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Immigrants Access to Healthcare in the United States: Citizens versus Non-Citizen Immigrants

Sidpa sawadogo

Immigrants Access to Healthcare in the United States: Citizens versus Non-Citizen Immigrants

by

Sidpa Gindi Frenice Rahim Sawadogo

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Monica I. Garcia-Perez, Chairperson
Artatrana Ratha
Lynn A. Collen

Abstract

The United States of America has always been a nation favor by immigrants throughout history. The foreign-born proportion of the U.S. population has been steadily rising since 1970. In fact, 13.3% of the nation's population comprised of immigrants in 2014 is the highest rate registered in 94 years. However, this increase in the number of immigrants has been followed by anti-immigrant sentiment, including some attempts to reduce immigrants' access to the health care system. This study examines the probability of accessing health coverage among immigrants by comparing Naturalized-citizens and not citizen immigrants. A quantitative analysis was used based on immigrants' sex, gender, level of poverty, education attainment, race, and employment status. The results of this analysis provide evidence that after controlling for all these variables, there is a strong and statistically significant relationship between citizenship status and health insurance coverage. Namely, our model estimates an average difference of 12.9% in the probability of having health coverage for naturalized citizens and non-citizens. Moreover, disaggregating the probabilities with respect to Age and citizenship status, we find that the impact of citizenship status diminishes as people get older, but remains significant.

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Chapter I: Background

The Universal Healthcare Movements, alongside some of the goals of Sustainable Development (SDG), have demonstrated the relevance of all citizens in any given nation enjoying access to healthcare. This has not only been a goal in the U.S., but also across the entire globe. Indeed, this important goal has been high, as seen in the global agenda. According to Bakko and Kattari (2019), despite the relevance of realizing improved healthcare access, inequalities as a key element are persisting between and within countries. While confirming the same, White Hughto et al., (2016) argue that it is high time that developed countries like the U.S., move towards addressing such an important goal.

Inequalities in healthcare access among citizens have resulted in numerous efforts by countries to improve access to a safe and affordable healthcare for immigrants. As for the case of the U.S., it is high time that the nation addresses the different factors that result in high inequality when it comes to matters of healthcare access. However, addressing such an issue calls for a comprehensive understanding of the various factors triggering and driving such inequalities. This must be done within as well as between nations.

In the words of Barber et al., (2017), healthcare access is an issue that has received the attention of several stakeholders in the healthcare sector. Simply put it, it is not among the new topics currently addressed in the healthcare industry. For instance, several research projects have been done on the relevance of equitable access to healthcare. Such studies have addressed various contexts while at the same time relating to a various range of patients in the American healthcare system. Nevertheless, no effort has been directed towards consolidating such information together. The essence of such a consolidation is to develop a comprehensive analysis

of the factors inhibiting the efforts by the government to have equity when it comes to matters of healthcare access.

Studies by Macapagal, Bhatia, and Greene (2016) have argued that access to healthcare comes with several dimensions, including healthcare service available to any citizen, compared to other society members. Relevant elements fall under this important component of healthcare access, among them including the supply of healthcare. This is all about the extent or rate at which the healthcare professionals, together with the medicines, are available for the patients, who are the citizens.

The other essential dimensions of access to health care are referred to as demand-size components. That is, factors related to the patient or the entire organization define the accessibility of healthcare. Borrowing from Yue, Rasmussen, and Ponce (2018), the underlying argument is that the availability of healthcare is vital when it comes to patients and their families enjoying such services. However, this does not necessarily imply that they are always accessible. Thus, despite the availability of healthcare services, several factors hinder their accessibility by the citizens.

Chapter II: Introduction

Local health departments (LHD) and Community health centers (CHC) have long been the primary source of healthcare for many people in the United States, including those who cannot afford to pay for care due to the lack of health insurance. The demand for LHDs and CHCs increased significantly after enacting the Affordable Care Act of 2010 (ACA). However, more than 36 million individuals in the United States remain uninsured under the ACA. While most uninsured people are U.S citizens, non-citizens are more likely to be uninsured compared to citizens. In 2018, statistics indicate that less than one in ten (9%) of U.S. citizens were uninsured, while four in ten (45%) of immigrants in the U.S. were uninsured (De Trinidad Young & Wallace, 2019).

Additionally, children with a non-citizen parent are likely to be uninsured (8%) compared to those whose parents are citizens (4%). Emerging evidence suggests that immigration policy changes have increased fear among immigrants about their children and families taking part in the insurance coverage programs. For instance, changes to the public charge policy contribute to the fears that may result in coverage declines. Declines in coverage would have considerable implications for immigrants and their families (Khullar & Chokshi, 2019).

Moreover, most immigrants are eligible for affordable coverage but not enrolled due to misinformation and complex eligibility rules (Zhen-Duan, Jacquez, & Vaughn, 2017). Regardless of whether immigrants are insured or not, they are likely to continue seeking services at LHDs and CHCs because of enabling services, trusted relationships, and locations in the community. This paper aims to determine the probability of accessing Immigrant' health coverage by comparing those who are citizens and those who are not. Besides, the study aims to

explore the barriers that immigrants face in accessing health coverage and best practices that can improve healthcare coverage among immigrants and their families.

Section 1: Statement of the Problem

The ACA was enacted in 2010 to increase health coverage in the United States. However, most immigrants have been unable to access health coverage. In recent years, public attention has been focused on the ethnic and racial disparities in access to healthcare services. Evidence suggests that Hispanics have the highest rates of uninsurance among all communities living in the U.S. However, there has been little focus on health coverage among immigrants in the country. About two-thirds of Asians and Hispanics in the U.S. are foreign-born (Zhen-Duan, Jacquez, & Vaughn, 2017). The number of immigrants in the U.S. has increased significantly over the past few years and are disproportionately uninsured. As a result, immigrants have significant implications in state and federal efforts to enhance healthcare access.

In 1996, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) restricted immigrants' eligibility to Medicaid (Zhen-Duan, Jacquez, & Vaughn, 2017). This implied that those immigrants who were admitted to the country after 1996 could not access coverage. These immigrants could only access coverage only in their first five years of residence for emergency cases. Immigrants who were admitted legally in the U.S. could access Medicaid and other health benefits. However, the policy changes suggested considerable policy changes, which increased immigrant fear to apply for Medicaid. Even if immigrants were eligible and uninsured, these policy changes suggested that legal immigrants should avoid health coverage.

In 2010, ACA expanded the Medicaid program and introduced a marketplace for affordable health insurance. However, undocumented immigrants cannot enroll in Medicaid,

Medicare, and other health coverage programs. The Centre for Medicaid and Medicare issued rules indicating undocumented immigrants are not eligible for these coverage options (Soto Mas & Jacobson, 2019). As a result, most immigrants are unable to access health coverage programs. This implies that they are unable to access quality healthcare services.

Section 2: Purpose of the Study

From the detailed background section of the current chapter and the research problem part, it is clear that a significant research gap exists in the U.S. healthcare industry. That is the lack of a study to tell some of the factors of equity and equality regarding healthcare access by the U.S. population and, more importantly, the immigrant population. The current study will address this particular inequality by consolidating information on the lack of equity in healthcare access across the U.S.

