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How Welfare Reform Act Affects Elderly Immigrants' Health and Healthcare Service Utilization: Comparisons Before and After Welfare Reform

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HOW WELFARE REFORM ACT AFFECTS ELDERLY IMMIGRANTS' HEALTH AND
HEALTHCARE SERVICE UTILIZATION: COMPARISONS BEFORE AND AFTER
WELFARE REFORM

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DEDICATION

This dissertation is dedicated to my parents. In particular, this dissertation is dedicated to the memory of my dear father, Byung-Gu Yeo.

ACKNOWLEDGEMENTS

No study can ever be possible without having dedicative assistance from many persons. First of all, I wish to express my deepest appreciation to Dr. Miriam M. Johnson, the Associate Dean for Academic and Student Affairs in the College of Social Work and the chair of the dissertation committee. She has encouraged and supported me throughout my educational experiences at the University of South Carolina. Her guidance throughout the writing of this dissertation has been tremendous. Had it not been for her supports and guidance, this study would never have been completed.

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Finally, had it not been for the tremendous supports from my husband, Gitae Kim, and our two children, Kyohyun and Minjae, I could not have finished this study. In particular, without my husband's patience, understanding, and encouragement, I would never have reached for this moment.

ABSTRACT

Background: The intended result of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Public Law 104-193: PRWORA) was to conserve public funds while addressing welfare deficits. To achieve this end, the PRWORA (1) requires immigrants who came to the United States after the law took effect to show proof of U.S. citizenship to be eligible for federally funded public benefits, including Medicaid, unless the states where they lived provide state-funded benefits; (2) reinforced the ‘public charge law,’ indicating that once the Immigration and Nationalization Service deems a post-welfare reform immigrant a public charge, this could result in the denial of a green card, denial of readmission to the United States after a trip abroad, or in deportation (Buff, 2008; Kandula et al., 2004); and (3) deems the income and resources of the sponsors of immigrants to judge the immigrant’s eligibility for public assistance including Medicaid, which is considered ‘a unique obstacle’ to immigrants to be judged as being poor (Dordeski & Steffens, 2010). As a result, to be eligible for public assistance ‘Public Law 104-193’ and ‘Affidavit of Support Under Section 213A of I-864’ require elderly immigrants (a) becoming U.S. citizens or (b) completing 40 quarters (i.e., 10 years’ worth) of work requirement unless they live in a state which provides state-funded assistance.

On the other hand, some factors related to elderly immigrants raise some concerns about elderly immigrants’ health. The factors may include that (1) most commonly,

elderly immigrants enter the United States at 60-79 years of age through the family reunification program at the invitation of their naturalized adult children, implying that these immigrants have little or no U.S. work history and that they are more likely than their U.S.-born counterparts to live in poverty (Leach, 2009); (2) elderly immigrants, in particular, those from non-English speaking countries, are limited in learning a second language at their later age to pass the citizenship test which asks their listening, writing, and speaking ability in English: in 2006 almost 71 percent of newly arrived elderly immigrants had little or no English proficiency (Leach, 2009) and among the total elderly immigrants, as much as 56 percent reported limited command of English in 2010 (Batalova, 2012); and (3) they are more likely than their U.S.-born counterparts to rely on Medicaid due to (a) their socioeconomic status (Batalova, 2012; Leach, 2009), (b) limitation in their access to Medicare due to their lack of the required work history (Quadagno, 2005; Nam, 2011), (c) limitation in their access to employment-based private health insurance due to age-based discrimination in the labor market (Quadagno 2005; Nam, 2011), (d) limitation in working adults' access to direct-purchase health plans covering their older adults without Medicare coverage (Yelowitz, 2000; Choi, 2009), and (e) partly, little market for that age group due to the almost universal Medicare coverage among older adults - if anything, they often do not cover preexisting conditions (Choi, 2009)

Consequently, the PRWORA's citizenship requirement for access to public assistance has caused great concern about the health of elderly immigrants, considering that the number of foreign-born adults 65 years or older in 2010 had doubled since 1990, from 2.7 million to 5 million, accounting for about 12 percent of the 40 million foreign-

born population and 12 percent of the 40.4 million older adults in the United States (Batalova & Lee, 2012). However, there has been a paucity of studies on the effects of the PRWORA on elderly immigrants' use of healthcare services and their health.

Objectives: By comparing two different U.S. welfare regimes (i.e., the pre-PRWORA era and post-PRWORA era), the present study examined the impact of PRWORA (1) on elderly immigrants' healthcare service utilization by adopting Andersen's Behavioral Model of Health Services Use (Andersen, 1968, 1995, 2008) and (2) on their health by testing "healthy immigrant effect" theories applicable to elderly immigrants in the United States. The study population is defined as immigrants aged 65 or older who were in the United States at the time of the interview.

Methods: To analyze data from the 1993-1996 (for the pre-PRWORA) and 2002-2008 (for the post-PRWORA) National Health Interview Survey collected by the Centers for Disease Control and Prevention, the present study used multilevel random intercept models with logit link function to address violation of independent observations within states with similar adaptation of PRWORA and within a racial/ethnic group sharing similar health beliefs, culture, and language. The multilevel models were estimated by adopting Markov Chain Monte Carlo (MCMC) method in MLwiN 2.20, which allows Bayesian models to be fitted. The MCMC is the best with discrete response models: it has no requirement of normality assumption in making inferences for variance parameters (Browne, 2009). The dependent variables used to test elderly immigrants' healthcare service use behaviors are (1) "doctor visits during the past 2 weeks" as a discretionary behavior and (2) "short-stay hospital use during the past 12 months" as a non-discretionary behavior. To test elderly immigrant's health, the dependent variables are (1)

“self-assessed health status” and (2) “activity limitation status due to one or more chronic diseases.” They are all binary variables.

Results:

Discretionary Healthcare Service Use: During the pre-PRWORA period, only age and health status significantly explained discretionary service use behavior. However, during the post-PRWORA period, education, citizenship, and the length of residence in the U.S. became important indicators in elderly immigrants' discretionary service use behavior. In addition, before the PRWORA, racial/ethnic minority groups' use of discretionary healthcare service use was not significantly different from that of non-Hispanic whites. However, after the PRWORA, all racial/ethnic groups but Cubans were much less likely than non-Hispanic whites to use discretionary healthcare services.

Non-discretionary Healthcare Service Use: Elderly immigrants' health status and age substantially and significantly explained their non-discretionary health service use both before and after PRWORA. However, during the post-PRWORA era, race/ethnicity and health insurance coverage status became significant contributors, in addition to educational achievement level.

Health Status: As Jasso, Massey, and Rosenzweig (2004) postulated, the findings show a ‘reversed healthy immigrant effect’ before welfare reform: newly arrived immigrants were more likely than immigrants who had lived longer in the United States to report poor health and activity limitation due to chronic disease, with the best perception of good health and the least reports of activity limitation due to chronic disease among those with 15 or more year residents. The opposite pattern in the period

after welfare reform was observed: newcomers were more likely than immigrants who had lived longer in the United States to report good health, with the worst perception of poor health and the most reports of activity limitation due to chronic disease among those 5- to 14-year residents.

Conclusions:

Prominent Inequitable Access Indicators in Use of Healthcare Services: Andersen (1968, 1995, 2008) postulated that individuals' healthcare service use that was explained by the social structure and enabling factor can be an indicator of 'inequitable' access. This study documented that after the PRWORA, elderly immigrants' discretionary health service use behaviors are affected by social structural differences (= education, race/ethnicity, citizenship, and the length of residence) and enabling factor (= health insurance coverage). Based on Andersen's definition of inequitable access, the findings of this study may suggest that the implementation of the PRWORA has led to inequitable access in elderly immigrants' healthcare service use.

Greater Variations at the Culture Level than the State Level: The multilevel analysis made it possible to simultaneously incorporate both individual and group level models within the contexts of changing policies at the federal and state level. Increasingly greater variations at any level suggest the need for further investigation within that level (Carle, 2009). The present study found the variations at the culture level of which the variations were greater those of the state level both before and after PRWORA in elderly immigrants' use of healthcare services and their health. The variations at the culture level became statistically significant during the post-PRWORA era.

Increased Health Disparities among Racial/Ethnic Groups: Elderly immigrants' response to the PRWORA in relation to their self-assessed health and activity limitations differed depending on their racial/ethnic identity. After the PRWORA, when non-Hispanic whites were referenced, almost all racial and ethnic minority groups reported increased poor health. In addition, Chinese, Filipinos, APIs, and Mexican-Americans reported their activity limitation also increased after the PRWORA. The groups with the highest odds of activity limitations were Filipinos and APIs among Asian groups and Puerto Ricans and Mexican-Americans among Hispanic groups.

Marginalized Immigrant Cohort: 5-14 Year Residents in the United States: In line with many studies, the present study found a significant relationship of duration of residence to elderly immigrants' health (Angel et al., 2010; Choi, 2012; Gee, Kobayashi, & Prus, 2004; González et al., 2009; Kobayashi & Prus, 2012) and their healthcare service use (Leclere, Jensen, & Biddlecom, 1994). The duration of residence variable became a contributing factor in explaining elderly immigrants' health and their utilization of discretionary healthcare services during the post-PRWORA era. In particular, elderly immigrants with 5-14 years of residence in the United States had the worst perceptions of health and the most activity limitation due to chronic disease.

Healthy Immigrant Effect due to Restrictive Welfare Reform: In support of the postulation by Jasso et al. (2004), during the pre-PRWORA period when the United States allowed elderly immigrants and refugees to enjoy the same access to medical services as citizens, elderly immigrants' initial health on arrival was poor, but the disadvantage disappeared due to quality and availability of good healthcare. However, during the post-PRWORA period when elderly immigrants' access to healthcare services

was limited, their initial health was good, but the advantage disappeared over time due to limited availability of healthcare while their demand for medical care will increase due to aging.

Implications: The present study casts doubt on the long term effectiveness of welfare reform's eligibility restrictions on immigrants to achieve the goals of reserving more public financing and addressing welfare deficits. This is because, after the PRWORA, of elderly immigrants' reported greatly increased perception of poor health and of activity limitation due to chronic conditions among those with 5-14 years of residence and among racial/ethnic minority groups. This is a trend that requires the U.S. society to pay increased costs for elderly immigrants' medical care by using Emergency Medicaid more frequently. Many entities including National Institutes of Health and federal agencies are trying to reduce the health disparities among population because access to the healthcare system is also an issue of social justice and moral obligation. Therefore, three considerations suggest that welfare reform requirements related to elderly immigrants need to be revoked: deteriorating health among these populations, expectations of increased costs for their medical care, and American values of fairness.

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CHAPTER 1

INTRODUCTION

Prologue

“In the context of age, health, economic disadvantage, any public policy that alters health care coverage will dramatically affect the elderly population. Moreover, when citizenship is used as filter for health care, the plight of elderly legal residents intensifies (Angel, 2003, pp.83).”

Barack Obama’s universal health care blueprint titled, *“Barack Obama and Joe Biden’s Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage for All”* (Obama & Biden, 2008), excludes noncitizens legally living in the United States, even those who are permanent residents, in spite of the document’s use of the term, “universal” and “all.” These noncitizens, whose healthcare needs were entirely ignored in the plan, include indigent elderly immigrants who had been invited by their naturalized working adult children to immigrate to the United States.

This omission from the President’s health care plan may exemplify the conclusion of O’Rourke and Sinnott (2004) that “government policies in democracies will largely reflect the individual preferences of voters” (p.1). According to these authors, there seems to be several reasons why voters oppose immigration, including voters’ perceived economic interests, as well as non-economic attitudes such as racism, xenophobia, and

nationalist sentiment. For example, O'Rourke and Sinnott (2004) contend that in terms of economic interests, people who benefit as a result of immigration will support immigration while those who are economically hurt by immigration will oppose it.

Studies have focused on the effects of immigration on the welfare state. Borjas and Hilton (1996), for instance, have argued that welfare benefits attract people in the countries from which they emigrate, which in turn creates a potential net burden on the public finances of the countries to which these people immigrate. Hence, the intended result of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (hereafter PRWORA or welfare reform)¹ was to conserve public financing and address the welfare deficits (Public Law 104-193: see Appendix II), as well as to allow states to have more autonomy by transferring of responsibility for financing, administration, and policy from the federal government to state and local governments² (Lee & Benjamin, 1983). However, a report titled "*MEDICAID: States Reported That Citizenship Documentation Requirement Resulted in Enrollment Declines for Eligible Citizens and Posed Administrative Burdens*" by the U.S. Government Accountability Office (GAO, 2007) expressed suspicion concerning these predictions, noting that the increased administrative expenditures incurred by the states had not been considered in the calculations. Rather than generating overall savings, the PRWORA placed an added administrative burden on local authorities, while at the same time reducing the level of

¹ PRWORA (Public Law 104-193): On August 22, 1996, President Bill Clinton signed PRWORA, believing that welfare was partly responsible for bringing immigrants to the United States. Detailed contents of the bill are introduced in Appendix II of this study.

