ABSTRACT

Title of Document: RESIDENTIAL SEGREGATION: HURTING OR HELPING U.S. HISPANIC HEALTH?

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U.S. Hispanics experience health disparities that are in part socially determined. My dissertation explores the connections between health and residential segregation for Hispanics and key Hispanic subgroups in metropolitan America. I conduct a multivariate analysis combining individual-level health survey data on Hispanics from the 1997-2002 Urban Institute National Survey of America's Families with metropolitan area-level residential segregation scores from Census 2000. My primary research question is: What is the role of residential segregation in shaping the health disparities of U.S. Hispanics? I compare the link between segregation and health for U.S. Hispanics with African Americans, and evaluate differences among Hispanics by nativity and country of origin. My outcome measures are self-rated health, insurance status, and having a usual source of health care. I find a significant negative effect on health status of residential segregation from whites for U.S. Hispanics even after accounting for compositional factors such as poverty status and education. Consistent with spatial assimilation theory, however, much of the observed negative effects of segregation on health are overshadowed by individual-level socioeconomic characteristics. In support of place stratification theory which emphasizes the relative disadvantage of African Americans as racial minorities in the U.S., I find that African Americans experience modestly greater

health disparities associated with segregation than Hispanics. Despite my prediction that health outcomes for foreign-born Hispanics may actually improve with higher segregation, nativity does not significantly alter the link between health and segregation among U.S. Hispanics. I do find a significant interaction between nativity and segregation for Mexicans in the prediction of being uninsured and for Cubans in the prediction of self-rated health. For foreign-born Mexicans, segregation is more of a disadvantage in the prediction of being uninsured. The only evidence I find of any positive or protective link between segregation and health is for Cuban-origin Hispanics whose odds of reporting good self-rated health increase with higher levels of segregation. While segregation has a positive association with health status for both U.S.-born and foreign-born Cubans, the effect is substantially stronger for the foreign born. This research highlights the importance of examining residential segregation as a social determinant of health, and reveals important nuances in the link between health and segregation for nativity and country-of-origin subgroups of U.S. Hispanics.

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by

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CHAPTER 1. INTRODUCTION

Hispanics surpassed African Americans as the largest minority group in the U.S. in 2003 and are projected to comprise one quarter of the U.S. population by 2050 (Rumbaut 2050). As the U.S. Hispanic population steadily increases, so too rises the disproportionate share of Hispanics who are uninsured, without regular access to health care, and suffering from acute and long-term health conditions that are not adequately treated (CDC 2004; DHHS 2005; Shau and Carrasquillo 2006; Escarce and Kapur 2006; Escarce et al. 2006; Mensah and Maleeka 2007). Health disparities persist for Hispanics compared to non-Hispanic whites and other groups across a broad range of conditions including vaccine-preventable diseases, diabetes, and certain types of cancer, as well as in terms of access to health care. In addition to a person's physiological characteristics and lifestyle choices that pattern health, researchers also acknowledge the impact of macro-level social forces on health outcomes. My dissertation explores the relationships between health disparities and residential segregation for Hispanics in metropolitan America.

Health is affected not only by an individual's biology, psychology, and behaviors, but also by that individual's situation, surroundings and social context. Medical and public health advances combat the individual-level risk factors for poor health; however, disparities also exist because of macro-level factors such as socioeconomic inequality, disproportionate exposure to health hazards, gender discrimination, racial/ethnic discrimination, and—the focus of this dissertation—racial and ethnic residential segregation (Becker 1993; Link and Phelan 1995; Collins and Jackson 2001; Frohlich et

al. 2001; Schulz et al. 2002; Acevedo-Garcia et al. 2003; Acevedo-Garcia and Lochner 2003; Galea and Vlahov 2005; Nazroo and Williams 2006).

Racial residential segregation is a powerful factor in American inequality. It is the systematic and uneven presence of racial minorities in city areas that are separate and apart from the places where non-Hispanic whites live (Massey and Denton 1989; Iceland et al. 2002). In the U.S., racial residential segregation simultaneously diminishes opportunities for non-white groups while promoting white privilege. Through much of the twentieth century, sociological examination of residential segregation in the U.S. was primarily concerned with disparities between whites and African Americans. However, in recent decades, researchers and policymakers have begun to address the segregation of other groups including the burgeoning and diverse Hispanic population (Massey and Denton 1987; Denton and Massey 1989; Santiago 1989; Logan 2003; Logan et al. 2004; Clark and Blue 2004; Lee and Ferraro 2005; Martin 2007; Iceland and Scopilliti 2008; Iceland and Nelson 2008).

Residential segregation influences health as part of the dynamic of "place" effects on health (Williams and Collins 2001; Acevedo-Garcia et al. 2003; Schulz et al. 2002; Borell and Hatch 2005). Place influences health both in terms of the composition of the people within an area, and in terms of the physical, geographic, infrastructural, and political context of the locale (Picket and Pearl 2000; Macintyre et al. 2002; Cummins et al. 2007). Segregation in particular influences health in indirect and direct ways: the patterned isolation in lower quality neighborhoods can bring about greater exposure to disease and crime as well as constraints on resources such as timely and appropriate

health care and information, public health services, employment offering health insurance, and education.

Studies have found higher incidence of negative health outcomes and mortality among residentially segregated African Americans compared to non-Hispanic whites; however, findings are scarce for other groups (Collins and Williams 1999; Jackson et al. 2000; Acevedo-Garcia and Lochner 2003; Acevedo-Garcia et al. 2003; Williams and Jackson 2005; Grady 2006). I approach the relationship between health and residential segregation with particular focus on U.S. Hispanics. My primary research question is: What is the role of residential segregation in shaping the health disparities of U.S. Hispanics?

Based on evidence found on the influence of residential segregation on African-American health disparities, the expectation would be for segregation to have a negative relationship with health care access and health status for U.S. Hispanics; however, this hypothesis has not been evaluated thoroughly. While Hispanics share minority status with African Americans, there are many historical and present-day differences between the two diverse groups suggesting that the link between residential segregation and health could be different as well (Acevedo-Garcia and Lochner 2003; Acevedo-Garcia et al. 2003; Martin 2007). The first step of my analysis is to investigate the link between segregation and health by comparing Hispanics to African Americans. Next, I examine subgroups of the Hispanic population by nativity and country of origin/heritage. As Camarillo and Bonilla (2001:104) state, the status of Hispanics is "a mixed bag" in terms of the range of experiences had by different subgroups in the U.S., therefore, I will

examine whether and how the segregation/health connection differs across key subgroups of U.S. Hispanics.

Through multivariate analyses of health and residential segregation patterns for distinct groups of Hispanics by nativity and country of origin/heritage, I explore the ways in which Hispanics may experience advantages or disadvantages in terms of health status and access to health care depending on the level of residential segregation they experience. I analyze the influence of metropolitan area-level residential segregation scores derived from Census 2000 data on individual-level health and access indicators from the National Survey of America's Families (NSAF) conducted by the Urban Institute. In addition to asking what the role of residential segregation is in shaping the health disparities of U.S. Hispanics, my research questions include: How does the link between health and segregation for U.S. Hispanics compare to that of African Americans? Are there differences in the segregation/health relationship between U.S.-born and foreign-born Hispanics? What are the differences by country of origin? My dissertation highlights the importance of examining residential segregation as a key social determinant of health, and reveals nuances in the link between health and segregation between Hispanics and African Americans, and among Hispanic subgroups.

Chapter 2 provides background information and a review of relevant literature and theories. Chapter 3 outlines my conceptual framework and hypotheses for the study. Chapter 4 describes the data and methodology, and in Chapters 5, 6, and 7, I present and discuss the study results. I close the dissertation in Chapter 8 with discussion of my findings and conclusions.

CHAPTER 2. BACKGROUND AND LITERATURE REVIEW

In this chapter, I first describe the U.S. Hispanic population and the key subgroups I explore in my analyses. I then summarize Hispanic health disparities and residential segregation patterns. The remainder of the chapter establishes residential segregation as an important macro-level force affecting health disparities.

The U.S. Hispanic Population

The terms "Hispanic" and "Latino" are U.S. constructions that aggregate people of Spanish-speaking origins into one monolithic category. While there has been no full consensus in the U.S. as to who is or is not Hispanic or Latino (or which of the two terms to use), I use the term "Hispanic" here, and apply the U.S. government definition of "Hispanic or Latino" which is a person of any race whose origin is Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture (Ramirez 2004).

Although it is fairly disconcerting to address such a diverse group of peoples under one label, the crude origins of the categorization have evolved into a somewhat fused minority group in the U.S. alongside other broadly labeled groups including African Americans and Asian Americans (Gracia 2000; Tienda and Mitchell 2006; Rumbaut 2006). Due to the shared historical roots and experiences of having been colonized by the Spanish, Latin American Hispanics and their descendants have a connection that unites them (Gracia 2000). In addition, Hispanics are largely perceived as a cohesive group, and this perception/misconception yields unified outcomes in terms of treatment by society and acceptance or discrimination (Golash-Boza 2006; Tienda and Mitchell 2006; Rumbaut 2006). Rumbaut (2006:19) explains:

> The tens of millions of persons so classified [as Hispanic] do share a common label… developed and legitimized by the state, diffused in daily and institutional practice, and finally internalized (and racialized) as a prominent part of the American mosaic. That this outcome is, to a considerable extent, a self-fulfilling prophecy does not make it any less real.

Even as it is necessary to acknowledge the Hispanic population as one interrelated group in American society, it is equally important to acknowledge the distinct component populations that comprise the whole. There is a shared "Hispanic" identity, but this does not eliminate distinctions among subgroups of Hispanics differing by nativity and country of origin/ancestry that often go under-explored (Weinick et al. 2004; Zsembik and Fennell 2005; Escarce et al. 2006). Gracia (2000) points out that making observations about all Hispanics does not negate the value of observing specific subgroups of Hispanics, just as making observations about all Europeans, for example, does not negate the value and importance of observing specific subpopulations. Along with examining Hispanics in comparison to African Americans, I address two important types of divisions among Hispanics in this project: nativity and country of origin. I examine U.S.-born Hispanics separately from foreign-born Hispanics, and also differentiate between Mexican-origin, Puerto Rican-origin, and Cuban-origin Hispanics.

It is important to address U.S. Hispanic health disparities due to the size and rapid growth of the population, as well as the group's generally disadvantaged socioeconomic position. According to Census 2000[1], there were 35.2 million Hispanics in the U.S. accounting for 12.5 percent of the U.S. population (Ramirez 2004). These numbers rose to 44.0 million and 14.7% respectively in the 2005-2007 American Community Survey (ACS) (Census 2008). Census 2000 data showed that a much smaller percentage of

[1] Because the data sources for my analysis focus on the year 2000 I present background statistics for this year as well as more recent information where possible.

Hispanics completed high school or any higher level of education (52.4%) compared with the total U.S. population (80.4%). This gap in education persists according to recent ACS findings: 59.9% of Hispanics completed high school or more compared to 84.0% of the total population. In addition, 22.6% of all Hispanics were living in poverty in 2000 compared to 12.4% of the total population. Similarly, in 2005-2007, 21.5% of Hispanics were living below the poverty level vs. 13.3% of the total population.

Nativity

More than 40% of U.S. Hispanics were foreign-born in 2000, nearly half of whom had arrived in the U.S. after 1990 (Ramirez 2004). The large proportions of immigrants and newcomers have broad implications for residential patterns of Hispanics (discussed below), and also speak to the potential for important differences in the levels of health care access and health status of Hispanics based on nativity. Being born outside the U.S. has different implications for different immigrants—largely dependent on immigration status—however, immigrants share experiences of long distance migration and navigation of a new health care system. The foreign-born are also less likely to speak English fluently, which can influence access to health care in the U.S. In fact, nearly 75% of all Hispanics speak Spanish at home as opposed to English or another language, and 40.6% of Hispanics report speaking English less than "very well" (Ramirez 2004).

Country of origin/heritage

There are over 20 countries of origin groups identified to comprise the U.S. Hispanic population. Each nationality embodies unique characteristics and experiences. The majority of U.S. Hispanics in 2000 were of Mexican origin or descent (59.3 percent) while 9.7% were Puerto Rican, and 3.5% were Cuban (Ramirez 2004). The Mexican,

Puerto Rican, and Cuban groups are the three largest single country-of-origin Hispanic groups in the U.S.; the remaining 27.4% of the U.S. Hispanic population in 2000 were of other Central American, South American, Caribbean, or unspecified Hispanic origins.

Mexicans are not only the largest Hispanic origin group, but also have the longest history in the U.S. By the end of the 19th century, Mexicans had become a principal source of "cheap and mobile" labor in U.S. mining, agriculture, railroad, and manufacturing industries (Rumbaut 2006: 28) and went on to settle in large numbers throughout California, Illinois (mainly in Chicago), and the southwestern border states (Guzmán 2001).

Like the total Hispanic population, roughly 40% of Mexicans in the U.S. in 2000 were born in Mexico. Mexico's proximity to the U.S. and the large shared land border contributes to a high level of migrant traffic back and forth between the U.S. and Mexico. Most Mexican immigrants in 2000 had been in the U.S. less than 10 years and most had not become naturalized citizens. Citizenship status is a greater challenge for Mexican immigrants than other Latin American and Caribbean immigrants since Puerto Ricans are U.S. citizens at birth and many Cuban migrants entered the U.S. legally with protective status that led more directly to legal permanent residence and naturalization.

The percentage of Mexicans living in poverty is only slightly higher than that of the total Hispanic population (23.5% compared to 22.6%); however, Mexicans have the lowest percentage of all Hispanic origin groups of those who have completed high school or any higher level of education (45.8 percent compared to 59.9% of all Hispanics and 84.0% of the total population) (Ramirez 2004).

Puerto Rico was occupied by the U.S. in 1898, and as of 1917, people born in Puerto Rico are U.S. citizens by birth (Rumbaut 2006). Migration to the mainland U.S. grew steadily after 1920, with most Puerto Rican migrants settling in New York City. As of 2000, New York City continued to account for a large proportion of the U.S. Puerto Rican-origin population, in addition to other northeastern states such as New Jersey and Pennsylvania, as well as Florida (Guzmán 2001). Rumbaut (2006) estimates that close to 40% of U.S. Puerto Ricans were born in Puerto Rico, while the rest were born in the mainland U.S. It is important to note here that in this analysis I treat Puerto Ricans who were born in Puerto Rico as foreign-born Hispanics, despite their U.S. citizenship from birth. Puerto Ricans who were born in Puerto Rico and later came to the U.S. are long distance migrants whose experiences are similar to other immigrants to the U.S. A greater percentage of Puerto Ricans (8.2%) in 2000 reported their race as black compared to Mexicans (1.1%) and Cubans (4.7%) (Logan 2003). While a substantially greater percentage of Puerto Ricans than Mexicans have completed high school or any higher level of education (63.3%), a higher proportion of Puerto Ricans are living in poverty (25.8%) (Ramirez 2004).

The presence of Cubans in the U.S. was first established in the early 19th century when a small number of Cuban exiles were conducting political work in New York and Florida (Rumbaut 2006). Starting with the Cold War and from 1960 onward, a steady stream of Cuban exiles came to the U.S. and settled primarily in Miami and other parts of Florida (Rumbaut 2006), where more than two-thirds of the U.S. Cuban population resided in 2000 (Guzmán 2001). A much higher proportion of Cubans were born outside the U.S. (68.5%) compared to the total Hispanic population (40%); however, most Cuban

immigrants came to the U.S. before 1970 which is in contrast to the ever increasing percentages of immigrants coming from other countries in more recent years. Like Puerto Ricans, the majority of Cubans have completed high school or a higher level of education (62.9%), and a higher percentage of Cubans completed college (21.2%) than Mexicans (7.5%) or Puerto Ricans (12.5%) (Ramirez 2004). The higher levels of education contribute to Cubans having the lowest poverty rate than any of the other Latin American Hispanic origin groups; only 14.6% of Cubans live in poverty (Ramirez 2004).

U.S. Hispanic Health Disparities

Discussion of U.S. Hispanic health disparities must begin with mention of the well-documented "paradox" that foreign-born adult U.S. Hispanics have lower age-adjusted mortality rates than non-Hispanic whites despite their relative socioeconomic disadvantages (Palloni and Arias 2004; Escarce et al. 2006). Data from the National Center for Health Statistics for 2001 show that with the exception of males ages 15-24, death rates are lower among Hispanic adult men and women than among non-Hispanic whites (Escarce et al. 2006) even though Hispanics generally experience higher rates of poverty, lower levels of education, and have less access to health care (Palloni and Arias 2004; Escarce and Kapur 2006). Researchers have explored and found evidence supporting several different theories to explain this paradox; however, no single theory has yet provided the ultimate answer. Possible explanations for the Hispanic mortality paradox include: selection effects of migration in that healthier people are willing and able to migrate to the U.S. from foreign countries and therefore have above-average longevity; return migration effects positing that migrants in the U.S. return to their home

countries upon falling ill; cultural effects of lifestyle and health behaviors that result in reduced mortality risk of foreign-born Hispanics compared to people born in the U.S.; and measurement error effects due to the underreporting of Hispanic identity in mortality data that could mistakenly attribute more deaths to non-Hispanic populations (Palloni and Arias 2004; Escarce et al. 2006).

Whether the explanation for the mortality paradox lies in measurement error or bias, or in a special selection effect of foreign-born Hispanics being intrinsically healthier than others, there is definitive evidence of other kinds of disadvantages for all U.S. Hispanics compared to non-Hispanic whites in health status, morbidity, and well-being that overshadow the potentially lower mortality risk of Hispanics (Weinick et al. 2004; Palloni and Arias 2004; Escarce et al. 2006). In the following section, I review documented disparities for U.S. Hispanics and African Americans.

Health status

Mensah and Glover (2007: 23) define health disparities as "preventable differences in the health indicators of different population groups, often defined by race/ethnicity, sex, educational level, income, socioeconomic status, and geographic location of residence." Important health indicators include overall levels of health, incidence and prevalence of disease or illness, and the level of burden of these conditions. In 2002, 28.9% of U.S. Hispanic adults rated their health as fair or poor, compared to just 14.0% of the non-Hispanic U.S. population (CDC 2004). More recent findings from the 2007 National Health Interview Survey show that both African Americans and Hispanics are less likely than non-Hispanic whites to report good health status (Adams et al. 2007). This survey report also found that African Americans disproportionately suffer

limitations in their daily activities due to chronic health problems compared to both whites and Hispanics.

Certain diseases and chronic conditions disproportionately affect Hispanics compared to non-Hispanic whites (Escarce et al. 2006; CDC 2007). For example, Type 2 (adult-onset) diabetes is more prevalent and diabetes-related complications and mortality are more common among Hispanics. The death rate in 2003 for diabetes among Hispanics (35 per 100,000 population) was 1.6 times higher than for non-Hispanic whites (22.1 per 100,000) (CDC 2007). Also, cervical cancer rates are higher among Hispanics than non-Hispanic whites. In fact, CDC (2007) reports that the incidence rate for cervical cancer for Hispanic women between 1998 and 2002 (15.8 per 100,000 women) was 1.8 times higher than that for non-Hispanic white women (8.7 per 100,000) and the death rate for the disease for Hispanic women (3.5 per 100,000 deaths) was 1.4 times higher than for non-Hispanic white women (2.5 per 100,000).

More Hispanics than non-Hispanics are obese and high blood pressure is undertreated; and the prevalence of high cholesterol levels and hypertension—while comparable to the rates for non-Hispanic whites—are increasing at a faster pace for Hispanics (CDC 2007; Escarce et al. 2006). CDC (2007) reports that among adult men in 1999-2002, the percentages of both overweight and obesity were higher among Hispanics of Mexican origin (74.1% and 29.0%) than non-Hispanic white men (69.5% and 28.7%) or African Americans (62.0% and 27.9%).

Also, DHHS (2005) reports that Hispanics are 3.7 times more likely to be diagnosed with AIDS than non-Hispanic whites. According to CDC data for 2003, the HIV/AIDS death rate was 2.7 times higher for Hispanic men (9.2 per 100,000 population)

and 2.7 times more likely for Hispanic women (3.4 per 100,000) than for non-Hispanic white men (3.4 per 100,000) and non-Hispanic white women (0.6 per 100,000) respectively (CDC 2007). Incidence and morbidity for other chronic diseases such as stomach cancer and infectious diseases such as tuberculosis were also higher for Hispanics than non-Hispanic whites (Escarce et al. 2006; CDC 2007).

Available data also compare health outcomes among Hispanics by country of origin. CDC (2007) reports that the death rate for HIV among mainland Puerto Ricans in 1999 (32.7 per 100,000) was well above any other nationality or race group and more than 13 times greater than the rate for non-Hispanic whites (2.4 per 100,000). Puerto Ricans also had higher death rates from diabetes in 2000 (172 per 100,000) than either Cubans (47 per 100,000) or Mexicans (122 per 100,000) as well higher lifetime prevalence of asthma (19.6%) compared to other Hispanics (8.3%).

Zsembik and Fennell (2005) found significant differences in health status outcomes by country of origin among U.S. Hispanics even after accounting for socioeconomic differences. Their analysis of 1997 to 2001 National Health Interview Survey data revealed that Mexicans reported better health status than Puerto Ricans and Cubans; however socioeconomic and assimilation-related improvements translated to *worse* health outcomes for Mexicans, while improving outcomes for Puerto Ricans and Cubans. In fact, low SES foreign-born Mexicans reported better health status than higher SES native-born Mexicans. The authors surmise that the peculiar findings for Mexicans highlight migratory selection bias, while the expected gains of assimilation are more evident among Puerto Ricans and Cubans.

Health care access

It is important to understand the disparities in access to health care for Hispanics that are associated with their health status disparities. Escarce and Kapur (2006: 411) define access to health care as "the degree to which people are able to obtain appropriate care from the health care system in a timely manner." Appropriate care includes not only treatment or consultation for a specific symptom or health condition, but also preventive care such as screenings, vaccinations, and chronic disease maintenance. In its compilation of data on health care disparities from various government data sources between 1999 and 2003, the U.S. Department of Health and Human Services (DHHS 2005) found that Hispanics are 87% more likely to have worse access to health care than non-Hispanic whites.

Two important indicators of health care access are insurance status and having (or not) a usual source of primary health care (Hargraves 2003; Cox et al. 1998). Due to the high cost of health care and reliance of the U.S. health care system on third-party payer insurance coverage, being uninsured is a major barrier to health care for many U.S. Hispanics. Some Hispanics face greater risk of being uninsured than other groups due to their disproportionate employment in industries that do not offer health benefits, and also due to the high proportion of Hispanics who are not U.S. citizens. Analysis of Current Population Survey data revealed that in 2000, 32.9% of Hispanics were uninsured compared to just 9.6% of non-Hispanic whites (Shau and Carrasquillo 2006). The 2007 NHIS found that a much larger age-adjusted proportion of Hispanics under age 65 were uninsured (32.6%) compared to non-Hispanic whites (12.7%) and African Americans (17.4%) (Adams et al. 2007). In fact, approximately 45% of the uninsured Hispanics

under age 65 reported they had never had health insurance compared to 14% of uninsured non-Hispanics (Adams et al. 2007).

The percentage uninsured among non-citizen Hispanics (55.4%) was more than double the percentages uninsured of U.S.-born Hispanics (23.1%) and naturalized citizen Hispanics (25.2%). In addition, the percentage of uninsured Hispanics of Mexican origin (36.4%) was about double that of U.S. Puerto Ricans (17.6%) and U.S. Cubans (18.5%) (Shau and Carrasquillo 2006).