Thus, the study will determine the probability of accessing health coverage among immigrants by comparing naturalized citizens and non-citizen immigrants. The study compares the eligibility criteria between the two groups and how it impacts the accessibility of health care for the latter. The research findings can help assist in policy making, bringing an end to the culture when the U.S. is missing an excellent opportunity to develop shared learning on the success and failure factors for healthcare access by its population. For instance, relevant stakeholders in the U.S. healthcare sector could embrace the bold moves in assuring equity in access to healthcare across its 50 states. Bold moves such as subsidizing healthcare costs to have inclusive healthcare coverage despite income levels and disparities, implementing Obamacare to the latter, implementing the Affordable Care Act to the latter, and finally facilitating widespread healthcare facilities, including the remote areas. Taking such a bold move towards addressing the

same implies that the country will enjoy the fruits of equity in access to healthcare across its 50 states.

Section 3: Research Questions

The general objectives of the research go as follows:

- To tell the various factors affecting immigrant access to health care in the U.S.
- To establish whether there is a difference between access to health care by citizens and non-citizen immigrants in the U.S.

Specifically, the objectives are:

- To establish the reasons behind differential access to health care by naturalized citizen and non-citizen immigrants in the U.S.
- To evaluate the potential public policy implications of these findings.

The question of the research goes as follows:

What is the probability of accessing health coverage among U.S. immigrants?

By answering this research question, the study provides significant new knowledge of immigrants' challenges in accessing health coverage in the United States. Furthermore, it gives insights into how the country can improve health coverage among immigrants.

Chapter III: Literature Review

This section provides a review of the existing knowledge concerning immigrants' access to health coverage in the U.S. The section will also compare and contrast the debates, methods, theories, and controversies associated with health coverage in the U.S. Several research studies will be reviewed to evaluate the existing literature on the topic. This section will be arranged in three themes accessing care; immigrants' barriers to care, Health programs for which immigrants are eligible and best practices. This section will be important in identifying the gap in research on health coverage among immigrants. Finally, a succinct summary capturing the main points in the section will be provided.

Section 1: Immigrant's Barriers to Care

In the U.S, there are no laws that prevent immigrants, including undocumented ones, from accessing quality care (Sangaramoorthy & Guevara, 2017). Furthermore, there are no laws that prevent healthcare providers from providing services to undocumented immigrants. However, evidence suggests that most federally funded health programs limit eligibility based on the status of immigrants. While these restrictions are clearly outlined, they are misapplied by workers, providers, and immigrants to all health services.

Olukotun, Mkandawire-Valhmu & Kako, (2019) conducted a qualitative study to evaluate barriers to healthcare among immigrants in the United States, mainly African immigrant women. The study used a semi-structured interview with a sample size of 24 undocumented African immigrant women. The study's finding suggested that there are many barriers to access to healthcare services among African immigrant women, including cultural and linguistic barriers, being considered a public charge, and reporting immigrant status. The study suggested

various approaches that policymakers and researchers can adopt to address undocumented women's health needs.

These findings were supported by Adekeye, Adesuyi & Takon, (2018), who carried out a quantitative study aiming to assess the barriers to healthcare among cancer patients in African American immigrants. The study utilized a survey to collect data from the participants during a health fair. Descriptive analysis was used for data analysis. Most of the participants were low-income earners and were uninsured. The health fair provided providers with an opportunity to provide awareness/education, free health screening, and follow-up resources. This study's findings indicate the importance of health fairs in the communities, particularly among uninsured and low-income immigrants.

In another study, Jacquez et al., (2016) carried out research aiming at health care needs, healthcare barriers, perception of healthcare, and healthcare use among Latino immigrants. The researchers conducted 520 surveys and carried out focus groups among 35 Latino immigrants. The study's findings indicated a wide range of barriers to healthcare among Latino immigrants, including discrimination, documentation status, lack of quality interpreters, and language. The study's findings suggest that a shortage of established healthcare infrastructure and social support networks act as barriers to accessibility of quality healthcare among Latino immigrants in the U.S. The study recommended that policy changes can address these barriers.

This was supported by Nwamu, (2017), who carried out a qualitative phenomenological study to examine barriers to healthcare among Nigerian immigrants. The study had ten participants aged between 25 and 50 years and resided in the United States for more than 16 years. The study used interpretative phenomenological analysis to capture and code the data obtained. The study's finding indicates that common barriers to access to healthcare among

Nigerian immigrants include previous bad experiences, cultural differences, acculturation, limited knowledge of the U.S. healthcare system, financial issues, and lack of trust in the healthcare system. The study also indicated that geographical factors act as barriers to healthcare among Nigerian immigrants.

In another study, Sangaramoorthy and Guevara (2017) conducted a qualitative study to examine immigrant health in rural Maryland. The study specifically focused on barriers to healthcare among immigrants in rural Maryland. Thirty-three informant interviews with immigrants and providers were conducted in this study. The study used qualitative analysis to explore the themes emerging from the study. The findings of the study indicate that non-citizenships status, language barriers, high health expenditure and lack of health insurance coverage as the main barriers to immigrants' access to quality healthcare services. However, the study recommended that more studies should be conducted to develop strategies for dealing with these barriers.

Lightfoot et al., (2019) supported the above findings, aiming to explore barriers to healthcare among immigrants in the U.S. The study used photovoice with two groups of adolescent immigrants. The study's findings indicated various ways in which immigrant experience in the healthcare system affects the lives of immigrant adolescents in North Carolina. The study suggested that to improve their health, it is vital to understand cross-cultural communication, stereotypes, migration experiences, and ways of life. The findings of the study indicated a wide range of barriers to healthcare among Latino immigrants, including discrimination, documentation status, lack of quality interceptors, and language.

Lightfoot's study was supported by Topmiller et al., (2017), which sought to explore barriers to healthcare among Latino immigrants in Hamilton County. The Data analysis in the

study was conducted on 439 surveys. Study participants were aggregated by neighborhood and geographical regions where they live. The findings of the study indicate that immigrant Latinos face considerable barriers to care. Since the ACA does not improve the healthcare options for undocumented immigrants, CHS will continue to provide healthcare services for them. This is especially true in regions where immigrants face significant discrimination and a lack of resources. The study suggests that efforts to increase care coverage among immigrants require place-based approaches.

Jang (2016) conducted another study to investigate barriers to healthcare in the United States for Korean immigrants. A mixed-method approach was used with in-depth interviews and survey data. The study analyzed in-depth interviews with 120 Korean immigrants and survey data from 507 Korean immigrants. The results of the study suggested that more than half of Korean immigrants in the U.S. face significant barriers to healthcare. The language barrier was identified as the leading cause of poor healthcare accessibility, while lack of healthcare insurance followed closely. However, the study indicates that Korean immigrants are active entities who adopt coping strategies for the barriers.

