hospitals and/or their emergency departments with these clinics in counties that the hospitals are too expensive to operate in. One potential issues is that, according to the literature review,

these clinics would decrease the use of hospital emergency rooms, which could lead to consolidation. This would require a new coordinated care plan. Hospitals could be consolidated into regional areas by replacing them with community health centers that would be able to provide the more extensive and continuous care that hospitals provide, while the retail and urgent care clinics could serve as the immediate care providers for minor illnesses. Evaluation of emergency medical service substations could help maintain emergency coverage for ambulances. This type of coordinated care might be able to provide access to care while being more cost effective. Policy tools that could be used to promote the establishment of retail and urgent care clinics could be subsidies and tax breaks to encourage the development of these clinics. These clinics would need stronger incentives in order to be attracted to the counties that have a hospital, but a lower socioeconomic profile, however. If these clinics could be attracted to these counties, and the hospital emergency departments phased out of the counties with a low population and consolidated by region, it could increase efficiency of the health care infrastructure in North Mississippi.

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APPENDIX

Table 2. Health care organizational infrastructure in Mississippi counties of Public Health Districts I & II

	Retail Clinics (2015)	Urgent Care Clinics (2015)	Retail and Urgent Care Clinics Combined (2015)	Hospitals (2010)
Alcorn	0	3	3	1
Benton	0	0	0	0
Coahoma	0	0	0	1
DeSoto	2	6	8	2
Grenada	0	1	1	1
Itawamba	0	1	1	0
Lafayette	1	4	5	1
Lee	0	4	4	1
Marshall	0	0	0	1
Panola	0	2	2	1
Pontotoc	0	1	1	1
Prentiss	0	1	1	1
Quitman	0	0	0	1
Tallahatchie	0	0	0	1
Tate	0	0	0	1
Tippah	0	0	0	1
Tishomingo	0	0	0	1
Tunica	0	0	0	0
Union	0	4	4	1
Yalobusha	0	0	0	1

Source: Research for the Clinics and the 2010 Mississippi Department of Health Directory of Mississippi Health Facilities report for Hospitals. Table by Author.

Table 3. Demographic characteristics of Mississippi counties in Public Health Districts I & II