² This is called "devolution" (Lee & Benjamin, 1983).

service received by legal residents. The net loss of service occurred because, in spite of the increase in required administrative duties and responsibilities, the federal government did not provide the states with any additional funding to offset the additional costs associated with implementing the new requirements (Angel, 2003; GAO, 2007). Other researchers predicted that emergency Medicaid³ coverage, which is required by the federal Emergency Medical Treatment and Active Labor Act (42 U.S.C. §1396dd), might increase the utilization of expensive health care services because emergency Medicaid is allowed for those unqualified indigent immigrants without citizenship (Wallace, Enriquez-Haass, & Markides, 1998). In contrast, several studies (Facchini & Mayda, 2009; Razin, Sadka, & Swagel, 2002) claim that the immigrant population as a whole, because of the tax revenue it provides, contribute a potential solution to the problems of a welfare state experiencing deteriorating conditions because of aging, non-immigrant populations. This U.S.-born population represents both shrinking revenue sources and increasing demands for services as illustrated by the increasing social security deficit.

The PRWORA distinguishes between citizens and non-citizens and between “qualified” (i.e., noncitizens who immigrated to the United States before August 22, 1996, so they remained eligible for federally-funded Medicaid) and “unqualified” (i.e., noncitizens who immigrated after August 22, 1996, so they are not eligible for federally-

³ According to the U.S. Code of 42USC 1395dd, emergency Medicaid is defined as a medical condition manifesting itself by acute symptoms of sufficient severity such that the absence of immediate medical attention could reasonably be expected to result in: 1) placing the patient’s health in serious jeopardy, 2) serious impairment of bodily functions, or 3) serious dysfunction of any bodily organ or part. Furthermore, immigrants must meet income levels to qualify.

funded Medicaid), excluding unqualified immigrants from accessing public assistance including Medicaid for healthcare service use (Kandula, Grogan, Rathouz, & Lauderdale, 2004), and as a resultant reverse the citizenship rights of immigrants for the first time in American history (Aleinikoff & Klusmeyer, 2002; Fix & Laglagaron, 2002; Buff, 2008; Singer, 2004).

In addition, to be eligible for public assistance, immigrants are required to meet other requirements, such as being in poverty. Dordeski and Steffens (2010) claimed that the requirement of being in poverty presents “a unique obstacle to immigrants” (p. 38) because to judge the immigrant's eligibility for public assistance, the PRWORA deems the income and resources of the sponsors of immigrants (i.e., those who invite their family members or relatives to the United States through family reunification program). Based on I-864, Affidavit of Support Under Section 213A of the Act, the deeming period for immigrants continues until the immigrants fall into any of the following categories: (1) becoming U.S. citizens, (2) completing 40 quarters of work requirement, (3) being victims of domestic violence, (4) being unable to obtain food or shelter even after taking into account their income plus cash or in-kind assistance provided by the sponsor. This unique obstacle makes it more difficult for immigrants to be qualified as sufficiently poor for public assistance (Ku & Kessler, 1997). Immediately after welfare reform, most legal immigrants were qualified and were not negatively influenced by this law, but in 2010, a much larger group of legal immigrants are affected by this law and determined ineligible (Dordeski & Steffens, 2010).

In addition, welfare reform reinforced the ‘public charge law’⁴ which has been part of immigration law for more than 100 years, but was rarely enforced before welfare reform (Kandula et al., 2004). Welfare reform gave the primary responsibility of enforcing this law to the Immigration and Nationalization Service (INS). Once INS deems an immigrant, including both pre- and post-welfare reform immigrants, a public charge, this could result in the denial of a green card, denial of readmission to the United States after a trip abroad, or in deportation (Buff, 2008; Kandula et al., 2004). In 1999, the INS policy related to public charge law was revised and reassured ‘qualified’ (i.e., pre-welfare reform) immigrants that they would not be considered a public charge for using Medicaid and other federally funded assistance (INS, 1999). However, Kandula et al. (2004) claimed it was unclear that the revision of INS policy affected immigrants’ perception on public charge, resulting in decreased Medicaid enrollment among eligible immigrants. Qualitative studies (Feld, 2000; Stuber et al., 2000) also supported that some qualified immigrants expressed fear and misunderstanding about Medicaid eligibility.

In addition, qualified immigrants on welfare were inadvertently dropped from Medicaid after welfare reform because of the numerous administrative changes, confusion over Medicaid case rules, and failure to update automatic eligibility notification systems (Ku & Garrett, 2000), which would lead to some possibilities that immigrants may have had difficulty negotiating these changes or reapplying for Medicaid (Kandula et al., 2004).

⁴ A public charge is, “an alien who has become or is likely to become primarily dependent on the government for subsistence, as demonstrated by either the receipt of public cash assistance for income maintenance, or institutionalization for long-term care at government expense” (USCIS, 2009).

In addition, presenting proof of citizenship or nationality of the individuals (e.g., birth certificate or passport) to receive public assistance becomes more time-consuming and potentially difficult to locate the proper documents (Dordeski & Steffens, 2010), especially for the elderly (whether they are qualified or unqualified immigrants) who are the most frequent health service users. In particular, elderly immigrants were more likely to have long-term care needs than their U.S.-born counterparts (Friedland & Pankaj, 1997; Heron, Schoeni, & Morales, 2003). When they are unable to present such proof because the documents may have been lost or accidentally destroyed, they have to wait until the document is recovered or they may have to acquire other forms of proof.

Immigrants in the United States have to go through an extensive admission process to get an entry to the United States and they also have to painfully pass through complex process to be eligible for public assistance. Fix and Laglaron (2002) claim that these criteria are inconsistent with both previous U.S. policy and international standards, since most liberal industrialized democracies allow permanent residents to be eligible for the same benefits as citizens. This requirement of citizenship might raise concerns about a problem which the United States has tried to eradicate from its policies. It is questionable whether the requirement of citizenship in order to receive public assistance is fair and equitable in its application to all elderly immigrants. In the past, U.S. immigration policy had not allowed people of particular nationalities or races and ethnicities to immigrate, while favoring immigrants from British and Western European countries (Brunner & Colarelli, 2010) until the 1965 immigration law which was introduced along with the family reunification program through which the majority of elderly immigrants were invited by their naturalized working adult children, was enacted.

The primary objective of the immigration law was to bring the nation's immigration rules and procedures into line with modern civil rights legislation, so that immigrants would not be discriminated against on the basis of their ethnicity or nationality (Brunner & Colarelli, 2010). However, the PRWORA is open to being misunderstood as an example of covert, but *de jure* discrimination against certain racial/ethnic groups.

Conventional wisdom suggests that since 1996, indigent elderly immigrants without citizenship in the United States have been negatively affected by the PRWORA, due to its requirement of presenting citizenship in order to receive public assistance. The purpose of this study is to examine the effects of this law on elderly immigrants' healthcare service use and their health status, examining factors which affect their healthcare service utilization and health status, while controlling for the effects of states' different implementation of the PRWORA.

The literature (Kandula et al., 2004) reported that people from minority ethnic and racial groups underuse the formal health services, for which they are eligible, suggesting that health insurance coverage alone does not account for all the differences in service use among elderly immigrant population. These differences may be explained, in part, by variations among racial/ethnic groups in their use of healthcare services. In addition, states differ in the ways they actually implement the PRWORA requirements (e.g., some states allow post-welfare enactment immigrants without citizenship to access state-funded Medicaid), so the effects of the PRWORA must take account of variations from states' different implementation of the PRWORA.

The present study examines the health status of elderly immigrants aged 65 or older and changes in their use of healthcare services before and after welfare reform. This study uses National Health Interview Survey (NHIS) data from 1993 through 1996 (for the pre-PRWORA) along with data from 2002 and 2008 (for the post-PRWORA), applying (1) Andersen’s Behavioral Model of Healthcare Service Use as its conceptual framework and (2) theories related to “healthy immigrant effect.” To this aim, Chapter 1, the introduction of the present study, begins by describing problems in relation to the health of elderly immigrants and their utilization of healthcare services, followed by the questions to be addressed in the present study, the conceptual model and theories, ways to advance knowledge, and finally, the significance of the present study.

Statement of the Problem

The U. S. Census Bureau has projected the U.S. population will increase to 392 million by 2050, and that 86 percent of this increase may be due to the effects of net immigration (U.S. Census Bureau, 2008). According to the 2010 American Community Survey in the U.S. Census Bureau (Grieco et al., 2012), in 2010, the foreign-born population of the United States was estimated to be nearly 40 million with 13 percent of the total population. The number of foreign-born adults 65 years or older in 2010 had doubled since 1990, from 2.7 million to 5 million, accounting for about 12 percent of the 40 million foreign-born population and 12 percent of the 40.4 million older adults in the United States (Batalova & Lee, 2012: see Figure 1 in Appendix).

On average, late-life immigrants enter the United States at 60 to 79 years of age through the family reunification program⁵, which was introduced along with the enactment of the 1965 immigration law, at the invitation of their adult children who are naturalized in the United States (Gelfand & Yee 1991). This program was advocated by President Herbert Hoover and was a key part of President John Kennedy's immigration reform (Brunner & Colarelli, 2010).

The demographic profiles imply that elderly immigrants have little or no work history in the United States and they are more likely than their U.S.-born counterparts to live in poverty. Approximately 16 percent of elderly immigrants lived below the poverty line in 2010 and about 24 percent were in families with annual incomes between 100 percent and 199 percent of the official poverty line. In other words, approximately 40 percent of elderly immigrants were in low-income families, compared to 30 percent of the U.S.-born elderly (Batalova & Lee, 2012).

The profiles of elderly immigrants suggest that they are more likely to rely on Medicaid. However, to be eligible for Medicaid, immigrants should be naturalized citizens. Otherwise, potential applicants have to wait until they have paid Federal Insurance Contributions Act (FICA) taxes for at least 40 quarters (approximately 10 years) to be eligible for public assistance. For many elderly immigrants, the task of seeking and maintaining employment sufficient to meet the 40-quarter work requirement in order to be eligible for public assistance is unrealistic and unmanageable.

⁵ President Herbert Hoover advocated allowing more people with "close family ties" to immigrants, as well as those who suit "our national needs" (Daniels, 2004, p.60)

According to the U.S. Immigration and Naturalization Service, to be qualified even to apply for citizenship requires a minimum of five year residence from the time they receive a green card (i.e., becoming a permanent resident in the United States). To pass the citizenship test, immigrants are required to take an English test (reading, writing, and speaking) and civics test (U.S. history and government topics). To be waived for the English test, immigrants should be at least age 50 or older at the time of filing for naturalization and have lived as a permanent resident (i.e., a green card holder) in the United States for 20 years (U.S. Citizenship and Immigration Services [USCIS], 2011).

Newly-arrived elderly immigrants spoke no English or did not speak English well (Batalova & Lee, 2012; Leach, 2009). Hence, for many elderly immigrants, the task of navigating the naturalization process is taxing and takes much longer time than those from English-speaking countries. Consequently, the PRWORA's requirement of presenting citizenship in access to public assistance has caused great concern about the health of elderly immigrants who are not qualified for and failed to pass citizenship test, which may be true for those from non-English speaking countries. Some racial and ethnic groups may find it much easier to acculturate themselves to life in the United States based on the fact that they share similar cultures and/or languages with those who were born as citizens in the United States. The only except would be if individual states are willing to pay for the healthcare services of elderly immigrants living in their respective jurisdictions (Fremstad & Cox, 2004; Smith, 2001). According to Fremstad and Cox (2004, p. 17), 16 states provided some form of Medicaid coverage for elderly immigrants: eight of these provided the “same or very similar services as Medicaid to all qualified immigrants who are eligible for federally funded Medicaid.” The other states

including the District of Colombia provided reduced benefits compared to Medicaid or limited coverage to very limited categories of immigrants (e.g., victims of domestic violence or those already living in nursing homes). Massachusetts ended coverage for most immigrants in 2004, with some exceptions for more limited benefits. These researchers further reported, however, that due to limited state budgets, many states faced lower state tax revenues and therefore needed to reduce the services they had previously provided.

It has been reported that even long before the PRWORA was implemented in 1996 nonwhite elderly individuals from ethnic minority groups persistently tended to underuse those healthcare services for which they were eligible and which could meet their health and social service needs (Angel & Angel, 1992; Krause & Goldenhar, 1992). This finding suggests that health insurance coverage status does not automatically guarantee healthcare service access and use. Language barriers, as well as different cultural practices and beliefs concerning health and healthcare, are reported as factors that can affect utilization of healthcare services (Mohanty et al., 2005; Plawecki, 2000). For example, unlike immigrants who arrived in the United States at an early age, late-life immigrants are less likely to acquire the primary language of their new country, and more likely to keep their cultural practices and hold onto personal culture-related beliefs about their health. This tendency suggests that there may be significant variations in healthcare use due to elderly immigrants having culturally constructed health beliefs and practices, in addition to their different degrees of acculturation, in terms of language, to the host society, which vary depending on the immigrants' racial/ethnic and national background.