In another study, Zhen-Duan, Jacquez, and Vaughn (2017) sought to assess demographic factors linked to healthcare barriers among Guatemalan and Mexican immigrants in Cincinnati. The study's findings indicated that Guatemalans who do not have children experienced more barriers to care than those who have children. The study also found that younger Guatemalans and Mexican women had less knowledge related to healthcare barriers. Furthermore, the findings of the study indicated that the length of staying in the United States is not linked with fewer barriers to healthcare. The study highlighted the importance of disaggregating data to pave the way for more effective strategies to eliminate healthcare disparities for immigrants.

Adunlin et al., (2019) conducted a literature review to evaluate the barriers to cervical and breast cancer screening among immigrants. A thematic analysis of 180 studies suggested a myriad of facilitators and barriers to the screening of these types of cancer both at the system and personal levels. The findings of the study show that personal barriers are immigration status, high cost of care, insurance coverage, and lack of knowledge. Furthermore, barriers identified in this study included insensitivity to the needs of patients, lack of interpreter services, and poor access to services. The study also found that resource availability and cultural norms at both systems and individual levels influence screening among immigrants.

Another study conducted by Reynolds and Childers (2020) sought to advance knowledge in health coverage by evaluating the strengths of various factors for cardiovascular risks screening among various immigrant groups. Data for the study was obtained from the National Health Interview Survey. The findings of the study indicated that health service factors, including no place for care and lack of insurance, are predictors of preventive screening. The findings of the study also showed that immigration and socioeconomic-related factors are not predictors for preventive screening. These findings outline the processes that result in healthcare disparity among immigrants in the U.S.

Section 2: Health Programs for Which Immigrants are Eligible.

Many citizens or immigrants in the U.S. are eligible for affordable care options but remain uninsured. People who are eligible but not insured result from misinformation among immigrants, lack of proper training of workers and enrollment assisters, and complexity associated with eligibility rules (Ortega et al., 2018). This section reviewed some of the major public health coverage options for both legal and undocumented immigrants that could enhance health coverage in the U.S., particularly among the immigrants.

Numerous programs are available regardless of the citizenship status of an individual (Martin, 2019). This includes services and programs that are exempted from the PRWORA. In other words, programs and services that are not considered federal public benefits and local or state-funded services or programs.

Ortega et al., (2018) conducted a study focusing on health coverage among Latino immigrants. The study had a sample size of 51,386 individuals. The findings of the study indicate that various health programs are available to both legal and documented immigrants in the country. While PRWORA restricted access to coverage by immigrants, there are various exemptions. Exempted programs and services from PRWORA include Medicaid and Short-term, non-cash, in-kind emergency disaster relief. Furthermore, treatment of communicable diseases and assistance for immunization was also exempted. The study suggested that Immigrants could access healthcare services under these programs.

These findings were supported by another study conducted by Martin (2019), who aimed to explore ways of providing comprehensive Health Care for immigrants who are unable to access healthcare insurance, including Medicare and Medicaid. The study suggested that most of these individuals get coverage through state-based programs, private insurance, or employer-based plans. The other immigrants are not insured and rely on options such as emergency department services under the PRWORA, free clinics, and out-of-pocket. Those who do not have enough money to pay for their services are unable to access care. This explains the disparity of healthcare among undocumented immigrants in the U.S.

Martin's (2019) findings were supported by De Trinidad & Wallace, (2019), who sought to explore the various health programs available for undocumented immigrants in the country. The study suggested that numerous integration and criminalization policies have significant

impacts on the access to healthcare services in the country. The study suggested that various programs are available to undocumented Immigrants, including charity care, school lunch and breakfast, women, infants and children, family planning services, and community health centers. The study also suggested that state-funded programs are available to these groups, including healthy kids and the Illinois' All Kids program.

Documented immigrants can purchase health insurance through the ACA's market places (Zallman et al., 2018). Furthermore, undocumented immigrants can apply for premium tax credits and health insurance on behalf of other family members as long as they are qualified. While immigrants need to show proof of immigration status or citizenship to buy health insurance through the marketplace, there are no such limitations on private health insurance, which can be purchased externally.

Buchmueller et al., (2016) aimed to document how health insurance under the ACA impacted the lives of Hispanic, White, and Black adults in the U.S. Data for the study was obtained from the American community survey to investigate the changes in the percentage of adults who are covered by private insurance, covered by Medicaid and uninsured. The findings of the study indicate that 25.8% of Blacks and 40.5% of Hispanics were uninsured compared to 14% of white individuals. The study found a more significant gap in private insurance. The study concluded that the ACA has substantially reduced ethnic/racial disparities in health coverage.

These findings were supported by Zallman et al., (2018), who aimed to investigate the premiums paid by immigrants to private insurance. The study used nationally representative data to determine the premiums paid by immigrants. The study found that immigrants were able to access private health insurance. However, they accounted for 12.6% of all premiums paid to private insurers. The study indicated that the annual premiums paid by immigrants were more

than their care expenditure. The findings suggested that policies limiting immigration could reduce the number of individuals with private insurance. This is an indicator that most immigrants were able to access private health insurance.

In another study, van der Goes & Santos (2018) sought to evaluate the factors that inform the gap in private health insurance among white non-Hispanic men and Mexican Americans. National Health Interview Surveys between 2010 and 2013 were used in this particular study. The study estimated that 79.5% of non-Hispanic white men were covered by private health insurance as compared to 44.4% of Mexican American men. The study found that 60% of the Mexican American men were immigrants. The study concluded that the observable differences between the two groups resulted from characteristics such as immigration status, language, and education.

CHIP and Medicaid are health coverage programs available to low-income earners and middle-income individuals who are eligible. Immigrants must have an immigration status to be able to meet the eligibility criteria for CHIP and Medicaid (Brooks et al., 2019). However, they must wait for five years before they can apply for these programs after immigration. This coverage can, however, be expanded by States to pregnant women regardless of their immigration status and without having to wait for a period of five years. At the moment, fifteen states in the U.S. have been able to expand this coverage to pregnant women without the waiting period.

Brooks et al., (2019) conducted a fifty-state survey to investigate the CHIP and Medicaid eligibility enrolment and costs sharing policies. The survey data indicated that most states in the country had expanded Medicaid to low-income earners, significantly reducing health disparities. The data also indicated that the states had implemented a streamlined enrollment that provided

an opportunity for immigrants to access health coverage. However, the report suggested that emerging policies could erode enrolment simplifications and coverage gains realized under the ACA. Waivers introduced by the administration could also act as barriers to coverage and result in considerable losses among eligible immigrants.

Brook's findings were supported by Seiber & Goldstein, (2019), who aimed to test whether CHIP and Medicaid had successfully closed the health gap between U.S. citizens and immigrant families. The study used American Community Surveys between 2008 and 2015 to compare the rate of uninsured eligible citizens in native and immigrant families. The results of the study indicate that most states reduced the disparities associated with enrollment by almost a half. These improvements are attributed to outreach efforts and operational changes during ACA and CHIP implementation rather than policy changes. Without these efforts, children in immigrant families may experience large enrollment differentials.

This study will provide significant insights on health coverage in the United States for legal and undocumented immigrants. It will also provide extensive information on the barriers to health coverage among immigrants in the U.S. These insights can be used by policymakers, practitioners, and researchers to develop effective strategies for improving health coverage among immigrants in the country. The study also provides background information that researchers in the future can use to advance knowledge in the field.