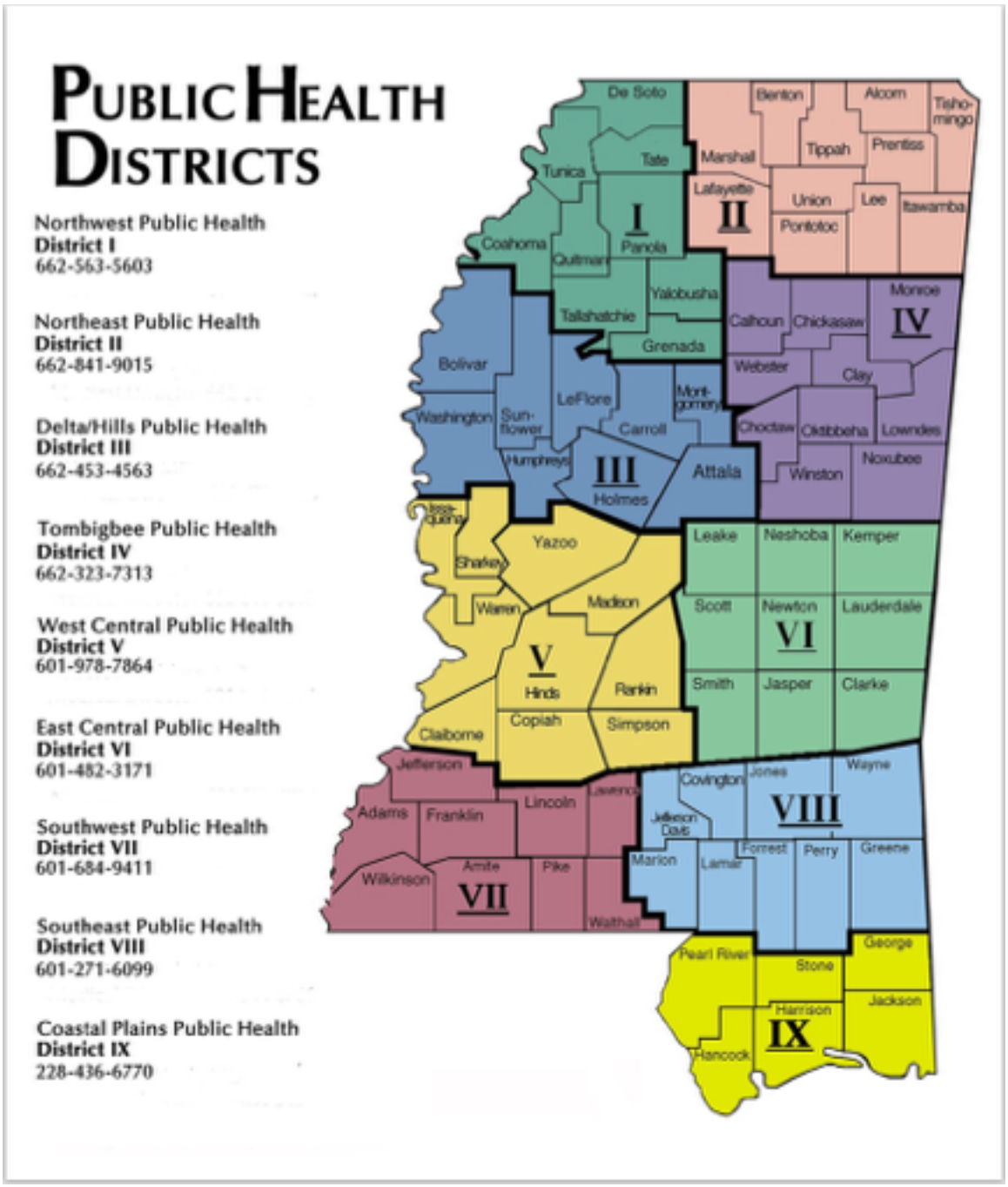
	Median Age	Population	Percent Urban
Alcorn	39.2	37,057	33.65%
Benton	39.4	8,729	0.00%
Coahoma	32.8	26,151	68.00%
DeSoto	35	161,252	79.57%
Grenada	39.4	21,906	47.85%
Itawamba	38.5	23,401	13.75%
Lafayette	27.7	47,351	54.42%
Lee	36.4	82,910	54.64%
Marshall	38.3	37,144	19.68%
Panola	36.5	34,707	13.85%
Pontotoc	36.4	29,957	20.20%
Prentiss	38.5	25,276	13.99%
Quitman	37.3	8,223	43.00%
Tallahatchie	35	15,378	19.05%
Tate	36	28,886	22.61%
Tippah	38	22,232	16.16%
Tishomingo	42	19,593	0.00%
Tunica	32.1	10,778	33.98%
Union	37.5	27,134	24.44%
Yalobusha	40.6	12,678	20.68%

Source: United States Census Bureau. 2010 Decennial Census. Table by Author.

Table 4. Socioeconomic characteristics of Mississippi counties in Public Health Districts I & II