A usual source of health care eases access to services for a health care problem, routine disease maintenance, check-ups, or preventive care. Having a regular source of care means that one has established a history with a provider and has already navigated the health care system at least to this point of care. Therefore, having a regular source of care increases the likelihood that one will access timely care, and that one will have continuity of care that can lead to optimal health (Escarce and Kapur 2006; Cox et al. 1998). The Centers for Disease Control and Prevention (CDC 2004) compared access to health care and preventive services for U.S. Hispanics and non-Hispanics in 2002. After adjusting for sex, age, marital status, employment status, and self-rated general health, only 68.5% of U.S. Hispanic adults age 18 and over reported having a regular personal doctor, nurse, or other health care provider compared to 84.1% of the non-Hispanic U.S. adult population. Hispanics were also less likely to have been screened in the past 12 months for breast, cervical, or colorectal cancers, or high cholesterol, or to have been vaccinated for pneumonia or the flu (CDC 2004). In addition, Hispanic women were 1.8 times more likely to have late or no prenatal care (5.3%) than white women (3.0%) according to CDC data from 2003 (CDC 2007).

There are also differences in having a usual source of care among U.S. Hispanics by nativity and country of origin. Analysis of 1997-2001 National Health Interview Survey (NHIS) data found that 34% of foreign-born working-age adults Hispanics reported having no usual source of care, compared to 21% of U.S.-born Hispanic working-age adults (Escarce and Kapur 2006). Comparison by country of origin showed that Mexicans were at a much greater disadvantage in terms of having a usual source of care than either Puerto Ricans or Cubans; 33% of Mexican working-age adults reported having no usual source of care compared to 15% of Puerto Rican respondents and 15% of Cuban respondents (Escarce and Kapur 2006). In another comparison of NHIS data, Durden and Hummer (2006) found that Mexican origin adults were more likely than Puerto Rican and Cuban origin adults to lack access to health care even when nativity and socioeconomic variables were taken into account.

U.S. Hispanic Residential Segregation

As noted above, residential segregation is the systematic separation of racial and ethnic groups across city areas that is theorized to influence health disparities for racial and ethnic minorities. African Americans are the most segregated group in the U.S.; however, the levels of segregation of Hispanics—and especially of some Hispanic subgroups—are notable as well (Massey and Denton 1987; Denton and Massey 1989; Santiago 1989; Martin 2007; Iceland and Nelson 2008). With access to internal restricted Census 2000 data, Iceland and Nelson (2008) calculated segregation scores for racial minorities including African Americans, Hispanics and Hispanic subgroups compared to

U.S.-born non-Hispanic whites[2]; these findings are summarized briefly here and presented in Table 2.1.

The dissimilarity index is a measure of residential segregation that indicates the evenness of the distribution of two groups across neighborhoods within an area. The index of dissimilarity ranges from 0 to 1 with 0 indicating that the two groups are completely integrated, and 1 indicating that the two groups are fully segregated; scores of 0.60 and higher are generally considered high.

As shown in Table 2.1, Iceland and Nelson (2008) report that Hispanics as a whole are moderately segregated from U.S.-born non-Hispanic whites, with a mean dissimilarity score across all U.S. metropolitan areas of 0.519 (Iceland and Nelson 2008). The mean dissimilarity score for African Americans is 0.664. The moderate level of segregation for the whole population of Hispanics merits attention in its own right; however, there are significant differences in levels of segregation across key Hispanic subgroups. When divided by nativity, dissimilarity levels from whites are generally higher for foreign-born Hispanics (mean of 0.595) than for U.S.-born Hispanics (mean of 0.469) (Iceland and Nelson 2008). This nativity difference echoes the findings from analyses of census data from 1970, 1980, and 1990 that also revealed higher levels of segregation among foreign-born Hispanics than U.S.-born Hispanics (Massey and Denton 1987; Logan et al. 2004).

Analyses of previous census data have also shown differences in segregation among Mexican, Puerto Rican, and Cuban origin Hispanics (Denton and Massey 1989; Santiago 1989; Martin 2007). As depicted in Table 2.1, Cubans experience similar

[2] As discussed below, dissimilarity scores reported by Iceland and Nelson (2008) are the source for residential segregation data in my analysis.

dissimilarity from whites as Mexicans (0.538 and 0.542 respectively), while Puerto Ricans experience slightly higher dissimilarity from whites (0.602). Broken down by nativity, the foreign born of each of the country of origin groups have higher dissimilarity from whites than the U.S.-born. The mean score for foreign-born Puerto Ricans approaches the level for African Americans at 0.658 while the level for U.S.-born Puerto Ricans is 0.593. The mean dissimilarity score for foreign-born Mexicans is 0.639 compared to 0.483 for the U.S.-born; the mean score for foreign-born Cubans is 0.575 compared to 0.518 for the U.S.-born.

Before articulating the ways residential segregation operates as a contextual place effect on health, it is important to consider the theoretical underpinnings of the process of residential segregation. Spatial assimilation theory conceives of residential segregation as a phase within a larger process towards full integration of racial or ethnic minorities and mainstream society (Massey and Mullan 1984; Alba and Nee 2003). Newcomers to a country or city may cluster in distinct lower quality neighborhoods either out of preference to be among co-ethnics, or due to limited opportunities to live and work in better areas. Once human capital gains are achieved, immigrants/minorities begin to move out of segregated neighborhoods and move closer (spatially and socioeconomically) to their mainstream counterparts.

According to spatial assimilation theory, racism and discrimination on the part of the dominant group (non-Hispanic whites, in the U.S. case) may systematically impede the initial opportunities of subordinate group members to integrate; however, ethnic and racial identities converge over time as subordinate groups make socioeconomic strides and affect/adopt mainstream norms. Through subsequent generations, group differences

become fairly inconsequential in day-to-day interactions in society. Racial and ethnic minorities may maintain strong "symbolic" ethnic identities that apply to realms such as religion and cultural practices; however, general aspects of their lifestyles including work and residence conform to and are accepted as part of a broader mainstream identity (Alba and Nee 2003).

While spatial assimilation theory acknowledges the role of racism in the initial segregation of non-whites, place stratification theory asserts that residential segregation of racial and ethnic minorities in the U.S. is primarily the product of exclusion on the part of whites that may permanently limit the social and economic opportunities for those kept out of white neighborhoods (Charles 2003; Fossett 2004; Martin 2007). The place stratification model emerged after African Americans migrating to the North and Midwest after World War II were methodically relegated to low-quality neighborhoods separated from whites Martin (2007: 9). Even African Americans with higher levels of income, better jobs, or more education were generally relegated to lower quality neighborhoods because of their race. Observation of these trends uncovered systematic discrimination in housing practices and white prejudice that helped to produce and reinforce residential segregation to secure white privilege.

Place stratification theory stresses discrimination on the part of the majority group that maintains segregation. Through persistent prejudice, unfair housing practices, and control of resources, residential segregation operates as the "'structural linchpin' of American race relations" that results in advantages for residents of predominantly white neighborhoods and disadvantages for residents of predominantly non-white neighborhoods (Bobo and Zubrinsky 1996, 884). Place stratification theory asserts that

whites systematically prevent minorities from spatial integration even if they do succeed in achieving higher human capital status. If, as racial and ethnic minorities, the social and economic destinies of subordinate groups are perpetually hindered by their exclusion from whites, full assimilation is not possible.

The experience and nature of Hispanic segregation from whites is different from that of African Americans (Massey and Mullan 1984; Massey 1993; Fischer and Tienda 2006; Martin 2007). In fact, Hispanics are virtually equally segregated from African Americans as they are from whites (Massey and Mullan 1984; Iceland and Nelson 2008). While housing discrimination and prejudice against U.S. Hispanics is well documented (Massey 1993; Martin 2007), place stratification theory is considered to apply more strongly to the case of African Americans. Indeed, in their comparison of Hispanic and black residential patterns using 1960 and 1970 data, Massey and Mullan (1984) found that spatial assimilation was much more evident for Hispanics. According to the study findings, Hispanics making socioeconomic gains had greater access to white neighborhoods, however, this was not the case for African Americans. Massey and Mullan (1984) surmised that racism was preventing high achieving African Americans from achieving spatial—and ultimately structural—assimilation while the process toward assimilation was much more visible for Hispanics.

The history of segregation is also distinct for Hispanics. Fischer and Tienda (2006: 101-102) explain that unlike African American segregation in many northern cities that occurred with the post-World War II exodus from the rural South, Hispanic migration has been, with some exceptions, largely recent and "intrametropolitan" across U.S. and international cities. Since the 1980s, the geography of where Hispanics live has

been shifting dramatically. Alongside substantial Hispanic population growth, Census data show a trend of wider dispersion of Hispanics across the country into areas that are receiving large inflows of Hispanics for the first time (Suro and Singer 2002; Singer 2004). While the majority of Hispanics remain concentrated in states in the West and Northeast with traditional gateway metropolitan areas such as Los Angeles and New York City, several states in the South and Midwest with metropolitan areas like Orlando and Milwaukee are experiencing rapid and unprecedented growth in the Hispanic population (Suro and Singer 2002; Fischer and Tienda 2006). Much of the attraction to new growth areas for Hispanic immigrants is related to shifts in the U.S. labor market away from manufacturing jobs in larger U.S. cities with typically higher segregation levels and towards service-sector employment in smaller metro areas with generally more moderate levels of segregation (Camarillo and Bonilla 2001; Suro and Singer 2002; Fischer and Tienda 2006).

For U.S. Hispanics, residential segregation may involve aspects of preference on the part of Hispanic groups in addition to exclusion on the part of whites. Hispanics may be moving intentionally to enclaves within traditional gateways or new growth areas to enhance their social and economic prospects. Spatial assimilation theory asserts, however, that whether by choice or by force, the initial pattern of separation from mainstream society fades over time as subordinate groups make human capital gains. Some groups, such as new immigrants, may in fact benefit from initial exclusion from white neighborhoods if clustering among co-ethnics strengthens access to community ties, job opportunities, information, and resources (Quillian 2007). These short-term benefits of segregation may then facilitate faster or more successful spatial assimilation.

Connecting Health and Residential Segregation

In this section, I discuss how health is in part socially determined, explain the ways in which aspects of a place may impact health, and, finally, outline the connections between health and residential segregation.

How Health is Socially Determined

Contemporary Western public health studies have their roots in the nineteenth century discoveries about the spread of infectious disease through germs, and the potential for vaccines to prevent infection (Link and Phelan 1995; Frohlich et al. 2001; Kunitz 2007). Scientists began to recognize ways in which community practices and contextual factors contributed to the transmission of disease in addition to the characteristics and behaviors of individuals. As infectious disease rates declined in the twentieth century, the focus of public health researchers and epidemiologists shifted to chronic diseases such as cancer, diabetes, and heart disease. With this shift in focus from infectious to chronic disease came a return to an emphasis on individual-level determinants of disease with less inquiry into the social determinants of health, at the expense of learning more about how contextual factors influence health and how to address them.

By the 1990s, there was a rising call among American public health researchers, epidemiologists, and social scientists for a return to attention to factors beyond an individual's control that impact health. Concern was mounting that the efforts of health researchers and public health promoters were predominantly concentrating on individual characteristics and behaviors while discounting the contributions of macro-level factors to poor health. Becker (1993) articulates this concern; he contends that not only do

researchers and health promoters miss critical opportunities for reducing health disparities by excluding macro-level factors, but the focus on the characteristics and behaviors of individuals puts undue emphasis on people to improve their health without demanding changes from society at large. He explains that while improving one's diet or getting more exercise are certainly worthwhile endeavors, these suggestions may not be realistic or top priorities for people facing discrimination, poverty, or unsafe living arrangements. Becker (1993: 3) writes, "The most disturbing aspect of the contemporary health promotion movement: its tendency to locate the responsibility for the cause and the cure of health problems in the *individual.*"

The reliance on individual changes to improve health is not only unrealistic, it may also be misleading as the panacea for health problems as it masks the role of dynamics external to the individual. Williams and Jackson (2005:325) explain: "Health and health disparities are embedded in larger historical, geographic, sociocultural, economic, and political contexts." Because there are factors influencing health above and beyond the individual's control, more emphasis should be placed on these other factors. Becker (1993: 5) explains, "An introspective approach to health that fosters victim-blaming and stigmatization, ignores critical social, economic, and environmental issues that have major impacts on health." Much in the same way that the 1996 welfare reform law, the Personal Responsibility and Work Opportunity Reconciliation Act, placed more burden on welfare recipients to find economic security independently through encouraging employment and marriage, individually-focused health promotions place the onus for improving one's health primarily on his or her shoulders while absolving the larger community from examining macro-level forces that influence health. This goes

back to the traditional American Dream notion that no matter what, everyone in the U.S. has a solid chance to 'pull themselves up by their bootstraps' and make a better life; anyone who does not succeed has not tried hard enough.

Following the analogy to welfare reform, while encouraging individuals to maintain steady employment is a reasonable effort and welfare reform was widely regarded as being effective for many low-income families, some welfare recipients had difficulties that go beyond job skills and motivation that prevented them from supporting themselves financially. Therefore, many of the central tenets of welfare reform were lost on individuals who, for example, struggled with finding safe and affordable child care, overcoming physical or mental illness, or contending with neighborhood or household violence. Along these lines, addressing personal health risk factors and improving health behaviors is a good idea for everyone; however, making changes such as eating healthier or getting more exercise may become inferior priorities in the face of larger issues of social and economic disadvantage that lead to health disparities. Becker (1993: 4) asserts, "It will not be very effective to intervene at the individual level without concomitant attempts to alter the broader economic, political, cultural, and structural components of society that act to encourage, produce, and support poor health."

My analysis is based on the notion that it is imperative to take into account both individual and macro-level factors in the effort to improve population health. As noted above, examples of macro-level determinants of health include socioeconomic inequality, disproportionate exposure to health hazards, gender discrimination, racial/ethnic discrimination, and—the focus of this dissertation—racial and ethnic residential segregation. Figure 1 provides a useful illustration of the relationships between the

individual and progressively larger contexts that impact his/her health. This framework by Dahlgren and Whitehead (1991) is referred to as the "rainbow" of the social determinants of health as it ranges out from the individual at the most micro level to the largest band of general socioeconomic, cultural, and environmental conditions at the societal level.

Link and Phelan (1995) articulate the need to examine macro-level forces in health disparities in their landmark article, "Social Conditions as Fundamental Causes of Disease." Link and Phelan (1995: 80) explain that disparities in health risk factors must be "contextualized" to gain a deeper understanding of the circumstances external to the individual physiological being that may protect health, and those circumstances which may jeopardize it. The authors argue that social factors such as socioeconomic status are "fundamental causes of disease" because they persist in influencing health and access to health care across a range of health conditions and despite a bevy of advances in medicine and health promotion. They insist that attacking specific diseases and suggesting individual interventions ignores the larger context that influences not only that disease but most likely others.

This realization that context influences health is a lesson dating back to the origins of contemporary public health when scientists realized that finding a cure for one type of infectious disease did not address how that disease and others may be spread; ultimately scientists had to examine the broader social factors in the spread of disease including housing conditions, water sanitation, and unequal access to proper nutrition (Frohlich et al. 2001; Kunitz 2007). Link and Phelan (1995: 81) explain,

> A fundamental cause involves access to resources, resources that help individuals avoid diseases and their negative consequences through a variety of mechanisms. Thus, even if one effectively

> modifies intervening mechanisms or eradicates some diseases, an association between a fundamental cause and disease will reemerge.

Echoing Becker (1993), Link and Phelan (1995) assert the importance of pulling back the view of health disparities from a tight focus on the individual to a broader inspection that includes the context surrounding the individual that contributes to health. Thus we begin to see health as the result of a range of forces including social and macro-level factors that widely influence health.

Effects of Place on Health

Having established that health is produced in part by social forces, this section briefly addresses how "place" influences health. Place effects can be compositional in that outcomes stem from the aggregate make-up of the population. Concentration of poverty, for example, is a key compositional aspect of place. Place effects can also be contextual in that the physical and sociopolitical surroundings are created from social forces such as residential segregation. Macintyre et al. (2002) explain that contextual effects of place include aspects of "material infrastructure" such as access to good schools or aspects of "collective social functioning" in terms of the ability of the people in an area to mobilize and secure needed resources and opportunities.

Most studies of place effects emphasize the compositional components of place. Composition is easier to operationalize and reveals more clear pathways between cause and effect (Curtis and Jones 1998; Pickett and Pearl 2001). It is important, however, to bring contextual factors into social analyses of health because there are aspects of one's physical and social surroundings that cannot adequately be measured in aggregate statistics of a place's residents (Jones and Duncan 1995). In fact, examination of aggregated compositional effects and contextual effects *as well as* individual factors

maximizes the potential for devising successful interventions to combat health and social disparities (Cummins et al. 2007). While research compartmentalizes variables into distinct categories, the place effects literature stresses that analysis of both "individuals and their ecologies" (Jones and Duncan 1995) better approaches the understanding of health disparities than focusing only on one dynamic and not the other.

How Residential Segregation Impacts Health

Several studies have set out to determine if segregation can be "good" or "bad" based on the direction and strength of the association between segregation and important indicators including locational attainment, income, education, and health (Cutler and Glaeser 1997; Cutler et al. 2006; Quillian 2007). Researchers have identified residential segregation as a key social determinant of health and a growing body of literature approaches the question of how residential segregation influences health for different groups (Williams and Collins 2001; Schulz et al. 2002; Acevedo-Garcia et al. 2003; Acevedo-Garcia and Lochner 2003).

Schulz et al. (2002) illustrate in their conceptual framework of the determinants of racial disparities in health that residential segregation impacts health through a range of intermediate and proximate forces such as physical environment and stressors, community infrastructure, and individual behaviors. Just as concentration of intermediate and proximate factors may miss a broader social structure, evaluation of the connection between health and segregation cannot ignore the mediation of factors like race/ethnicity, nativity and country of origin.

Residential segregation has been found to impact health of African Americans primarily through the unequal distribution of resources (such as safe housing,

employment, good schools, and state and local services) which in turn generates disparities in health care access and health status (Williams and Collins 2001; Acevedo-Garcia and Lochner 2003; Galea and Vlahov 2003; Lee and Ferraro 2005). Socioeconomic and health disparities can manifest along with residential segregation related to spatial differences in factors including risk of violence, transmission of infectious disease, environmental hazards, and availability/accessibility of health care and health information (Williams and Collins 2001; Acevedo-Garcia et al. 2003; Osypuk and Acevedo-Garcia 2006). Researchers have found, for example, evidence that segregation of African Americans is negatively associated with mortality (Collins and Williams 1999; Jackson et al. 2000) and low birth-weight (Grady 2006).

A handful of studies have assessed the link between segregation and health for Hispanics and/or subgroups of Hispanics. In these instances, findings have been mixed as to whether the link between segregation and health is negative or positive. For example, Patel et al. (2003) and Eschbach et al. (2004) had mixed findings in their joint analyses of the influence of segregation on the self-rated health and mortality of elderly Mexicans; both papers reported that for some (but not all) older Mexicans, segregation was beneficial to health. In another case, Lee and Ferraro conducted a survey examining health and residential segregation among Hispanics in Chicago during the 1990s. They found that among Mexicans in Chicago, residential segregation was linked with better self-rated health of immigrants but with poorer self-rated health of U.S.-born Mexican Americans. In addition, the authors found a more negative association of segregation with self-rated health for Puerto Ricans in Chicago than for Mexicans there (Lee and Ferraro 2005).

The findings of the studies discussed above are provocative; however, we cannot discern any broad understanding of the link between segregation and health for U.S. Hispanics based on the limited scope of each of these analyses. In the following chapter, I discuss the conceptual framework for the dissertation, my hypotheses, and the contributions of this work to the study of health and segregation.

CHAPTER 3. CONCEPTUAL FRAMEWORK AND HYPOTHESES

I outline the potential direct and indirect pathways from residential segregation to health disparities in Figure 2. I measure residential segregation using the index of dissimilarity. Dissimilarity addresses the extent to which two groups are distributed evenly across the neighborhoods within a metropolitan area such that the proportion of a group in any given neighborhood is equal to that group's proportion of the whole metro area. Evenness—or the lack thereof—influences health by patterning a minority group's neighborhood quality, socioeconomic opportunities, access to public resources, and access to health care and information.

Segregation systematically constrains the socioeconomic opportunities for residents of lower quality minority neighborhoods that are excluded from white privilege. Also, segregated areas receive less funding and attention for public resources such as schools and public health clinics that ultimately influence health status and access to care. There are fewer jobs, fewer health care providers, and fewer sources of health information in segregated areas. In addition, segregation relegates more minorities into lower quality and impoverished neighborhoods with more dilapidated and dangerous housing conditions, higher exposure to infectious diseases such as tuberculosis, and higher vulnerability to crime.

Segregation could, however, lead to health advantages for some groups, or the characteristics of some groups may prevent the negative influences of segregation on health status and access outcomes (Cutler et al. 2006). The indirect effect of "collective social functioning" (Macintyre et al. 2002) could actually be a positive result of residential segregation if a group enjoys strength in numbers, so to speak, and mobilizes

to enhance access to local jobs, health information, and culturally relevant providers. Indeed, in their examination of the socioeconomic consequences of segregation for immigrants in the U.S., Cutler et al. (2006) found that immigrant groups with higher average levels of human capital appeared to benefit from the "critical mass" of segregation while groups with lower human capital appeared to experience more hardships because of it. As could be the case for some Hispanic subgroups, the protective effects of an ethnic enclave and/or socioeconomic achievements may forestall the potential negative impacts of residential segregation.

Conceptual Framework

My conceptual framework connecting U.S. Hispanic health, residential segregation, and other compositional and contextual factors builds on the examples of Dahlgren and Whitehead (1991), Link and Phelan (1995) and Schulz et al. (2002) which outline multiple ways in which health is socially determined. Figure 3 illustrates the relationships I envision between the variables in my analysis. I posit health status and access to health care as outcomes influenced by both individual and macro-level factors. I contend that individual-level characteristics including nativity and country of origin/heritage combine and interact with residential segregation as well as other individual and metro area-level factors to influence health status and access to health care for U.S. Hispanics.

Because health is determined by individual as well as macro-level forces, I conduct multiple analyses with different combinations of variables predicting health and access among U.S. Hispanics. I conduct nested (or stepwise) regressions employing

various models with individual-level and/or macro-level factors to best determine the role of residential segregation in producing Hispanic health disparities. This approach allows me to evaluate and distinguish between differences in health and access to health care as related to differences in characteristics of Hispanics at the individual level, and to patterns of residential segregation in the metropolitan areas in which they live, at a more macro level.

Key sub-group differences by nativity and country of origin may alter the link between health and segregation among Hispanics even when accounting for other factors related to assimilation and metropolitan area context. In other words, segregation may interact with Hispanics differently by nativity and country of origin, and these interaction effects will be measured in the analysis.

Through the multiple layers of this analysis, I attempt to unpack the ways in which health and access of Hispanics and Hispanic subgroups are linked—in positive or negative ways—to residential segregation from non-Hispanic whites. While there is long-standing consensus among sociologists and policymakers that racial/ethnic residential segregation is ultimately harmful to U.S. minorities, evidence of the consequences of segregation is not so straightforward, and there have been few large-sample systematic studies connecting segregation with health and access. The paucity of empirical evidence about the consequences of segregation is even more pronounced looking beyond the traditional white/black racial divide and considering the diverse and rapidly growing Hispanic population. I address this void in the research towards not only a better understanding of health status and access to health care among U.S. Hispanics, but also towards a better understanding of the consequences of racial residential segregation. This

work will inform research and policy work addressing the health care needs of U.S. Hispanics in addition to efforts to promote equality for minorities in metropolitan America.