Chapter IV: Model and Methodology

Section 1: Model

- Linear probability model

The linear probability model is the linear multiple regression model. Because the dependent variable Y is binary, the population regression function corresponds to the probability that the dependent variable equals 1, given X. The population coefficient β_1 on a regressor X is the change in probability that Y = 1 associated with a unit change in X. Similarly, the OLS predicted value $\hat{Y}_i$ computed using the estimated regression function, is the predicted probability that the dependent variable equals 1, and the OLS estimator estimates the change in the probability that Y = 1 associated with a unit change in X.

Because the errors of the linear probability model are always heteroskedastic, it is essential that heteroskedasticity-robust standard errors be used for inference. One tool that does not carry over is the R^2. When the dependent variable is continuous, it is possible to imagine a situation in which the R^2 equals 1: All the data lie exactly on the regression line. This is impossible when the dependent variable is binary unless the regressors are also binary. Accordingly, the R^2 is not a particularly useful statistic here.

- The logit regression model

The logit regression model is similar to the probit regression model except that the cumulative standard logistic distribution function replaces the cumulative standard normal distribution function. The logistic cumulative distribution function has a specific functional form, defined in terms of the exponential function.

As a probit, the logit coefficients are best interpreted by computing predicted probabilities and differences in predicting probabilities. The coefficients of the logit model can be estimated by maximum likelihood. The maximum likelihood estimator is consistent and normally distributed in large samples, so *t*-statistics and confidence intervals for the coefficients can be constructed normally.

The logit and probit regression functions are similar. The differences between the two functions are minor. Historically, the primary motivation for logit regression was that the logistic cumulative distribution function could be computed faster than the normal cumulative distribution function. Which the advent of more efficient computers, this distinction is no longer critical.

This study aims to determine the probability of accessing health coverage within immigrants by comparing those who are citizens and those who are not. Furthermore, the study explores the barriers that immigrants face in accessing health coverage and best practices to improve healthcare coverage among immigrants and their families. This section will provide the overall approach that will be used to answer the three research questions outlined in the introduction section.

Section 2: Research Sampling

This study was conducted using data from the Integrated Public Use Microdata Series (IPUMS) 2018. We used the data collected from the American Community Survey. The sample size representing the age population (26-65 years) was used to compare the groups around ages that it is expected to have health coverage. In this study, our reference/base group is Not citizen immigrant Male, unemployed with a high school diploma and living below the poverty line.

Section 3: Data Description

To examine the probability of having health coverage comparing naturalized citizens and non-citizens immigrants, we used a linear probability model because the response probability is linear in parameters. We were trying to explain a qualitative event. Indeed, we were dealing with a binary dependent variable Healthcoverage taking only two values zero and one. Healthcoverage takes the value of one when a person has any health coverage and zero when he/she does not have health coverage. We used a set of independent variables such as Age, Gender, Educational attainment, Citizenship, Employment, Race, and Poverty status to explain health coverage. The variable Age, which is the only continuous variable, is used to capture the working-age population (25-65). A dummy variable Male represents gender: Male equals one if sex is male and zero otherwise. The dummy variable unemployed is capturing the population only in the labor force, and it is coded such as it takes the value one when a person is unemployed and zero otherwise. Education is divided into four categories: high school dropouts, high school graduates, some college education, and college graduates. Poverty status is represented by a dummy called Poor, taking the value one when the person is whether on the poverty line or under the poverty line and zero otherwise. The dummy variable Not-Citizen is representing the citizenship status of an immigrant and is taking the value one if a person is not a citizen and zero otherwise. Race is represented by four different variables that are: RACBLK (black and African American), RACWHT (white immigrants), RACASIAN (Asian immigrants), and HISPAN (Hispanic community). Smith & Medalia (2015) claimed that Age is strongly associated with the likelihood that a person has health insurance and the type of health insurance a person has. Therefore, I am expecting the sign of Age to be positive.

Section 4: Selected Variables

To better understand Immigrants' access to health care in the United States and to make a good comparison between naturalized Citizens and Non-citizens immigrants, we used the following variables: PERWT, RACBLK, RACWHT, RACASIAN, HISPAN, NOT-CITIZEN, POVERTY, AGE, MALE, EDUC, HELTHCOVERAGE, and UNEMPLOYED.

For this analysis, the variable HEALTHCOVERAGE is used as a dependent variable. All the other variables are used to try to explain whether a person is assured or not and determine the factors that help an immigrant get access to healthcare and how difficult it is for them to have access to the healthcare system in the united states. All the variables we selected are variables that the literature points out to be important in such analysis.

Dependent variables:

- HEALTHCOVERAGE: indicates whether persons had any health insurance coverage at the time of the interview, as measured by employer-provided insurance, privately purchased insurance, Medicare, Medicaid or other governmental insurance, TRICARE or other military care, or Veterans Administration-provided insurance.

Independent variables

- RACBLK: is a bivariate indicator of whether a person's race or races include black, African American, negro, or mulatto, regardless of what additional race(s) the person reported, if any. Thus, RACBLK denotes the population of people who are "Black alone or in combination."

- RACWHT: is a bivariate indicator of "White" race, regardless of what additional race(s) the person reported, if any. Thus, RACWHT denotes the population of people who are "White alone or in combination."
- RACASIAN: is a bivariate indicator of "Asian" race regardless of what additional race(s) the person reported, if any. Thus, RACASIAN denotes the population of people who are "Asian alone or in combination."
- HISPAN: identifies persons of Hispanic/Spanish/Latino origin and classifies them according to their country of origin when possible. People of Hispanic origin may be of any race.
- NOT-CITIZEN: reports the citizenship status of respondents, distinguishing between naturalized citizens and non-citizens. Note that not citizen includes both legal and illegal immigrants.
- MALE: reports whether the person was male or female.
- AGE: reports the person's Age in years as of the last birthday.
- UNEMPLOYED: indicates whether the person is working or seeking for a job and, if so, whether the person is currently unemployed.
- POVERTY: treats respondents who live in families collectively. It expresses each family's total income for the previous year as a percentage of the poverty thresholds established by the Social Security Administration.

Chapter V: Empirical Results

Section 1: Descriptive Analysis

Table 1 below shows the descriptive statistics for the sample used in the present study on immigrant access to healthcare in the United States. All variables except Age are binary, taking the value of 0 or 1, while Age is continuous. The sample size is 1008538 observations for this study. Separating the groups between immigrants with health coverage and immigrants without health coverage, the summary table shows that:

- The mean Age of those with health coverage is 45.2, while the mean Age of those without is 41.5, indicating that older people are more likely to have health insurance;
- 52.6% of those with health coverage are male, while males make up 63.5% of those without health coverage;
- Naturalized citizens account for 60.7% for those with health insurance and only 24.8% for those without;
- High school dropouts and high school graduates make up over 83% of those without health insurance, with college graduates accounting for only 3.5% and those with some college education for 13.1%;
- Those without health insurance are 73.2% Hispanic, 6.9% black, 55.9% white and 11.6% Asian, while those with health insurance are 35.4% Hispanic, 9.4% black, 44.2% white, and 35.1% Asian.
- 7.7% of individuals without health insurance are unemployed, while 3.8% of those with health insurance do not have a job;

- 20.6% of people without health insurance are below the poverty line, while those below the poverty line account for 6.5% of people with health insurance.