	Median Household Income	Margin of Error	% of Uninsured	Margin of Error	% of Families in Poverty	Margin of Error
Alcorn	33,600	2,718	16.8%	1.7%	16.00%	2.8%
Benton	31,060	8,645	18.1%	4.5%	21.60%	6.1%
Coahoma	26,407	1,313	18.9%	2.1%	33.80%	3.5%
DeSoto	58,505	1,077	14.7%	0.9%	7.40%	0.9%
Grenada	34,129	2,876	16.1%	2.4%	17.70%	3.7%
Itawamba	36,073	1,965	11.8%	1.8%	10.30%	2.5%
Lafayette	43,328	2,887	16.0%	1.8%	12.50%	2.6%
Lee	42,074	1,643	14.5%	1.4%	16.00%	1.5%
Marshall	36,022	2,593	18.8%	2.1%	18.30%	3.4%
Panola	35,715	2,582	16.5%	2%	19.30%	3.1%
Pontotoc	39,899	2,381	17.3%	1.9%	9.30%	2.1%
Prentiss	32,503	2,557	19.5%	2.3%	19.50%	4.1%
Quitman	22,863	2,222	22.9%	3.2%	36.70%	5.6%
Tallahatchie	29,853	3,521	19.2%	2.7%	24.80%	5.2%
Tate	41,494	2,047	17.1%	2.1%	13.60%	2.9%
Tippah	34,636	4,402	15.9%	2.2%	20.30%	4.5%
Tishomingo	32,592	2,246	16.9%	2.2%	14.20%	2.7%
Tunica	31,446	2,197	20.8%	2.8%	23.80%	6.6%
Union	38,373	3,414	18.1%	2.5%	19.10%	2.6%
Yalobusha	32,930	4,269	12.9%	2.5%	18.20%	4.1%

Source: United States Census Bureau. 2009-2013 American Community Survey. Table by Author.



Map 1. Map of the Mississippi Public Health Districts.
Source: Mississippi State Department of Health website.

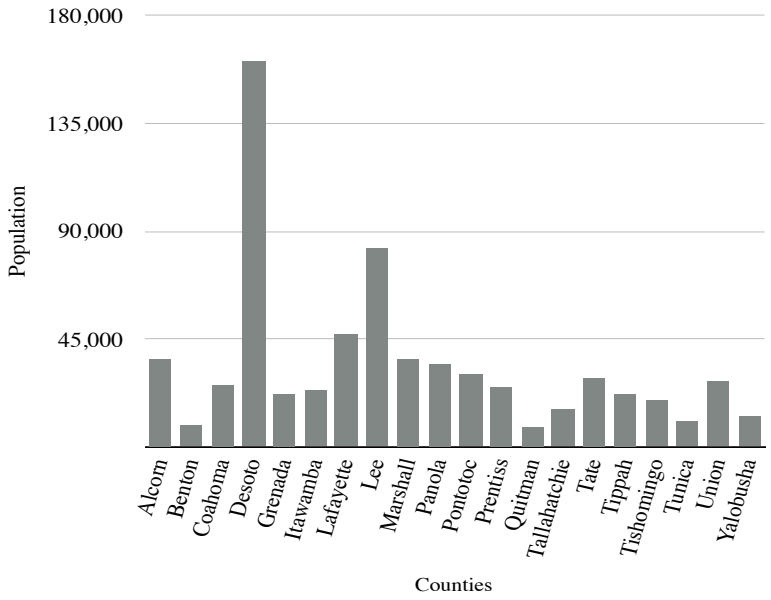


Figure 1. Population of Mississippi counties in Public Health Districts I & II (2010)
Source: United States Census Bureau. 2010 Decennial Census. Figure by Author.