Limited access to and utilization of healthcare services can lead to a worsening of the overall health and quality of life of elderly immigrants and can negatively impact other citizens in the communities where they live. In the interest of helping elderly immigrants in need of healthcare services to lead healthy lives in their communities, this study focuses on the elderly immigrants' health and their utilization of healthcare services with respect to the changes resulting from the implementation of the PRWORA in 1996. One dimension of this study will be the investigation of any differences among racial/ethnic groups, in terms of their health and healthcare utilization, while controlling for the effects of state level variations. The term "elderly immigrants" in this study refers to immigrants aged 65 or over who currently live in the United States.

Concept and Logic Models

Andersen's Behavioral Model of Health Care Services

The present study adopted the behavioral model of health service use formulated by Andersen (1995) to examine possible challenges elderly immigrants face in obtaining needed services and hopefully to provide insights into maintaining or improving their health. According to Ward (1977, 1985), the behavioral model is relevant for studying the utilization of health care services among the elderly subpopulation; moreover, gerontological health services research could significantly benefit from the adoption of the model. Andersen's health services utilization model has been employed most comprehensively (Aday & Andersen, 1998) to help in understanding why individuals use health services, in determining how to define and measure equitable access to healthcare, and in developing policies to promote equitable access (Andersen, 1968, 1995).

Andersen's initial model (1968) explains that people's use of health services is a function of their predisposition to use services (called predisposing factors, which exist before the onset of symptoms of illness and assist in predicting the greater propensity for some individuals to use health services than for others), factors which enable or impede use (called enabling factors which include income, health insurance coverage, availability of community resources et cetera), and the need for care (called need factors which include perceived health status, functional limitation status, physicians' assessments et cetera). According to this behavioral model, higher levels of illness on the part of care receivers and disability (need factors) would suggest higher levels of health care service use. Need factors are the most predictable indicators of each individual's use of health services, followed by predisposing and enabling factors (Andersen, 1968, 1995).

The predisposing characteristics are subdivided into three categories: demographics, social structure, and health beliefs (Andersen, 1968, 1995). These demographics characteristics can refer to the individual's relative life-cycle position (Wolinsky et al., 1989), including age, sex, marital status, and family size. The social structure dimension can refer to the individual's location in the social structure and the behavioral patterns to which people in such positions become socialized (Wolinsky et al., 1989), such as education, occupation, and ethnicity (Andersen's 1995 model added social networks, social interactions, and culture). According to Andersen (1968, 1995), health beliefs can be interpreted as an individual's values concerning, or attitudes towards, health, disease, medical care, and physicians.

Andersen (1968, 1995) differentiated two types of healthcare service utilization behavior which each individual engages in: discretionary behavior (use of health care services as a function of the individual's values and income) and nondiscretionary behavior (use of health care services according to the health care provider's determination). Depending on what type of service is used (involving discretionary or nondiscretionary behavior), the three factors (i.e., predisposing, enabling, and need factors) have differential ability to explain an individual's use of health care services. Health services related to more serious health problems and conditions, considered as nondiscretionary (e.g., inpatient care), would be primarily explained by need and demographic characteristics (e.g., age, gender); more discretionary healthcare service use (e.g., doctor visits or dental care services), which would generally be viewed as less serious and demanding, are best explained by incorporating all the components of the model (i.e., predisposing, enabling, and need factors).

Andersen (1968, 1995) also initially designed the behavioral model to define and measure equitable access to health care with the goal of informing health related policy. While leaving room for changes in its interpretation, depending on the kind of services under consideration, he explained equitable and inequitable access to health care services as follows:

“I have traditionally defined equitable access as occurring when demographic and need variables account for most of the variance in utilization. Inequitable access occurs when social structure (e.g., ethnicity), health beliefs, and enabling resources (e.g., income) determine who gets medical care” (Andersen, 1995, pp.4).

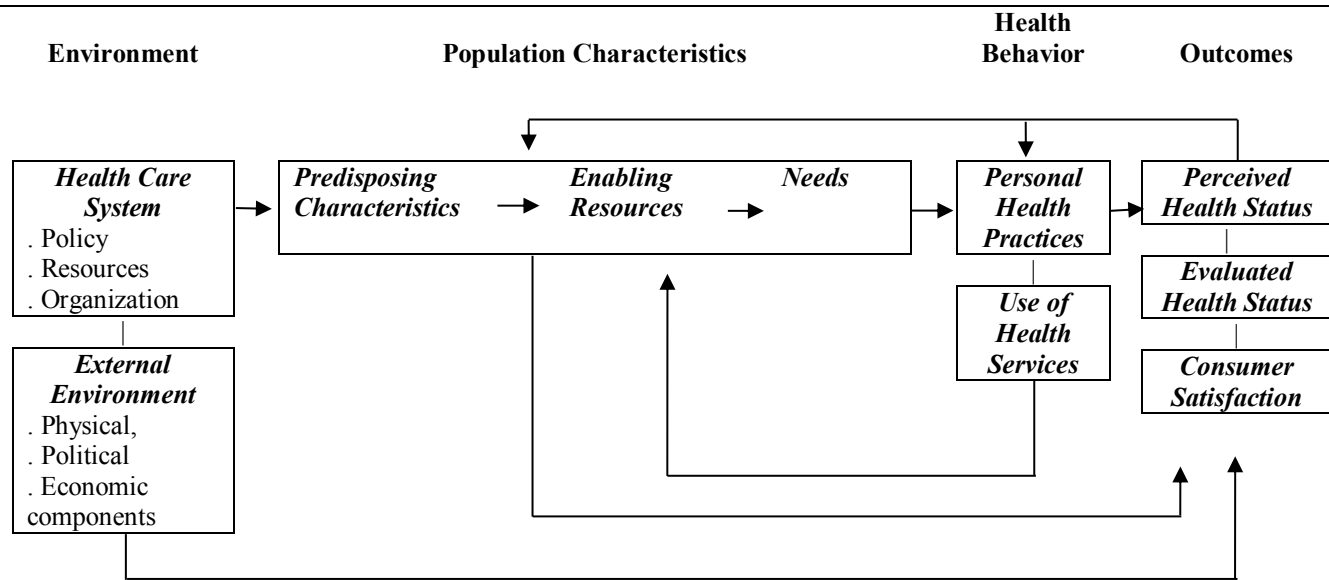
As noted previously, Andersen later added other factors such as social networks, social interactions, and culture to the social structure component of his 1995 model. In addition to predisposing factors, Andersen expanded his 1995 model to include two other factors: environmental factors and factors regarding consumer satisfaction. His inclusion of environmental factors implies the importance of national health policy and adequate resources (Anderson, 1995). His inclusion of consumer satisfaction with healthcare services is a reflection of the importance of health services delivery systems (Anderson, 1995).

In spite of this expansion, the 1995 Andersen model has been challenged in many studies, including ones that have focused on culturally diverse immigrant populations (Alba et al., 2005; Choi, 2006; Echeverria & Carrasquillo, 2006; Friedman, 1994; Krout, 1990; Leclere, Jensen, & Biddlecom, 1994; Moon, Lubben, & Villa, 1998; Saint-Jean & Crandall, 2005). The category, health beliefs in the Andersen model (1968, 1995) represents the attitudes, values, and knowledge that people have about health and health services, which in many cases, indicates the ways in which people perceive the need for health services and as a result, use relevant health services. Andersen (1995) seems to emphasize the role of enabling and need factors in use of health care services rather than the role of health beliefs in predisposing factor:

“My sense is that efforts to elaborate on and specify health beliefs have improved and will continue to improve our ability to explain some types of health services’ use, but in many contexts enabling variables and particularly need will continue to explain more of the variation in health services use (p. 2)”.

In contrast, some studies on immigrants have argued that social structure and health beliefs are important indicators of the extent to which immigrants use healthcare services.

Figure 1-1: Andersen's Behavioral Model of Health care Service Use (1995)



Studies (Friedman, 1994; Krout, 1990) claimed in their qualitative studies that cultural variables, which include beliefs in alternative medicine, attitudes toward medical professionals, and preference for ethnic-matched professionals, are important indicators in immigrants' use of health services.

Leclere, Jensen, and Biddlecom's (1994) findings also challenged the 1995 Andersen model, which does not include any variable representing duration of residence for immigrants. Their study using NHIS data claimed that the length of immigrants' residence as well as their sociocultural context strongly affects their use of available health care services. Specifically, these researchers found that newly- arrived immigrants are much less likely to have had contacts or visits with a health provider. Choi's (2006) study, however, reports that there is an indirect relationship between elderly immigrants living at least five years in the U.S. and their health care service use (i.e., health insurance status plays a mediator role between living at least five years in the United States and healthcare service use).

Healthy Immigrant Effect Theories

Many studies on immigrant health concur that for various outcomes including self-assessed health status, life expectancy, disability, and chronic conditions, foreign-born populations are healthier than their native-born counterparts on arrival, but that the advantage diminishes or disappears with time spent living in the adoptive country (e.g., Antecol & Bedard, 2006; Dey & Lucas, 2006; Doetvall et al., 2000; Dunn & Dyck, 2000; Gadd et al., 2003; Halli & Anchan, 2005; Jasso et al., 2004; Marmot & Syme, 1976; Newbold & Danforth, 2003; Ng et al., 2005; Wingate & Alexander, 2005), a

phenomenon known as the healthy immigrant effect (Wingate & Alexander, 2005).

Numerous studies have been conducted with the goal of identifying important determinants of this initial health gap and its subsequent declining trajectory.

Initial health gap. Kennedy, McDonald, and Biddle (2006) analyzed data from the United States, Canada, the United Kingdom, and Australia, finding evidence of strong positive-selection effects for immigrants that could explain the initial health gap between immigrants and their native-born counterparts. These positive-selection effects occur due to the health requirements of receiving countries' immigration policies, which favor individuals with better health, skills, and education (Jasso et al. 2004). These immigration policies may induce individuals to positively self-select good health maintenance in order to achieve better odds of gaining entry. Alternatively, Jasso et al (2004) explain the initial health gap as a cost-benefit calculation. Accordingly, positive migration selection occurs if the cost of moving to another country is less than the income difference between the countries of immigration and emigration. These costs include monetary as well as nonmonetary costs (e.g., cultural differences, the quality and availability of healthcare, separation from family and friends, etc.). Good health is an important component of individual human capital since it facilitates skills, knowledge, and language capacity for the economic market, in turn enhancing earning capacity (Grossman 1972). People who are healthy, well educated, and skilled tend to migrate, anticipating success in the competitive labor market of the adoptive country.

Subsequent decline. Various studies have documented explanations for this decline, including (1) "reporting bias" (Kennedy et al., 2006; Newbold, 2005), (2) "limiting access to medical services" (Elliott & Gillie, 1998; Kennedy et al., 2006; Raja-

Jones, 1999), (3) “acculturation to unhealthy lifestyles of adoptive country” (Newbold, 2005), and (4) “a simple process of regression toward the mean” following strong health-selection effects (Jasso et al. 2004).

The reporting bias and limiting of access to medical services may be interrelated since limited use of preventive health services will contribute to a lower likelihood of a person’s having conditions diagnosed and, in turn, reported. However, Jasso et al. (2004) found, in data from four immigrant countries, that reported rates of chronic conditions are much lower among new immigrants who used Western medicine than among their native-born counterparts despite relatively high contact rates. Other studies (Kennedy et al. 2006; Newbold 2005) posit that reporting biases may also reflect differences between immigrants’ and native counterparts’ perceptions of their health. According to Jasso et al. (2004), immigrants who positively self-select migration in order to enter the labor market do not constitute a random population sample from the country of origin in terms of health. In time, the initial better health of these immigrants converges with the receiving country's norms of disease rates.

Ways to Advance Knowledge

There are limited studies on the relationship between elderly immigrants’ healthcare service use in relation to the passage of PROWRA, the provisions of which limit non-citizens’ access and use of federal government supported health care services unless individual states are willing to pay for services to elderly immigrants through state-level funding. Some studies including Nam (2008) and Choi (2006) used nationally representative data: the Current Population Survey (CPS) and National Health Interview Survey (NHIS) respectively. For her study, Nam pooled some years of data (1994-1996

and 2001-2005) to estimate changes in Medicaid and health insurance coverage after welfare reform, focusing on noncitizens and recent immigrants, but did not study on elderly immigrants' actual utilization of health services. Choi (2006), on the other hand, studied the relationship between elderly immigrants' utilization of health services, the status of their health insurance coverage, and their status as immigrants, but Choi did not study the relationship between citizenship status and the use of healthcare services. In addition, as Choi admitted that the sample size in her study limited further statistical inference since she used only a single year of the NHIS data, namely 2002, with an N of 1,178. With this small sample size, for example, estimating racial/ethnic group differences is not feasible. The current study pools 11 years of NHIS data (1993-1996 and 2002-2008) to increase the sample size, which allows for analyses of race/ethnicity differences and state variations, and permits the analysis of the data so as to take into account those possible compounding factors.