Table 1

Descriptive Statistics, n=1,008,538

Variables		With Health Coverage	Without Health Coverage
Age	Mean	45.166	41.452
	Std. Dev	10.586	10.14
Male	Mean	.526	.635
	Std. Dev	.499	.481
Not citizen	Mean	.393	.752
	Std. Dev	.488	.432
High School Dropout	Mean	.141	.401
	Std. Dev	.348	.49
High School Graduate	Mean	.354	.432
	Std. Dev	.478	.495
Some College	Mean	.301	.131
	Std. Dev	.459	.338
College Graduate+	Mean	.204	.035
	Std. Dev	.403	.185
Hispanic	Mean	.354	.732
	Std. Dev	.478	.443
Black	Mean	.094	.069
	Std. Dev	.292	.253
White	Mean	.442	.559
	Std. Dev	.497	.497
Asian	Mean	.351	.116
	Std. Dev	.477	.32
Unemployed	Mean	.038	.077
	Std. Dev	.191	.267
Below poverty	Mean	.065	.206
	Std. Dev	.246	.404
Observation		817,307	191,231

Section 2: Distribution of health coverage

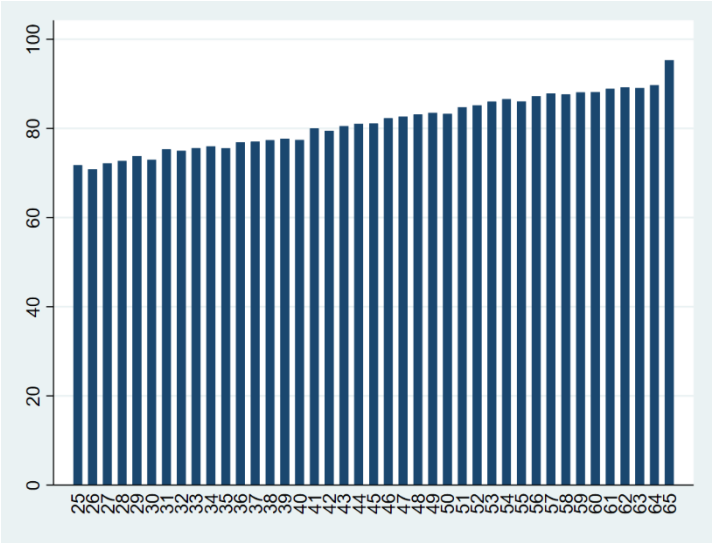
Figure 1 shows the distribution of health coverage according to each of the explanatory variables specified above. Analyzing the graphs, we can observe that:

- 78% of males in the sample have health insurance, as opposed to 85% for females;
- Health insurance increases with Age, beginning at 71% for 25-year olds and increasing up to 95% in 65-year olds;
- 69% of non-citizens have health insurance, compared to 91% for naturalized citizens;
- Health insurance also increases with the level of education, starting at 60% for high school dropouts and increasing up to 96% for college graduates;
- 67% of Hispanics have health insurance, compared to 85% of blacks, 77% of whites, and 93% of Asians;
- 81% of employed people have health insurance, as opposed to 68% for the unemployed;
- Only 57% of the people below the poverty line threshold have health insurance, while 83% of people above the threshold do.