Hypotheses

Just as the Hispanic population is not one monolithic category of people, I do not expect to reach one overarching conclusion about the impact of residential segregation on health as being strictly beneficial or entirely detrimental for all U.S. Hispanics. In most cases, I predict that the costs of segregation will outweigh any benefits. In this section, I detail my hypotheses for each group or comparison for each dependent variable in my analysis (good health status, being uninsured, and having a usual source of health care). Hypotheses 1, 2, and 3 are predictions about the segregation/health relationship for U.S. Hispanics as compared to African Americans for each of the three outcomes; Hypotheses 4, 5, and 6 are predictions about differences between U.S.-born and foreign-born Hispanics across the three outcomes; and Hypotheses 7, 8, and 9 are predictions about differences by country of origin across the three outcomes.

All U.S. Hispanics

Hypothesis 1. Looking first at U.S. Hispanics in comparison to African Americans, I predict that residential segregation from whites will be negatively associated with self-rated health status for both groups. While I expect the effect of residential segregation to remain significant for both groups even after controlling for individual-level "compositional" characteristics and other metro area factors, I predict the

negative health effect of residential segregation will be more acute for African Americans due to the cumulative and persistent effects of racial discrimination.

Hypothesis 2. In the prediction of being uninsured, I expect to see higher likelihood of being uninsured with higher levels of segregation for both Hispanics and African Americans. The effect to be stronger for African Americans in this case because I expect that individual-level factors such as nativity status, education, and poverty status will more strongly predict the odds of being uninsured for Hispanics than residential segregation, even though a negative effect of segregation would still be observed. In other words, being U.S.-born, having more education, and earning more income will not mitigate the effects of residential segregation in the prediction of being uninsured for African Americans to the extent that it will for Hispanics—consistent with spatial assimilation and place stratification theories.

Hypothesis 3. Finally, I predict that while having a usual source of health care will be less likely for more segregated African Americans, there will be no discernable pattern for the group of Hispanics as a whole. Due to differences I expect to see among key Hispanic subgroups, I do not expect to observe a significant relationship between segregation and having a usual source of care, especially after accounting for individual-level socioeconomic factors, health status, and insurance status. Given the possibility that segregation could link to enhanced access to health care in the context of a strong ethnic enclave, I suspect that there will be no general trend for this relationship in the examination of all U.S. Hispanics.

U.S.-born vs. Foreign-born Hispanics

Spatial assimilation theory provides two interesting ways of envisioning how nativity may impact the connection between segregation and health among Hispanics. On the one hand, due to their more advanced stage of assimilation, U.S.-born Hispanics may be predicted to have a general advantage over the foreign born. On the other hand, segregation could have a protective effect on health for foreign-born Hispanics residing in tight-knit enclaves that provide greater access to community resources, culturally relevant health care services, and health information than are available to Hispanics in more integrated areas. Indeed, I expect to find a significant difference in the strength of the association between segregation and health between U.S.-born and foreign-born Hispanics.

Hypothesis 4. For U.S.-born Hispanics, I expect that segregation will have a negative relationship with self-rated health and will, in fact, be more acutely harmful than for the foreign-born, especially once compositional factors such as education and poverty status are controlled. I expect, however, that segregation will also negatively impact the foreign born, but to a lesser degree than for U.S.-born Hispanics due to the initial selection effects of migration and initial stages of the spatial assimilation process.

Hypothesis 5. While individual factors (including nativity, but especially income) will largely drive the odds of being uninsured, segregation will be associated with higher odds of being uninsured for both U.S.-born and foreign-born Hispanics. However, due to their relative inability (especially for Mexican immigrants) to qualify for state or public health insurance, the connection between segregation and being uninsured will be more substantial for foreign-born Hispanics. Still, segregation will also be related to being

uninsured for the U.S. born who may be less likely to have jobs with employer-sponsored coverage in segregated areas or less likely to be informed about potential eligibility for public coverage.

Hypothesis 6. I predict segregation may actually increase the likelihood of having a usual source of care for foreign-born Hispanics, while it would be linked to lower chances of having a regular provider for the U.S. born. Enclaves may protect access to culturally sensitive providers for the foreign born, however, U.S.-born Hispanics will have lower access to regular providers in segregated areas.

Country of origin comparisons

Specific hypotheses based on country of origin are more difficult to imagine based on relevant theory and literature. I expect that much of the differences and interaction effects of segregation with county of origin that I might find between Mexicans, Puerto Ricans, and Cubans will be related to compositional differences across the groups. Mexicans have been found to experience greater disparities in accessing health care than other origin groups given their generally lower socioeconomic status and greater challenges with immigration status (Shau and Carrasquillo 2006; Escarce and Kapur 2006; Durden and Hummer 2006); therefore, segregation could be seen to exacerbate health disparities for Mexicans. Also, as noted above, Puerto Ricans have been found to experience health disparities for specific conditions such as HIV, diabetes, and asthma more acutely than other Hispanics (CDC 2007), therefore, their hardship in the face of segregation may be worse as well. Puerto Rican enclaves may not be as tight-knit or protective as those where Mexicans and Cubans live, and also Puerto Ricans have

a higher proportion of people identifying their race as black (Logan 2003) which may also relate to worse health status and access outcomes from segregation.

Hypothesis 7. I do not predict that the nature of the relationship between segregation and health will fundamentally differ for Mexicans and Puerto Ricans; both groups will experience a negative association between segregation and health. Consistent with findings that U.S.-born Mexicans experience a more negative health/segregation relationship than foreign-born Mexicans (Lee and Ferraro 2005; Zsembik and Fennell 2005), nativity will have a significant interaction effect for Mexicans. Analysis of Cubans will reveal weak—if not positive—connections between segregation and health due to the strength, success, and history of their ethnic enclaves in the U.S. and consistent with the findings of Cutler et al. 2006 that high achieving immigrant groups benefit from segregation.

Hypothesis 8. In terms of the likelihood of being uninsured, I predict segregation will be harmful for Mexican-origin Hispanics, but will have little effect on Puerto Ricans or Cubans. The challenges of immigration status will greatly hinder foreign-born Mexicans, and thus nativity will have a significant interaction effect for Mexicans. Also, Cubans have higher levels of education translating to higher odds of being insured, even within segregated areas and controlling for other factors.

Hypothesis 9. In the prediction of having a usual source of care within Hispanic country of origin groups, my findings could echo those of Lee and Ferraro (2005) suggesting that more dense and tight-knit Mexican enclaves were protective of health status and access to care among Mexican immigrants while Puerto Ricans were worse off with higher segregation. Segregation could potentially be positively related to having a

usual source of care for Cubans as well due to the success of Cuban enclaves. In summary, I expect to see a positive relationship between segregation and having a usual source of care for Mexican-origin and Cuban-origin Hispanics, and a negative relationship for Puerto Ricans. Here again, nativity will have a significant interaction effect for Mexican-origin Hispanics, showing an advantage in terms of having a usual source of care for foreign-born Mexicans.

I will investigate these hypotheses through successive multivariate regression of residential segregation on the odds of good health status, being uninsured, and having a usual source of health care. To reiterate, I predict a negative relationship between segregation and health status, with foreign-born Hispanics and Cuban-origin Hispanics experiencing weaker disadvantages (or advantages) than their counterparts once other factors are controlled. Mexicans may also experience greater odds of being uninsured at higher levels of segregation; however, I predict Hispanics will largely experience similar negative costs of segregation on insurance status. Most subgroup differences will occur in terms of degree but not in terms of the nature of segregation's relationship to the health outcomes. Subgroup analysis may uncover notable differences in the relationship between segregation and having a usual source of care if tight-knit segregated communities offer increased access to regular providers especially for foreign-born Mexicans, and Cubans, but not for other groups. Chapter 4, below, provides details about my study design, data sources, study sample, and variables.

CHAPTER 4. DATA AND METHODS

As mentioned earlier, in order to assess the role of residential segregation in shaping health disparities for U.S. Hispanics, I conduct a series of successive multivariate regressions predicting health and access outcomes by segregation, controlling for related individual and metropolitan area factors. I employ generalized logistic models combining individual-level data from the 1997-2002 rounds of Urban Institute National Survey of America's Families with Census 2000 metropolitan area-level residential segregation scores. This chapter describes the analysis plan and analytical approach, and then provides details about the data sources, study sample, and variables.

Study Design

Multivariate analysis allows for in-depth exploration into the connections between health outcomes and residential segregation. I utilize three health and access items from the NSAF as dependent variables. These variables-good health status, being uninsured, and having a usual source of health care--are each coded as dichotomous or binary outcomes and discussed in more detail below. For each population group in my analysis, I conduct a series of four nested or stepwise regressions with differing combinations of individual and metro area factors predicting each of the health and access outcomes. Each successive model adds new variables or builds upon previous models to indicate the ways in which segregation—alone or with other factors—has a significant relationship with health.

I conduct the regressions using generalized estimated equations (GEE). The GEE approach is similar in construction and assumptions to generalized linear models

commonly employed in regression analysis, however, GEE can account for the interdependence of clustered data (Heagerty and Scott 2000; Blakely and Subramanian 2006). Because each of the NSAF cases in my analysis are situated within metro areas, the data are correlated for all individuals within a given metro area. It is necessary to account for the clustered—and thus correlated—data so that I may focus on the ways in which segregation at the metro area level is related to individual-level health.

While considered by some to be a type of "multi-level" analysis because of its ability to handle clustered data, GEE differs from hierarchical linear modeling (HLM) because the effects of all levels in the analysis are fixed and the focus is not on inter-cluster variation (Diez-Roux 2000). In other words, HLM focuses on how differences across higher levels of data (in this case, metro areas) influence lower level outcomes (in this case, individual health); however, with GEE the focus is on variation in the health outcomes themselves. With GEE, I can allow the effect of segregation to be fixed which is an advantage since I am not interested in how metro areas differ but in how differences in segregation levels overall influence health. In addition, GEE estimates are easily applied to binary dependent variables, which is a more difficult process using HLM. I calculate the statistics using the PROC GENMOD procedure in SAS[3].

I estimate the relationship between health, residential segregation, and other individual-level and metro-area variables as:

$$Y_{ji} = B_0 + B_1 X_{ji} + B_2 Z_j + e_{ji}$$

[3] To ensure reliability of the GEE approach for my project, I analyzed one outcome—self-rated health—as a continuous variable using the HLM approach of the PROC MIXED procedure in SAS. My results were consistent with the findings I report here using GEE to estimate self-rated health as a dichotomous outcome.

where Y_{ji} is the individual-level health outcome for the individual (i) in metro area (j); X_{ji} are the individual (i) characteristics (such as education and poverty status) in metro area (j), and Zj represents metro area characteristics—in particular, residential segregation—for metropolitan area j.

Each of the models is a logistic regression and the coefficients represent the log odds of the dichotomous health or access outcome given the set of variables included. Where segregation is significant in the full model, I convert the log odds coefficient to an odds ratio and report the percentage difference in the outcome based on unit increases in segregation.

The first model in the sets of regressions includes only individual-level factors such as poverty status and education in the prediction of the health or access outcome. This first model serves as a baseline for determining whether and how segregation and other metro area predictors influence health, taking compositional individual-level factors into account. The second model in each regression set includes only segregation as a predictor. Employing segregation as the sole independent variable allows for detection of a gross/total significant link between segregation and the health and access outcomes. The third model of the regression sets includes segregation, as well as other metropolitan area factors discussed below. The last model is the full model and combines segregation with the individual factors and metro area predictors.

For each regression in the sets, I use a chi square test to compare the log likelihood and degrees of freedom with the null (intercept only) model to determine if the models have significance in predicting the health and access outcomes. I also test the difference in log likelihood and degrees of freedom between the full model and the

individual-level predictors model to assess whether the addition of segregation and other metro area factors is a stronger model in predicting the dependent variables than the individual predictors model. Lastly and where appropriate, I use a z-test procedure to test the difference in coefficients and standard errors across groups in the analysis (e.g., U.S.-born Hispanics versus foreign-born Hispanics) to determine whether the segregation/health association is stronger for one group over another.

Because segregation is so acute for African Americans, and because the link between African American high residential segregation and poor health outcomes is more widely acknowledged thus far in the literature, I first examine the segregation/health relationship for African Americans as a basis of comparison for analyzing the Hispanic case. I report and compare my results for African Americans and all Hispanics in Chapter 5. In Chapter 6, I separate U.S.-born and foreign-born Hispanics to determine whether and how nativity influences the segregation/health link. Similarly, in Chapter 7 I analyze Hispanics separately by country of origin/heritage groups for those of Mexican, Puerto Rican, or Cuban origins. I also examine the interaction effects of nativity among the country of origin groups to determine if being U.S. born operates in similar or distinct ways depending on Hispanic nationality.

Individual-level data

The National Survey of America's Families (NSAF) was launched by the Urban Institute as part of its Assessing the New Federalism (ANF) project. ANF developed in response to the enactment of federal policies such as welfare reform that devolved much of the fiscal responsibility for social programs like Medicaid and cash assistance from the

federal government to state and local governments (Abi-Habib et al. 2004). The purpose of the NSAF was to collect broad and comprehensive information regarding the physical, social, and economic well-being of adults (ages 18-64) and children across 13 U.S. states, with particular emphasis on low-income families. The topics covered by the survey include: household composition and demographics; health status, insurance, access, utilization, and confidence getting care; employment, earnings, income, poverty status, economic hardship, and child support receipt and payments; welfare, Food Stamps, and other program participation; child care arrangements and social service needs; and child and family well-being measures.

There are many advantages to using the publicly available NSAF data as my source for individual-level information about U.S. Hispanics and their health. First, the survey has a large and carefully structured sample that is nationally representative while also providing information on residence of respondents. Second, while many studies limit their questions about Hispanicity to one yes or no question, the NSAF collects more information about Hispanics by nativity and country of origin. Third, Spanish-speaking respondents to the survey could choose to be interviewed and answer in Spanish as opposed to English, enhancing the reach of the sample within the Hispanic population. Lastly, the breadth of the survey items allows me to analyze not only detailed information about respondent's health care access and health status, but also about many covariates of health outcomes including economic status.

The NSAF was conducted nationwide, and with particular focus on Alabama, California, Colorado, Massachusetts, Michigan, Minnesota, Florida, Mississippi, New Jersey, New York, Texas, Washington, and Wisconsin. The survey is nationally

representative due to the sample coverage of all 50 states and Washington, D.C., and is representative at the state level for the 13 focal states. The bulk of the sample is drawn from the 13 focal states. In the public-use data, geographic identifiers are only available for respondents from 12 of the 13 focal states (not including Mississippi) living in counties with more than 250,000 residents. The sample includes data from these 12 states from more than 125 counties within 82 metropolitan areas including key Hispanic hubs such as New York City, Los Angeles, Houston, and Miami. The complete list of states, metropolitan areas, and sample sizes is presented in Table 4.1.

Tables 4.2, 4.3, and 4.4 provide background information about the 82 metropolitan areas in the study sample, by level of Hispanic/White and Black/White segregation (Table 4.2), by level of U.S.-born Hispanic/White and foreign-born Hispanic/White segregation (Table 4.3), and by level of Mexican-origin/White, Puerto Rican-origin/White, and Cuban-origin/White segregation (Table 4.4). Data in the background tables are broken down by group as well as by level of residential segregation from U.S.-born non-Hispanic whites; dissimilarity scores between 0 and 0.3 are characterized as low, between 0.3 and 0.6 are moderate, and 0.6 and above are high. I discuss each of these tables in detail in the corresponding results chapters, below.

NSAF data were collected via telephone interviews as well as in-person interviews for a proportion of respondents without telephone service. Depending on the structure of the household participating in the survey, respondents were asked about themselves, their children if relevant, and their spouses if relevant (or both spouses in a household were interviewed). My analysis focuses on Hispanic working-age adult respondents living in identifiable metropolitan areas who were randomly selected to

answer questions about their health insurance status, health care access, and health care utilization. The descriptive NSAF data are weighted to be nationally representative. The first round of the NSAF was conducted in 1997 with subsequent rounds (each with new respondents) in 1999 and 2002. I pooled the data for all three rounds of the survey in order to maximize sample size. While there were changes in the survey instruments across the three waves of the survey, there were no substantial changes in any of the variables I use or in the sampling techniques or the structure of the samples themselves.

Study sample

The total NSAF sample of working-age adults (ages 18 to 64) living in metropolitan areas is 72,869 cases of which 16,753 or 23.0% are Hispanic. Working-age adults are my focal population because these are the people making the residential, family, and employment decisions that most impact the community at large (Geronimus 2000).

Characteristics of the NSAF sample are presented in Table 4.5 (focusing on African Americans and all U.S. Hispanics), Table 4.6 (examining differences among Hispanics by nativity), and Table 4.7 (addressing differences by country of origin). I discuss these tables in more detail in subsequent results chapters. As shown in Table 4.5, the proportion of working-age adults who are Hispanic in the NSAF sample (23.0%) exceeds the national proportion of 12.5% for all Hispanics (in 2000) which illustrates the emphasis of the survey on low-income families and also results from the absence of respondents from more rural and small town settings. While national trends estimate about a 50/50 split among all Hispanics between the U.S. born and foreign-born in 2000, the proportion of foreign-born is higher among working-age adults. 7,201 cases or 43.0%

of the 16,753 Hispanic adults in the sample were born in the U.S. while 9,552 or 57.0% were born outside the U.S. (see Table 4.6). Looking at country of origin/ancestry groups in Table 4.7, the NSAF proportions are consistent with national trends as 9,982 cases or 59.6% of the Hispanic sample are of Mexican origin, 1,670 cases or 10.0% are of Puerto Rican origin, 846 cases or 5.1% are of Cuban origin, and the remaining 25.3% are of other Hispanic origin.

Dependent variables

Table 4.8 provides descriptions and measurement details of each of the individual-level study variables. The NSAF includes several questions about health care status and access to health care. I examine three measures that are commonly employed in studies of American health disparities (Williams 2002; CDC 2004; Palloni and Arias 2004; Adams et al. 2008).

Self-rated health. Respondents to the NSAF are asked to characterize their current state of health. The question reads, "I'd like to talk about your health status. In general, would you say your health is… Excellent, Very good, Good, Fair, or Poor?" Self-rated health is the primary dependent variable of interest in my analysis. Self-rated health is a fundamental measure of health status and is widely employed in health research on a wide range of populations with distinct cultural backgrounds (Patel et al. 2003; Eschbach et al. 2004; CDC 2004; Palloni and Arias 2004). The question addresses people's understanding not only of their physical condition, but can also capture less tangible aspects of health in terms of people's sense of their overall well-being. On its own, self-rated health has been found to be a strong predictor of future mortality in multiple studies

across a range of countries and groups of interest, and even in studies controlling for other health status or mortality indicators (Idler and Benyamini 1997).

As is commonly done (CDC 2004; Palloni and Arias 2004), I have recoded the scaled variable into a dichotomous variable comparing those who report poor and fair health against those who report good, very good, or excellent health (coded as "good health" from this point forward). The models predict the likelihood of reporting "good health."

Being uninsured. Measures of health care access include whether or not the respondent is uninsured, as well as whether or not the respondent has a usual source of primary health care other than a hospital emergency room. These two measures are often employed to represent distinct yet overlapping features of one's access to health care (Hargraves and Hadley 2003; Sox et al. 1998).

Insurance status addresses the extent to which one has formal access to the U.S. health care system because the cost of health care is largely prohibitive to tackle without coverage. Respondents in the NSAF reported whether they were uninsured, had employer-sponsored coverage, were enrolled in state or Medicaid coverage, or had private insurance. As a dependent variable, I measure insurance status as a dichotomous variable predicting whether or not the respondent is uninsured[4].

Having a usual source of health care. Whether or not one has a usual source of care is related to insurance status since having coverage helps one access health care in

[4] I also conducted analyses predicting whether or not one is covered by employer-sponsored insurance and the results were consistent with the models predicting being uninsured. As detailed below, insurance status is also a control variable in the models predicting good health status and having a regular source of care. In these models, I code insurance status as a categorical variable differentiating between being uninsured, having employer-sponsored coverage, having state coverage or Medicaid, or having private insurance.

terms of affordability. However, having a usual source of care is also an indication that a person has made initial contact with a provider and has a medical home. With a regular provider, a patient may receive more timely and relevant care for any existing or future health problems (Sox et al. 1998). Respondents to the NSAF are asked, "Is there a place where you usually go when you are sick or when you need advice about your health?" If the respondent answers yes to the previous question, the interviewer then asks, "What kind of place is it that you usually go? Is it… a doctor's office including an HMO, a hospital emergency room, a clinic or a hospital outpatient department, or some other place?" Following common practice, I code those reporting that the hospital emergency room is the place they usually go for care or medical advice since this is not indicative of the type of provider/patient relationship that the question is intending. The variable is dichotomous predicting whether or not the respondent reports having a usual source of care aside from the hospital emergency room.

Individual-level control variables

As detailed in Table 4.8, individual-level independent variables are nativity (coded as foreign-born[5] and U.S.-born), poverty status, education level, age, and sex. I exclude employment status from the final models due to multicollinearity with education and poverty status.

Due to the inter-relatedness of health status and access indicators, I also control for each outcome variable in the prediction of the other variables. Specifically, I control for good health status in the models predicting being uninsured and having a usual source of health care; I control for having a usual source of health care in the models predicting

[5] As noted above in the discussion of U.S. Hispanic dissimilarity scores, I code Puerto Ricans who were not born in the mainland U.S. as foreign born.

good health status and being uninsured, and I control for insurance status in the models predicting good health status and having a usual source of health care. In the models where I employ insurance status as an independent variable, I code insurance status as a categorical variable with a series of dummy variables differentiating between being uninsured, having employer-sponsored coverage, having state coverage or Medicaid, or having private insurance. This more detailed breakdown of insurance status allows for more nuanced understanding of the ways in which insurance status relates to health status and having a regular source of care.

The last individual-level health care access control variable (for the health status and insurance status models only) is whether or not NSAF respondents did not seek needed medical care at any point in the previous year[6]. The NSAF asks respondents, "During the past 12 months, did you not get or postpone getting medical care or surgery when you needed it?" Knowing whether needed care was delayed gives an indication of one's utilization of the health care system, and dovetails with measures of health status and access to care (Adams et al. 2008; DHHS 2005).

Metropolitan area-level data

Key independent variable: Residential segregation score

A metropolitan area as defined by the U.S. Census Bureau is an urban area with a city center that employs at least 25% of working adults from each of the outlying towns

[6] While this is a commonly employed variable in the prediction of access to health care, I use it here as a control measure only and not as an outcome measure. Some contend that the question of whether one has delayed needed care is culturally biased and therefore inadequate as an outcome measure of access to health care for some Hispanic subgroups (Schur et al. 2003).

included in the area. Because the boundaries of a metro area are defined based on employment in the urban core, it is a useful unit of analysis through which to examine the place effects on health (Pickett and Pearl 2001).

Table 4.9 provides descriptions and measurement details of each of the metropolitan area-level study variables. The key metropolitan-area level independent variable to predict the health outcomes is residential segregation measured by the index of dissimilarity. I employ segregation scores calculated by Iceland and Nelson (2008). As noted above, the dissimilarity index is a measure of residential segregation that indicates the evenness of the distribution of two groups across neighborhoods within an area. Scores range from 0 to 1, and indicate the proportion of one group that would have to change neighborhoods in order for both groups to be distributed evenly across all neighborhoods within a metropolitan area. For example, if a given metro area is 30% Hispanic, a dissimilarity score of 0.6 between Hispanics and whites indicates that 60% of either Hispanics or whites would have to move to different neighborhoods in order for the spread of Hispanics across all neighborhoods to equal 30% of the population. Scores of 0.60 and higher are generally considered high. Thus, the focus of the following analyses is to examine the extent to which the uneven distribution of Hispanics across neighborhoods has implications for their health in terms of quality of neighborhoods, socioeconomic opportunities, and access to resources and information.