The Elderly Immigrants' Use of Healthcare Service Model in Figure 1-2 is an adaptation of Andersen's behavioral model by this author to include factors of relevance to elderly immigrants as well as feedback loops to inform policy. In the Andersen model, race/ethnicity is situated among predisposing characteristics. However, the current study put race/ethnicity (culture) at a supra-individual level, posing elderly immigrants' race/ethnicity ahead of predisposing characteristics in Figure 1-2. This differentiation is because, according to Smith (2002), "the nature of culture is a concept that can only be understood at the collective, supra-individual level" (para. 1) and "a culture comprises an amalgam of shared values, meaning and interpretations of behaviors" (para. 17).

The model is designed to reveal how the PRWORA and states' different responses to the PRWORA have affected elderly immigrants' utilization of healthcare service. However, depending on the race/ethnicity (culture) to which each individual belongs, the welfare reform may affect each individual's use of healthcare service differently, which results in different outcomes in healthcare service use and health according to race/ethnicity. In order to examine whether each racial/ethnic group has responded differently to the PRWORA, this study will compare the health service use behavior outcomes for pre- and post-PRWORA periods. The model should further depict whether citizenship facilitates elderly immigrants' ability to utilize healthcare services. Andersen and Newman (1973) defined that social structure includes education, occupation, social networks, social interactions, ethnicity, culture, and other factors measuring status in the community. Based on these definitions, the social structure may also include citizenship and duration of residence.

In order to advance knowledge about elderly immigrants' utilization of healthcare service and the status of their health, the analysis method this study uses is multilevel analysis to account for correlation within a group. The multilevel analysis also helps to examine each level's variations, that is, variations among the various racial/ethnic groups and among the different policies of individual states. Any level which has significant variations might invite an investigation of the inherent differences by identifying level variables which can plausibly explain the variations (Carle, 2009). Applying Carle's assertion to this study, any level with significant variations also should draw policy makers' attention to that aspect of healthcare service and may have important policy implications for insuring equal and adequate access to services.

Significance of the Study

The current study will support the maintenance or revision of policies aimed at enhancing elderly immigrants' health and their quality of life. This study will also expand the existing body of knowledge on this topic, given the current dearth of studies on elderly immigrants' health and their utilization of health services by analyzing nationwide data considering changes which have occurred in response to the PRWORA. It has been over a decade since the PRWORA was implemented in 1996, but to the best of the author's knowledge, no studies have compared elderly immigrants' health status and their use of healthcare services before and after PRWORA. It is to be assumed that policy decision makers want to know how elderly immigrants have responded to the PRWORA and thus how much and what types of influence it has had on their utilization of health care services and on their health in general.

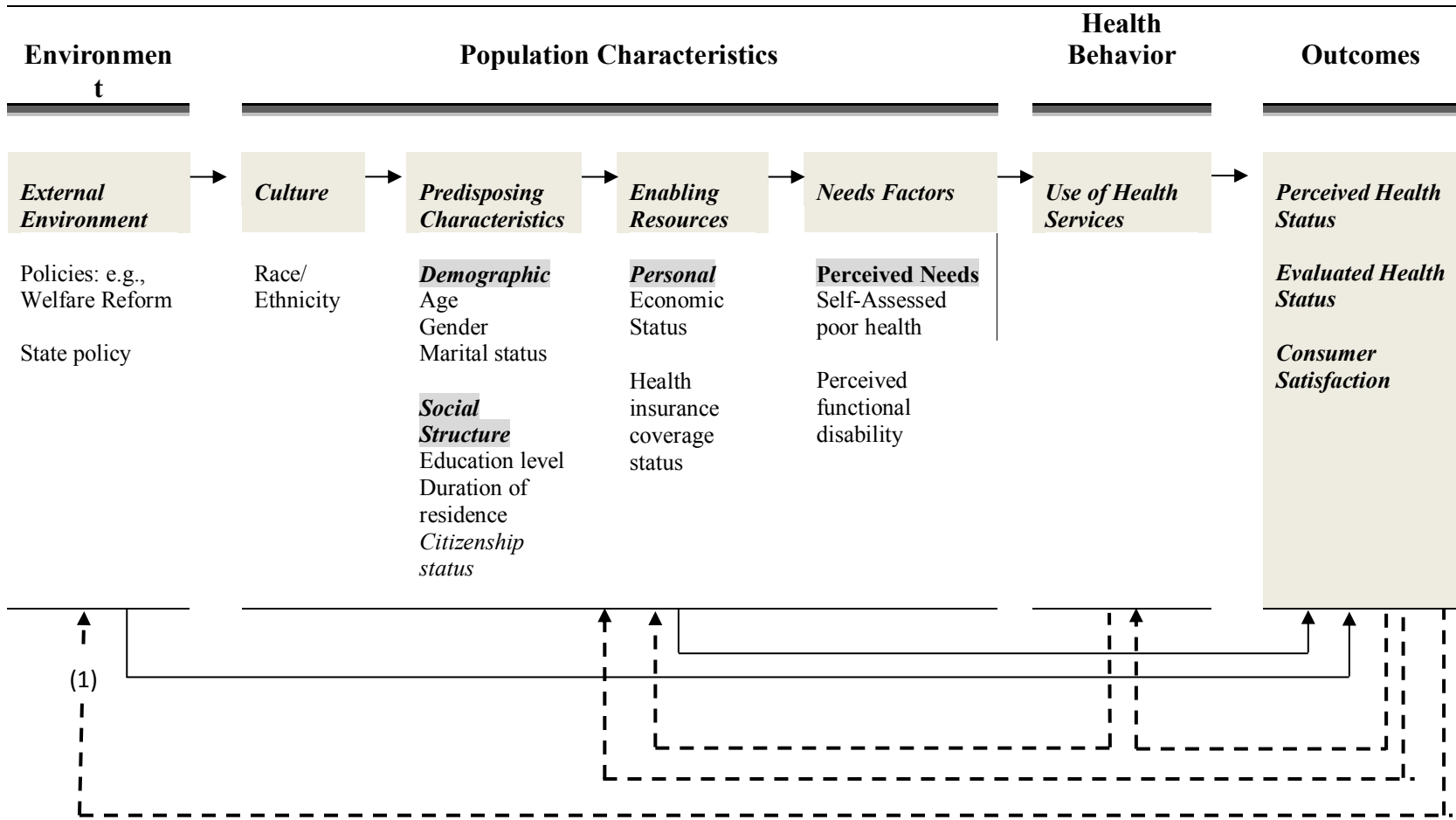
The results of this study will help to increase understanding of the behaviors of heterogeneous racial/ethnic immigrant groups in their utilization of healthcare services under the provisions of the PRWORA. Insights gained from these results will be helpful in planning welfare policies. Taking into account the fact that literacy⁶

⁶ U.S. Department of Homeland Security presents guideline for English & Civics Test: To be qualified even to apply for citizenship, immigrants should stay for a minimum of five years in the United States from the time they receive a green card (i.e., becoming a permanent resident in the United States). To pass the citizenship test, immigrants are required to take an English (reading, writing, and speaking) and civics test (U.S. history and government topics). To be waived for

is a significant issue for immigrants in preparing themselves to qualify for citizenship, the outcome may also help both the public and policy decision makers give ethical and legal consideration to the question of whether passage of PRWORA has functioned as inadvertently covert, but *de jure* discrimination against certain racial/ethnic groups. The existence of such discrimination would be supported if there exists obvious changes of any certain racial/ethnic groups' use of healthcare services (other factors being equal) after the PRWORA, which in turn cause the status of their health to be significantly worse than that of a different group. Requiring citizenship for public assistance may serve to support discriminative immigration policy, favoring racial/ethnic groups whose mother language is English or those with similar cultures to that of the U.S. Hence, this study may provide insights into (1) the potential need for expanding programs for preparing elderly immigrants for their citizenship test; (2) the intended/unintended consequences (or the advantageous or disadvantageous consequences) of the PRWORA's requirement of citizenship in order to access publically funded healthcare services; (3) the need for healthcare services which are culturally appropriate and perhaps provided by racial/ethnic minorities; (4) the need to reduce language barriers to healthcare services; and (5) the ethical and legal implications of the PRWORA in promoting a healthy society.

the English test, immigrants should be at least age 50 or older at the time of filing for naturalization and have lived as a permanent resident (i.e., green card holder) in the United States for 20 years (USCIS, 2011).

Figure 1-2. Elderly Immigrants' Use of Healthcare Service Model Adaptation of Andersen's Model by the Author



Note:

- (1) Feedback loop between 'External Environment' and 'Outcomes': This loop does not appear in Andersen's (1995) behavioral model. Based on open system's theory which keeps the system healthy, the results of the use of health services needs to affect policies.

Research Questions

In *The American Society on Aging* (Johnson, 2009), Judith Treas, Professor of sociology at the University of California at Irvine and Director of the university's Center for Demographic and Social Analysis, deplors the paucity of studies on elderly immigrants even though more than a decade has elapsed since the provisions of the PRWORA were enacted. As Dr. Treas states, studies regarding immigrants have mostly focused on working adults and their children and the degree to which they become successfully integrated into the United States. Amid this dearth of research, however, two studies are exemplary in elderly immigrants' health insurance status and/or their utilization of health care services in relation to welfare reform.

One of the two studies used the Current Population Survey's Annual Social and Economic Supplement data from 1994 through 1996 and 2001 through 2005 to examine changes in the health insurance coverage of elderly immigrants after enactment of the PRWORA. This study by Nam (2008) reported that the health insurance coverage status of elderly immigrants was positively associated with their citizenship status and the length of their stay in the United States. Nam's study involves a citizenship variable, but she did not assess whether the elderly immigrants with both citizenship and health insurance actually utilized healthcare services or not.

The other study used National Health Interview Survey (NHIS) data from 2002. As implied in its title, "*Insurance Status and Health Service Utilization Among Newly-Arrived Older Immigrants*" (Choi, 2006), this study examined the relationship among the length of residence as an immigrant status (whether more or less than five years), the existence of health insurance coverage, and the degree to which health service were used.

This study reported that elderly immigrants with longer than five years of residency were more likely to have health insurance and those with health insurance were more likely than those without health insurance to use healthcare services. However, Choi found no direct relationship between the length of residence and the use of health care services, signifying that health insurance plays a mediating role between length of residence and health care service use. Choi did not directly assess the relationship between citizenship status and use of health services. In addition, her study did not investigate racial/ethnic differences with regard to these variables.

In the present study, including elderly immigrants' citizenship status and categorizing the duration of residence variable into more than two groups will more directly measure the relationship between the implementation of the PRWORA, their duration of residence and citizenship status, and these immigrants' use of health services. This distinction is important in studying their use of healthcare services since 1) the simple passage of five years does not automatically guarantee citizenship status to elderly immigrants, and 2) dichotomizing the duration of residence variable may fail to catch when elderly immigrants' behavior in healthcare service use and health status will change after their immigration to the United States. Choi's (2006) study reported that the use of health services by elderly immigrants is related to, but not fully determined by, their health insurance status. The difference in results concerning elderly immigrants' access to healthcare services and their use of such services may also be explained by different degrees of acculturation, in terms of language, to the United States, as well as by the different culturally based beliefs towards health and use of healthcare services among the diverse racial/ethnic groups to which elderly immigrants belong (Aroian, Khatutsky,

Tran, & Balsam, 2001). Hence, studies on elderly immigrant's health and their use of healthcare services need to take into account the effects of different racial/ethnic identities on immigrant groups in their health and utilization of healthcare services.

Furthermore, studying elderly immigrants' use of healthcare services and their health after implementation of the PRWORA requires considering different adaptations of the welfare reform legislation as implemented by the various states. Individual states reacted differently to the provisions of the PRWORA with regard to their respective elderly immigrant populations; that is to say, even after enactment of the PRWORA, some states allowed elderly immigrants who immigrated after August 22, 1996 and do not have citizenship (i.e., unqualified elderly immigrants) to access to public assistance including Medicaid as funded by the state in question (Zimmermann & Tumlin, 1999). Hence, studies on elderly immigrants' health and use of healthcare services need to take into account the effect of different policies as implemented by the various states. The research questions for the present study, which satisfy all the elements described above as follows.

Research Questions Related to Healthcare Services Use

- (1-1) Questions at the State level:
Are there differences in terms of variance among states in terms of elderly immigrants' utilization of healthcare services before and after passage of the PRWORA? If so, are these differences sufficiently severe to suggest the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications?
- (1-2) Questions at the Culture level:
Are there differences in terms of variance among race/ethnicity in terms of elderly immigrants' utilization of healthcare services before and after passage of the PRWORA? If so, are these differences sufficiently severe

to suggest the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications?

(1-3) Questions at the Individual level:

Question 1 - 4 - 1: What is the contribution of citizenship status to variances in individual immigrant's utilization of healthcare services after passage of the PRWORA?

Question 1- 4-2: What is the importance of duration of residence in individual elderly immigrants' utilization of healthcare services before and after passage of the PRWORA?

Question 1-4-3: What is the importance of health insurance coverage status in relation to individual elderly immigrants' utilization of healthcare services before and after passage of the PRWORA?