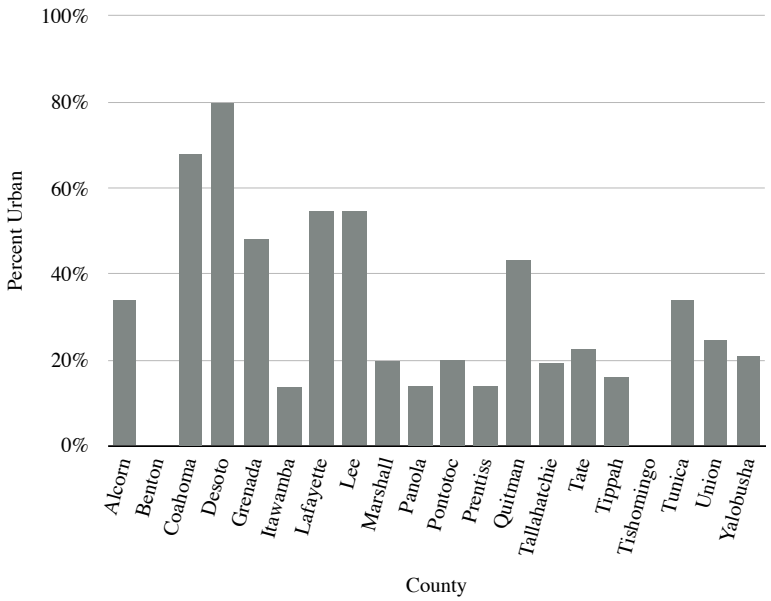


Figure 2. Percent urban in Mississippi counties in Public Health Districts I & II (2010)
Source: United States Census Bureau. 2010 Decennial Census. Figure by Author.

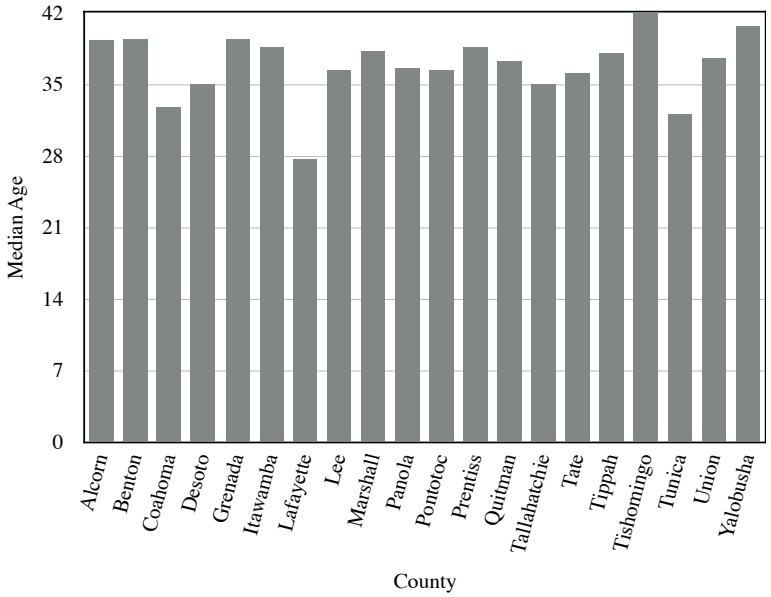


Figure 3. Median age of population of Mississippi counties in Public Health Districts I & II (2010)
Source: United States Census Bureau. 2010 Decennial Census. Figure by Author.

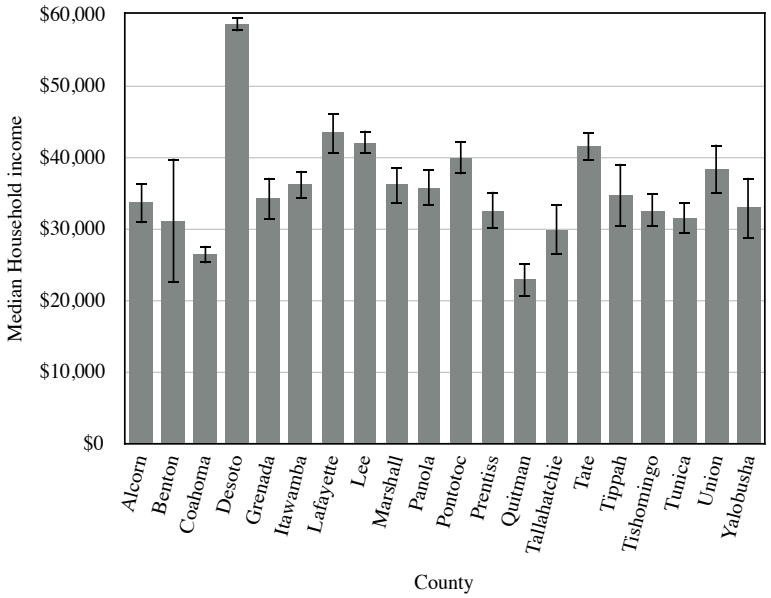


Figure 4. Median household income of Mississippi counties in Public Health Districts I & II (2009-2013)
Source: United States Census Bureau. 2009-2013 American Community Survey. Error bars are for 90% confidence intervals. Figure by Author.