I employ dissimilarity as a continuous variable[7]. In order to more meaningfully interpret the log odds coefficients for dissimilarity in the regression analyses, I multiplied

[7] I tested the linearity of dissimilarity by analyzing it as a categorical variable differentiating between low scores (0-0.3), moderate scores (0.3-0.6) and high scores (0.6-1.0) and the results confirmed that operationalization of dissimilarity as a continuous variable is appropriate.

the dissimilarity scores by 10 so that they would range from 1 to 10. Otherwise, the coefficients would refer to changes in dissimilarity as only being 0 or 1—i.e., no segregation or complete segregation—and would miss the nuance of the actual index values between 0 and 1. Therefore, a one unit increase in dissimilarity refers to a $1/10^{th}$ point increase from, for example, 0.4 to 0.5 or 0.7 to 0.8.

Iceland and Nelson (2008) calculated residential segregation scores using restricted-access Census 2000 data for every metropolitan area in the U.S., and reported mean scores across all metropolitan areas. The use of restricted access data allowed for calculation of detailed segregation scores among Hispanic subgroups that would not be possible to derive from public-use data. The segregation scores were constructed from the tract level (approximating neighborhood) and metropolitan area scores were reported for groups that totaled at least 100,000 members nationwide and 1,000 in the particular metropolitan area.

My analyses include residential segregation scores from U.S.-born non-Hispanic whites for African Americans, all Hispanics, and for subgroups of Hispanics. I divide Hispanics by nativity (U.S.-born and foreign-born), and country of origin/heritage (Mexican, Puerto Rican, Cuban). As noted above, Table 2.1 provides dissimilarity scores for the groups I examine.

Metropolitan area-level control variables

In order to account for other metropolitan area dynamics that may mediate the link between segregation and health for Hispanics, I include three measures that are

associated with health status and access to health care across populations (see also Table 4.9).

Concentration of poverty. I control for the percent of the metro area population living in poverty in 2000 (Census 2000) in order to distinguish the relationship between concentration of poverty and health from any influence segregation may have on health (Shulz et al. 2002). I exclude population size and concentration of minorities from the final models due to multicollinearity with concentration of poverty.

Number of community health centers. As an indication of the metro area provision of health care services to the poor and underserved that may mitigate the influence of segregation on access to health care, I control for the count of community health centers per 100,000 people in the metro area in 2000 (HRSA 2008).

Region of the country. Lastly, I control for region of the country since there are documented differences by region in health disparities as well as residential segregation patterns (Adams 2008; Iceland et al 2002). Accounting for whether the metro area is located in the West, Northeast, South, or Midwest, allows me to better focus on whether and how residential segregation is connected to health outcomes. In addition, controlling for region helps to account for broader regional patterns by country of origin groups that might confound my findings. Although each group is present virtually nationwide, Mexican-origin Hispanics are highly concentrated in the West and parts of the South, Puerto Ricans are highly concentrated in the Northeast, and Cubans are largely present in the South in Florida.

Table 4.1 lists the study metropolitan areas by region. For purposes of consistency with Census and National Center for Health Statistics data and other studies

(Martin 2007). I employ the U.S. Census Bureau categorizations for region. It should be noted that in this study, Texas is treated as a state in the South though it could be argued that Texas should be grouped with other states not included in this study such as Arizona or New Mexico. Similarly, Colorado is grouped in the West with California and Washington though Colorado may also be more regionally comparable to the states considered to be part of the Southwest. In general, the focus of the following analyses are on national patterns; future work may delve into regional and local patterns in more detail.

CHAPTER 5. HEALTH AND SEGREGATION: COMPARING U.S. HISPANICS TO AFRICAN AMERICANS

As outlined in Chapter 4, the first step in my analysis is to compare U.S. Hispanics to African Americans in the link between residential segregation and health. First, I present and compare descriptive details about the metropolitan areas in the study and then about the Hispanic and African American samples by level of residential segregation. I go on to present my findings from multivariate analyses predicting the odds for each group of 1) being in good health, 2) being uninsured, and 3) having a usual source of health care. The health status and access outcomes are predicted as functions of residential segregation, as well as other metropolitan area controls, and individual-level controls. In Chapters 6 and 7, I examine key subgroups of Hispanics by nativity and country of origin.

Metropolitan area-level Descriptive Statistics

Table 4.2 provides background information about the 82 metropolitan areas in the study sample, by level of Hispanic/White and Black/White segregation. Consistent with national trends, mean dissimilarity levels for African Americans are higher than the scores for U.S. Hispanics. The majority of the U.S. Hispanic sample live in metro areas where Hispanics are moderately segregated from whites while the bulk of the African American sample live in areas where blacks are highly segregated.

Of the study metro areas, 28 are located in the West (across California, Colorado and Washington), 28 are located in the South (across Alabama, Florida and Texas), 18 are located in the Northeast (across Massachusetts, New Jersey, and New York), and 8

are located in the Midwest (across Michigan, Minnesota and Wisconsin). While zero of the 28 metro areas in the South have high Hispanic/White segregation (characterized by a dissimilarity level of 0.6 and higher), zero of the metro areas in the Northeast have low Hispanic/White segregation (characterized by a dissimilarity level of 0.3 and lower). The distribution of metro areas by level of segregation is similar for Blacks and Hispanics in the West. However, more metro areas in the Northeast and South have high levels of Black/White segregation whereas the level of Hispanic/White segregation is more often moderate.

Overall, many more metro areas (36) are characterized by high Black/White dissimilarity than high Hispanic/White dissimilarity (8). The segregation levels of the two groups appear to be correlated: for both groups, the mean segregation level in the areas where the other group is highly segregated is higher than the average for the whole group. The populations of the metro areas with high Black/White and/or high Hispanic/White segregation are on average much larger than the mean populations for the whole sample. In addition, Blacks and Hispanics appear to comprise larger proportions of the metro area populations in areas that have high segregation levels. The concentration of poverty does not appear to vary much by segregation level; however, the average number of community health centers per 100,000 population appears higher in the metro areas with moderate levels of segregation for Blacks and/or Hispanics.

Individual-level Descriptive Statistics

Table 4.5 summarizes descriptive information about the total study sample, all non-Hispanic whites, African Americans by level of residential segregation, and Hispanics by level of residential segregation.

As displayed in Table 4.5, the study sample of 18-64 year old adults living in metropolitan areas from the NSAF surveys includes 9,314 African Americans and 16,753 Hispanics. Two-thirds of the Hispanic sample (66%) live in metro areas with moderate Hispanic/White segregation, while much of the remaining third (33%) reside in metro areas with high Hispanic/White segregation. In contrast, close to one-fourth (23%) of the African American sample live in metro areas with moderate black/White segregation, while just over three-fourths (77%) live in metro areas with high black/White segregation.

Sex and age are important individual-level controls for health status. Approximately half of the White and Hispanic cases are male (49% and 51% respectively), while males comprise only 45% of the Black sample. The White sample has a higher percentage age 46 to 64 year (35%) than both the Hispanic and African American samples (20% and 28% respectively), while there are higher percentages of 18 to 30 year olds among Hispanics (40%) and African Americans (33%).

Less than half of the Hispanic respondents are U.S.-born (43%) and the percentage of U.S.-born vs. foreign-born Hispanics is higher in the metro areas with low Hispanic/White segregation (59%) and lowest in the metro areas with high Hispanic/White segregation (38%). By contrast, 83% of the African American sample and 93% of the white sample cases are U.S.-born.

There are notable disparities across the three racial/ethnic groups by level of education, poverty status, and employment status. These individual-level factors are measures of socioeconomic status that are linked to health status as well as access to health care. Consistent with known national trends, Whites in the sample have higher proportions than Hispanics and African Americans who are well-educated and living above the poverty level. A higher percentage of Whites in the sample have a bachelor's degree or higher (35%) compared to Hispanics (10%) and African Americans (17%). In fact, only 8% of the Hispanic sample living in metro areas with high Hispanic/White segregation have bachelor's degrees or higher, and 45% in these areas have less than a high school education. The difference across racial ethnic groups by poverty status is equally striking: 84% of the White sample have income levels at or above 200% of the federal poverty level (FPL) and just 6% living in poverty, while only 47% of Hispanics and 62% of African Americans have incomes at or above 200% FPL. Among both Hispanics and African Americans in the sample, those living in metro areas with high segregation levels have a higher percentage living below the poverty line than those in moderate segregation settings: 25% of Hispanics in high segregation areas are living in poverty compared to 22% in moderate segregation areas, and 20% of Blacks in high segregation areas are living in poverty compared to 17% in moderate segregation areas.

Table 4.5 also summarizes the percentages in the samples across the three study dependent variables of health status and health care access. Higher proportions of Whites report better health status and health care access than Hispanics and Blacks, with the disparity most striking for Hispanics. The vast majority (92%) of Whites in the sample report being in good health compared to 84% of Blacks and just 76% of Hispanics.

Among Hispanics, only 73% of those living in metro areas with high Hispanic/White segregation report being in good health. Also, just 11% of Whites are uninsured compared to 21% of Blacks and 40% of Hispanics. In addition, a higher percentage of Whites in the sample report having a usual source of health care (that is not an emergency room)—86% compared to 80% of Blacks and only 69% of Hispanics. Across the three racial/ethnic groups in the sample, the percentage of those who reported having delayed needed health care in the previous year is low: 9% of Whites report having delayed care, 8% of Blacks, and just 6% of Hispanics.

With the foundation of descriptive information about segregation, health, and related study variables established for African Americans and Hispanics in the sample, I turn next to multivariate analyses to tease out the ways in which health and access outcomes are related to segregation.

Multivariate Analyses

For both Hispanics and African Americans, I conduct three distinct sets of nested multivariate analyses to predict each of the three study outcome variables: good self-rated health, being uninsured, and having a regular source of care. Within each set of analyses, there are four nested regressions. For each outcome, I first conduct a model using only individual-level predictors including the other health outcomes as controls, as well as nativity, poverty status, education, age and sex. The second model for each outcome uses only residential segregation (dissimilarity score) from whites to predict the health outcome. The third model includes segregation as a predictor as well as three other metro area-level predictors: percent of the population living in poverty, number of community

health centers per 100,000 population, and region of the country. The last model is the full model including all individual-level predictors and all metro area predictors.

African American models

Tables 5.1, 5.2, and 5.3 display the coefficients (log odds) and significance levels from generalized logistic regressions predicting the likelihood of the three study outcome variables for African Americans: good health status (Table 5.1), being uninsured (Table 5.2), and having a usual source of health care (Table 5.3).

Table 5.1 displays the coefficients and significance levels from the models predicting self-reported good health status among African Americans in the sample. In the first model, with only individual-level predictors, the results are largely consistent with expectations: odds of reporting good health status are higher for those with employer-sponsored health insurance as opposed to being uninsured, for those living above 200% FPL as opposed to those living in poverty, for adults with at least a high school degree, and adults younger than 46. Being covered under Medicaid or state-funded programs is linked with significantly *lower* odds of reporting good health status than being uninsured. Although I did not include individuals in my sample that were covered by Medicare due to my focus on working-age adults, this correlation could reflect the compromised health status of some disabled or chronically ill adults who are eligible for Medicaid or state coverage. The advantage seen here of the uninsured over those covered by Medicaid or state coverage in terms of health outcomes is one that persists throughout the analysis. Net of the other individual-level predictors, sex is not significantly related to the likelihood of reporting good health status among African Americans. Contrary to assimilation theory, being U.S.-born is significantly linked to lower odds of reporting

good health status among African Americans; however, this is not surprising under the tenets of place stratification theory. Black immigrants to the U.S. may have avoided the cumulative disadvantage experienced by U.S.-born blacks, and may therefore be healthier (as they are also generally better off socioeconomically). Black immigrants may also be positively "selected" on their health status.

The second model in Table 5.1 displays the log odds for African Americans of reporting good health status based solely on the level of Black/White dissimilarity. Although the lower log likelihood and related chi square test of significance indicate that this model is significantly weaker at predicting the likelihood of good health status among African Americans than the model with individual-level predictors, Black/White dissimilarity does have a significant negative relationship ($p < .05$) with good health status.

In the third model in Table 5.1, the addition of poverty concentration, number of community health centers, and region hardly alters the link between dissimilarity and health status among African Americans as the coefficient changes from -0.107 in the model with segregation alone to -0.153 in the model with the additional metro area level predictors. Region is significant in the model: residence in the Northeast is associated with higher odds of good health compared to residence in either the South or Midwest, net of segregation, poverty concentration, and number of community health centers.

The full model displayed in Table 5.1 shows that dissimilarity from whites remains significantly associated with lower odds of good health status among African Americans in the sample, even after controlling for individual and metro area predictors. The coefficient for dissimilarity remains significant at the $p < .01$ level and decreases

only slightly from -0.153 in the metro area predictors model to -0.122 in the full model. The reduction in the strength of the segregation coefficient in the full model is not statistically significant and suggests that individual-level factors do not explain the link between segregation and health for African Americans in the sample.

While comparison to the null hypothesis (intercept only) model using a chi square calculation of the difference in log likelihoods and degrees of freedom confirms that all four models in Table 5.1 are statistically significant, the full model is not significantly stronger than the first model with only individual-level predictors. Also, the coefficients and significance levels of the individual-level predictors hardly change in the full model. Still, Black/White residential segregation is significantly related to lower odds of good self-rated health, net of individual-level and metro area-level controls. By calculating the inverse log of the coefficient for Black/White dissimilarity, I find that the log odds of -0.122 in the full model indicates that a $1/10^{th}$ unit increase in Black/White dissimilarity net of individual-level and metro area-level controls is associated with 11.5% lower odds of good health status among African Americans in the sample. In other words, for every incremental increase of the dissimilarity score between Blacks and Whites (e.g., from 0.30 to 0.40 or 0.60 to 0.70), the odds of reporting good health status are 11.5% lower than the odds of reporting poor health status.

Table 5.2 displays the log odds and significance levels from the models predicting the likelihood of being uninsured among African Americans. As in the prediction of good health status, results from the model with only individual-level predictors are generally consistent with expectations: odds of reporting being uninsured are lower for those with a regular source of health care, for those who did not delay needed health care in the

previous year, for those with higher education, for those living outside of poverty, for older adults, and for women (perhaps due to larger enrollment of women than men in Medicaid and public health care coverage programs). Self-reported good health status is not significantly related to the odds of being uninsured, net of the other individual-level factors. Being born in the U.S. in this case is related to lower odds of being uninsured, perhaps relating to the reduced eligibility for Medicaid and other public health care coverage for the foreign born.

The second model in Table 5.2 predicting the odds of being uninsured by residential segregation alone is not statistically significant compared to the null (intercept only) model, and the coefficient for residential segregation is not significant. Interestingly, however, a significant link between segregation and likelihood of being uninsured emerges with the addition of metro area predictors in the third model of Table 5.2 and in the full model.

In the metro area predictors model (which is significantly different from the null model), Black/White dissimilarity is associated with higher odds of being uninsured for African Americans in the sample. Also in the metro area predictors model, the number of community health centers in a metro area is significantly associated with higher odds of being uninsured, conceivably because cities with larger uninsured populations have a greater demand for CHCs. This association is not significant in the full model. Residence in the South is linked to higher odds of being uninsured compared to residence in the Northeast in the metro area predictors model. This association is also significant in the full model, while residence in the Midwest is significantly linked to lower odds of being uninsured compared to the Northeast in the full model.

In the full model of Table 5.2 predicting odds of being uninsured for African Americans, segregation remains positively linked to higher odds of being uninsured. The coefficient for Black/White dissimilarity increases between the third and fourth models from 0.126 to 0.142, both significant at the $p<.01$ level. The link between number of community health centers and odds of being uninsured among African Americans is not significant in the full model. Residence in the South remains associated with higher odds of being uninsured compared to residence in the Northeast; however, there is no difference in the full model based on residence in the Midwest. The coefficients and significance levels of the individual-level predictors hardly change in the full model compared to the model with just individual-level predictors. However, the increase in log likelihood of the model is significant at the $p<.001$ level indicating that the inclusion of metro area predictors including segregation improves the prediction of the odds of being uninsured for African Americans. Black/White dissimilarity is associated with significantly higher odds of being uninsured in the full model; for every $1/10^{th}$ increase in dissimilarity, the odds of being uninsured vs. being insured are 15.3% higher for African Americans, net of controls.

Table 5.3 displays the regressions predicting having a usual source of health care among African Americans in the sample. The table shows that only individual-level variables in the analysis have any significant association with the odds of having a usual source of health care among African Americans. Consistent with expectations, the full model in Table 5.3 indicates that being insured, higher education, and living above 200% of the poverty level are associated with higher odds of having a usual source of care

while youth and being male are factors associated with lower odds of having a usual source of health care.

The second model in Table 5.3 shows that segregation as the sole independent variable is not significant in predicting having a usual source of health care among African Americans. The first and full models are statistically significant at the $p<.001$ level while the metro area predictors model is significant at the $p<.05$ level at predicting having a regular source of care among African Americans compared to the null model. However, the addition of metro area predictors in the full model does not result in a significantly enhanced model compared to the individual-level predictors model.

In summary, Black/White dissimilarity is associated with lower odds of good health status and higher odds of being uninsured among African Americans even net of individual-level controls. In the case of predicting the odds of being uninsured, the full model including segregation and other metro area factors is statistically stronger than the first model with only individual-level predictors. Segregation is not associated with having a regular source of care. While it is generally the case that the individual-level factors in the analysis more strongly predict health and access among African Americans than residential segregation from Whites or the other metro area factors included, the evidence is compelling that the metro area level force of segregation is significantly related to differences in person-level health and insurance status for African Americans.

Hispanic models

Having examined the link between segregation and health among African Americans, we now have a basis of comparison to analyze Hispanics. Tables 5.4, 5.5, and 5.6, and display the coefficients (log odds) and significance levels from generalized

logistic regressions predicting the likelihood of the three study outcome variables for Hispanics: good health status (Table 5.4), being uninsured (Table 5.5), and having a usual source of health care (Table 5.6).

Table 5.4 displays the log odds and significance levels from the models predicting self-reported good health status among Hispanics in the sample. Comparison to the null hypothesis (intercept only) model confirms that all four models in Table 5.4 are statistically significant at the $p < .001$ level.

In the first model with only individual-level predictors of Hispanic good health status, there are many similarities to the same model for African Americans. As in the African American case, odds of reporting good health status are higher for those with employer-sponsored health insurance as opposed to being uninsured, for those living above 200% FPL as opposed to those living in poverty, for adults with at least a high school degree, and for younger adults. Also, Medicaid or state-sponsored insurance is linked with lower odds of good self-rated health than being uninsured for both Hispanics and African Americans. Although sex was not significantly associated with good health status for African Americans, Hispanic men are more likely than women to report good health status net of the other controls. Also, Hispanics with incomes between 100% and 200% FPL have significantly higher odds of reporting good health status compared to those living in poverty; there was no significant difference between these two poverty groups for African Americans.

Contrary to the case for African Americans, but consistent with assimilation theory, U.S.-born Hispanics are more likely to report good health status than the foreign-born, net of the other controls. This difference between Hispanics and African Americans

is not surprising given the relatively deeper impact of racism experienced by generations of U.S.-born African Americans compared to Hispanics. As explained in the analysis plan above, I examine U.S.-born and foreign-born Hispanics separately in Chapter 6 in order to better understand the interaction of nativity with the link between segregation and health for Hispanics.

Moving to the second model predicting good health status among Hispanics in Table 5.4, Hispanic/White segregation as the sole independent variable has a significant negative association with the odds of reporting good health status among Hispanics in the sample. This was the case as well for African Americans.

The addition of other metro area predictors in the third model in Table 5.4 reveals a significant negative association between metro area poverty concentration and odds of good health status for Hispanics. The metro area predictors model also shows an advantage to living in the Midwest over residence in the Northeast. For African Americans, residence in the Midwest (as well as residence in the South) correlated to a *disadvantage* for health status compared to the Northeast in the metro area predictors model (although this difference was not significant in the full model predicting African American health status). The relative advantages of residence in the Midwest or the South over the Northeast for Hispanics persists in the full model, as did the disadvantage in this case for African Americans.

The full model predicting good health status among Hispanics in the sample in Table 5.4 shows that dissimilarity from whites remains significantly associated with lower odds of good health status among Hispanics in the sample even controlling for individual and metro area predictors. The coefficient for dissimilarity remains significant

at the $p < .05$ level and decreases insignificantly in strength from -0.154 in the metro area predictors model to -0.074. Here again, coefficients and significance levels for the individual-level predictors do not change much between the first and full models, however, the log likelihood in the full model is significantly stronger ($p<.05$) in the prediction of good health status among Hispanics in the sample than the individual predictors model. Converted to probability, increases in Hispanic/White dissimilarity net of individual-level and metro area-level controls is associated with 7.1% lower odds of reporting good health status among Hispanics in the sample.

The link between segregation and health appears similar for African Americans and Hispanics. While nativity operates differently across the two groups, both experience a disadvantage in terms of health at higher levels of segregation from whites. The negative effect of dissimilarity from whites remains significant in predicting good health status for both Hispanics and African Americans in the full models controlling for other compositional and contextual factors. Testing the difference in coefficients and standard errors reveals that segregation is not a stronger factor for either African Americans or Hispanics, but impacts both groups to a comparable extent.

Table 5.5 displays the log odds and significance levels from the models predicting the likelihood of being uninsured among Hispanics in the sample. As in the prediction of Hispanic good health status, results from the model with only individual-level predictors are generally consistent with expectations: odds of being uninsured are lower for those with a regular source of health care, for those living outside of poverty, for adults with at least a high school degree, and for older adults. Findings in this model are similar to the African American case. The effect of nativity is the same for Hispanics and African

Americans: being U.S.-born is associated with lower odds of being uninsured for both groups in the sample. The one difference in the individual-level predictors model between Hispanics and African Americans is that good health status is significantly linked to higher odds of being uninsured for Hispanics whereas there was no significant relationship here for African Americans.

As was the case in the analysis of African Americans, the second model in Table 5.5 reveals that as the sole independent variable, Hispanic/White dissimilarity is not significantly associated with the likelihood of being uninsured among Hispanics in the sample.

In the metro area predictors model, segregation becomes significant ($p<.05$) in the prediction of higher odds of being uninsured, while residence in the West and South have significant disadvantages over living in the Northeast for Hispanics. Residence in the South was also a disadvantage over living in the Northeast for African Americans in the prediction of being uninsured.

In the full model predicting Hispanic odds of being uninsured displayed in Table 5.5, the coefficients and significance levels of the individual-level predictors and also region hardly change compared to earlier models. The increase in log likelihood compared to the individual predictors model is significant at the $p<.05$ level, however, indicating that the inclusion of metro area variables is helpful in the prediction of being uninsured for Hispanics in the sample. Nevertheless, Hispanic/White dissimilarity is not a significant predictor of being uninsured in the full model, net of the individual-level and other metro area controls.

Segregation was significantly related to an increase in the odds of being uninsured for African Americans in the full model. Comparison of the coefficients and standard errors for segregation for both groups in the full models predicting odds of being uninsured confirms this is a significant difference in the relationship between segregation and access to health care for African Americans compared to Hispanics.