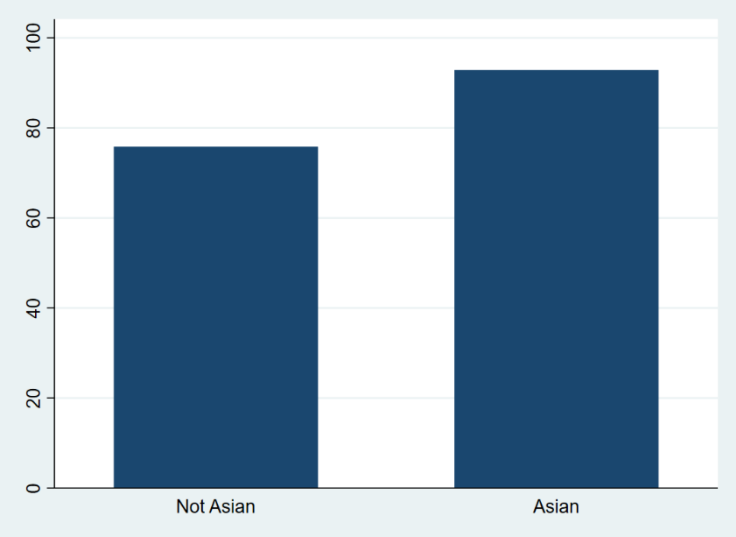
Figure 1

Distribution of health coverage according to each explanatory variable

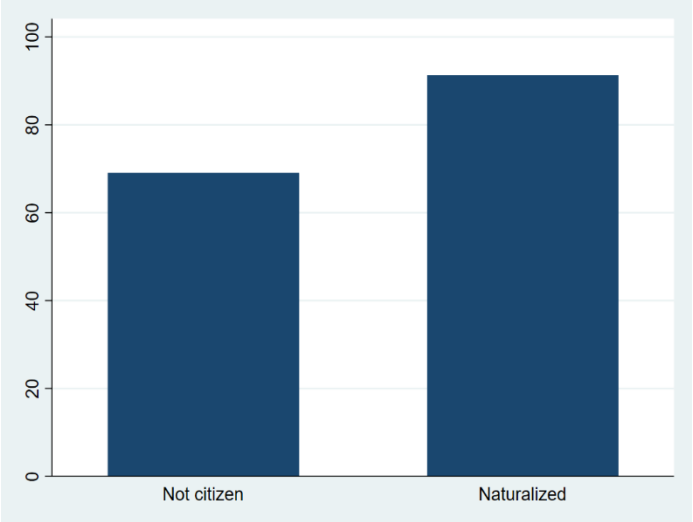
Distribution by Age



Distribution by Race Asian



Distribution by Citizenship



Distribution by Education

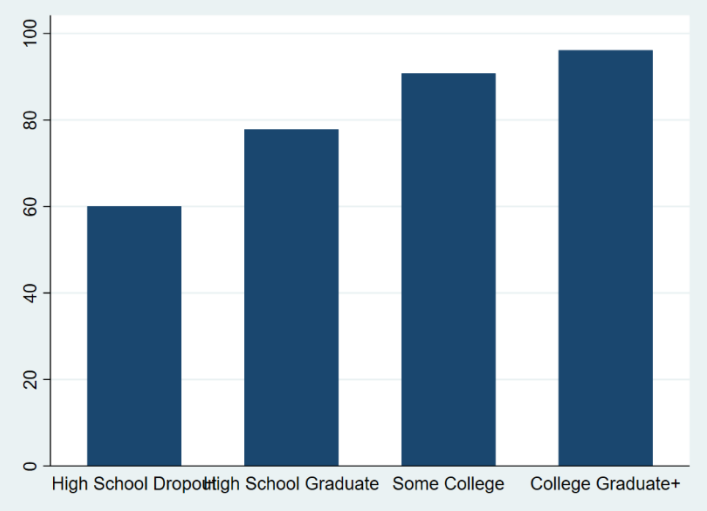
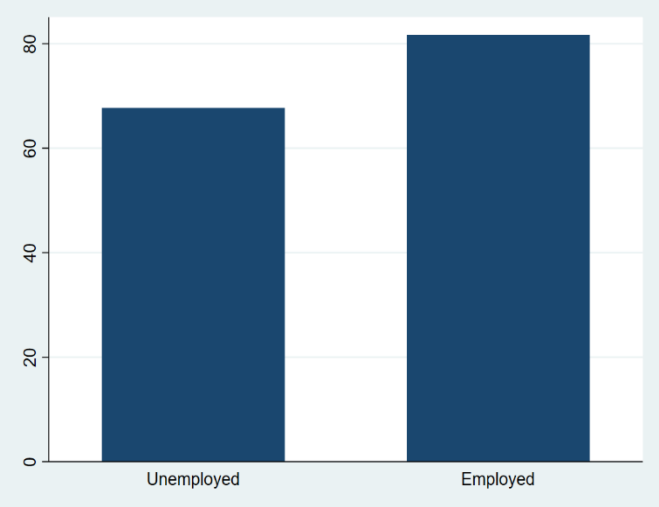
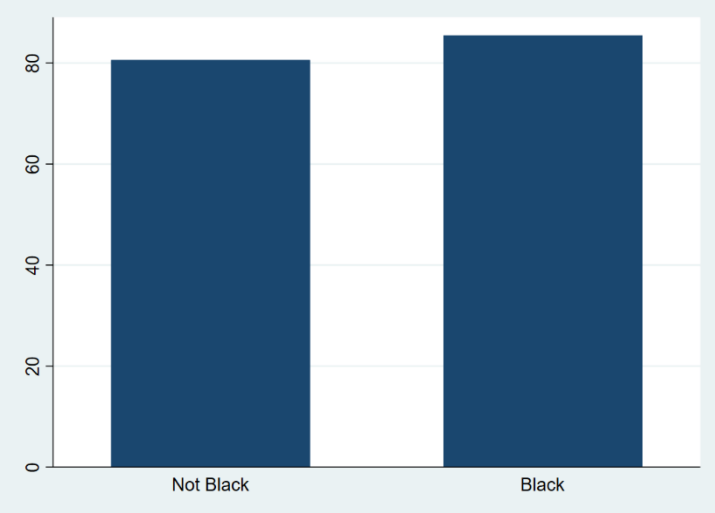


Figure 1 (continued)

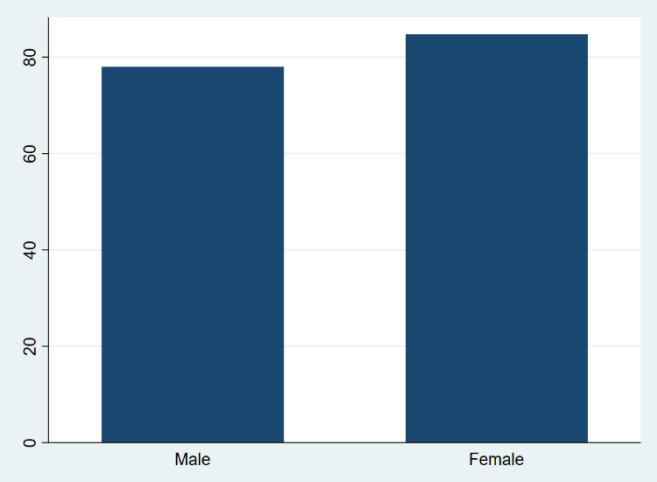
Disatribution by Employment Status



Distribution by Race Black



Distribution by sex



Distribution by Hispanic Origin

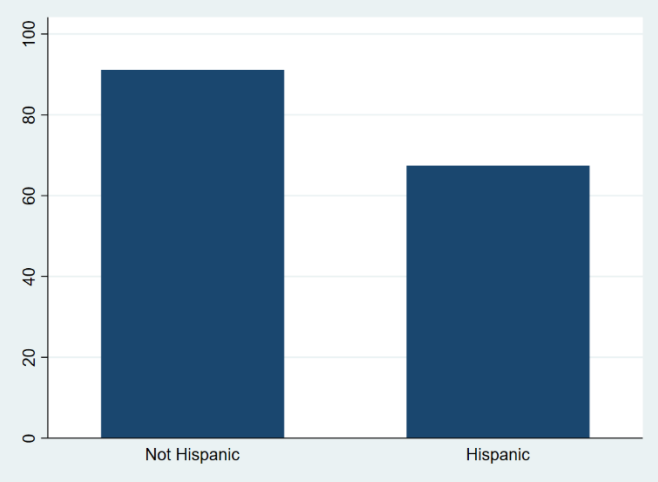
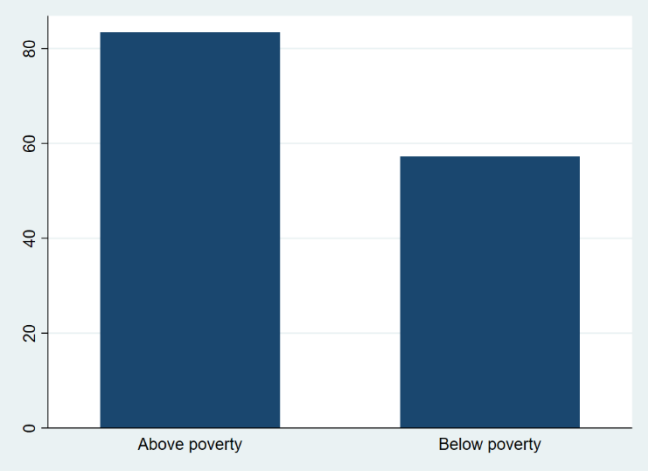
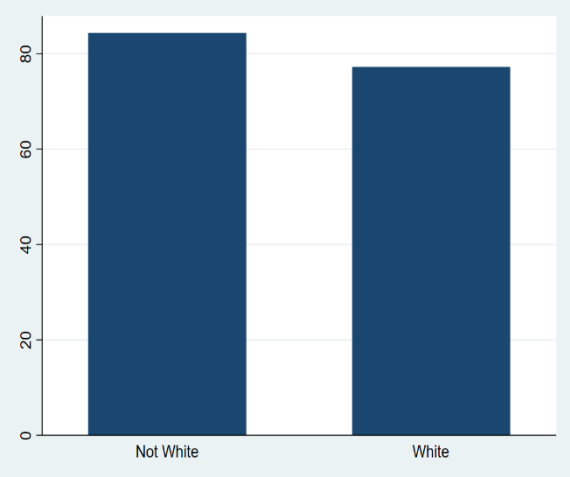


Figure 1 (continued)

Distrbution by Poverty Level



Distribution by Race Whyte



After examining and plotting the data, we estimate a linear probability model according to the following specification:

$$HEALTHCoverage = \beta_0 + \beta_1 (CITIZEN) + \beta_2 (AGE) + \beta_3 (SEX) + \beta_4 (EDUCATION) + \beta_5 (HISPANIC) + \beta_6 (RACE\_BLACK) + \beta_7 (RACE\_WHITE) + \beta_8 (RACE\_ASIAN) + \beta_9 (EMPLOYMENT) + \beta_{10} (POVERTY) + \mathcal{E},$$

where the specified dependent and independent variables correspond to those described above, while $\mathcal{E}$ is the random error term. We are particularly interested in β_1, the coefficient of citizenship, to distinguish between the probability of having health insurance for naturalized citizens and non-citizens while controlling for the other variables included in the model.