Research Questions Related to Health

(2-1) Questions at State level:

Are there differences in terms of variance among states in terms of elderly immigrants' health before and after passage of the PRWORA? If so, are these differences sufficiently severe to suggest the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications?

(2-2) Questions at Culture level:

Are there differences in terms of variance among race/ethnicity in terms of elderly immigrants' health before and after passage of the PRWORA? If so, are these differences sufficiently severe to suggest the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications?

(2-3) Questions at Individual level:

Question 2-4-1: What is the contribution of citizenship status to the health at individual elderly immigrants following passage of the PRWORA?

Question 2- 4-2: What is the importance of duration of residence in relation to the health of elderly immigrants before and after passage of the PRWORA?

Question 2-4-3: What is the importance of health insurance coverage status in relation to the health of individual elderly immigrants both before and after passage of the PRWORA?

Research Question Related to a Model for Healthcare Service Use

What is the best model for predicting elderly immigrants' use of health care services after passage of the PRWORA while controlling for confounding variables in the model?

CHAPTER 2

LITERATURE REVIEW

This section of the study will begin with an analysis of the historical and political background of immigration, focusing on factors which influence elderly immigrants' life in the United States. This analysis will be followed by a discussion of the relevant literature in relation to interpretations of U.S. immigration policy, the family reunification programs as they have affected elderly immigrants and Medicaid and health insurance. After this introduction of background information, this review will examine literature regarding the issues raised by the Research Questions for the Study and pose research hypotheses that can be formulated on the basis of conclusions drawn from the literature. The order of contents will be (1) U.S. Immigration Policy and Family Reunification Program, (2) Medicaid and Health Insurance, (3) Welfare Reform Acts and States' Response, (4) Citizenship and Exclusion, (5) Acculturation and Duration of Residence, (6) Cultural Differences, and (7) Elderly Immigrants' Health and Health Disparities.

Next, this study will describe summary of implications from the literature, which will contribute to development of research hypotheses. They will be summary of implications from the literature for (1) elderly immigrants' use of discretionary health care services before and after PRWORA, (2) for elderly immigrants' use of nondiscretionary health care services before and after PRWORA, and (3) for elderly immigrants' health before and after PRWORA.

U.S. Immigration Policy and Family Reunification Program

“[Elderly immigrants] are invisible, but they matter very much. They are an integral part of families, with the success of children and grandchildren in many ways due to their efforts. Without their support, it would be hard for the families to gain a toehold - by Judith Trea⁷” (Johnson, 2009, p.4).

In analyzing U.S. immigration, Hagan (2004) illustrated the logic and behaviors of immigrants, U.S. employers, and the government from an economic perspective. According to Hagan, U.S. employers are motivated to depend on inexpensive and abundant immigrant labor. In response to the demand from employers to protect the interests of capital, state policy makers also recruit both less skilled and high skilled labor while regulating immigrants' entry into the United States and its labor markets. Historically, whenever the United States has been in need of a greater labor force than what was available, it has been flexible with its immigration policy. Working from the same assumptions, Hagan (1996) previously reported that the U.S. enacted the Bracero Program in 1943 to fill labor shortages in the farm industry during World War II, allowing farm workers from Mexico to work on U.S. farms on a temporary basis. However, two decades later, this program was terminated in 1964 due to the criticism that Bracero workers were no longer beneficial to the U.S. economy, but rather they were adversely affecting the wages and jobs of native-born farm workers.

Hagan (2004) also interpreted early immigration laws such as the Chinese Exclusion Act of 1882 and the Gentlemen's Agreement of 1907 as being reflections, not only of economic factors, but also of racial preference. According to Hagan, while the

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United States was concerned about the influence of inexpensive immigrant labor from Asian countries, the immigration legislation of the United States such as the 1921 Quota Act and its follow-up in 1924 also represented racial preference because these 1920s legislations set limits on permanent legal immigration through the establishment of a quota system based on national origins, which effectively preserved the proportions of immigrants of different origins already living in the United States.

The Immigration and Naturalization Act of 1965 reflected social goals such as family unity, as well as the economic goal of showing a preference for immigrants with certain skills (Hagan, 2004). By the mid-1970s, after the implementation of the 1965 act, large numbers of legal immigrants were coming to the United States from Latin America, along with smaller but significant numbers from Asia since both groups had been restricted by the quota system which the 1965 act revoked. These immigrants found jobs in the fast-growing service economy mostly due to their poorly transferable labor-market skills, their lack of proficiency with the English language, and their low levels of education (Bean & Stevens, 2003). As a response to concerns over the skill and education level, the United States enacted the Immigration Act to draw new immigrants with better skills and higher education. The United States expanded the number of temporary work visas available to U.S. companies in the 1990s through the reclassification of the H-1B visa category. Under this program, many Asians with computer science, engineering, education, medicine and health-related professional skills immigrated to the United States. Mosisa (2002) and Sum, Fogg, and Harrington (2002) have both asserted that foreign-born workers were especially important to U.S economic growth and job creation in the mid-to late 1990s, accounting for almost half of the net

increase in the nation's civilian labor force from 1996 to 2000. Substituting these researchers' claims, the U.S. Census Bureau (2003) reported that the labor participation rate of the foreign-born population was 66.7%; moreover, the labor-force participation rates of foreign born workers continued to increase in 2001, despite the beginning of an economic downturn. As discussed in studies of the history of immigration law, even though U.S. immigration policy has continuously attempted to set the parameters for legal immigration, the prominent legislative efforts at immigration reform had been inconsistent in terms of their objectives, at times curtailing and at other times expanding the conditions under which people may legally immigrate, depending on U.S. economy (Hagan, 2004).

One primary objective of the family reunification program, the cornerstone of the Immigration and Nationality Act Amendments of 1965, was to bring the nation's immigration law into line with modern civil rights legislation, so that immigrants would not be discriminated against on the basis of ethnicity or nationality (Brunner & Colarelli, 2010). Asian and Hispanic immigrants and their elderly parents moved to the U.S. in great numbers through this program (Brunner & Colarelli, 2010). According to the yearbook of immigration statistics at the U.S. Department of Homeland Security (1996, 2003, 2007), the number of elder immigrants has continued to increase ever since the family reunification program was introduced, even after the PRWORA implemented in 1996 (As an exception to this trend, in 1997 and 1998, the number of late life immigrants aged 50 years or older decreased slightly: from 130,744 in 1996 to 98,906 in 1998). In 2007, over 181,000 immigrants entered the United States and among these, over 83% of

the late life immigrants were admitted through the invitation of their family or direct relatives, already residing in the United States.

Some studies have raised concerns about current immigration policy (i.e., the family reunification program) in that it may conflict with the goals of a welfare state because the income transfers from taxpaying citizens to noncitizens which the program entails specially attract unskilled individuals including elderly immigrants, who are attracted by the prospect of receiving public benefits (Borjas, 1999a, 1999b; Borjas & Hilton, 1996). Other researchers have documented concerns about potential threats to social solidarity which might be threatened by immigrants, not assimilating into the mainstream culture and thereby contributing to social conflict (Miller, 1999; Jencks, 2001).

From an entirely different perspective, Duong and Luong (2009) assert that immigration policy, if based solely on an economic calculus, can marginalize the real value of immigrant families and their networks, and furthermore, may dehumanize immigrants seeking a better life in the United States. These researchers contend that if immigration restrictions imposed during times of economic crisis along with restrictions on family-based immigration, considered a liability in the economic equation, represent a step backward, both for immigrants and for American immigration policy. They warned this strictly economic approach simply disregards the multidimensional contribution to the United States which immigration represents and emotional support to immigrant families that every new immigrant family member makes upon arriving in the United States. For instance, Fairlie's (2008) study of the contributions of immigrant-owned businesses, based on a sampling of census data finds that immigrant-owned businesses

are usually run by the owner's immigrant family members, and that these businesses comprise a significant share of the economy, especially in areas where they tend to be located. Furthermore, they stimulate local economies in areas where native-born persons constitute the majority of residents. Another example of the positive impact of the immigration of family members comes from the findings of Batalova and Fix (2008). On the basis of survey data, these researchers report that those who immigrate through family-based channels are able to attain relatively high levels of job quality due to the tight family support networks of which they are a part.

Elderly immigrants most frequently come to the United States at the request of their children struggling to succeed and advance in American society, and they do so through the family reunification program (Burr & Mutchler, 1993; Boyd, 1991). Once they arrive in the United States, they provide their children and grandchildren with domestic services. Treas and Mazumdar (2004) observed that due to the limited kinship networks of immigrant families in the United States, at times even adult children depend on their elderly parents for their care when they fall ill. Just as in their countries of origin, the elderly fulfill the roles of givers of affection, religious teachers, tradition conservators, and providers of ethnic meals, and in doing so reinforce the importance of family values and family ties. In their observation, Treas and Mazumdar express concerns about elderly immigrants in that, in contrast to native-born Americans of similar age who have more human, financial, and social capital, elderly immigrants might have to rely on kin for their care due to their lack of these resources. These researchers assert that under provisions of the current welfare reform legislation, which limits immigrants' access to

public assistance, immigrant families who have ill parents might have more trouble in successfully managing their daily lives.

This section of the present study has provided a background of the study population, discussing how the relevant professional literature interprets U.S. immigration policy and the family reunification program as well as why elderly immigrants have moved to the United States and how they contributed to their immigrant families.

Welfare Reform Act and States' Response

Before the PRWORA of 1996, there was an impression among the general public that the generosity of U.S. welfare programs attracted people in other countries to immigrate to the United States, given an observed increase in the number of immigrants on public assistance (Borjas, 2002). After the PRWORA was implemented, a new set of eligibility rules was applied to immigrants who applied for public assistance. The report by Chin, Dean and Patchan (2002) summarized the federal government's guideline for the states about the eligibility restrictions on immigrants applying for Medicaid.

“States may provide coverage to most legal immigrants who entered the U.S. before August 22, 1996. Every state except Wyoming has chosen to provide coverage with federal Medicaid dollars to most legal immigrants. States cannot provide coverage with federal Medicaid dollars to most legal immigrants who entered the country on or after August 22, 1996 for their first five years in the country. This rule is commonly referred to as the “five-year bar.” After these immigrants have been in the U.S. for five years, states may then provide Medicaid coverage. Most states (42 states) have chosen to provide federal Medicaid coverage to this group” (p. 1).

That is, the welfare law granted states two options to provide federally funded Medicaid to certain legal immigrants. One of the options is to cover all qualified

immigrants who were physically present in the U.S. before August 22, 1996. All states except Wyoming have selected this option (Fremstad & Cox, 2004). The second option is related to legal immigrants who entered the U.S. on or after August 22, 1996. For this group, states may provide coverage with federal matching funds to some of these immigrants once they have been in the United States for five years as permanent residents (i.e., green card holders) (see Appendix II).

The second option might be mistakenly interpreted that legal permanent residents who entered the U.S. will have federally funded Medicaid coverage after the five-year bar. However, based on I-864, Affidavit of Support Under Section 213A of the Act, they are still under *deeming period* during which a portion of the sponsor's (i.e., family or relatives who invited the immigrant) income and resources is assumed to be available to the immigrant when determining the immigrant's eligibility for benefits. The *deeming period* lasts until the immigrants fall into any of the following categories: (1) becoming U.S. citizens, (2) completing 40 quarters of work requirement, (3) being victims of domestic violence, (4) being unable to obtain food or shelter even after taking into account of their income plus cash or in-kind assistance provided by the sponsor. The deeming process to judge the immigrant's eligibility for public assistance is considered as "a unique obstacle to immigrants" (Dordeski & Steffens, 2010, p.38). This unique obstacle makes it more difficult for immigrants to be qualified as sufficiently poor for public assistance (Ku & Kessler, 1997). Dordeski and Steffens (2010) report that in 2010, a much larger group of legal immigrants are affect by the PRWORA and determined ineligible although immediately after the PRWORA, most legal immigrants were qualified.

In addition to Medicaid, access to most type of means-tested assistance is also denied to non-citizens who arrived after the legislation was implemented on August 22, 1996 and is denied even to many noncitizens who were already living in the United States before the legislation was implemented. The PRWORA also reinforced the ‘public charge law’ which has been part of immigration law for more than 100 years, but was rarely enforced before the welfare reform (Kandula et al., 2004). The Immigration and Nationalization Service (INS) is in charge of enforcing this law. During the initial implementation of this law, once INS deemed immigrants a public charge, regardless of whether they immigrated to the United States before or after the welfare reform, this could result in the denial of a green card, denial of readmission to the United States after a trip abroad, or in deportation (Kandula et al., 2004). In 1999, the INS policy related to the public charge law was revised and reassured qualified immigrants that they would not be considered a public charge for using Medicaid and other federally funded assistance (INS, 2000). However, Kandula et al. (2004) claimed it was unclear that the revision of INS policy affected immigrants’ perception of being a public charge, resulting in decreased Medicaid enrollment among eligible immigrants.