Moving on to the prediction of another access measure—having a regular source of health care—Table 5.6 shows that dissimilarity from whites is not significantly associated with the likelihood of having a regular source of health care for U.S. Hispanics in any of the models. As for African Americans, being insured, living above 200% of the poverty level, older age, and being female are all associated with higher odds of having a regular source of care for Hispanics in the sample. While being U.S.-born was associated with lower odds of having a usual source of health care for African Americans, being U.S.-born is linked with higher odds of having a regular provider for U.S. Hispanics. Significant in the Hispanic full model but not for African Americans is a positive link between poverty concentration and reporting a regular source of care, and a disadvantage to living in the South relative to the Northeast net of the other controls.

Summary

This chapter compared the role of residential segregation in the prediction of health outcomes for U.S. Hispanics and African Americans. As I predicted in Hypothesis 1, dissimilarity from whites is associated with lower odds of good health status for Hispanics as well as for African Americans. There is no significant difference in the strength of segregation in predicting good health status in the full models between the two groups. This finding contradicts my hypothesis that segregation would have a more

negative impact on African American health, especially with added compositional and contextual controls. Segregation was, however, a stronger factor in the prediction of being uninsured among African Americans as I expected to due to the relative disadvantage of blacks compared to Hispanics as racial minorities. Contrary to Hypothesis 2, there was no significant relationship between segregation and the likelihood of being uninsured for Hispanics. While the individual-level predictors were generally stronger at predicting the health and access outcomes than the metro area-level factors, the full model predicting Hispanic good health status and the full model predicting African American insurance status were each statistically stronger than the respective individual-level models, but not the full model predicting Hispanic insurance status.

Segregation is not associated with the odds of having a usual source of care for Hispanics or for African Americans in the sample. While I predicted in Hypothesis 3 that there would be no clear relationship between segregation and having a usual source of care for the full Hispanic group, the lack of an association is surprising for African Americans and could speak to effective collective social functioning if the disproportionate size and disadvantage of the African American communities in segregated metro areas has brought about more health care providers to the underserved. In this case, however, I would expect the presence of community health centers to emerge as a significant variable in the prediction of having a usual source of care, which it does not. For both African Americans and Hispanics, individual-level factors largely drive the changes in odds of having a usual source of care.

CHAPTER 6. SEGREGATION AND HEALTH: U.S.-BORN VERSUS FOREIGN-BORN HISPANICS

Results in Chapter 5 indicated that nativity was significantly linked to the health and access outcomes among Hispanics. Being U.S. born was associated with better health status, lower odds of being uninsured, and higher likelihood of having a usual source of health care than being foreign born, net of all other controls. On the face of it, the role of nativity status for Hispanics in the segregation/health relationship appears consistent with assimilation theory which emphasizes an advantage for later generations of U.S. minorities. It is important to delve deeper into the nativity differences among Hispanics to determine whether nativity status interacts with segregation in the prediction of health and access outcomes such that the segregation/health relationships for U.S.-born Hispanics could be fundamentally different from that of the foreign born. I have predicted that segregation could actually be advantageous in terms of health outcomes for foreign-born Hispanics.

This chapter reports findings from separate sets of analyses on U.S.-born and foreign-born Hispanics to predict the three health and access outcomes. I employ nativity group-specific indexes of dissimilarity from whites in the regressions. As reported in Chapter 5, nativity is associated with better health status, lower odds of being uninsured, and higher odds of having a usual source of care, net of the other controls. Separate evaluation of the U.S.-born and foreign-born reveals whether there is an interaction effect that alters the segregation/health relationship depending on nativity. Therefore, splitting the Hispanic sample by nativity allows me to test the hypothesis that the link between segregation and health could be very different based on whether or not Hispanics are

U.S.-born. I turn now to the presentation of descriptive statistics by nativity among Hispanics in the sample.

Metropolitan area-level Descriptive Statistics

Table 4.3 provides background information about U.S.-born Hispanic/White dissimilarity and foreign-born Hispanic/White dissimilarity within the sample metro areas[8]. While there are more foreign-born Hispanic working-age adults in the sample and in the U.S. population, U.S.-born Hispanics comprise a greater mean percentage of the metro area populations (17.1%) than the foreign-born (11.8%). The two groups in the sample have similar proportions spread across the four U.S. regions with just under half in the West, about one-fifth in the Northeast, close to one-third in the South, and very small proportions in the Midwest. The majority of the study metro areas across all regions have moderate levels of segregation for both nativity groups, however, the bulk of the remaining areas have high levels of segregation between foreign-born Hispanics and low levels of segregation for U.S.-born Hispanics.

Individual-level Descriptive Statistics, by Hispanic Nativity

Table 4.6 depicts the percentages by level of segregation of the individual-level predictors and health and access variables for U.S.-born and foreign-born Hispanics in the sample. Among both groups, approximately two-thirds reside in metropolitan areas with moderate levels of dissimilarity from whites and about one-third are in high

[8] Metro areas that did not have at least 1,000 cases of the Hispanic subgroup were excluded from that group's sample, as were metro areas that had no cases of the subgroup present from the NSAF sample. Five metro areas were excluded from the analyses of foreign-born Hispanics, 22 were excluded from the analyses of Puerto Ricans, and 38 were excluded from the analyses of Cubans.

segregation metro areas. Overall, examination of the background characteristics shows that there are stark compositional contrasts by nativity status that may influence the relationship between segregation and health; differences by education and poverty status stand out.

The majority of U.S.-born Hispanics have high school diplomas (62%) while the bulk of foreign-born Hispanics (55%) completed less than a high school education. Within metro areas with higher levels of segregation from whites, smaller proportions of Hispanics in both nativity categories have higher levels of education than in metro areas with lower levels of segregation. In terms of income level, nearly 60% of U.S.-born Hispanics have household incomes at more than double the poverty level, however, only 37% of foreign-born Hispanics have incomes this high. For both groups, Hispanics living in low segregation areas have a higher percentage living above 200% FPL while those living in high segregation areas have a higher percentage living below the poverty level.

There are also notable differences in the health and access outcomes by nativity status. A substantially higher percentage of U.S.-born Hispanics report good health status (86%) compared to foreign-born Hispanics (69%). For both groups, Hispanics in high segregation areas have the lowest percentages reporting good health status. The poorer health status of foreign-born Hispanics in this sample contradicts findings related to the Hispanic mortality paradox that report better health status for foreign-born Hispanics despite socioeconomic disadvantage.

In terms of access to health care, a much lower percentage of the foreign born have employer-sponsored health insurance than the U.S.-born (39% compared to 61%). Just over half of the foreign-born Hispanics in the sample are uninsured (52%) while one-

fourth of the U.S.-born Hispanics (25%) are uninsured. A lower percentage of foreign-born Hispanics than U.S.-born Hispanics report having a regular source of health care (64% compared to 76%).

Multivariate analysis reveals the significance of these differences in health and access outcomes by nativity and segregation level, once other individual-level and metro-area factors are controlled.

Multivariate Analysis

In the following sections, I discuss the results from the multivariate analyses predicting good health status for each nativity group (Table 6.1 for U.S.-born Hispanics and Table 6.2 for foreign-born Hispanics), being uninsured (Tables 6.3 and 6.4), and having a usual source of health care (Tables 6.5 and 6.6)[9].

Segregation and good health status by nativity

In Chapter 5, I reported finding that Hispanic/White dissimilarity was associated with a decrease in the likelihood of reporting good health status. Looking first at the individual-level predictors, separate analyses for each nativity group reveals that the individual-level controls operate consistently for both groups, as shown in Tables 6.1 and 6.2. There is no indication of a significant difference between U.S.-born and foreign-born Hispanics in the ways that other health covariates, country of origin, poverty status, education, age, or sex influence self-rated health. Region plays a stronger role for foreign-born Hispanics: residents of the South and Midwest have higher odds of reporting

[9] Regressions in this chapter include country-of-origin control variables that I did not include in the initial analyses reported in Chapter 5 in order to match the regressions on U.S. Hispanics with the regressions on African Americans. In Chapter 7 I explore differences by country of origin in detail.

good health status than their counterparts in the Northeast. The other metro area predictors are not significant in the full models.

As shown in Table 6.1, segregation from whites is a significant predictor of lower odds of good health status among U.S.-born Hispanics in the model by itself and in the model with other metro area predictors, but not in the full model. Segregation is significant in predicting lower odds of good health for foreign-born Hispanics in the metro area predictors model in Table 6.2, but—as for U.S.-born Hispanics—is not significant in predicting good health status in the full model for foreign-born Hispanics. Despite the lack of significance for segregation in either of the full models, testing of the difference in the log odds and standard errors for dissimilarity from whites in the full models asserts that the influence of segregation on health status for U.S.-born Hispanics is significantly stronger than it is for foreign-born Hispanics. There is no significant observable difference, however, in the nature of the relationship or interaction between segregation and health between the nativity groups. For U.S.-born Hispanics, segregation appears to have a negative—if insignificant (p=.06)—impact on health status, but there is no trace of any significant link for foreign-born Hispanics. Ultimately, my prediction in Hypothesis 4 that segregation would be linked to poorer health for both nativity groups but especially U.S.-born Hispanics cannot be confirmed as the coefficients for segregation were not significant in the full models for either group.

Segregation and insurance status by nativity

Dissimilarity from whites was significantly linked to the odds of being uninsured in the full model for African Americans discussed in Chapter 5; however, segregation was not significant in the full models for Hispanics. In the metro area predictors model,

increases in segregation were related to modestly higher odds of being uninsured but this difference went away in the full models where individual-level factors mitigated the role of segregation in predicting the odds of being uninsured for Hispanics in the sample. In separate analyses by nativity status predicting being uninsured, segregation is not at all a significant predictor for either group in any of the models (see Tables 6.3 and 6.4). The correlation between living in poverty and odds of being uninsured is significantly stronger for foreign-born Hispanics, however, higher income is linked to lower odds of being uninsured for both groups. Residence in the South is related to greater odds of being uninsured compared to residence in the Northeast for both groups, and for U.S.-born Hispanics, residence in the Midwest is significantly linked to lower odds of being uninsured compared to living in the Northeast.

There is no support for my predictions in Hypothesis 5 that segregation would have a significant link to the odds of being uninsured for both nativity groups, and that the effect would be greater for the foreign born. Overall, compositional factors are the strongest predictors of being uninsured regardless of nativity and/or level of segregation for U.S Hispanics in the sample.

Segregation and having a usual source of care by nativity

Tables 6.5 and 6.6 display the nested regression results predicting having a usual source of care for U.S.-born and foreign-born Hispanics respectively. As for all U.S. Hispanics, there is no significant association between segregation and health for either nativity group in any of the models, and therefore no evidence to support my predictions in Hypothesis 6 that segregation might be protective of foreign-born Hispanics' access to care while harmful to that of U.S.-born Hispanics. Residence in the South is a

disadvantage for foreign-born Hispanics relative to those living in the Northeast, but in general individual-level factors are stronger in driving the odds of having a usual source of health care for both nativity groups. Insurance status has the largest positive relationship with odds of having a regular provider for both U.S.-born and foreign-born Hispanics in the sample.

Summary

Because U.S. nativity was significantly linked as an independent variable to better health, higher odds of being insured, and higher odds of having a regular health care provider in the models predicting these outcomes for all Hispanics, I split the Hispanic sample and conducted separate analyses to compare the interaction between segregation and nativity in the prediction of health disparities. These analyses tested my hypotheses that foreign-born Hispanics might experience segregation differently than the U.S. born in the production of health outcomes.

Separate analysis did not uncover any evidence of meaningful interaction effects of nativity in the segregation/health relationship for Hispanics. Consistent with spatial assimilation theory, being born in the U.S. is an advantage for Hispanics in terms of reducing health disparities, and my findings suggest that the ways in which segregation is related to health status, insurance status, and access to health care do not vary fundamentally by nativity. Contrary to my hypotheses that foreign-born Hispanics may experience weaker costs on their health—or even benefits—due to segregation, the lack of any interaction effects of nativity in the segregation/health dynamic indicates that health status is compromised by segregation for both nativity groups. In addition,

splitting the sample by nativity did not produce any significant relationships between segregation and odds of being uninsured or having a usual source of care.

CHAPTER 7. SEGREGATION AND HEALTH: DIFFERENCES BY MEXICAN, PUERTO RICAN, OR CUBAN ORIGINS

The analyses discussed in this chapter attempt to determine how the link between segregation and health outcomes may differ based on country of origin among U.S. Hispanics. Differences between Mexican-origin, Puerto Rican-origin and Cuban-origin Hispanics may reveal important variations in the segregation/health relationship that could be either compositional or contextual in nature. As in the analyses in Chapters 5 and 6, I conduct regression models with distinct combinations of individual-level and metro area-level predictors of self-rated health, being uninsured, and having a usual source of health care for the three country of origin groups. In the full models, I also employ an interaction term representing the potentially multiplicative relationship between segregation and nativity in each of the full models for each origin group.

Due to the greater concentration of people with low education levels and low incomes, I hypothesized that segregation should be linked to poor health status and greater likelihood of being uninsured for Mexican-origin Hispanics. I have predicted also, however, that segregation could have a positive influence on having a usual source of health care for Hispanics of Mexican origin who may benefit from large, tight-knit ethnic enclaves that could potentially enhance the spread of information and the pooling of support for culturally sensitive providers. I also envisioned a benefit to segregation for Cuban-origin Hispanics given their relatively high aggregate levels of socioeconomic status and the strength and longevity of Cuban ethnic enclaves. I expected Puerto Ricans to suffer negative effects of segregation in the production of health outcomes given the weakness of their ethnic enclaves in most regions of the U.S. and given the higher

proportion of non-white Puerto Ricans compared to Mexicans and Cubans. As with the previous results chapters, I begin the analysis of country-of-origin differences in the segregation/health relationship with examination of background statistics.

Metropolitan area-level Descriptive Statistics

Table 4.4 provides background information about the 82 metropolitan areas in the study sample, by level of segregation from whites for Mexicans, Puerto Ricans, and Cubans in the sample. Residential segregation scores summarized here and employed in the regression analyses are origin group-specific. The level of dissimilarity from whites across the three groups are predominantly moderate. There are no metro areas represented for Puerto Ricans or Cubans characterized by low dissimilarity from whites, and only a handful of the metro areas for Mexicans (predominantly in the West). A large majority (82%) of the Cuban sample reside in the South while two-thirds (66%) of the Puerto Rican sample live in the Northeast and just over one-fifth (20%) reside in the South. Over half (61%) of the Mexican sample live in the West, with much of the remaining third (33%) living in the South. Mean segregation scores are nearly identical for Mexican-origin and Puerto-Rican origin Hispanics (0.512 for both groups) while the mean score for Cubans in the study metro areas is higher, 0.584.

Individual-level Descriptive Statistics

Table 4.7 depicts the percentages by level of segregation of the individual-level predictors and health and access variables for Mexican-origin, Puerto Rican-origin, and Cuban-origin Hispanics in the sample. The table reveals important compositional

differences across the three groups as well as distinct percentages reporting each of the three health and access outcomes of the study.

Overall, Mexicans are the largest group and appear the most disadvantaged in terms of education level, poverty status, health status, and insurance status. Cubans appear the most advantaged of the three groups by education, poverty, and health status; both Cubans and Puerto Ricans appear to have advantages in terms of insurance status over Mexicans. A lower proportion of Cubans, however, are U.S.-born (33%) compared to 44% of Mexicans and 73% of Puerto Ricans[10].

Nearly half of the Mexicans in the sample (48%) have less than a high school education compared to just 21% among Cubans and 27% of Puerto Ricans. By contrast, nearly 22% of Cubans have a college degree or more compared to about 15% of Puerto Ricans and only 7% of Mexican-origin Hispanics. In fact, only 5% Mexicans experiencing high levels of segregation from whites have a college degree or more. Similarly, just over one-fourth of Mexicans in the sample (26%) have household income levels below the poverty line while the proportion of Cubans living in poverty is 13%. In both education and poverty status, the proportions for Puerto Ricans lie between the two more extremes of the Mexicans versus the Cubans.

The percentages reporting good health status are high but lower overall than the percentages for both whites and African Americans; 75% of Mexicans in the sample report good health status, 80% of Puerto Ricans, and nearly 83% of Cubans.

There are many differences across the country-of-origin groups by insurance status. Among Mexicans, nearly half (46%) are covered by employer-sponsored benefits

[10] As noted above, I treat Puerto Ricans who were born in Puerto Rico as foreign born, despite their U.S. citizenship at birth.

and most of the remaining half (46%) are uninsured. Close to 59% of Puerto Ricans have employer-sponsored health coverage and 20% are uninsured. The percentage of Puerto Ricans with Medicaid or state-sponsored coverage (18%) is much higher than the percentages of Mexicans (7%) and Cubans (5%) which is most likely attributable to the enhanced eligibility for public programs of foreign-born Puerto Ricans given their U.S. citizenship. A comparable percentage of Cubans (55%) have employer-sponsored coverage as Puerto Ricans, however, a higher percentage are uninsured (27%). Percentages having a usual source of health care and having delayed needed care are similar across the three origin groups.

Multivariate Analysis

Before delving into the analyses specific to country of origin, I will briefly summarize the instances where country of origin was a significant variable in the models predicting the health and access outcomes for all Hispanics. Table 7.1 shows that in the prediction of good health status among Hispanics, being of Cuban origin is associated with higher odds of good health compared to being of Mexican origin. In the models predicting odds of being uninsured displayed in Table 7.2, Hispanics of Mexican origin have significantly higher odds of being uninsured than Puerto Ricans, Cubans, and Hispanics of other origins. Table 7.3 shows that country of origin is not significant in the prediction of having a usual source of health care among Hispanics, net of the other factors. In the following sections, I discuss the models predicting health status, odds of being uninsured, and odds of having a usual source of care by country of origin. I also

examine the interaction of nativity with segregation in predicting each of the three outcomes for each country of origin group.

Segregation and good health status by country of origin

Separate regressions predicting good health status by country of origin reveal striking differences in the link between segregation and health status for Mexicans (Table 7.4) and Puerto Ricans (Table 7.5) compared to Cubans (Table 7.6). For all U.S. Hispanics in the sample, incremental increases in dissimilarity from whites is associated with a 7.1% reduction in the likelihood of reporting good health status in the full model. Looking at Mexicans alone, the odds of reporting good health fall to 9.6% with every $1/10^{th}$ increase in segregation, while there is no significant association at all in the models looking only at Puerto Ricans.

Interestingly, the relationship between segregation and good health status is actually *positive* for Cubans in the sample (see Table 7.6). In fact, every unit increase in Cuban/White dissimilarity is significantly associated ($p<.001$) with a staggering 89.5% increase in the odds of reporting good health status in the full model net of all controls. This result could be attributable to the successful socioeconomic assimilation of Cubans where large and tight-knit ethnic enclaves mitigate negative impacts of segregation. As shown in the fifth model in Table 7.6, the coefficient for the interaction of nativity status and residential segregation was negative and significant ($p<.01$). The interaction term coefficient suggests that segregation is less beneficial for U.S.-born Cubans in the prediction of health status than it is for foreign-born Cubans. This finding is consistent with the notion that immigrants may appreciate greater advantages to residence in ethnic enclaves than their U.S.-born counterparts who may be better off outside the enclave.

Despite the significance of the interaction between segregation and nativity in the prediction of self-rated health, both U.S.-born and foreign-born Cubans experience greater odds of good health status with higher levels of segregation.

Segregation and insurance status by country of origin

Dissimilarity from whites was significantly linked to the odds of being uninsured in the full model for African Americans discussed in Chapter 5; however, segregation was not significant in the full models for all Hispanics nor for U.S.-born or foreign-born Hispanics in the split sample findings reported in Chapter 6. In the metro area predictors models for all Hispanics, increases in segregation by $1/10^{th}$ were related to an increase in the odds of being uninsured by 10.8%, but, this difference was not evident in the full models where individual-level factors appear to mitigate the role of segregation in predicting the odds of being uninsured for Hispanics in the sample.

In separate analyses by country of origin predicting the odds of being uninsured, segregation has a significant relationship for Mexican Hispanics (see Table 7.7), but not for Puerto Ricans or Cubans (see Tables 7.8 and 7.9). For Mexican Hispanics, dissimilarity from whites is only a significant predictor of being uninsured in the metro area predictors model—as was the case in the analysis of all Hispanics. As shown in Table 7.7, for Mexicans, a one-unit increase in dissimilarity is linked to an increase in the odds of being uninsured by 11.4%. Also, residence in the West and Midwest are associated with significantly lower odds of being uninsured for Mexicans compared to residence in the Northeast in both the metro area predictors model and the full models. Although not significant in the full models, the metro area context including segregation

for Mexicans appears to be qualitatively different in regards to the prediction of being uninsured than for Puerto Ricans or Cubans.

While segregation does not emerge as a significant predictor of being uninsured in the full model for Mexicans, the coefficient representing the interaction of nativity and segregation is negative and significant ($p<.05$). This indicates that foreign-born Mexicans are more likely to experience a positive association between segregation and being uninsured than are the U.S.-born. In a way, this supports my expectation that Mexicans would have worse access to insurance coverage based on segregation from whites due to compositional factors although the link between segregation and insurance status is not significant. The indication that foreign-born Mexicans might experience greater odds of being uninsured with increasing levels of segregation than the U.S.-born suggests that the dynamics of segregation may be more detrimental for foreign-born Mexicans.

Segregation and having a usual source of care by country of origin

Consistent with my results for African Americans, all Hispanics, and U.S.-born and foreign-born Hispanics analyzed separately, there were no important differences in the likelihood of having a usual source of health care by country of origin, as depicted in Tables 7.10, 7.11, and 7.12. Segregation was significantly linked to lower odds of having a usual source of care for Cubans in the metro area predictors model; however, this relationship was not significant in the full model. As was the case in analyses of other groups, insurance status, education and other individual-level predictors held the only significant connections with the odds of having a usual source of health care in the regressions.

Summary

While my findings confirm my prediction in Hypothesis 7 that the segregation/health dynamic would differ by country of origin group, the negative association between segregation and self-rated health was only evident for Mexican-origin Hispanics, discounting my hypothesis that Puerto Ricans would experience negative effects of segregation on health status more acutely. The strong *advantage* of segregation for Cubans in predicting good health status is a finding that challenges the traditional assimilation model because odds of good health status among Cubans are improved with increasing levels of segregation net of other factors in the analysis. These findings alone confirm the value of exploring the interaction of subgroup differences.

Separate analysis by country of origin did not produce evidence of distinct dynamics of the relationship between residential segregation and the odds of being uninsured or of having a usual source of care. I predicted in Hypothesis 8 that there would be a positive association between being uninsured and segregation among Mexicans; however, this hypothesis was not supported. Similarly, there was no evidence to support my predictions in Hypothesis 9 that segregation may be protective of having a usual source of care for Mexicans and Cubans, but not for Puerto Ricans. As for the analyses for all Hispanics, U.S.-born Hispanics, and foreign-born Hispanics, no clear association is evident between segregation and having a usual source of health care for any of the three country of origin groups.

CHAPTER 8. DISCUSSION AND CONCLUSION

In this dissertation, I set out to address the paucity of evidence about the relationship between residential segregation and health disparities for U.S. Hispanics. I examined residential segregation as an important contextual determinant of health using a large sample of individuals and metropolitan areas. Through nested regressions predicting odds of good self-rated health, being uninsured, and having a usual source of health care, I evaluated whether and how segregation is related to health once other compositional and contextual factors are taken into account. I analyzed African Americans as a baseline group which I predicted to experience negative effects of segregation more acutely than Hispanics. I then divided the monolithic "Hispanic" category by nativity and country of origin to determine whether and how the segregation/health dynamic differed across these major subgroups.