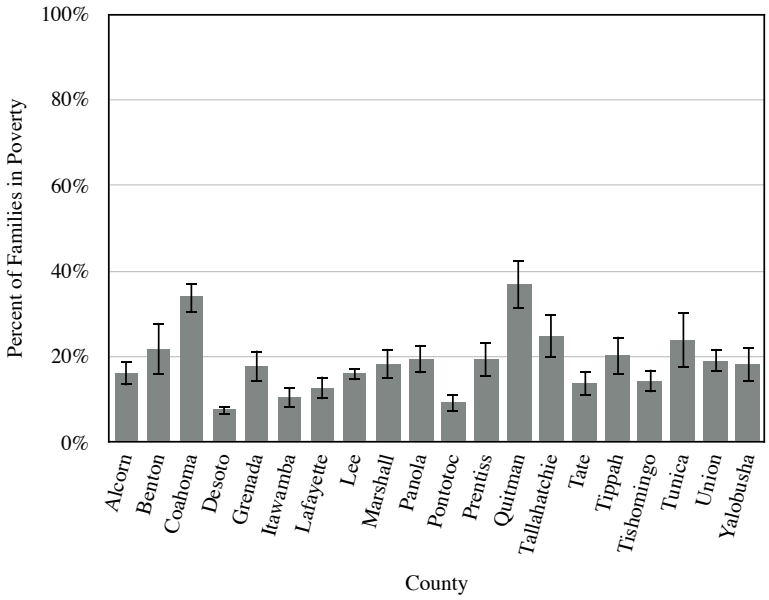


Figure 5. Percent of families in poverty in Mississippi counties in Public Health Districts I & II (2009-2013)
Source: United States Census Bureau. 2009-2013 American Community Survey. Error bars are for 90% confidence intervals. Figure by Author.

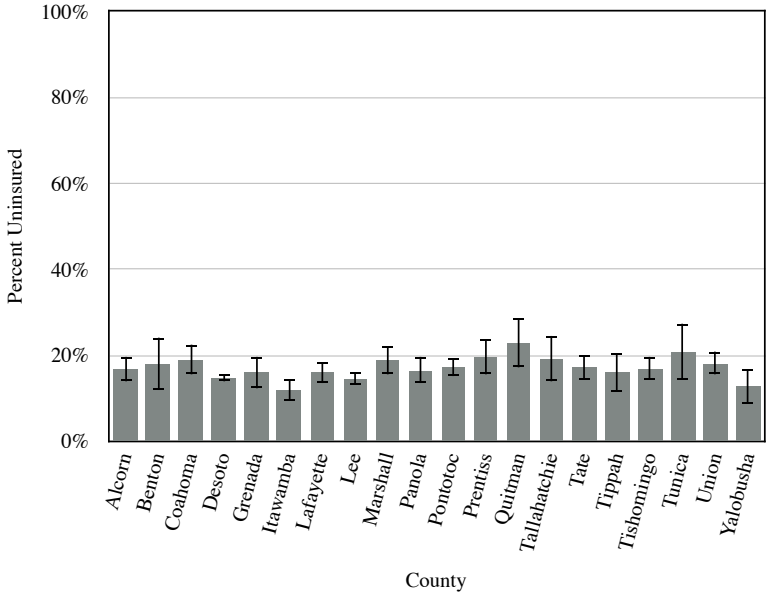


Figure 6. Percent uninsured of Mississippi counties in Public Health Districts I & II (2009-2013)
Source: United States Census Bureau. 2009-2013 American Community Survey. Error bars are for 90% confidence intervals. Figure by Author.