Even eligible immigrants often refrain from using health services while on welfare rolls for fear of any possible negative impact on their immigrant status or their sponsors, which is referred to as the “chilling effects” (Fix & Passel, 1999). According to qualitative studies (Feld, 2000; Stuber et al., 2000), qualified immigrants expressed fear and misunderstanding about Medicaid eligibility: 1) enrolling in Medicaid would prevent them from becoming U.S. citizens, 2) the government would try to keep track of them

through the Medicaid program, and 3) the welfare reform laws made all immigrants ineligible.

There seems to be variations among states which adapted the PRWORA differently for their immigrant population. Some states (i.e., CA, CT, DE, ME, MN, NE, NY, and PA; see Appendix II) created Medicaid-like replacement programs for the newly arrived immigrants during their first five years in the United States, although the states have to finance 100 percent of the costs of such coverage with state funds (Chin, Dean, & Patchan, 2002). Nam (2011) documented that elderly immigrants in states with state-funded Medicaid are more likely than states without state-funded Medicaid to be insured. As Borjas (2002) predicted, there seems to be interstate disparities in welfare benefits.

However, many studies' (Ku & Garrett, 2000; Tumlin & Zimmermann, 2003; Zimmermann & Tumlin, 1999) report on the individual states' response to the welfare reform act makes the significance of the prediction suspicious. Access to the guaranteed healthcare services is also limited even for the eligible elderly immigrants who live in the states who offer public assistance for post-welfare elderly immigrants (Tumlin & Zimmermann, 2003; Zimmermann & Tumlin, 1999). It is also reported that qualified immigrants on welfare were inadvertently dropped from Medicaid after welfare reform because of the numerous administrative changes, confusion over Medicaid case rules, and failure to update automatic eligibility notification systems (Ku & Garrett, 2000), which would lead to some possibilities that immigrants may have had difficulty negotiating these changes or reapplying for Medicaid (Kandula et al., 2004). Their report suggests that becoming eligible for public assistance does not seem to guarantee the use of healthcare services for elderly immigrants.

In addition, around 72 percent of immigrants are geographically concentrated in a small number of states including California, Florida, Illinois, New Jersey, New York, and Texas (Borjas, 2002). However, among these states, only California and New York provide state-funded Medicaid to elderly immigrants. Illinois and New Jersey provide similar services only to very limited categories of elderly immigrants (e.g., victims of domestic violence). Texas and Florida do not have state-funded public assistance for elderly immigrants. Except these aforementioned states, many of the states with at least 15 % of immigrants out of total state population still do not have state-funded Medicaid for elderly immigrants. They included AZ, DC, HI, MD, NV, VA, and WA (Fremstad & Cox, 2004). Massachusetts had provided state-funded programs for elderly immigrants, but it had to discontinue doing so in September, 2004 due to its limited state budget. Like Massachusetts, many other states also faced lowered state tax revenues, so they have needed to reduce services they previously provided (Fremstad, & Cox, 2004; Johnson, 2002).

In summary, all states except Wyoming provide federally funded Medicaid to all qualified elderly immigrants who immigrated to the United States before August 22, 1996 and some states provide state-funded public assistance to post-welfare reform elderly immigrants. Based on this, there seems to be significant variations among states in elderly immigrants' healthcare service use. On the other hand, some factors, such as (1) the deeming periods (Dordeski & Steffens, 2010; Fremstad & Cox, 2004), (2) public charge law (Kandula et al., 2004), (3) chilling effect (Derose, Escarce, & Lurie, 2007; Fix & Passel, 1999; Kaushal & Kaestner, 2005), (4) the numerous administrative changes, confusion over Medicaid case rules, and failure to update automatic eligibility

notification systems (Ku & Garrett, 2000), and (5) relatively few states which provide state-funded Medicaid to elderly immigrants (Fremstad, & Cox, 2004), make the assumption of great variations among states suspicious. That is, based on review of the literature it does not seem that there is sufficient evidence of significant variations among states in elderly immigrants' healthcare service use.

Medicaid and Health Insurance

Medicaid is a jointly funded, federal-state health insurance program for low-income children and pregnant women, families with children, seniors, and people with disabilities, and it is based on income and asset requirements. Medicaid is an extremely important program, especially, for the elderly poor since it is the greatest source of public funds for long-term medical and home health care (Angel, 2003; Angel, Angel, & Markides, 2002). Elderly immigrants who are covered by any type of health insurance are more likely to rely on Medicaid due to their socioeconomic status in the United State (Mohanty et al., 2005).

Elderly immigrants are more likely to rely on Medicaid due to (1) their socioeconomic status (Batalova, 2012; Leach, 2009), (2) limitation in their access to Medicare due to their lack of the required work history (Quadagno, 2005; Nam, 2011), (3) limitation in their access to employment-based private health insurance due to age-based discrimination in the labor market (Quadagno 2005; Nam, 2011), (4) limitation in working adults' access to direct-purchase health plans covering their older adults without Medicare coverage (Yelowitz, 2000; Choi, 2009), and (5) partly, little market for that age

group due to the almost universal Medicare coverage among older adults - if anything, they often do not cover preexisting conditions (Choi, 2009).

Prior to the welfare reform of the PRWORA in 1996, most legal immigrants were eligible for Medicaid on the same basis as citizens; moreover, states were required to determine whether immigrant applicants held an immigration status that entitled them to receive the benefits. After its implementation, however, the welfare reform restricted eligibility for Medicaid. According to 8 USC section 1612(B) (2), which is the guideline for limited eligibility of qualified immigrants for certain federal programs, applicants qualified for federally funded Medicaid in all states include:

(1) citizens; (2) lawful permanent residents to whom 40 qualifying quarters of Social Security can be credited who entered before the welfare reform act and those that entered after the welfare reform act and have been in the U.S. for five years; (3) refugees for seven years following the date of entry into the U.S.; (4) asylees for seven years following the granting of asylum status; and (5) persons granted withholding of deportation, for seven years after receiving such status.

Hu (1998) investigated the determinants of elderly immigrants' decisions to evaluate the consequences concerning participation in welfare programs in order to evaluate the consequences of changes in immigration and the PRWORA. Hu uses data extracted from the 5 percent Public Use "A" Samples of the Census of Population and Housing from 1980 and 1990, notably all it collected prior to implementation of the PRWORA in 1996. The study began by addressing the questions of why elderly immigrants who arrived after age 55 made up of a rapidly growing portion of the welfare population. According to Hu's findings, after the 1965 Immigration Act, which broadened immigration based on family reunification and a preference for admitting immigrants with certain occupations, 46 percent of immigrants admitted to the United States entered

based on family ties, while 12 percent were selected based on their occupation (U.S. Congress, 1994). The immigrants who arrive after age 55 through family reunification program were significantly more likely to use welfare than the typical immigrant who arrived during their prime working years. Immigrants who came after age 55 were less likely to have Medicare coverage, but such immigrants were more likely to apply for SSI in order to get automatic coverage under Medicaid.

An increasing number of new elderly immigrants came after age 55 during the 1980s and the 55-64 year old immigrants in 1980 became elderly by 1990 and thus became eligible for SSI (Hu, 1998). Another factor was an increasing number of new elderly immigrants who came after age 55 during the 1980s. Furthermore, Hu found that a decreasing proportion of immigrants were non-Hispanic whites, correlating with an aggregate decline in the English fluency of the immigrant population, which in turn affected immigrants' employability and their participation in welfare programs. New immigrants who came after age 55 were responsible for the largest portion of the increase in overall welfare participation rates during the 1980s. Hu warned that if immigrants continued to move to the United States, predominantly on the basis of family reunification, there would be a continuation or increase in the underlying tendency for greater numbers of immigrants to rely on welfare, if eligible.

As a reaction against the increasing numbers of immigrants on welfare rolls, various groups began to advocate a shift in the nation's immigration priorities away from family reunification and toward labor recruitment (Hu, 1998). However, the effectiveness of such a shift is open to debate because any policy tending to exclude elderly immigrants and deemphasize family reunification could negatively affect the decisions of younger

adults, who are prioritized for labor recruitment, to immigrate to or stay in the United States. The size of the U.S. work force increased by 16.7 million workers in the 1990s, but of these workers, 6.4 millions (38%) were immigrants (Orrenius, 2003). During this period, immigrants comprised 11 percent of all U.S. residents and 14 percent of all workers (Capps, Fix, Passel, Ost, & Perez-Lopez, 2003). Deterring immigration by limiting family reunification would have a net negative effect on the government budget and the economy, given the fact that there is a statistically significant correlation between age at arrival and the presence of children under 18 in the household (Hu, 1998). Older nonworking family members are often an inexpensive form of child care and contribute the family's net income. For the elderly immigrants who are from poor families, Medicaid is an extremely important program because it is the greatest source of public funds for long-term medical and home care as well as physician visits (Fix & Passel, 1999).

In enacting welfare reform, U.S. policy makers anticipated enormous savings by excluding noncitizens from participation in all federal means-tested benefits. Buff (2008), however, takes issue with policymakers' assumptions that immigrants are bale for inadequacies in the welfare system. The U.S. immigration policy has historically excluded immigrants who do not fit into the ideal model of America (e.g., exclusion of persons who are likely to become public charges based on age, or lack of assets and skills) controlling for the flow of labor in order to benefit the needs of capital. According to Buff, the reasons for the increases in both the number of welfare dependents and the deficits in welfare funding in spite of selective U.S. immigration policy are the declining

working age population and fertility rate, the increases in longevity, more so than the increasing number of immigrants on welfare.

In summary, despite the importance of the Medicaid program to elderly immigrants, the welfare reform has limited elderly immigrants' access to the program while the U.S. policy continues to promote the family reunification program. Many studies have projected that due to the lack of both federal healthcare coverage and the financial means to purchase private insurance, many elderly immigrants will have no choice but to seek healthcare through emergency medical services (Ku & Kessler, 1997; Wallace, Enriquez-Haass, & Markides, 1998). Such a trend might support the idea of increased medical expenditures by government. Shortly after passage of the PRWORA, little more than one-third of elderly immigrants were covered by health insurance while almost all elderly Americans with citizenship status were covered by health insurance, including Medicaid (U.S. Bureau of the Census, 1998). The proportional difference in healthcare service represents health disparities in healthcare and subsequently in terms of health status itself between these two groups.

Hu (1998) suggested that English language proficiency is related to elderly immigrants' employment and their welfare participation. Level of command of English also negatively affects elderly immigrants' acquiring citizenship status (i.e., acquisition of "formal citizenship") and, in turn, welfare participation (i.e., social rights) as well as their political participation such as voting (i.e., political rights). Next, issues related to citizenship of elderly immigrants will be explored.

Citizenship and Exclusion

“The Right to Welfare and Other Essays” by Marshall⁸ (1981) contains observations of inevitable tensions between the demands of a capitalist economy, the goals of a welfare state, and the requirements of the modern state in relation to the other two. According to Turner (1990), the core of Marshall’s notion of citizenship was constituted from efforts to resolve the contradiction between the formal political equality of the franchise and the persistence of extensive social and economic inequality, which stemmed from capitalism in society. However, Marshall’s work, which was developed based on observations concerning England, has been more influential in the analysis of ethnic problems and race relations in America since the early years after its publication (Parsons & Clark, 1966).

According to Turner (1990), Marshall developed three categories of rights: civil, political, and social. Civil rights concern such basic issues as the freedom of speech, rights to a fair trial, and equal access to the legal system (related to the courts in contemporary society). Political rights are associated with electoral rights and wider access to political institutions for expression of interests (as related to the British Parliament). Social rights refer to the basis of claims to welfare and entitlements to social security when unemployed or unable to work (related to the welfare system). In sum, Marshall (1950), identifies citizenship as the basic human equality associated with the right to decent economic welfare and security, and the right to share to the fullest extent, membership in the social heritage of a society and to live as a civilized being according to

⁸ T.H. Marshall’s initial work, *“Citizenship and Social Class,”* was published in 1950, in which he analyzed the concept of citizenship in terms of the development of civil, then political, and then social rights.

that society's prevailing standards. Questions then remain as to who qualifies for the rights.

“It would be wrong to imagine that the notion of citizenship remained historically static” (Turner, 1990, p.202). As Turner notes, the concept of citizenship has historically evolved since ancient Rome and Greece when the full rights of citizenship were given only to the members of the polis who had a right to speak and to govern, while excluding all the others such as women, adult slaves, and children. Since the 1970s, increased international trades of goods, funds, services, ideas, and people have blurred boundaries between nations, and in turn changed the traditional concept of citizenship (Gilbertson, 2006). Therefore, Contemporary discussions of the concept of citizenship have developed to including of the concepts of a globalized notion of citizenship, along with the appearance of globalism, entailing global political responsibilities (Turner, 1990).

Turner further claimed:

“The problem of citizenship is in fact not confined merely to a question of the normative basis of welfare provision; its province is global.... Any further development of the theory of citizenship will have to deal more fundamentally with societies in which the struggle over citizenship necessarily involves problems of national identity and state formation in a context of multiculturalism and ethnic pluralism” (p. 212).

In the same context as that of Turner, Fix and Laglagaron (2002) have insisted in their study titled *Social Rights and Citizenship: An International Comparison*:

“Liberal democratic states generally offer citizens benefits and entitlements on an equal basis.... In the current era of immigration, there are strong arguments for extending these entitlements beyond citizens to settled, permanent immigrants” (p.1).