My research questions were: What is the role of residential segregation in shaping the health disparities of U.S. Hispanics? How does the link between health and segregation for U.S. Hispanics compare to that of African Americans? Are there differences in the segregation/health relationship between U.S.-born and foreign-born Hispanics? What are the differences by country of origin?

My hypotheses were based on the notion that residential segregation is a key social determinant of health disparities for minorities in America. As part of the spatial assimilation process towards integration of minority groups, residential segregation combines with individual-level factors and other ecological forces to pattern opportunities for healthy living and access to timely and appropriate health care. I expected segregation to largely hinder health outcomes for Hispanics, however, I

envisioned that for some groups segregation could be protective of health due to the value of enclaves in mobilizing social support and pooling resources. The potential for segregation to be positively linked with health status and/or access to health care outcomes made subgroup analysis imperative in order for interaction effects between segregation and race/ethnicity, nativity, and/or country of origin to be detected.

Table 8.1. summarizes each instance across all samples and nested models in my analyses where segregation from U.S.-born non-Hispanic whites is significant in predicting increases or decreases in the likelihood of good self-rated health, being uninsured, or having a usual source of care. The broad prediction following the theory of residential segregation as a social determinant of health disparities was that segregation would be negatively associated with health status, positively associated with being uninsured, and negatively associated with having a usual source of health care.

As evident in Table 8.1, the relationship between segregation and health was most visible in the prediction of self-rated health. For African Americans, all Hispanics, and Mexican-origin Hispanics, I found a significant negative relationship between segregation and self-rated health even controlling for individual-level and metro area-level factors. For these groups, rises in segregation were linked to lower odds of good health even after accounting for individual-level predictors of health. For Cuban-origin Hispanics, segregation is *positively* associated with health status such that increases in segregation result in improved health status among Cubans, especially those who are foreign-born. I also found segregation to be a significant predictor of being uninsured for African Americans (in that greater levels of segregation were associated with a higher probability of being uninsured), but this association was not evident for Hispanics or

Hispanic subgroups. Similarly, I did not find any meaningful association between segregation and having a usual source of health care for any group in the analyses.

There are noteworthy limitations to this analysis. First, there are many person-level factors that influence health outcomes that I am not able to account for with the NSAF data. These individual factors include details about one's medical history and genetic background, weight, and health behaviors such as smoking, diet, and exercise. In addition, I was not able to control for English language ability or length of time in the U.S. Also, my analysis includes individual and metropolitan area information; however, the neighborhood level is absent due to the lack of geographical data at this level available from the NSAF. In addition, only the major metropolitan areas in the 12 focal states are included in the analysis; therefore, while the study analyzes 82 of the 318 metropolitan areas in the U.S., it is not nationally representative.

I nevertheless found evidence of a meaningful and complex relationship between macro-level residential segregation and individual-level self-rated health. Health status is perhaps a more conclusive outcome measure through which to observe the effects of residential segregation than insurance status or having a regular source of care which are both less direct or less immediate health outcomes per se. Self-rated health is recognized as a strong predictor of future mortality (Idler and Benyamini 1997); however, insurance status and having a regular source of care may be less informative about the influence of segregation on health disparities, especially within cross-sectional data. The link between segregation and these outcomes may be more evident over time and in longitudinal analysis.

The importance of my finding that self-rated health is associated with higher levels of residential segregation for some U.S. Hispanics should not be overshadowed by the relatively greater influence of compositional characteristics or by the lack of powerful evidence for all groups or across the other outcome measures. This large-scale yet detailed examination of health disparities provides useful insights for further exploration of the segregation/health dynamic in metropolitan America both in terms of broader examination of national trends and in terms of more focused evaluations of particular groups and/or particular metropolitan areas.

In addition, my inclusion of individual-level covariates as well as contextual factors helps to confirm the importance of evaluating social and place-related factors in the pursuit to reduce health disparities. Blakely and Subramanian (2006: 337) assert, "There is a deep, complex, and dynamic interrelationship between people and context. Where you live influences who you are… and who you are influences where you live." Having observed a relationship between segregation and health for Hispanics and some key subgroups with a large sample of individuals and metropolitan areas—and controlling for individual-related factors—bolsters the mounting effort to recognize the role of "place" in the production of health disparities. These findings can inform efforts to reduce Hispanic health disparities by adding more emphasis to macro level factors such as residential segregation.

While the dissection of the Hispanic category into key subgroups is a worthy first step in approaching an overarching understanding of the dynamics of the segregation/health relationship for American minorities, the categorizations by nativity and country of origin are not as clear-cut as one might expect. Nativity among Hispanics

is confounded by citizenship status, length of time in the U.S. and country of origin. The division by nativity groups foreign-born Mexicans with foreign-born Puerto Ricans and Cubans who are more likely to have spent more time in the U.S. and do not face the same immigration status challenges. Similarly, Hispanic country of origin is confounded by historical group relations in the U.S., nativity, region of the country, as well as less tangible concepts such as culture and conceptions of health and health care. Therefore—and echoing a larger theme of this dissertation emphasizing the role of context—it is important to consider the complexities of subgroup analysis among Hispanics when differences (or similarities) can be masked by overlapping forces.

The bulk of the subgroup comparisons did not reveal significant interaction effects pointing to differences in the way segregation is related to self-rated health, insurance status, or having a regular source of care. Overall my findings support the tenets of spatial assimilation theory for Hispanics because individual gains including nativity lead to better outcomes. The negative link between segregation and self-rated health that persist even after individual-level factors are controlled does, however, point to the need for macro-level interventions to address Hispanic health disparities in segregated areas. Unfortunately, the lack of evidence of any link between insurance status and having a regular provider leaves little clue as to the pathways for improving Hispanic health disparities in segregated areas. Future work must address whether the negative link between segregation and self-rated health is less an issue of access to coverage and/or care, but related to more direct consequences of segregation that I did not examine here such as poor quality housing, increased exposure to disease, and vulnerability to crime.

My finding that Cubans experience a benefit to segregation in their self-rated health emphasizes not only the possibilities for ethnic enclaves to promote opportunities for minorities with the right combination of collective social functioning and material infrastructure, but also the value of focused examination of health disparities across distinct minority groups. This finding could signify an important opportunity to explore the ways in which the Cuban community mobilizes to experience rewards to segregation so as to improve the assimilation process for other groups. Conversely, the success of the Cuban enclaves in achieving better health status within segregated areas could relate to the higher socioeconomic status and distinct and long-term presence in U.S. (similar to the findings of Cutler et al. 2006) that other ethnic minority groups cannot match. It could be that the nature of segregation is so unique in the Cuban case, that lessons from their successes would be not generalizable for minorities with less human capital, or without similar socio-historical foundations as the Cuban community in Florida.

As stressed in the literature about the effects of place on health, reduction in the health disparities connected to residential segregation must include both individual-level and macro-level interventions. As Hispanics and other minority groups aspire to experience an upward process of integration in mainstream society, efforts to improve health disparities could focus not only individual-level enhancements in education, employment, and access to health information and care, but also infrastructural and metro area policy enhancements to facilitate better health and socioeconomic outcomes for U.S. Hispanics.

In the prediction of being uninsured, segregation was significant for African Americans but not for any Hispanic group. My finding that African Americans are more

likely to be uninsured with increasing levels of segregation confirms the notion of place stratification theory that blacks and Hispanics experience segregation differently (Massey and Mullan 1984; Fischer and Tienda 2006). Because individual factors such as income and education were the sole significant predictors of insurance status for Hispanics supports the assertion that individual characteristics and achievements propel Hispanics through the spatial assimilation process, but do not yield the same rewards for blacks. Efforts to expand health insurance coverage for Hispanics should therefore be focused on promoting employer-sponsored coverage in small businesses and service-sector occupations where Hispanics typically work and are uninsured.

The lack of evidence of any connection between segregation and having a usual source of care is difficult to interpret. The fact that segregation did not emerge as being negatively associated with access to care for any group or as being positively associated for some foreign-born groups is surprising and could be an indication of the existence of effective systems of safety net care in some segregated communities and not in others. One could conjecture that—especially since the presence of community health centers did not bolster any of the analyses—there could be an interesting U-shaped relationship between segregation and having a usual source of care in which those experiencing low levels of segregation as well as those experiencing high levels of segregation might have better access to health care than those in the middle if minority groups and/or policymakers in highly segregated areas are mobilizing to secure access to care. Further examination into this relationship should include utilization measures such as the number and frequency of health care visits to better investigate whether and how segregation is linked to access to health care.

Ultimately my research brings to light the importance of examining contextual factors including residential segregation, despite the relative power of compositional factors in predicting health disparities. Armed with evidence that structural forces like residential segregation have direct influences on individual health, policymakers can work to resolve issues of urban inequality and expand access to quality health care and information for underserved and vulnerable populations. Further analysis is needed both on more micro and more macro levels: focused studies with detailed data collection for specific metropolitan areas, and/or specific Hispanic groups, and/or specific health or access outcomes can illuminate important nuances, while nationwide analysis with more comprehensive data samples can further reveal trends and interaction effects pointing to broader lessons about similarities and differences in the segregation/health dynamic.

Given the size, growth, and overall socioeconomic disadvantage of the U.S. Hispanic population, my research shows the importance of examining and addressing the social determinants of health for Hispanics. While Hispanics do not generally experience the negative effects of residential segregation as acutely as African Americans, my work confirms that the impact of segregation on health disparities is evident—as is the potential for improving health outcomes through enhancement of urban opportunities and resources.

Figure 1. The Social Determinants of Health (Dahlgren and Whitehead 1991)

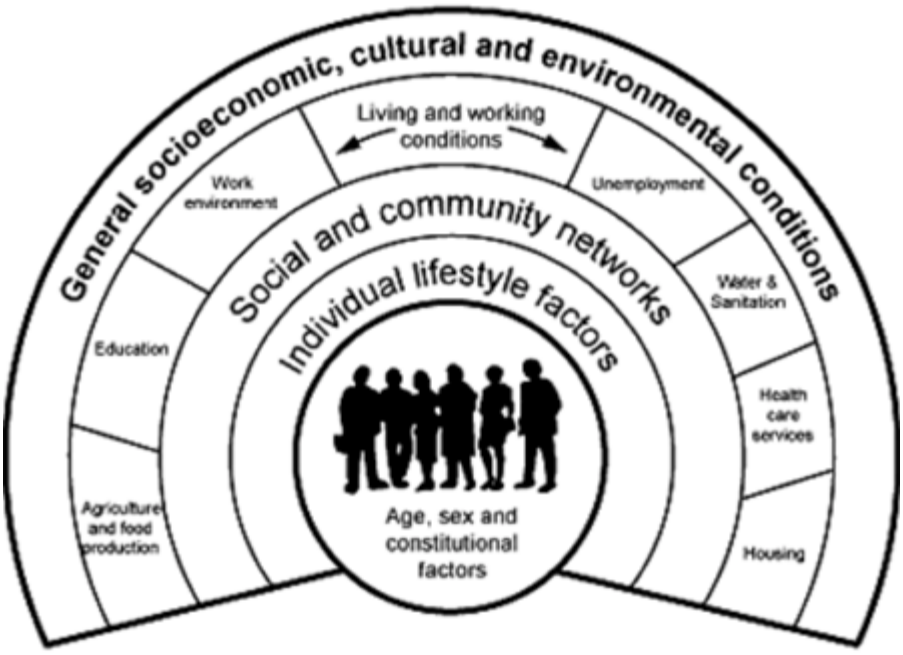

Figure 2. Potential pathways between residential segregation and health disparities

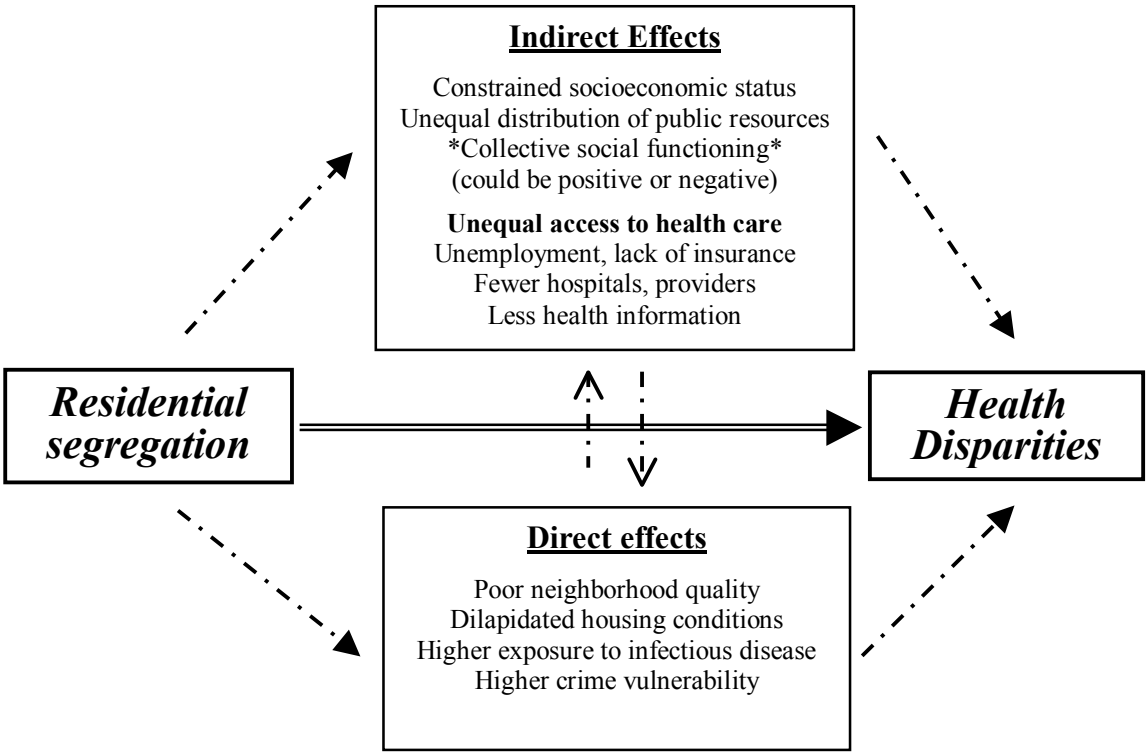

Figure 3. Conceptual Framework

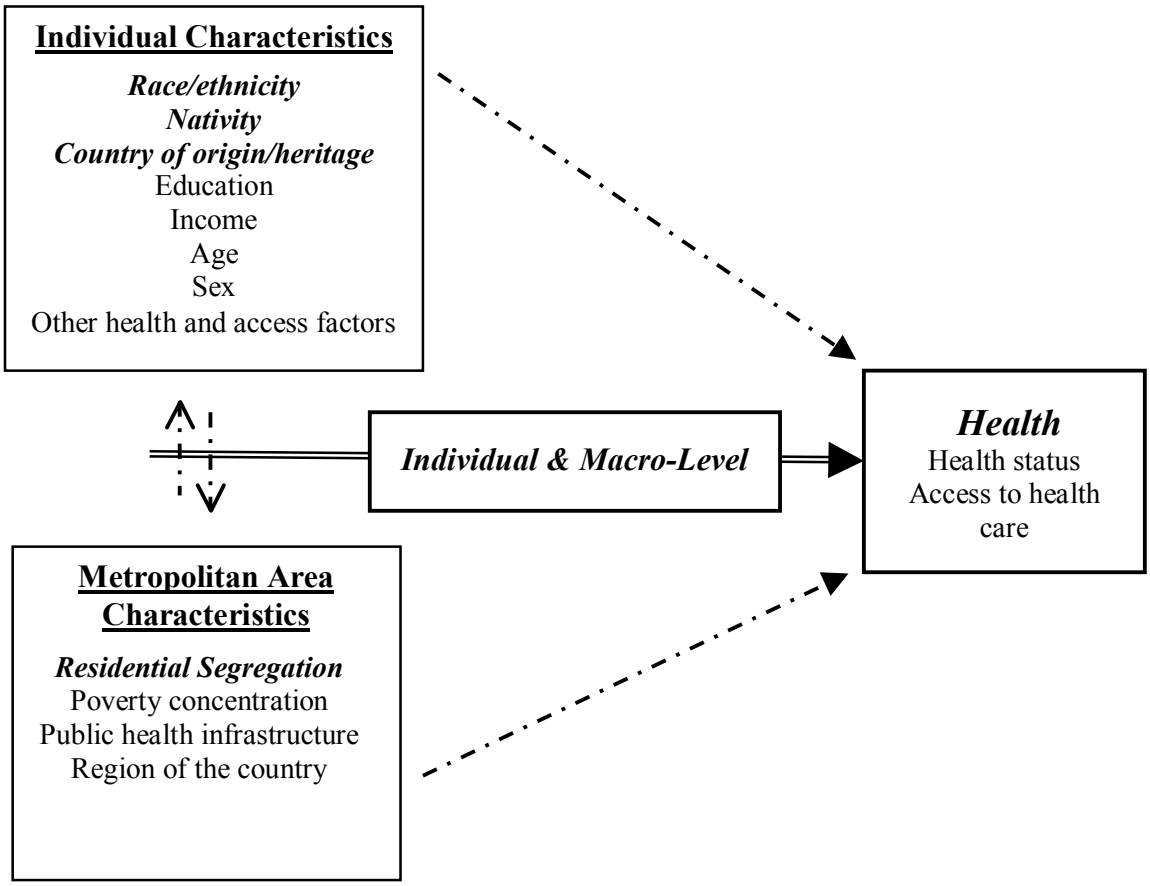

Table 2.1. Mean Dissimilarity Scores from U.S.-born Non-Hispanic Whites for African Americans, all Hispanics, and Hispanic subgroups in metropolitan America

	# of Metro Areas	Dissimilarity
African Americans	290	0.664
All Hispanics	302	0.519
Hispanics by nativity		
U.S.-born Hispanics	288	0.469
Foreign-born Hispanics	242	0.595
Hispanics by country of origin/heritage and nativity		
Mexican	267	0.542
U.S.-born	244	0.483
Foreign-born	200	0.639
Puerto Rican	145	0.602
U.S.-born	123	0.593
Foreign-born	98	0.658
Cuban	67	0.538
U.S.-born	44	0.518
Foreign-born	43	0.575

Note: Includes only those metro areas with at least 1,000 weighted cases in the relevant population groups. Scores are weighted by the size of the population group of interest.

Source: Iceland, John and Kyle Anne Nelson. 2008. “Hispanic Segregation in Metropolitan America: Exploring the Multiple Forms of Spatial Assimilation.” *American Sociological Review*, 73(5): 741-765.

Table 4.1. Sample metropolitan areas by region and state

WEST

California

Bakersfield
Fresno
Los Angeles-Long Beach
Modesto
Oakland
Riverside-San Bernadino
Sacramento
Salinas
San Diego
San Francisco
San Jose
San Luis Obispo-Atascadero
-Paso Robles
Santa Barbara- Santa Maria
-Lompoc
Santa Cruz-Watsonville
Stockton-Lodi
Vallejo-Fairfield-Napa
Ventura
Visalia-Tulare-Porterville

Colorado

Boulder-Longmont
Colorado Springs
Denver
Fort Collins-Loveland

Washington

Portland-Vancouver
Seattle-Bellevue-Everett
Spokane
Tacoma

NORTHEAST

Massachusetts

Boston
Brockton
New Bedford
Springfield
Worcester

New Jersey

Atlantic-Cape May
Bergen-Passaic
Jersey City
Middlesex-Somerset-Hunterdon
Monmouth-Ocean
Newark
Trenton

New York

Albany-Schenectady-Troy
Bluffalo-Niagara Fals
Dutchess County
Nassau-Suffolk
New York City
Rochester
Syracuse

SOUTH

Alabama

Birmingham
Huntsville
Mobile

Florida

Daytona Beach
Fort Lauderdale
Fort Myers-Cape Coral
Jacksonville
Lakeland-Winter Haven
Melbourne-Titusville-Palm Bay
Miami
Naples
Ocala
Orlando
Pensacola
Sarasota-Bradenton
Tampa-St. Petersburg-Clearwater
West Palm Beach-Boca Raton

Texas

Austin-San Marcos
Brazoria
Brownsville-Harlingen-San Benito
Corpus Christi
Dallas
El Paso
Fort Worth-Arlington
Galveston-Texas
Houston
McAllen-Edinburg-Mission
San Antonio

MIDWEST

Michigan

Ann Arbor
Detroit
Flint
Grand Rapids-Muskegon
-Holland
Lansing-East Lansing

Minnesota

Minneapolis-St. Paul

Wisconsin

Madison
Milwaukee-Waukesha

Table 4.2. Study metropolitan area descriptive statistics for African Americans and all Hispanics

	All metro areas	Black segregation level				Hispanic segregation level			
		All	Low	Mod.	High	All	Low	Mod.	High
# of metro areas	82	79	0	43	36	82	9	65	8
Sample size		9,314	0	2,122	7,192	16,753	152	11,037	5,564
% of race/ethnicity group			0	22.78	77.22		0.91	65.88	33.21
Mean metro area pop. size (in thousands)	991.8	1,020.4	--	627.3	1,489.9	991.8	312.0	839.8	2,990.9
Median metro area pop. size (in thousands)	485.4	504.8	--	347.4	917.9	485.4	284.4	504.8	2,479.2
Mean % of metro area population		7.26	--	5.27	9.65	28.77	13.19	30.87	29.25
Mean dissimilarity from whites		0.580	--	0.493	0.700	0.443	0.255	0.446	0.636
Mean % of metro area population living in poverty	12.27	11.75	--	12.30	11.09	12.27	11.10	12.34	13.05
Mean # of community health centers per 100,000	1.97	1.91	--	2.79	0.86	1.97	1.21	2.17	1.22
Region of the U.S.									
West (CA, CO, WA)	28	27	--	23	4	28	4	22	2
Sample size (weighted)		1,936	--	782	1,155	7,875	70	4,580	3,225
% of race/ethnicity group		20.79	--	44.07	15.32	47.00	0.89	41.50	57.97
Northeast (MA, NJ, NY)	18	18	--	3	15	18	0	13	5
Sample size (weighted)		3,286	--	111	3,176	3,237	--	959	2,278
% of race/ethnicity group		35.28	--	6.24	42.11	19.32	--	29.63	70.37
South (AL, FL, TX)	28	26	--	14	12	28	4	24	0
Sample size (weighted)		2,864	--	737	2,127	5,362	78	5,283	--
% of race/ethnicity group		30.64	--	41.54	28.20	32.00	1.46	98.54	--
Midwest (MI, MN, WI)	8	8	--	3	5	8	1	6	1
Sample size (weighted)		1,228	--	145	1,083	279	4	214	60
% of race/ethnicity group		13.18	--	8.16	14.37	1.66	1.43	76.85	21.72

Table 4.3. Study metropolitan area descriptive statistics by Hispanic nativity groups