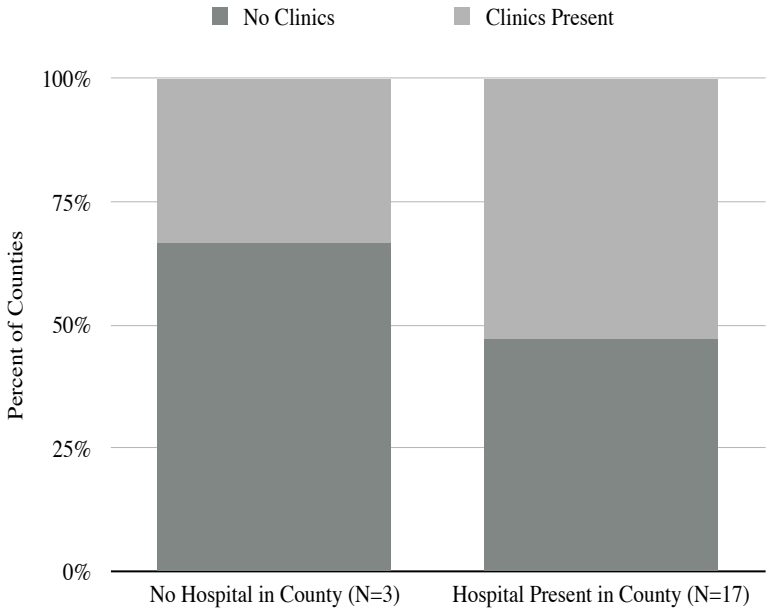


Figure 7. Comparison between presence of retail and urgent care clinics and presence of hospitals in Mississippi counties of Public Health Districts I & II. Figure by Author.

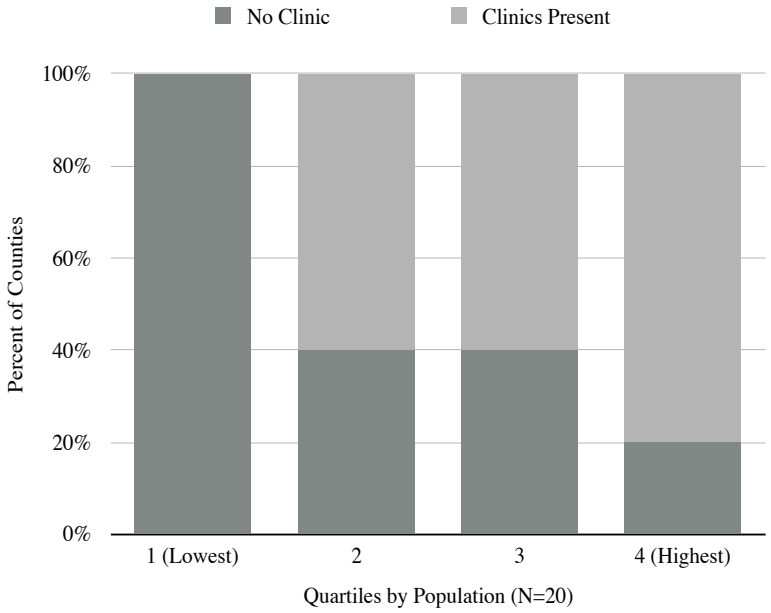


Figure 8. Comparison between presence of retail and urgent care clinics and 2010 population in Mississippi counties of Public Health Districts I & II. Figure by Author.