As in Fix and Laglagaron's (2002) claim, many countries with high immigration populations, including Canada and Australia as well as the United States, had provided lawful permanent immigrants with access to public benefits almost equal to those of their citizens at the end of twentieth century. Canada is an exemplary country in adopting inclusive citizenship as its official policy (Citizenship and Immigration Canada, 2012).

"In 1971, Canada was the first country in the world to adopt multiculturalism as an official policy. By so doing, Canada affirmed the value and dignity of all Canadian citizens regardless of their racial or ethnic origins, their language, or their religious affiliation. ... With no pressure to assimilate and give up their culture, immigrants feely choose their new citizenship because they want to be Canadians. As Canadians, they share the basic values of democracy with all other Canadians who came before them. At the same time, Canadians are free to choose for themselves, without penalty, whether they want to identify with their specific group or not. Their individual rights are fully protected and they need not fear group pressures" (para. 1 & para. 6).

Fix and Laglagaron (2002) contend that one of the reasons for providing welfare benefits for immigrants is that these immigrants fulfill responsibilities imposed on them as native-born citizens do, including paying taxes and observing the laws and obligations, of their respective societies. A further rationale is that immigrants are vulnerable, to a greater extent than citizens, to the fluctuation of their society's economy than citizens. These authors insist that if immigrants are limited in their access to health care, education, and other basic forms of social support which are routinely given to their citizens, the immigrant and their families as well as the other members of society can be adversely affected.

As did other liberal democratic countries such as Canada and Australia, the United States gave all legal permanent residents almost the same access to public benefits, including Medicaid, as it granted to U.S. citizens before the PRWORA took

effect. However, the PRWORA established a ban on Medicaid eligibility for legal immigrants entering the United States after August 22, 1996. In this sense, Fix and Laglaron (2002) defined the welfare reform act of the PRWORA as the first retrenchment in the citizenship rights of immigrants in American history. Moreover, this new citizenship criterion in the U.S. magnifies the importance of ‘formal citizenship,’⁹ limiting it to the people who have secured citizenship status (Aleinikoff & Klusmeyer, 2002; Buff, 2008; Fix & Laglaron, 2002; Singer, 2004). This criterion is inconsistent with both previous U.S. policy and international standards since most liberal industrialized democracies allow permanent residents eligibility for the same benefits as citizens receive (Fix & Laglaron, 2002).

Ortega (2009) criticizes the exclusion of non-citizens from coverage in terms of health care services, based on the human rights model:

“If we regard health care as a basic human right and designate all humans as equals under the law, we cannot deny essential health care services on the basis of immigration status” (p.189).

⁹ “Formal citizenship” can be considered as “membership” in a nation-state or political community (Shipper, 2010). Hence, nation-states determine who remains inside the circle of formal, legal membership through citizenship laws and naturalization policies (Gilbertson, 2006). “Citizenship” includes not only political rights, but also civil and social rights. In Europe, citizenship laws and naturalization policies have become more inclusive than formal citizenship, meaning that access to citizenship has been opened to long-term residents and their children (e.g., Germany in 1999). However, with enactment of the PRWORA, the United States retrenched its position in 1996 from “inclusive citizenship” valid until that year, in favor of “formal citizenship”.

Ortega's assertion is based on Jenkins and Hsu's 2008 report, titled *American Ideals & Human Rights: Findings from New Public Opinion Research by the Opportunity Agenda*. They defined human rights by describing:

“Dignity, fairness, opportunity, and the belief in creating a better society for all are values that Americans widely share and view as important to our progress as a nation. In many other nations, and on the global stage, those values are expressed and understood in terms of “human rights” – the rights that all people hold simply by virtue of their humanity, which the world's governments have, with few exceptions, agreed to protect through an international system of human rights treaties and mechanisms” (p.439).

Singer (2004) insists that the PRWORA and subsequent welfare policies created a discriminatory stratification between citizens and noncitizens with explicit negative connotations related to immigrants. The passage of the PRWORA and other policies such as the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and the 1996 Antiterrorism and Effective Death Penalty Act give immigrants the impression that those policies are a symbolic manifestation of formalized antagonism against immigrants. Some studies (Borjas, 2002; Fix, Passel, & Sucher, 2003) also argue that public policies and legislation constitute an effort to discourage immigrants from remaining in the United States, albeit in a circuitous manner. For example, Fix, Passel, and Sucher (2003) report that few public policies promote naturalization (see Figure 2 in Appendix for a trend for the naturalization among elderly immigrants). These authors assert that comparatively little public funding underwrites language and civics classes designed to help immigrants to pass the U.S. citizenship exam while changes this test have made it more difficult. Even worse is that no notice is sent to immigrants when they become eligible to apply for naturalization. Borjas (2002) also claims that the purpose of setting

up a five-year waiting period before newly arrived immigrants qualify for public assistance and benefits is to discourage immigrants from becoming potential public charges, and that the purpose of tightening the eligibility requirements is to encourage some immigrants to return to their home countries. Borjas (2002) further asserts that even though it is true that the U.S. immigration policy has partly been designed under the thoughtful consideration of protecting U.S. citizen taxpayers, the policy objective obviously conflicts with the humanitarian desire to open up economic and social opportunities in the United States to poor persons from around the world.

Before the welfare reform was implemented in 1996, the transcripts of U.S. Congressional hearings on immigrants frequently depicted immigrants as committing fraud and as abusing public assistance (Fujiwara, 2005; Yoo, 2002, 2008). The immigrant families were portrayed as being irresponsible and negligent. Moreover, their elderly parents were labeled noncontributing members of society. This portrayal to the politicians made immigrants appear to be unworthy of receiving public assistance. In particular, elderly immigrants of Asian ancestry or origin were portrayed in this manner.

The portrayal of immigrants and their elderly parents may affect social service providers' discretion on elderly immigrants' participation in citizenship rights. For example, studies (Bhuyan, 2010; Grewal, 2005; Ong, 1996, 2003) claim that through governmentality (i.e., a theory of the mechanisms of governance) and technologies of control which are dispersed throughout society such that subjects are disciplined, the discretion by social service providers (including Medicaid personnel) affect immigrants' participation in citizenship rights. The process of regulating immigrants invokes an evaluation of what is desirable in an immigrant and potential citizen. The assessment of

worthiness in immigrants is based on dominant ideological values for gender, race, and class toward ensuring citizen subjects who will be productive in a market economy and loyal to the state (Katz, 2001). Lipsky (1980) illustrates that the frontline workers' encounter with an individual "represents a kind of policy delivery" (p. 3) and their making policy choices through their everyday work represents their beliefs and prejudices in their treatment of their clients. Hence, the frontline workers in the welfare system play a critical role in deciding who may benefit from citizen entitlements.

This assertion is supported by Park, Bhuyan, Richards, and Rundle's (2011) study on social work practitioners' attitudes towards immigrants. Their study with 1,124 social work practitioners in 47 states shows that social workers working for governmental bodies or for-profit agencies, that, in particular, require citizenship identification from their potential service users, are less favorable towards immigrants than social workers who work for not-for-profit agencies.

Since the welfare reform legislation of the PRWORA distinguished between citizen and noncitizen in terms of public benefits, attaining citizenship status became more significant to elderly immigrants as well as to other younger immigrants. However, almost 71 percent of newly-arrived elderly immigrants spoke no English or did not speak English well in 2006 (Leach, 2009). In addition, among the total elderly immigrants in 2010, as much as 56 percent reported limited command of English (Batalova, 2012). Hence, for elderly immigrants from non-English speaking countries, obtaining citizenship status is taxing or may take much longer time than those from English-speaking countries. Hence, acquiring citizenship status takes more than 5 years and naturalization rates are also different depending on race and ethnicity.

According to Lang's (1994) study using data from the 5% Public-Use Microdata Sample of the 1980 U.S. census, immigrants who are naturalized are more exposed to U.S. culture and language as well as to information on the U.S. health care system. In support of this finding, a study (Ku & Waidmann, 2003) on immigrant families, using descriptive statistics and data from the 1999 National Survey of America's Families, documented the importance of citizenship and language to immigrant families, as these factors relate to healthcare: "Citizenship status and English language proficiency strongly affect insurance coverage, access to care, and quality of care" (p.1).

Among the studies considering the relationship between citizenship status and health service use, Echeverria and Carrasquillo (2006) focused on the effect of citizenship status on breast and cervical cancer screening of women age 18-65, using the 2000 NHIS data. According to the study, noncitizens were less likely to report mammography and Pap smear screening than women who were U.S.-citizens. For mammography, these disparities disappeared after controlling for health insurance coverage and usual source of care. For Pap test screening, the disparities remained even after controlling for all confounding variables in the study except acculturation. The disparities were not evident after further adjustment for acculturation. Another study (Alba et al., 2005) on Pap smears and mammograms screenings and citizenship status among immigrant women used the 2001 California Health Interview Survey data and reported that U.S. citizen immigrants were significantly more likely to report receiving the cancer screening than would immigrants who were not U.S. citizens. Saint-Jean and Crandall (2005) studied the health needs of Haitian immigrants and the consequences of barriers to health care access, using a sample of 184 households of Haitian origin living

in Miami, Florida. According to the study results, having insurance coverage, a usual place of care, educational attainment, household income, citizenship status, and duration of residency were associated with service utilization. Among these variables, citizenship status was the strongest independent predictor of service utilization. To the best of knowledge of this study's author, however, there is no published research regarding the relationship between elderly immigrants' utilization of healthcare services and their citizenship status.

Many studies (Alba et al., 2005; Ku & Waidmann, 2003; Saint-Jean & Crandall, 2005) have documented that citizenship status and healthcare service use are significantly associated. In particular, Ku and Waidmann (2003) claim that English language proficiency strongly affect insurance coverage. Hence, it is a logical conclusion for elderly immigrants that English language proficiency affects citizenship status and in turn, health insurance coverage (here, Medicaid). However, to be qualified even to apply for citizenship requires a minimum of five years residence from the time they become a permanent resident in the United States. In addition, to pass the citizenship test, immigrants have to take an English test in reading, writing, and speaking. To be waived for the English test, immigrants should be at least age 50 or older at the time of filing for naturalization and have lived as a permanent resident in the United States for 20 years (USCIS, 2011).

Based on the literature, it is a logical consequence that the PRWORA limits elderly immigrants' access to public assistance (social rights). However, elderly immigrants from non-English speaking countries are limited even in obtaining formal citizenship, which precludes enjoying not only social rights but also other rights

including economic and political rights. The predicaments stemming from the PRWORA are doubled or more severe to elderly immigrants from non-English speaking countries.

Based on the results, the length of residence in the United States will also be associated with not only elderly immigrants' acquisition of citizenship but also their use of healthcare services. Next, issues related elderly immigrants' duration of residence will be explored.

Acculturation and Duration of Residence

“Should immigrants be required to speak English? U.S.-born older people who expect immigrants to obey immigration laws and “become Americans” are sometimes dismissed as bigots. There is scant attention to the genuine ethical questions raised when they complain, “I have spent my lifetime paying taxes, saving and preparing for my old age, but immigrants can get benefits when I myself do not qualify!” Such statements send a crucial message about the potential for perceptions of injustice to sow discord and resentment” (Torres-Gil¹⁰ & Treas¹¹, 2009, p.8).

Acculturation refers to the process that occurs when individuals from one culture adapt to the values and beliefs of another culture (Aranda & Knight, 1997; Marsella & Yamada, 2000). In addition to values and beliefs, Barry (2001) includes the feelings of easiness and competence in communicating with people from another culture as an essential component of acculturation. Barry defines acculturation as social interaction and communication response styles. Since acculturation is a multidimensional concept measuring many related concepts including those described above, it is also common to

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define it operationally for research purposes as duration of residence in the host country and used as a proxy measure in many studies (Ahmed et al., 2009; Kaplan, Chang, Newsom, & McFarland, 2002; Lara et al., 2005; Park, Neckerman, Quinn, Weiss, & Andrew, 2008).

Thamer, Richard, Casebeer, and Ray (1997), using the 1989 and 1990 NHIS data, reported that foreign-born U.S. residents, in particular, those with less than 15 years of residence, were less likely to be insured than their U.S.-born counterparts, which may limit their access to healthcare services. Awareness of social services is also identified as an important enabling factor for service use in Andersen's model (Andersen, 1968, 1995; Andersen & Newman, 1973). Immigrants who do not speak English as their mother language have difficulties in acculturating to the host society (Kim, 2002), and their psychosocial adaptation process in the United States becomes a major source of life stress (Mui, 2001). In addition, the lack of acculturation in terms of proficiency of speaking English limits elderly immigrants in finding and utilizing proper resources and information including social and health care services (Moon, Lubben, & Villa, 1998). Lacking fluency in English on the part of immigrants may lead to a health care provider having a poor understanding the nature of a patient's complaints and to a patient misunderstanding the reasons and directions for treatment. These miscommunications might cause undesirable health outcomes, leading in turn to poor consumer satisfaction, resulting ultimately in less use of health care services (Woloshin et al., 1995) as in the Andersen's 1995 model.