	Hispanic segregation level				U.S.-born Hispanic segregation level				Foreign-born Hispanic segregation level			
	All	**Low**	**Mod.**	**High**	**All**	**Low**	**Mod.**	**High**	**All**	**Low**	**Mod.**	**High**
# of metro areas	82	9	65	8	82	15	63	4	79	2	55	24
Sample size	16,753	152	11,037	5,564	7,201	90	4,989	2,122	9,552	62	6,048	3,441
% of group		0.91	65.88	33.21	42.98	1.25	69.28	29.47	57.02	0.65	63.32	36.02
Mean metro area pop. size (in thousands)	991.8	312.0	839.8	2,990.9	991.8	474.0	942.9	3,702.4	1,020.0	314.3	664.9	1,826.1
Median metro area pop. size (in thousands)	485.4	284.4	504.8	2,479.2	485.4	325.4	616.5	3,897.3	504.8	314.4	368.8	1,110.2
Mean % of metro area population	28.77	13.19	30.87	29.25	17.10	8.53	19.19	16.41	11.80	1.91	11.27	13.84
Mean dissimilarity from whites	0.443	0.255	0.446	0.636	0.408	0.254	0.430	0.631	0.536	0.274	0.488	0.651
Mean % of metro area population living in poverty	12.27	11.10	12.34	13.05	12.27	10.09	12.61	15.14	12.24	11.62	14.50	11.77
Mean # of community health centers per 100,000	1.97	1.21	2.17	1.22	1.97	1.47	2.18	0.56	1.98	0.65	2.16	1.71
Region of the U.S.												
West (CA, CO, WA)	28	4	22	2	28	9	18	1	28	0	18	10
Sample size (weighted)	7,875				3,420				4,455			
% of nativity group	47.00				47.50				46.64			
Northeast (MA, NJ, NY)	18	0	13	5	18	1	14	3	18	0	9	9
Sample size (weighted)	3,237				1,319				1,918			
% of nativity group	19.32				18.32				20.08			
South (AL, FL, TX)	28	4	24	0	28	5	23	0	26	2	24	2
Sample size (weighted)	5,362				2,308				3,054			
% of nativity group	32.00				32.05				31.97			
Midwest (MI, MN, WI)	8	1	6	1	8	0	8	0	7	0	4	3
Sample size (weighted)	279				154				125			
% of nativity group	1.66				2.13				1.31			

Table 4.4. Study metropolitan area descriptive statistics by Hispanic country of origin groups

	All Hispanics	Mexican-origin Hispanic segregation level				Puerto Rican-origin Hispanic segregation level				Cuban-origin Hispanic segregation level			
		All	Low	Mod.	High	All	Low	Mod.	High	All	Low	Mod.	High
# of metro areas	82	77	4	54	19	60	0	48	12	44	0	23	21
Sample size	16,753	9,982	23	6,927	3,032	1,670	--	730	940	846	--	764	82
% of group/sample	22.99	59.58	0.23	69.40	30.37	9.97	--	43.70	56.30	5.05	--	90.34	9.66
Mean metro area pop. size (in thousands)	991.8	1,026.9	195.0	931.5	1,346.5	1,240.6	--	934.8	2,000.5	1,559.7	--	1,515.8	1,607.7
Median metro area pop. size (in thousands)	485.4	498.8	171.0	567.9	504.8	812.8	--	536.3	1,028.5	1,166.5	--	989.0	1,341.0
Mean % of metro area pop.	28.77	20.52	13.96	21.77	12.83	2.89	--	2.22	4.42	1.80	--	2.89	0.61
Mean dissimilarity from whites	0.443	0.512	0.281	0.481	0.655	0.512	--	0.473	0.680	0.584	--	0.483	0.695
Mean % of metro area pop. living in poverty	12.27	12.29	11.14	12.78	10.92	11.91	--	12.10	10.88	10.80	--	11.50	10.04
Mean # of community health centers per 100,000	1.97	2.00	2.06	2.18	1.30	1.27	--	1.79	0.44	1.02	--	1.25	0.77
Region of the U.S.													
West (CA, CO, WA)	28	28	3	21	4	22	--	18	0	11	--	3	8
Sample size (weighted)		6,111				189	--		--	31	--		
% of origin group		61.23				11.35	--		--	3.65	--		
Northeast (MA, NJ, NY)	18	18	0	8	10	18	--	10	8	10	--	5	5
Sample size (weighted)		348	--			1,109	--			118	--		
% of origin group		3.49	--			66.37	--			13.90	--		
South (AL, FL, TX)	28	28	1	23	4	23	--	18	1	18	--	15	3
Sample size (weighted)		3,341				342	--			694	--		
% of origin group		33.47				20.49	--			82.01	--		
Midwest (MI, MN, WI)	8	8	0	7	1	6	--	2	3	5	--	0	5
Sample size (weighted)		180	--			30	--			4	--	--	
% of origin group		1.81	--			1.80	--			0.44	--	--	

Table 4.5. Sample individual-level descriptive statistics of working-age African Americans and Hispanics (weighted)

	Tot. Pop.	White	Black				Hispanic			
Level of segregation			**All**	**Low**	**Mod.**	**High**	**All**	**Low**	**Mod.**	**High**
Sample size	72,869	46,802	9,314	0	2,122	7,192	16,753	152	11,037	5,564
% of race/ethnicity group				0	22.78	77.22		0.91	65.88	33.21
% Born in the U.S.	80.07	92.71	83.22	--	92.11	80.59	42.98	59.01	45.20	38.15
Education level										
% Less than high school	15.63	6.18	16.05	--	13.15	16.90	41.77	32.56	40.15	45.23
% High school diploma/G.E.D.	57.55	59.16	66.60	--	71.56	65.13	48.01	46.46	48.85	46.38
% Bachelor's degree or higher	26.82	34.65	17.36	--	15.29	17.97	10.22	20.98	11.00	8.39
Poverty Status										
% Less than 100% FPL	11.69	6.06	19.06	--	16.90	19.70	23.32	14.56	22.45	25.29
% Between 100 and 200%FPL	15.40	9.57	19.09	--	19.87	18.86	29.64	12.39	29.21	30.97
% Over 200% FPL	72.91	84.37	61.85	--	63.23	61.44	47.04	73.05	48.34	43.75
% Male	48.92	49.16	44.75	--	48.70	43.59	50.55	35.70	51.52	49.02
Age group										
% Age 18-30	29.37	24.94	33.04	--	33.65	32.86	39.69	33.12	39.29	40.66
% Age 31-45	39.69	39.68	39.10	--	38.72	39.22	40.06	48.29	40.30	39.36
% Age 46-64	30.94	35.39	27.85	--	27.64	27.92	20.25	18.60	20.41	19.97
% Good self-rated health	87.21	91.78	84.20	--	84.89	83.99	76.14	84.95	77.50	73.21
Health insurance status										
% Employee coverage	70.63	79.73	65.01	--	66.93	64.44	48.34	53.92	49.45	46.00
% Medicaid/state/SCHIP	5.02	2.55	11.47	--	9.59	12.02	8.33	9.39	6.13	12.66
% Other coverage	5.55	7.03	2.69	--	2.81	2.65	2.99	10.77	3.29	2.18
% Uninsured	18.80	10.68	20.84	--	20.67	20.89	40.34	25.91	41.13	39.16
% With usual source of health care	81.07	85.59	79.74	--	74.72	81.22	69.19	83.81	67.48	72.20
% Delayed seeking needed care	8.15	9.00	8.31	--	6.78	8.77	5.67	0.52	6.00	5.15

Table 4.6. Sample individual-level descriptive statistics of working-age Hispanics by nativity (weighted)

Level of segregation	Tot. Pop.	All Hispanics All	Low	Mod.	High	U.S.-born Hispanics All	Low	Mod.	High	Foreign-born Hispanics All	Low	Mod.	High
Sample size	72,869	16,753	152	11,037	5,564	7,201	90	4,989	2,122	9,552	62	6,048	3,441
% of group/sample			0.91	65.88	33.21	42.98	1.25	69.28	29.47	57.02	0.65	63.32	36.02
Education level													
% Less than high school	15.63	41.77	32.56	40.15	45.23	24.44	29.94	23.88	25.53	54.83	36.34	53.57	57.38
% High school diploma/G.E.D.	57.55	48.01	46.46	48.85	46.38	62.21	46.62	62.02	63.30	37.30	46.22	37.98	35.95
% Bachelor's degree or higher	26.82	10.22	20.98	11.00	8.39	13.35	23.43	14.09	11.17	7.87	17.44	8.45	6.67
Country of Origin/Heritage													
Mexican		59.58	48.74	64.58	49.94	61.61	44.52	67.69	48.04	58.04	54.82	62.01	51.12
Puerto Rican		10.00	17.22	7.08	15.60	17.07	24.68	11.32	30.24	4.67	6.48	3.57	6.57
Cuban		5.10	5.28	6.99	1.36	3.97	4.62	4.67	2.28	5.96	6.24	8.90	0.78
Other		25.32	28.76	21.35	33.10	17.35	26.18	16.31	19.43	31.33	32.47	25.51	41.53
Poverty Status													
% Less than 100% FPL	11.69	23.32	14.56	22.45	25.29	17.79	15.25	17.07	19.58	27.49	13.57	26.88	28.80
% Between 100 and 200%FPL	15.40	29.64	12.39	29.21	30.97	22.37	4.14	22.93	21.85	35.12	24.27	34.40	36.59
% Over 200% FPL	72.91	47.04	73.05	48.34	43.75	59.84	80.61	60.00	58.57	37.39	62.16	38.72	34.61
% Male	48.92	50.55	35.70	51.52	49.02	47.85	29.48	49.18	45.49	52.58	44.66	53.45	51.20
Age group													
% Age 18-30	29.37	39.69	33.12	39.29	40.66	46.63	39.22	45.29	50.11	34.46	24.32	34.34	34.84
% Age 31-45	39.69	40.06	48.29	40.30	39.36	37.15	47.76	37.77	35.26	42.25	49.05	42.38	41.90
% Age 46-64	30.94	20.25	18.60	20.41	19.97	16.21	13.01	16.94	14.64	23.29	26.63	23.27	23.27
% Good self-rated health	87.21	76.14	84.95	77.50	73.21	85.80	95.43	85.97	84.99	68.86	69.87	70.50	65.95
Health insurance status													
% Employee coverage	70.63	48.34	53.92	49.45	46.00	61.24	62.97	61.09	61.52	38.61	40.90	39.84	36.43
% Medicaid/state/SCHIP	5.02	8.33	9.39	6.13	12.66	9.08	14.64	7.04	13.65	7.71	1.83	5.38	12.05
% Other coverage	5.55	2.99	10.77	3.29	2.18	4.22	12.58	4.08	4.22	2.06	8.17	2.64	0.92
% Uninsured	18.80	40.34	25.91	41.13	39.16	25.45	9.81	27.79	20.61	51.57	49.10	52.14	50.61
% With usual source of health care	81.07	69.19	83.81	67.48	72.20	76.02	87.12	74.69	78.67	64.05	79.05	61.53	68.21
% Delayed seeking needed care	8.15	5.67	0.52	6.00	5.15	7.07	0.88	7.66	5.95	4.61	0.00	4.63	4.65

Table 4.7. Sample individual-level descriptive statistics of working-age Hispanics by country of origin groups (weighted)

	All Hispanics	Mexican				Puerto Rican				Cuban			
Level of segregation		**All**	**Low**	**Mod.**	**High**	**All**	**Low**	**Mod.**	**High**	**All**	**Low**	**Mod.**	**High**
Sample size	16,753	9,982	23	6,927	3,032	1,670	0	730	940	846	0	764	82
% of group/sample	22.99	59.58	0.23	69.40	30.37	9.97	0	43.70	56.30	5.05	0	90.34	9.66
% Born in the U.S.	42.98	44.45	53.91	47.38	36.70	73.36	--	72.33	73.94	33.40	--	30.20	64.19
Education level													
% Less than high school	41.77	47.84	62.84	47.55	48.85	26.91	--	19.16	33.57	20.86	--	21.38	12.19
% High school diploma/G.E.D.	48.01	45.40	45.71	45.08	46.22	58.33	--	63.73	54.20	57.38	--	56.99	64.98
% Bachelor's degree or higher	10.22	6.76	17.13	7.37	4.93	14.75	--	17.10	12.24	21.76	--	21.62	22.83
Poverty Status													
% Less than 100% FPL	23.32	25.95	3.24	26.66	24.74	24.67	--	17.43	30.49	12.56	--	13.03	9.10
% Between 100 and 200%FPL	29.64	32.38	20.86	31.96	33.77	19.48	--	20.45	19.16	23.64	--	24.76	14.65
% Over 200% FPL	47.04	41.66	75.90	41.38	41.49	55.85	--	62.12	50.34	63.80	--	62.20	76.25
% Male	50.55	51.63	36.82	51.93	51.26	44.76	--	49.64	40.71	48.56	--	48.74	54.67
Age group													
% Age 18-30	39.69	43.51	27.50	42.14	47.47	36.20	--	36.89	36.27	28.99	--	27.98	36.93
% Age 31-45	40.06	38.41	48.90	39.50	35.34	40.02	--	38.01	40.75	36.99	--	36.03	48.21
% Age 46-64	20.25	18.07	23.60	18.36	17.19	23.78	--	25.10	22.98	34.02	--	35.99	14.86
% Good self-rated health	76.14	74.95	83.75	75.20	74.08	80.05	--	84.88	75.41	82.55	--	81.63	90.07
Health insurance status													
% Employee coverage	48.34	45.56	56.81	45.34	45.83	58.71	--	62.08	55.72	54.70	--	53.26	72.78
% Medicaid/state/SCHIP	8.33	7.06	6.35	6.53	8.42	17.84	--	8.81	25.50	5.41	--	5.36	6.50
% Other coverage	2.99	1.71	4.32	1.63	1.84	3.28	--	3.80	2.71	13.31	--	13.82	1.33
% Uninsured	40.34	45.67	32.53	46.49	43.91	20.18	--	25.31	16.06	26.58	--	27.56	19.39
% With usual source of health care	69.19	67.37	79.56	65.72	71.26	77.71	--	72.86	81.39	71.01	--	69.63	82.10
% Delayed seeking needed care	5.67	5.68	0.00	6.09	4.76	6.12	--	7.56	4.97	5.47	--	6.05	0.06

Table 4.8. Individual-level dependent and independent variables

Variables	Description	Measurement Scale
Dependent Variables		
Health status		
Current health status	Respondent's report of current health status	Health status is poor or fair = 0; Health status is good, very good, or excellent = 1
Health care access		
Insurance status	Whether respondent is uninsured or has health insurance (through employer, state/Medicaid program, or private plan)	Insured = 0; Uninsured = 1
Usual source of care	Whether respondent has a regular health care provider, other than a hospital emergency room	Has a usual source of care = 0; Has no usual source of care = 1
Independent Variables		
Delayed needed care	Whether or not the respondent did not seek needed health care at any point in the previous 12 months	Did not delay = 0; Delayed = 1
Nativity	Whether the respondent was born in the (U.S.-born) or born outside the U.S., including those born in Puerto Rico (foreign-born)	U.S.-born = 0; Foreign-born = 1
Country of origin/heritage	Hispanic nationality or country of origin for three major groups: Mexican, Puerto Rican, or Cuban	Series of dummy variables: Mexican (omitted); Puerto Rican; Cuban; Other
Age	Age of respondent	Series of dummy variables: Age 18-30; Age 31 to 44; Age 45-64 (omitted)
Sex	Whether respondent is male or female	Female = 0; Male = 1
Education	Highest level of education achieved by respondent	Series of dummy variables: Less than high school (omitted) ; high school diploma or G.E.D.; Bachelor's degree or higher
Income as % of poverty	Income earned by all family members in the household in the previous year, converted to poverty status based on family size and number of children	Series of dummy variables: 0-100% FPL (omitted); 100-200% FPL; more than 200% FPL

Table 4.9. Metropolitan area-level independent variables

Variables	Description	Measurement Scale
Residential segregation		
Dissimilarity from whites	Measure of how evenly spread reference group is in relation to U.S.-born non-Hispanic whites in a given metro area	Continuous variable ranging from 0 (no segregation) to 1 (complete segregation). Multiplied by 10 so that each one-unit increase in dissimilarity refers to increases of 1/10th the actual segregation score
Public health care infrastructure		
Availability of free or reduced-cost health care	Number of community health centers (CHCs) in a given metro area	Number of CHCs per 100,000 population
Health and Segregation Mediators		
Poverty concentration	Proportion of metro area population living at or below the federal poverty level	Proportion
Region of the U.S.	Whether NSAF respondent lives in the West, Northeast, South or Midwest	Series of dummy variables (Northeast omitted)

Table 5.1. Nested models predicting log odds of reporting good health status among sample of African Americans in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.107	*	-0.153	***	-0.122	**
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.436	***					0.437	***
State/Medicaid coverage	-0.260	**					-0.289	**
Other coverage	-0.139						-0.145	
Has usual source of health care	0.080						0.068	
Has delayed needed health care	-1.008	***					-1.016	***
Nativity, U.S.-born	-0.435	***					-0.375	***
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.136						0.128	
Above 200% poverty level	0.622	***					0.596	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.479	***					0.457	***
Bachelor's degree or higher	1.022	***					0.992	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.605	***					1.600	***
Age 31 to 45 years	0.834	***					0.826	***
Sex, Male	0.058						0.044	
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.070		0.746	
# of community health centers per 100,000					-0.021		0.019	
Region (Northeast omitted)								
West					-0.190		-0.123	
South					-0.489	***	-0.364	***
Midwest					-0.281	***	-0.134	
Constant	0.227		2.277	***	2.849	***	1.162	***
Log Likelihood	-3,874.33		-4,374.75		-4351.869		-3,860.24	
Degrees of freedom	9,215		9,226		9,221		9,208	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 5.2. Nested models predicting log odds of being uninsured among sample of African Americans in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.011		0.126	**	0.142	**
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.141						-0.130	
Has usual source of health care	-1.385	***					-1.371	***
Has delayed needed health care	0.730	***					0.737	***
Nativity, U.S.-born	-0.573	***					-0.562	***
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.214	*					-0.219	*
Above 200% poverty level	-1.199	***					-1.188	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.215	***					-0.221	***
Bachelor's degree or higher	-0.686	***					-0.698	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.347	***					0.391	***
Age 31 to 45 years	0.148						0.177	
Sex, Male	0.385	***					0.408	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-0.397		-2.016	
# of community health centers per 100,000					0.090	**	0.075	
Region (Northeast omitted)								
West					-0.004		0.048	
South					0.509	***	0.473	***
Midwest					-0.151		-0.295	***
Constant	0.663	***	-1.261	***	-2.361	***	-0.284	
Log Likelihood	-4,048.65		-4,712.19		-4,662.95		-4,010.57	
Degrees of freedom	9,217		9,226		9,221		9,210	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 5.3. Nested models predicting log odds of having a usual source of health care among sample of African Americans in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.013		-0.045		-0.025	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	0.124						0.110	
Insurance status (uninsured omitted)								
Employer coverage	1.435	***					1.433	***
State/Medicaid coverage	1.359	***					1.328	***
Other coverage	1.003	***					1.003	***
Nativity, U.S.-born	0.118						0.170	*
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.097						0.092	
Above 200% poverty level	0.316	***					0.290	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.190	**					0.177	**
Bachelor's degree or higher	0.587	***					0.569	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.705	***					-0.712	***
Age 31 to 45 years	-0.380	***					-0.388	***
Sex, Male	-0.791	***					-0.802	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-0.131		0.113	
# of community health centers per 100,000					-0.060		-0.044	
Region (Northeast omitted)								
West					0.050		0.060	
South					-0.307	*	-0.217	
Midwest					-0.129		-0.154	
Constant	0.618	***	1.561	***	1.963	***	0.916	*
Log Likelihood	-3,933.61		-4,445.37		-4,430.15		-3,926.06	
Degrees of freedom	9,216		9,226		9,221		9,209	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 5.4. Nested models predicting log odds of reporting good health status among sample of Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.178	***	-0.154	***	-0.074	*
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.571	***					0.580	***
State/Medicaid coverage	-0.223	**					-0.150	*
Other coverage	0.744	***					0.704	**
Has usual source of health care	-0.110						0.100	
Has delayed needed health care	-0.988	***					-0.999	***
Nativity, U.S.-born	0.430	***					0.409	***
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.234	***					0.226	***
Above 200% poverty level	0.676	***					0.673	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.725	***					0.722	***
Bachelor's degree or higher	1.401	***					1.394	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.445	***					1.450	***
Age 31 to 45 years	0.842	***					0.847	***
Sex, Male	0.337	***					0.331	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-2.296	***	-0.552	
# of community health centers per 100,000					-0.009		-0.002	
Region (Northeast omitted)								
West					0.013		0.050	
South					0.138		0.219	**
Midwest					0.250	***	0.169	*
Constant	-0.827	***	2.097	***	2.244	***	-0.448	*
Log Likelihood	-5,621.17		-6,557.64		-6,530.36		-5,604.35	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 5.5. Nested models predicting log odds of being uninsured among sample of Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.045		0.102	*	0.001	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.294	***					-0.319	***
Has usual source of health care	-1.377	***					-1.365	***
Has delayed needed health care	0.532	***					0.547	***
Nativity, U.S.-born	-0.856	***					-0.888	***
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.201	*					-0.226	**
Above 200% poverty level	-1.132	***					-1.129	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.316	***					-0.299	***
Bachelor's degree or higher	-0.683	***					-0.658	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.454	***					0.505	***
Age 31 to 45 years	0.083						0.111	
Sex, Male	0.204	**					0.190	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					1.358		0.668	
# of community health centers per 100,000					0.018		0.017	
Region (Northeast omitted)								
West					0.402	**	0.341	*
South					0.716	***	0.624	***
Midwest					0.067		-0.036	
Constant	1.428	***	-0.238		-1.565	***	1.015	**
Log Likelihood	-6,520.60		-7,935.31		-7,816.93		-6,436.12	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 5.6. Nested models predicting log odds of having a usual source of health care among sample of Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			0.047		-0.051	*	-0.002	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.112						-0.099	
Insurance status (uninsured omitted)								
Employer coverage	1.412	***					1.406	***
State/Medicaid coverage	1.324	***					1.287	***
Other coverage	1.112	***					1.146	***
Nativity, U.S.-born	0.119	*					0.112	**
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.005						0.011	
Above 200% poverty level	0.241	***					0.249	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.156	*					0.174	**
Bachelor's degree or higher	0.212	*					0.244	**
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.494	***					-0.519	***
Age 31 to 45 years	-0.208	**					-0.221	**
Sex, Male	-0.791	***					-0.801	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.730		1.270	**
# of community health centers per 100,000					-0.006		0.003	
Region (Northeast omitted)								
West					-0.131		0.106	
South					-0.519	***	-0.263	**
Midwest					-0.052		0.108	
Constant	0.697	***	0.705	***	1.317	***	0.553	**
Log Likelihood	-6,185.68		-7,048.69		-7,015.83		-6,164.36	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.1. Nested models predicting log odds of reporting good health status among sample of U.S.-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
RESIDENTIAL SEGREGATION	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Dissimilarity from Whites			-0.196	***	-0.146	**	-0.092	
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.748	***					0.751	***
State/Medicaid coverage	-0.248	*					-0.209	*
Other coverage	0.853	**					0.850	**
Has usual source of health care	-0.047						-0.044	
Has delayed needed health care	-1.014	***					-1.045	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	-0.049						0.155	
Cuban	0.331						0.385	
Other	-0.089						0.001	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.267	*					0.252	*
Above 200% poverty level	0.617	***					0.601	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.696	***					0.678	***
Bachelor's degree or higher	1.243	***					1.238	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.501	***					1.523	***
Age 31 to 45 years	0.644	***					0.657	***
Sex, Male	0.301	**					0.297	**
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-1.722		-1.007	
# of community health centers per 100,000					-0.010		0.018	
Region (Northeast omitted)								
West					0.153		0.159	
South					0.202		0.231	
Midwest					0.164		0.116	
Constant	-0.375	**	2.541	***	2.433	***	-0.010	
Log Likelihood	-2,056.11		-2,394.43		-2,389.33		-2,048.25	
Degrees of freedom	5,290		5,304		5,299		5,284	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.2. Nested models predicting log odds of reporting good health status among sample of foreign-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
RESIDENTIAL SEGREGATION	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Dissimilarity from Whites			-0.121		-0.115	**	-0.033	
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.475	***					0.480	***
State/Medicaid coverage	-0.192	*					-0.134	
Other coverage	0.628	*					0.578	*
Has usual source of health care	-0.137	*					-0.126	
Has delayed needed health care	-0.951	***					-0.963	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	0.070						0.152	
Cuban	0.240	**					0.141	
Other	-0.048						0.040	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.216	***					0.216	***
Above 200% poverty level	0.708	***					0.713	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.719	***					0.714	***
Bachelor's degree or higher	1.473	***					1.453	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.420	***					1.429	***
Age 31 to 45 years	0.961	***					0.965	***
Sex, Male	0.355	***					0.357	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-2.805	***	-0.363	
# of community health centers per 100,000					-0.017	*	-0.006	
Region (Northeast omitted)								
West					-0.017		0.101	
South					0.185		0.315	**
Midwest					0.303	*	0.327	*
Constant	-0.843	***	1.579		1.897	***	-0.776	*
Log Likelihood	-3,550.38		-4,033.37		-4,005.85		-3,540.19	
Degrees of freedom	6,599		6,613		6,608		6,593	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.3. Nested models predicting log odds of being uninsured among sample of U.S.-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.065		0.038		-0.045	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.386	***					-0.394	***
Has usual source of health care	-1.403	***					-1.378	***
Has delayed needed health care	0.727	***					0.753	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	-0.577	***					-0.448	**
Cuban	-0.476	*					-0.603	**
Other	-0.070						0.025	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.125						-0.139	
Above 200% poverty level	-1.130	***					-1.108	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.269	**					-0.293	***
Bachelor's degree or higher	-0.774	***					-0.803	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.234	*					0.286	**
Age 31 to 45 years	-0.037						-0.019	
Sex, Male	0.286	***					0.287	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					1.254		0.406	
# of community health centers per 100,000					0.029		0.011	
Region (Northeast omitted)								
West					0.224		-0.070	
South					0.702	***	0.425	**
Midwest					-0.111		-0.431	**
Constant	0.882	***	-0.765	**	-1.739	***	0.896	*
Log Likelihood	-2,532.37		-3,005.70		-2,948.48		-2,501.49	
Degrees of freedom	5,292		5,304		5,299		5,286	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.4. Nested models predicting log odds of being uninsured among sample of foreign-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.048		0.134		0.002	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.266	***					-0.278	***
Has usual source of health care	-1.367	***					-1.352	***
Has delayed needed health care	0.270	*					0.287	*
Country of origin/heritage (Mexican omitted)								
Puerto Rican	-1.425	***					-1.350	***
Cuban	-0.736	***					-0.926	***
Other	-0.408	*					-0.360	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.315	***					-0.309	***
Above 200% poverty level	-1.172	***					-1.155	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.202	***					-0.211	***
Bachelor's degree or higher	-0.403	**					-0.424	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.422	***					0.486	***
Age 31 to 45 years	0.024						0.053	
Sex, Male	0.094						0.103	
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					1.303		0.407	
# of community health centers per 100,000					0.034	*	0.010	
Region (Northeast omitted)								
West					0.529	***	0.010	
South					0.767	***	0.407	*
Midwest					0.281		-0.206	
Constant	1.780	***	0.241		-1.480	***	1.553	**
Log Likelihood	-3,860.91		-4,581.36		-4,502.30		-3,836.56	
Degrees of freedom	6,601		6,613		6,608		6,595	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.5. Nested models predicting log odds of having a usual source of health care among sample of U.S.-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			0.030		-0.031		-0.003	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.032						-0.029	
Insurance status (uninsured omitted)								
Employer coverage	1.436	***					1.418	***
State/Medicaid coverage	1.352	***					1.303	***
Other coverage	1.234	***					1.214	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	0.038						0.105	
Cuban	0.073						0.217	
Other	-0.059						-0.032	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.041						0.054	
Above 200% poverty level	0.354	***					0.364	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.133						0.135	
Bachelor's degree or higher	0.263						0.275	*
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.670	***					-0.693	***
Age 31 to 45 years	-0.397	***					-0.407	***
Sex, Male	-0.733	***					-0.738	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.549		1.485	**
# of community health centers per 100,000					-0.013		0.001	
Region (Northeast omitted)								
West					-0.022		0.157	
South					-0.481	***	-0.237	
Midwest					0.078		0.191	
Constant	0.813	***	1.087	***	1.451	***	0.603	*
Log Likelihood	-2,507.19		-2,834.83		-2,817.05		-2,498.11	
Degrees of freedom	5,291		5,304		5,299		5,285	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 6.6. Nested models predicting log odds of having a usual source of health care among sample of foreign-born Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			0.056		-0.066		-0.019	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.143	*					-0.130	*
Insurance status (uninsured omitted)								
Employer coverage	1.391	***					1.387	***
State/Medicaid coverage	1.341	***					1.293	***
Other coverage	1.057	***					1.089	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	0.082						0.143	
Cuban	-0.389	*					-0.256	
Other	-0.090						-0.060	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.001						0.003	
Above 200% poverty level	0.180						0.185	
Education level (less than high school omitted)								
High school degree or G.E.D.	0.199	***					0.204	***
Bachelor's degree or higher	0.213						0.221	
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.451	***					-0.452	***
Age 31 to 45 years	-0.152						-0.150	
Sex, Male	-0.829	***					-0.837	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					1.031		1.242	*
# of community health centers per 100,000					-0.010		0.003	
Region (Northeast omitted)								
West					-0.208		0.085	
South					-0.555	***	-0.266	*
Midwest					-0.202		0.042	
Constant	0.752	***	0.411		1.249	***	0.701	
Log Likelihood	-3,665.56		-4,147.65		-4,127.91		-3,655.31	
Degrees of freedom	6,600		6,613		6,608		6,594	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.1. Nested models predicting log odds of reporting good health status among sample of Hispanics in metropolitan America (including country of origin controls)