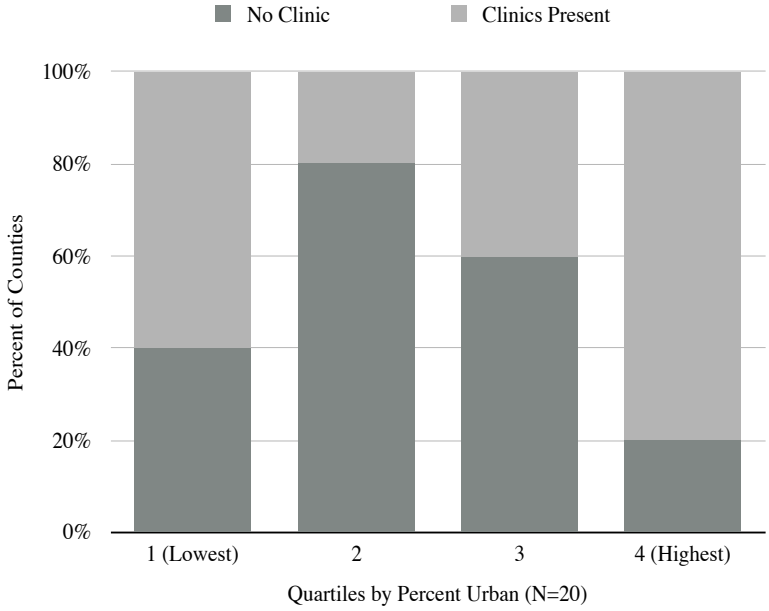


Figure 9. Comparison between presence of retail and urgent care clinics and 2010 percent urban in Mississippi counties of Public Health Districts I & II. Figure by Author.

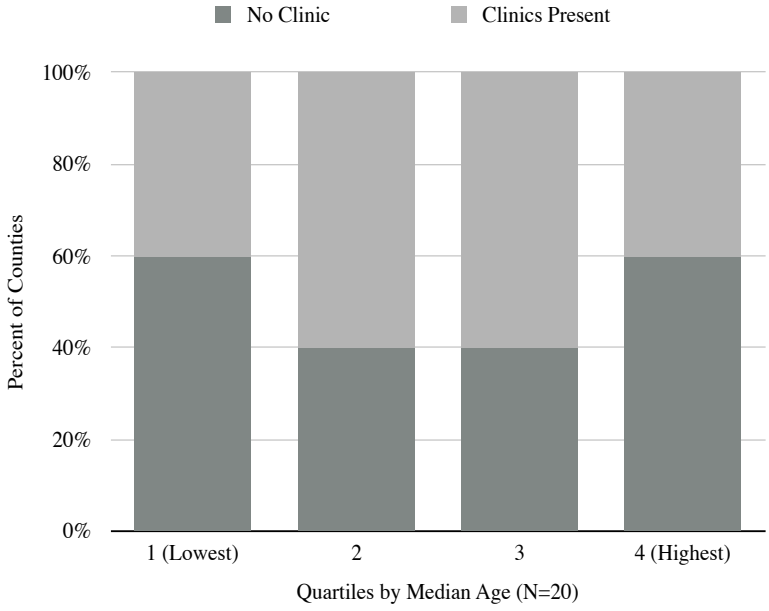


Figure 10. Comparison between presence of retail and urgent care clinics and 2010 median age in Mississippi counties of Public Health Districts I & II. Figure by Author.

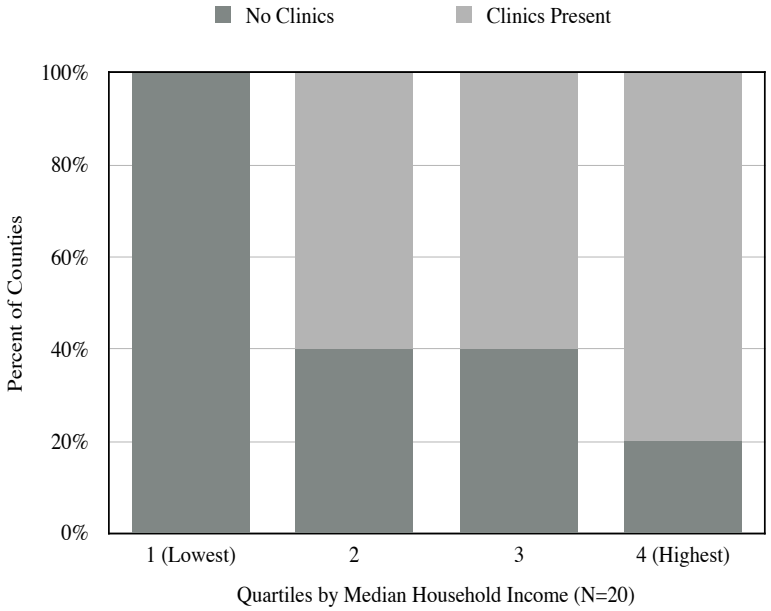


Figure 11. Comparison between presence of retail and urgent care clinics and 2009-2013 median household income in Mississippi counties of Public Health Districts I & II. Figure by Author.