As an additional step, we use a logistic function to model health coverage and estimate a logistic model to ensure the robustness of the conclusions reached by the linear probability model and

account for the statistical shortcomings of modeling the dichotomous variable with linear regression.

Section 3: Regression Analysis

Table 2 provides the estimated coefficients for the linear probability and logistic models. The coefficients of all explanatory variables are highly significant (at 1% level) in both models, except for race white in the linear probability model. The linear probability model coefficients correspond to probabilities, while the logistic model coefficients correspond to odds ratios.

Table 2

The linear probability and logistic models

Variables	Linear Probability Model	Logistic Model
Not citizen	-0.129*** (0.000)	0.360*** (0.002)
Age	0.003*** (0.000)	1.026*** (0.000)
Male	-0.039*** (0.000)	0.740*** (0.004)
High School Graduate	0.099*** (0.001)	1.531*** (0.011)
Some College	0.170*** (0.001)	2.925*** (0.027)
College Graduate+	0.218*** (0.001)	7.069*** (0.102)
Hispanic	-0.108*** (0.001)	0.484*** (0.004)
Race Black	-0.009*** (0.002)	0.876*** (0.012)
Race White	-0.001 (0.001)	0.956*** (0.007)
Race Asian	0.025*** (0.001)	1.333*** (0.016)
Unemployed	-0.081*** (0.002)	0.564*** (0.007)
Below poverty line	-0.140*** (0.001)	0.492*** (0.004)
Constant	0.439*** (0.003)	0.408*** (0.008)
Observations	1,007,174	1,007,174
R-squared	0.190	0.205

Note: Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

We begin with the linear probability model. We find that the coefficient associated with the citizenship variable is negative, indicating that non-citizens are 12.9% less likely to have health insurance compared to naturalized citizens. As for other variables:

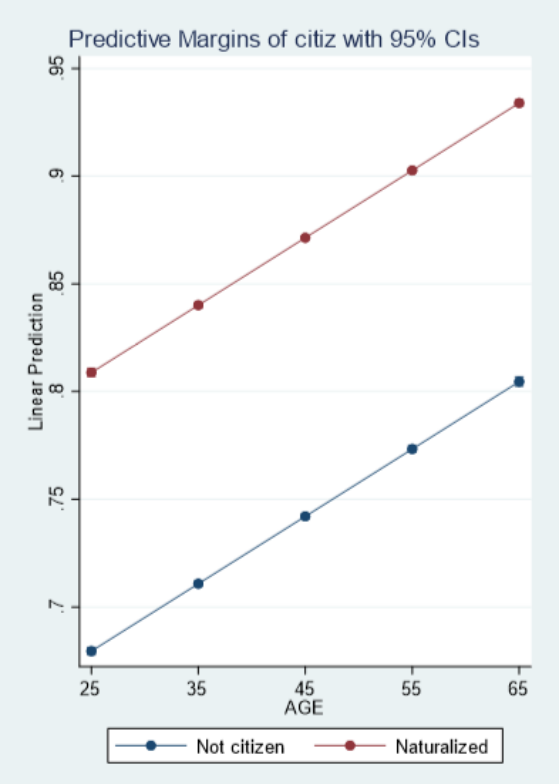
- An extra year of Age increases the probability of having health coverage by 0.3%;
- Females are 3.9% more likely to have health insurance compared to males;
- Compared to high school dropouts, high school graduates are 9.9% more likely to have health insurance, those with some college education are 17% more likely to be insured, while college graduates are 21.8% more likely to have health coverage;
- Hispanics, as well as black and white people, are less likely to have health insurance by a margin of 10.8%, 0.9% and 0.1%, respectively, although the coefficient for race white is not statistically significant at 10% level. Conversely, Asian people are 2.5% more likely to have health insurance;
- Unemployed people are 8.1% less likely to be insured;
- People below the poverty line are 14% less likely to have health coverage.

We use predictive margin analysis to predict the probability of having health insurance conditional on citizenship status. The linear probability model predicts a 74% probability for non-citizens to have health coverage and an 86.9% probability for naturalized citizens having health insurance. The calculation is based on average adjusted predictions, i.e. comparing the probabilities of two populations where the only difference between them is their citizenship status. They have the same values for other explanatory variables in the model. The difference between these two probabilities is 12.9%, which is the coefficient associated with the citizenship variable in Table 2 and discussed above.

Figure 2 displays the predicted probabilities of having health coverage based on citizenship status and Age. We can see that the probability of being insured increases steadily with Age. The difference between the two lines (second panel of Figure 2) is a constant 12.9%, the estimated coefficient for citizenship in the model.

Figure 2

Predicted probabilities of having health coverage based on citizenship status and age (linear probability model)



Performing diagnostic tests, we find that the Breusch-Pagan and White tests reject the null hypothesis of homoscedasticity, and the normality of the residuals is also rejected. Moreover, we are concerned about the probability predictions lying beyond the logical values of

0 and 1, which are not accounted for in the linear probability model. Thus, we proceed with estimating the logistic model.

Section 4: Further Analysis

The logistic model yields odds ratios (or log odds) instead of probabilities like in the linear probability model. The citizenship variable is associated with a coefficient of 2.78, indicating that naturalized citizens are 2.78 times more likely to have health coverage compared to non-citizens. As for other variables:

- An extra year in Age increases the probability of having health coverage 1.02 times;
- Females are 1.35 times more likely to have health insurance compared to males;
- Compared to high school dropouts, high school graduates are 1.53 times more likely to have health insurance, those with some college education are 2.92 times more likely to be insured, while college graduates are 7.07 times more likely to have health coverage;
- Hispanics, as well as black and white people, are less likely to have health insurance by a margin of 0.48 times, 0.87 times, and 0.96 times, respectively. Conversely, Asian people are 1.33 times more likely to have health insurance;
- Employed people are 1.77 times more likely to be insured;
- People below the poverty line are 2 times less likely to have health coverage.