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
RESIDENTIAL SEGREGATION	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Dissimilarity from Whites			-0.178	***	-0.154	***	-0.070	*
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.570	***					0.574	***
State/Medicaid coverage	-0.220	**					-0.169	*
Other coverage	0.713	**					0.677	**
Has usual source of health care	-0.108						-0.099	
Has delayed needed health care	-0.988	***					-1.001	***
Nativity, U.S.-born	0.429	***					0.402	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	-0.013						0.127	
Cuban	0.251	**					0.205	*
Other	-0.054						0.054	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.232	***					0.226	***
Above 200% poverty level	0.675	***					0.671	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.722	***					0.712	***
Bachelor's degree or higher	1.393	***					1.376	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.454	***					1.464	***
Age 31 to 45 years	0.852	***					0.857	***
Sex, Male	0.335	***					0.333	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-2.296	***	-0.498	
# of community health centers per 100,000					-0.009		0.000	
Region (Northeast omitted)								
West					0.013		0.112	
South					0.138		0.253	**
Midwest					0.250	***	0.218	**
Constant	-0.823	***	2.097	***	2.244	***	-0.547	*
Log Likelihood	-5,618.14		-6,557.64		-6,530.36		-5,602.45	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.2. Nested models predicting log odds of being uninsured among sample of Hispanics in metropolitan America (including country of origin controls)

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.045		0.102	*	-0.014	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.302	***					-0.312	***
Has usual source of health care	-1.381	***					-1.362	***
Has delayed needed health care	0.522	***					0.543	***
Nativity, U.S.-born	-0.793	***					-0.812	***
Country of origin/heritage (Mexican omitted)								
Puerto Rican	-0.909	***					-0.805	***
Cuban	-0.631	***					-0.809	***
Other	-0.282	*					-0.223	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.250	**					-0.250	**
Above 200% poverty level	-1.168	***					-1.151	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.239	***					-0.256	***
Bachelor's degree or higher	-0.555	***					-0.582	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.373	***					0.434	***
Age 31 to 45 years	0.028						0.056	
Sex, Male	0.170	**					0.177	**
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					1.358		0.351	
# of community health centers per 100,000					0.018		0.009	
Region (Northeast omitted)								
West					0.402	**	-0.001	
South					0.716	***	0.412	**
Midwest					0.067		-0.292	
Constant	1.698	***	-0.238		-1.565	***	1.569	***
Log Likelihood	-6,422.15		-7,935.31		-7,816.93		-6,371.05	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.3. Nested models predicting log odds of having usual source of health care among sample of Hispanics in metropolitan America (including country of origin controls)

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
RESIDENTIAL SEGREGATION	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Dissimilarity from Whites			0.047		-0.051	*	-0.005	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.111						-0.100	
Insurance status (uninsured omitted)								
Employer coverage	1.414	***					1.405	***
State/Medicaid coverage	1.324	***					1.277	***
Other coverage	1.154	***					1.168	***
Nativity, U.S.-born	0.091						0.085	
Country of origin/heritage (Mexican omitted)								
Puerto Rican	0.032						0.083	
Cuban	-0.267						-0.122	
Other	-0.084						-0.053	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.012						0.016	
Above 200% poverty level	0.252	***					0.257	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.172	**					0.179	**
Bachelor's degree or higher	0.248	**					0.261	**
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.509	***					-0.522	***
Age 31 to 45 years	-0.219	**					-0.223	**
Sex, Male	-0.793	***					-0.801	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.730		1.281	**
# of community health centers per 100,000					-0.006		0.002	
Region (Northeast omitted)								
West					-0.131		0.106	
South					-0.519	***	-0.257	**
Midwest					-0.052		0.096	
Constant	0.733	***	0.705	***	1.317	***	0.583	**
Log Likelihood	-6,181.52		-7,048.69		-7,015.83		-6,162.24	
Degrees of freedom	12,000		12,000		12,000		12,000	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.4. Nested models predicting log odds of reporting good health status among sample of Mexican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.148	**	-0.163	***	-0.100	**
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.467	***					0.461	***
State/Medicaid coverage	-0.211						-0.209	
Other coverage	0.808	*					0.800	*
Has usual source of health care	-0.080							
Has delayed needed health care	-0.884	***					-0.896	***
Nativity, U.S.-born	0.503	***					0.460	***
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.260	***					0.257	**
Above 200% poverty level	0.609	***					0.616	***
Education level (less than high school omitted)								
High school degree or G.E.D.	0.617	***					0.610	***
Bachelor's degree or higher	1.574	***					1.579	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	1.293	***					1.334	***
Age 31 to 45 years	0.791	***					0.809	***
Sex, Male	0.293	***					0.296	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-1.637	***	-0.172	
# of community health centers per 100,000					-0.010		-0.006	
Region (Northeast omitted)								
West					0.303	*	0.404	**
South					0.317	*	0.455	***
Midwest					0.512	**	0.506	**
Constant	-0.705	***	1.925	***	1.957	***	-0.532	
Log Likelihood	-2,914.69		-3,312.68		-3,298.10		-2,903.53	
Degrees of freedom	5,928		5,940		5,935		5,922	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.5. Nested models predicting log odds of reporting good health status among sample of Puerto Rican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.199	*	-0.040		-0.034	
INDIVIDUAL LEVEL CONTROLS								
Insurance status (uninsured omitted)								
Employer coverage	0.886	***					0.833	***
State/Medicaid coverage	-0.488						-0.424	**
Other coverage	0.704						0.605	
Has usual source of health care	0.064						0.097	
Has delayed needed health care	-1.005	***					-1.033	***
Nativity, U.S.-born	0.220						0.196	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.166						0.184	
Above 200% poverty level	0.383	*					0.362	*
Education level (less than high school omitted)								
High school degree or G.E.D.	0.926	***					0.893	***
Bachelor's degree or higher	0.362	***					1.268	***
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	2.267	***					2.299	***
Age 31 to 45 years	1.124	***					1.146	***
Sex, Male	0.425	**					0.427	**
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-1.948	*	-0.160	
# of community health centers per 100,000					-0.485	***	-0.364	***
Region (Northeast omitted)								
West					1.598	**	1.138	*
South					0.775	***	0.465	**
Midwest					0.284	***	0.164	
Constant	-1.210	***	2.462	***	1.835	***	-0.874	*
Log Likelihood	-770.31		-975.70		-956.98		-756.85	
Degrees of freedom	1,845		1,838		1,833		1,820	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.6. Nested models predicting log odds of reporting good health status among sample of Cuban-origin Hispanics in metropolitan America (continued)

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL		FULL MODEL WITH SEGREGATION* NATIVITY INTERACTION	
RESIDENTIAL SEGREGATION	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Dissimilarity from Whites			0.235	**	0.418	**	0.639	***	1.015	***
INDIVIDUAL LEVEL CONTROLS										
Insurance status (uninsured omitted)										
Employer coverage	-0.135						-0.163		-0.240	
State/Medicaid coverage	-0.872	**					-0.792	*	-0.767	*
Other coverage	0.466						0.446		0.414	
Has usual source of health care	-0.204						-0.081		-0.070	
Has delayed needed health care	-1.580	**					-1.578	**	-1.789	***
Nativity, U.S.-born	0.637						1.097	**	6.259	***
Segregation*Nativity Interaction									-0.938	**
Poverty status (at or below poverty level omitted)										
100-200% poverty level	0.701	*					0.716	*	0.749	**
Above 200% poverty level	1.716	***					1.738	***	1.894	***
Education level (less than high school omitted)										
High school degree or G.E.D.	0.969	**					0.953	*	0.996	*
Bachelor's degree or higher	1.110	*					1.090	*	1.138	*
Age Group (46 to 64 years omitted)										
Age 18 to 30 years	1.553	***					1.461	***	1.503	***
Age 31 to 45 years	1.549	***					1.519	***	1.551	***
Sex, Male	0.257						0.351		0.386	**
METROPOLITAN AREA LEVEL CONTROLS										
% Living at our below poverty level					-5.192	*	-2.795		-3.701	
# of community health centers per 100,000					-0.415	**	0.009		0.019	
Region (Northeast omitted)										
West					-0.324		-1.021		-0.725	
South					0.605	*	0.969	**	1.297	***
Midwest					-0.059		-0.388		-0.244	
Constant	-0.955	***	0.272		-0.021		-4.814	***	-7.050	***
Log Likelihood	-202.56		-260.95		-258.66		-194.33		-191.72	
Degrees of freedom	565		564		559		546		545	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.7. Nested models predicting log odds of being uninsured among sample of Mexican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL		FULL MODEL WITH SEGREGATION* NATIVITY INTERACTION	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION										
Dissimilarity from Whites			0.053		0.109	*	-0.008		0.060	
INDIVIDUAL LEVEL CONTROLS										
Self-rated Health, Good	-0.286	***					-0.278	***	-0.278	***
Has usual source of health care	-1.223	***					-1.194	***	-1.194	***
Has delayed needed health care	0.369	**					0.400	**	0.401	**
Nativity, U.S.-born	-0.953	***					-0.992	***	-0.137	***
Segregation*Nativity Interaction									-0.159	*
Poverty status (at or below poverty level omitted)										
100-200% poverty level	-0.482	***					-0.458	***	-0.459	***
Above 200% poverty level	-1.393	***					-1.354	***	-1.355	***
Education level (less than high school omitted)										
High school degree or G.E.D.	-0.282	**					-0.305	***	-0.311	***
Bachelor's degree or higher	-0.655	***					-0.706	***	-0.705	***
Age Group (46 to 64 years omitted)										
Age 18 to 30 years	0.418	***					0.494	***	0.491	***
Age 31 to 45 years	0.059						0.098		0.093	
Sex, Male	0.117						0.125		0.123	
METROPOLITAN AREA LEVEL CONTROLS										
% Living at our below poverty level					0.776		-0.162		-0.263	
Public Health care infrastructure										
# of community health centers per 100,000					0.020		0.021		0.022	
Region (Northeast omitted)										
West					-0.734	*	-0.618	*	-0.576	
South					-0.232		-0.083		-0.033	
Midwest					-0.987	**	-0.947	**	-0.906	**
Constant	1.826	***	-0.474		-0.358		2.240	***	1.844	***
Log Likelihood	-3,315.73		-4,090.85		-4,018.92		-3,265.12		-3,262.31	
Degrees of freedom	5,930		5,940		5,935		5,924		5,923	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.8. Nested models predicting log odds of being uninsured among sample of Puerto Rican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.086		0.070		0.061	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.271						-0.286	
Has usual source of health care	-1.600	***					-1.564	***
Has delayed needed health care	0.865	***					0.867	***
Nativity, U.S.-born	-0.197						-0.136	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.393	***					0.342	**
Above 200% poverty level	-0.522	***					-0.514	***
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.005						-0.058	
Bachelor's degree or higher	-0.449	*					-0.535	*
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.146						0.151	
Age 31 to 45 years	0.027						0.055	
Sex, Male	0.493	**					0.485	**
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					-0.965		-0.456	
# of community health centers per 100,000					0.234	*	0.152	
Region (Northeast omitted)								
West					-0.639		-0.305	
South					0.860	*	0.814	*
Midwest					0.087		0.055	
Constant	-0.053		-0.843		-1.927		-0.591	
Log Likelihood	-813.58		-926.09		-908.80		-796.32	
Degrees of freedom	1,847		1,837		1,833		1,822	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.9. Nested models predicting log odds of being uninsured among sample of Cuban-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.150		--		--	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	0.324						--	
Has usual source of health care	-1.946	***					--	
Has delayed needed health care	1.481	***					--	
Nativity, U.S.-born	-0.724						--	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.670						--	
Above 200% poverty level	-1.727	***					--	
Education level (less than high school omitted)								
High school degree or G.E.D.	-0.478	*					--	
Bachelor's degree or higher	-0.090						--	
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	0.074						--	
Age 31 to 45 years	-0.401						--	
Sex, Male	0.148						--	
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					--		--	
# of community health centers per 100,000					--		--	
Region (Northeast omitted)								
West					--		--	
South					--		--	
Midwest					--		--	
Constant	1.516	***	-0.163		--		--	
Log Likelihood	-253.99		-330.45		--		--	
Degrees of freedom	567		564		--		--	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05 -- = model could not be specified**

Table 7.10. Nested models predicting log odds of having a usual source of health care among sample of Mexican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			-0.003		-0.019		0.039	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.077						-0.066	
Insurance status (uninsured omitted)								
Employer coverage	1.288	***					1.271	***
State/Medicaid coverage	1.042	***					0.972	***
Other coverage	1.050	***					1.028	***
Nativity, U.S.-born	0.086						0.111	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	0.025						0.024	
Above 200% poverty level	0.236	*					0.232	*
Education level (less than high school omitted)								
High school degree or G.E.D.	0.203	**					0.212	***
Bachelor's degree or higher	0.379	**					0.395	**
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.498	***					-0.527	***
Age 31 to 45 years	-0.144						-0.158	
Sex, Male	-0.870	***					-0.878	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.849		1.166	**
# of community health centers per 100,000					0.003		0.012	
Region (Northeast omitted)								
West					0.379		0.076	
South					-0.045		-0.274	
Midwest					0.408		0.084	
Constant	0.756	***	0.850	**	0.574		0.398	
Log Likelihood	-3,224.87		-3,645.20		-3,623.00		-3,210.62	
Degrees of freedom	5,929		5,940		5,935		5,923	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.11. Nested models predicting log odds of having a usual source of health care among sample of Puerto Rican-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			0.092		0.015		0.088	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	0.011						0.014	
Insurance status (uninsured omitted)								
Employer coverage	1.516	***					1.490	***
State/Medicaid coverage	1.701	***					1.650	***
Other coverage	0.745	*					0.732	
Nativity, U.S.-born	0.033						-0.009	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.005						0.015	
Above 200% poverty level	0.315	*					0.344	**
Education level (less than high school omitted)								
High school degree or G.E.D.	0.197						0.205	
Bachelor's degree or higher	0.359						0.373	
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.800	***					-0.851	***
Age 31 to 45 years	-0.506	*					-0.511	*
Sex, Male	-0.647	***					-0.651	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.962		0.245	
# of community health centers per 100,000					-0.032		0.031	
Region (Northeast omitted)								
West					0.703		0.652	*
South					-0.531		-0.207	
Midwest					0.027		0.117	
Constant	0.719	**	0.814		1.217		0.164	
Log Likelihood	-820.41		-924.53		-915.94		-808.89	
Degrees of freedom	1,846		1,838		1,833		1,821	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 7.12. Nested models predicting log odds of having a usual source of health care among sample of Cuban-origin Hispanics in metropolitan America

	INDIVIDUAL PREDICTORS ONLY		RESIDENTIAL SEGREGATION ALONE		METRO AREA PREDICTORS ONLY		FULL MODEL	
	Coeff.	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
RESIDENTIAL SEGREGATION								
Dissimilarity from Whites			0.016		-0.479	*	-0.545	
INDIVIDUAL LEVEL CONTROLS								
Self-rated Health, Good	-0.214						-0.135	
Insurance status (uninsured omitted)								
Employer coverage	1.917	***					2.012	***
State/Medicaid coverage	1.452	***					1.484	***
Other coverage	2.782	***					3.128	***
Nativity, U.S.-born	0.468	*					0.306	
Poverty status (at or below poverty level omitted)								
100-200% poverty level	-0.481						-0.606	*
Above 200% poverty level	-0.071						-0.162	
Education level (less than high school omitted)								
High school degree or G.E.D.	0.203						0.132	
Bachelor's degree or higher	0.321						0.267	
Age Group (46 to 64 years omitted)								
Age 18 to 30 years	-0.359						-0.441	
Age 31 to 45 years	-0.291						-0.327	
Sex, Male	-0.674	***					-0.752	***
METROPOLITAN AREA LEVEL CONTROLS								
% Living at our below poverty level					0.289		3.811	
# of community health centers per 100,000					-0.335	*	-0.449	*
Region (Northeast omitted)								
West					-0.825		-1.444	*
South					-1.130	***	-1.369	**
Midwest					1.080		0.197	
Constant	0.298		0.897		4.632	***	4.201	*
Log Likelihood	-275.43		-331		-319.73		-258.22	
Degrees of freedom	566		564		559		547	

***** = significant at p<.001 ** = significant at p<.01 * = significant at p<.05**

Table 8.1. Summary of results: Differences in odds of health and access outcomes associated with 1/10th unit increases in residential segregation from whites from stepwise generalized logistic regressions

	GOOD HEALTH STATUS			UNINSURED			USUAL SOURCE OF CARE		
Predicted change	-			+			-		
Model	**RES. SEG. ALONE**	**METRO AREA PREDICTORS**	**FULL MODEL**	**RES. SEG. ALONE**	**METRO AREA PREDICTORS**	**FULL MODEL**	**RES. SEG. ALONE**	**METRO AREA PREDICTORS**	**FULL MODEL**
African Americans	-10.7%*	-10.2%***	-11.5%**	n.s.	+13.5%**	+15.3%**	n.s.	n.s.	n.s.
Hispanics	-16.3%***	-14.3%***	-7.1%*	n.s.	+10.8%*	n.s.	n.s.	n.s.	n.s.
U.S.-born	-17.8%***	-13.6%**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Foreign-born	n.s.	-10.9%***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Mexican	-13.8%**	-15.1%***	-9.6%**	n.s.	+11.4%*	n.s.	n.s.	n.s.	n.s.
Nativity*Segregation interaction term						-0.159*			
Puerto Rican	-18.0%*	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Cuban	+26.5%**	+51.8%**	+89.5%***	n.s.	--	--	n.s.	-38.0%*	n.s.
Nativity*Segregation interaction term			-0.938**						

***** = significant at p<.001**
**** = significant at p<.01**
*** = significant at p<.05**
n.s. = segregation coefficient was not significant
-- = model could not be specified

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