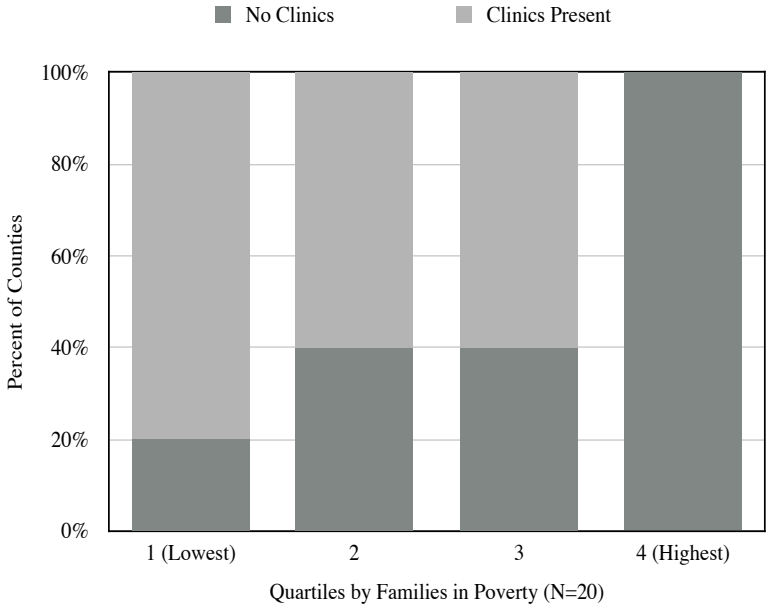


Figure 12. Comparison between presence of retail and urgent care clinics and 2009-2013 families in poverty in Mississippi counties of Public Health Districts I & II. Figure by Author.

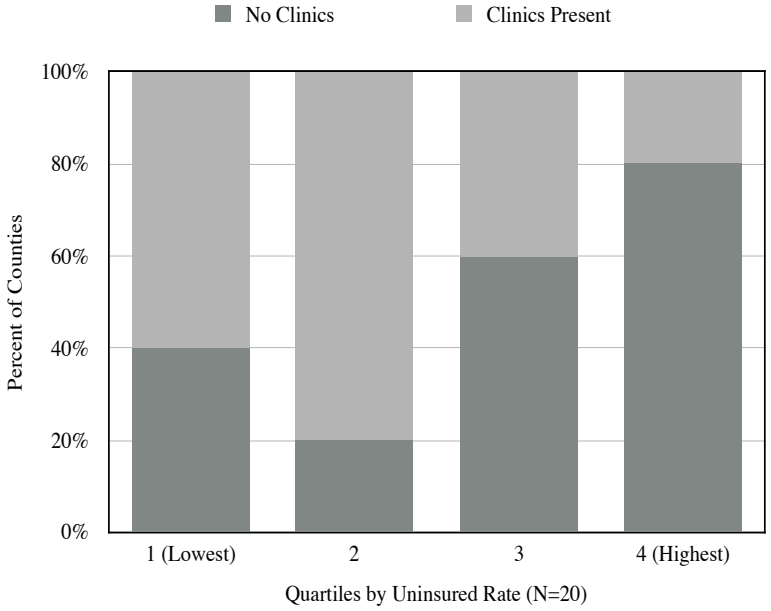


Figure 13. Comparison between presence of retail and urgent care clinics and 2009-2013 uninsured rate in Mississippi counties of Public Health Districts I & II. Figure by Author.