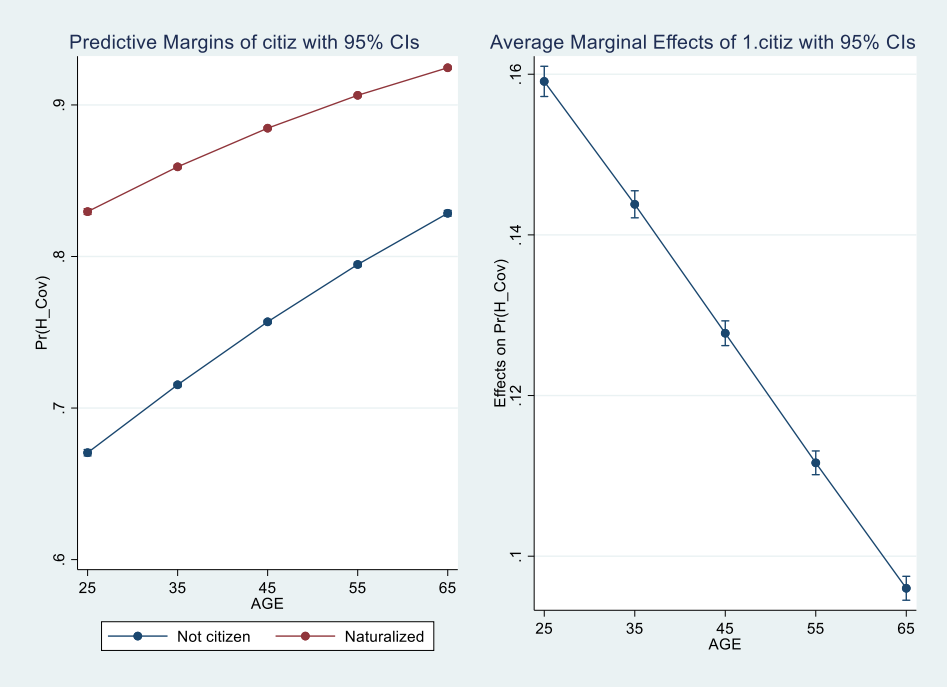
To transform odds ratios into probabilities, we again use predictive margins analysis to predict the probability of having health insurance conditional on citizenship status. Similar to the linear probability model, the calculation is based on average adjusted predictions. The logistic model predicts a 75.2% probability for non-citizens to have health coverage and an 88% probability for naturalized citizens for having health insurance. The difference between these two

probabilities is 12.8%, one percentage point lower compared to the estimate obtained from the linear probability model (12.9%).

Figure 3 displays the predicted probabilities of having health coverage based on citizenship status and Age. As opposed to the linear probability model, we can see that the difference between the two lines is no longer constant, as evident from the second panel of Figure 3. While the probability of being insured increases with Age, the difference between naturalized citizens and non-citizens is smaller for older people than for younger people, indicating that non-citizens tend to be more likely to get health coverage once they get older. Namely, disaggregating the probability of having health insurance with respect to both Age and citizenship status reveals that a naturalized 25-year old is 15.9% more likely to have health coverage compared to a non-citizen 25-year old, a naturalized 35-year old is 14.4% more likely, a naturalized 45-year old is 12.8% more likely, a naturalized 55-year old is 11.1% more likely, and a naturalized 65-year old is 9.6% more likely to have health coverage.

Figure 3

Predicted probabilities of having health coverage based on citizenship status and Age (logistic model)



Chapter VI: Conclusion

The current study was developed to address the inequality in healthcare access by consolidating information on the lack of equity when it comes to healthcare access across the U.S. The study intended to reveal the relevant factors inhibiting the U.S.'s dream of a country where citizens equally access healthcare service, which is among the top objectives of Obamacare. The general objectives of the study entailed: To tell the various factors affecting immigrant access to health care in the U.S. To establish whether there exists a difference between access to health care by citizen and non-citizen immigrants in the U.S. On the other hand, the general research questions went as follows: To establish the reasons behind differential access to health care by citizen and non-citizen immigrants in the U.S. To find a solution towards the differential access to health care by citizen and non-citizen immigrants in the U.S.

Following a successful data collection process, the raw data was subjected to coding and entry into the latest STATA. Both the linear probability and logistic models provide evidence that there is a strong and statistically significant relationship between citizenship status and the probability of having health insurance when controlling for all other variables. Namely, the linear probability model estimates an average difference of 12.9% in the probability of having health coverage for naturalized citizens and non-citizens. The logistic model estimates an average difference of 12.8%. Moreover, disaggregating the probabilities with respect to Age and citizenship status, we find that the impact of citizenship status diminishes as people get older, but remains significant.

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Appendix A

Table 3: Linear probability model

Source	SS	df	MS		
Model	29412.6044	12	2451.05036	Number of obs	= 1,007,174
Residual	125450.025	1,007,161	.124558065	F(12, 1007161)	= 19677.97
				Prob > F	= 0.0000
				R-squared	= 0.1899
				Adj R-squared	= 0.1899
Total	154862.63	1,007,173	.153759711	Root MSE	= .35293

h_cov	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.0031279	.0000349	89.60	0.000	.0030595	.0031963
gender						
Female	.0385228	.0007132	54.02	0.000	.037125	.0399205
citiz						
Naturalized	.129328	.0007708	167.77	0.000	.1278172	.1308389
edu						
High School Graduate	.0990626	.001042	95.07	0.000	.0970203	.101105
Some College	.1701789	.0011907	142.92	0.000	.1678451	.1725127
College Graduate+	.2180852	.0013256	164.52	0.000	.2154872	.2206833
hispanic						
Hispanic	-.1080828	.0010426	-103.66	0.000	-.1101263	-.1060393
race_black						
Black	-.0087704	.0016325	-5.37	0.000	-.01197	-.0055707
race_white						
White	-.0013987	.001046	-1.34	0.181	-.0034489	.0006514
race_asian						
Asian	.0252736	.0013765	18.36	0.000	.0225756	.0279716
empl						
Employed	.0814223	.0017123	47.55	0.000	.0780663	.0847783
pov						
Below poverty	-.139806	.0012667	-110.37	0.000	-.1422888	-.1373232
_cons	.4390006	.0027754	158.18	0.000	.4335609	.4444403

Appendix B

Table 4: Logistic model

Logistic regression — Number of obs = 1,007,174; LR chi2(12) = 200134.75; Prob > chi2 = 0.0000; Log likelihood = -389312.89; Pseudo R2 = 0.2045

h_cov	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	1.025638	.0002948	88.06	0.000	1.02506	1.026216
gender						
Female	1.350622	.0079612	50.99	0.000	1.335108	1.366316
citiz						
Naturalized	2.777003	.0177072	160.18	0.000	2.742514	2.811927
edu						
High School Graduate	1.531357	.0105313	61.97	0.000	1.510855	1.552138
Some College	2.925016	.0273651	114.72	0.000	2.87187	2.979145
College Graduate+	7.069493	.1017009	135.95	0.000	6.872946	7.271659
hispanic						
Hispanic	.4839577	.0042568	-82.51	0.000	.4756861	.4923731
race_black						
Black	.8760811	.0115987	-9.99	0.000	.8536405	.8991116
race_white						
White	.9564786	.0067551	-6.30	0.000	.9433301	.9698105
race_asian						
Asian	1.33285	.0160335	23.88	0.000	1.301792	1.364648
empl						
Employed	1.773911	.0212489	47.85	0.000	1.732749	1.81605
pov						
Below poverty	.4916722	.0040502	-86.18	0.000	.4837977	.499675
_cons	.4077874	.0084965	-43.05	0.000	.39147	.4247849