Schur and Albers (1996) insist that levels of acculturation to mainstream U.S. society are most significantly predictive of health care access and quality. As a result,

cultural differences as well as communication failures are responsible for some racial health disparities among minority groups (Underwood & Adler, 2005). For instance, in 2004 the Centers for Disease Control and Prevention & the Merck Institute of Aging & Health (CDC & MIAH) reported that Asian Americans in general suffer disproportionately from disease and that one of the contributing factors to this phenomenon is language difficulties and cultural barriers. These disparities are particularly acute for elderly Asian immigrants who have limited English proficiency (U.S. Department of Health and Human Services, 2005).

Woloshin et al. (1995) assert that when professional translation services are unavailable, the resulting inadequate medical explanations and interpretation can be considered discriminatory against those whose primary language is not English. They also characterize this condition as a problem exacerbated by the failure of the government to adequately fund access to medically trained interpreters. In the same line with CDC & MIAH research (2004), this study by Woloshin et al. reports that Asian Americans may suffer more health problems because of language and cultural barriers. Another study (Mui, Kang, Kang, & Domanski, 2007), on the relationship between English proficiency and health related quality of life among Chinese and Korean immigrant elders, emphasizes the importance of training culturally competent health care providers, not only for elderly immigrants but also for young working immigrants.

As described above, duration in the U.S. affects immigrants' access to care since their knowledge of, access to, and use of healthcare services tend to increase over time. Considered as a separate group, however, the elderly immigrant population has a distinctly different experience. Choi's (2006) study reported that there is no direct

relationship between elderly immigrants' use of healthcare services and the duration of their residence in the United States. According to Choi's findings, the status of these immigrants' health insurance coverage status mediated completely between the use of healthcare services and the duration of U.S. residency (Choi defined durations in the United States as "immigrant status"). This may be because a simple passage of 5 years after migration to the United States (in Choi's study, the length of residence variable is binary: whether more or less than five years) does not simply guarantee elderly immigrants' access to Medicaid which is a universal health insurance among older adults unless they obtain citizenship. On the other hand, many studies (Angel, Angel, Venegas, & Bonazzo, 2010; Choi, 2012; Gee, Kobayashi, & Prus, 2004; González et al., 2009; Kobayashi & Prus, 2012) have documented that there is a significant relationship of duration of residence to elderly immigrants' health. The direction of relationship between length of residence and elderly immigrants' health can be either positive or negative, depending on level of accessibility of healthcare services, of which the theories will be introduced in 'Elderly Immigrants' Health and Health Disparities' section in this chapter.

Review of the literature says that post-welfare reform elderly immigrants are required to be naturalized to be eligible for Medicaid which is a main source of health insurance among elderly immigrants. Literature also suggests the importance of acculturation in terms of proficiency of speaking English in passing citizenship test and in turn, in the access to and use of health care services. However, learning another language is not easy for elderly immigrants. For instance, the University of Toronto Refugee Resettlement Project (Hou & Beiser, 2006) investigated language acquisition over a ten-year period among a sample of 608 South East Asian Refugees in Canada. According to

their study, older refugees' level of English before migration to Canada was poorer than their younger counterparts. In addition, these older immigrants tended to be slower in acquiring English after migration; in fact they were the slowest among different age groups to acquire English over the first ten years of residence. Some studies have posited explanations for why elderly people's language acquisition is slower than their younger counterparts. Biological factors including cognitive function are important (Dustmann & Fabbri, 2003). Differential motivation and exposure to situations involving the target language are also important factors, in particular, the level of contact with people who use the target language (Hou & Beiser, 2006) and the participation of elderly immigrants in second-language training programs (Dicker, 1996).

As the literature discussed above illustrates, elders seem to have limitations in acquiring a second language due to developmental or cognitive factors as well as limited social interaction, suggesting that elderly immigrants from non-English speaking countries are less likely to use health care services than other elderly immigrants from English speaking countries. In addition to the different levels of acculturation among various racial/ethnic groups, the literature consistently reports that the difference in help-seeking behavior and culturally different health beliefs also contribute to the underuse of health care services. The next section of this review will focus on cultural differences in help-seeking behaviors and health beliefs in the literature.

Cultural Differences in Help-Seeking Behaviors and Health Beliefs

Definitions regarding *help-seeking behavior* and *health beliefs* seem to vary considerably in the literature. Gourash (1978) defined *help-seeking* as any communication about a problem or troublesome event that is directed toward obtaining

support, advice, or assistance in times of distress. Wills and DePaulo (1991) defined the term to mean a process of some complexity, involving interactions among characteristics of the help-seeker, the type of help sought, the context of the help-seeking, and the potential helper. According to Waltz, Strickland, and Lenz (1991), *help-seeking* can also be defined as a multistage cognitive and behavioral process, which an individual undertakes to obtain needed assistance from another. This process involves a patterned sequence whereby individuals perceiving an actual or potential health problem consult others in their social networks, receive information and advice, and are referred to lay and professional persons for information and help.

On the other hand, an anthropological approach to help-seeking behavior emphasizes the heterogeneity of cultural health beliefs and practices in health systems. Suchman (1964) suggests that an individual's behavior is constrained by the expectations and directives of that person's sociocultural milieu. Suchman posits that illness is not simply a matter of concern between the client and health professional; rather, the client's concerns and anxieties associated with the illness involve family and friends of the client as well. Chrisman (1977) presents a holistic approach to understanding this concept by suggesting that the help-seeking behavioral model needs to examine the relationship between the sociocultural imperatives of everyday life and the patterns of health beliefs and practices.

Some studies (Coulton & Frost, 1982; Wallace, Levy-Stornms, & Ferguson, 1995) have argued that the variable of race is not significantly related to social service utilization. Studies including Andersen himself (Andersen, 1995; Gwen, 1997; Ryu, Young, & Kwak, 2002) also argued that underutilization of health care services by needy

individuals may result from a lack of knowledge on the part of help-seekers (i.e., knowledge of the health care system in enabling resources part of Andersen's model), rather than race/ethnicity and culture. However, other studies have reported that Asians in particular underutilize healthcare services (Snyder, Cunningham, Nakazono, & Hays, 2000; Sproston, Pitson, & Walker, 2001; Zhang, Snowden, & Sue, 1998), but even among different Asian ethnic groups, there is a significant variation both in terms of level of use (Sproston, Pitson, & Walker, 2001) and the variables that explain healthcare utilization as well (Ryu, Young, & Kwak, 2002).

Cultural differences (i.e., health beliefs in the predisposing characteristics part of Andersen's model) may also be the explanation of the help-seeking behaviors of racially and ethnically diverse immigrant groups. Aroian (2005) claimed that older Chinese immigrants underutilize Western biomedical health care and use home health aids and homemaker service only minimally. The reasons for this pattern of health care service use stem from cultural norms and values (Aroian, 2005), as well as from service delivery problems (Aroian et al., 2005). Aroian describes that cultural norms and values as having different criteria for need (e.g., seeking formal health care only when one has severe pain and dysfunction so that one can't eat, move, or do housework). According to this author, other varying norms and values include a preference for self-care, a fear and distrust of Western biomedicine (e.g., a feeling that Western medicine is composed of many chemicals, too strong for the human body), and a perceived obligation to rely on oneself or family (i.e., beliefs stemming from filial piety under the influence of Confucianism).

In contrast to Asian populations, older Russian immigrants use health care services more than most other immigrant groups, including primary health care, medical

specialties, and homemaker services (Wheat, Brownstein, & Kvitash, 1983). On the hand, Wei and Spigner's (1994) clinical study contradicted the previous research report. Their study reported that the rate of the clinic visits by Russian immigrants was significantly less than that of Southeast Asian immigrants. While there is some controversy over the relationship between the variable of race/ethnicity and health/social service utilization, a number of studies (Angel & Guarnaccia, 1989; Howard, 1986) concur in asserting that people perceive medical need not only by the presence of physical disease but also by the cultural perception of illness.

The literature suggests that the controversial issue with respect to racial/ethnic variation in the use of health care services may stem from different perceptions of illness and health-seeking behavior. However, comparing the two welfare regimes of immigrants suggests that aside from language barriers to gaining citizenship, racial/ethnic groups' different cultural beliefs and health seekers' lack of knowledge about healthcare services in the United States could be ruled out in explaining elderly immigrants' limited healthcare service utilization if any changes are observed among racial/ethnic group after the PRWORA. This is because cultural differences in health beliefs are assumed not to be easily altered solely by the introduction of a new welfare policy. In the next section, this study reports how the literature illustrates the health and health disparities among elderly immigrants of various racial and ethnic groups. The discussion will also have possible explanations as to the reasons why elderly immigrants are likely to face deteriorating health, which is the expectations in implicit in the concept known as the "healthy immigrant effect." The meaning of the healthy immigrant effect is that newly arrived

elderly immigrants tend to be healthy but the advantage diminishes or disappears as time since immigration to the receiving country increases.

Elderly Immigrants' Health and Health Disparities

Health disparity, or health inequality, is defined as “differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States” (National Institutes of Health, 2000).

Health disparities have attracted researchers' and public health entities' attention, since reducing health disparities is related to financial burdens as well as moral obligation and social justice (Braveman et al., 2010; Freudenberg & Olden, 2010). There is a general consensus that reducing disparities caused by race/ethnicity as well as sex, age, and socioeconomic status in terms of access to quality primary care can reduce health disparities (Institute of Medicine, 2002; Politzer et al., 2001; Shi et al., 2005; Rust & Cooper, 2007; Starfield, Shi, & Macinko, 2005). Research on health disparities highlights the importance of the social, cultural, economic, and political context that influence disease risk and health outcomes (Dankwa-Mullan et al., 2010; Freudenberg & Olden, 2010).

Many studies on immigrant health concur that for various outcomes including self-assessed health status, life expectancy, disability, and chronic conditions, foreign-born populations are healthier than native-born counterparts on arrival, but that the advantage diminishes or disappears with time residing in the adoptive country, a phenomenon known as the ‘healthy immigrant effect’ (Wingate & Alexander, 2005).

Numerous studies have been conducted with the goal of identifying important determinants of this initial health gap and its subsequent declining trajectory.

Healthy immigrant effects for elderly immigrants. Some studies (Jasso et al., 2004; Hummer & Chinn, 2011) claim that the health selection effect may vary widely among immigrant population because both positive self-selection and cost-benefit estimates are based on labor market considerations, which are less important for elderly immigrants because many of them do not intend to work. Jasso et al. postulate that better health care availability in receiving countries may be of far greater concern to elderly immigrants. Considering these authors' postulation and the fact that elderly immigrants are frequently invited to immigrate by adult children who anticipate taking care of their parents if they become ill, it is logical to think that the quality and availability of health care will be among working adults' considerations before they migrate and invite their parents to join them.

In summary, the healthy immigrant effect may differ depending on age group due to different motivations for immigration; furthermore, the quality and availability of good health care in a receiving country may be a critical determinant in working adults' decision to invite their parents (Jasso et al., 2004). If a country allows all residents including immigrants and refugees, to access healthcare services based on need, naturalized working children will be more likely to invite elderly parents. In such cases, elderly immigrants' initial health on arrival may be poor, but the disadvantage should diminish or disappear. However, if the quality and availability of the health care for immigrants or refugees is restricted, working adults will be less likely to invite parents. These adults will do so only if their parents are considered to be healthy. In such cases,

elderly immigrants' initial health will be good, but the advantage will disappear over time due to the limited availability of health care despite their increasing demand for healthcare services due to aging.

Comparing the two welfare regimes of immigrants suggests that aside from limited access to healthcare due to restrictive welfare reform, proposed theories related to elderly immigrants' health, which were previously described above, could be ruled out in explaining elderly immigrants' health changes over time. Factors explaining other theories, such as limited access due to cultural differences, acculturation to unhealthy lifestyles, and reporting biases in initial health due to differences in immigrants' perception of health conditions, are assumed not to be easily altered solely by the introduction of a new welfare policy and thus equal before and after the PRWORA. If any changes in health after immigration would be due to a simple process of regression toward the mean in a receiving country's norm in disease rates of the foreign-born, immigrants' health would be assumed to linearly converge on that of their native-born counterparts, that is, no quadratic or cubic curve would be expected in the trajectories since any curve would suggest that other factors may be involved.

Summary of Implications from the Literature to Develop Hypotheses

Discretionary Healthcare Service Use

Andersen's model suggests that all components (e.g., predisposing factors, enabling factors, and need factors) will explain an individual's use of discretionary healthcare services. The preponderance of the literature suggests that post-welfare reform elderly immigrants' use of discretionary health care services should decrease. New

restrictions on eligibility for welfare (federal means-tested benefits) should reduce use of discretionary care after PRWORA for all recent immigrants, but particularly for elderly immigrants who are unlikely to be able to meet the requirements for Medicaid (e.g., to gain citizenship or to accrue 40 work quarters due to age and lack of English fluency).

Elderly immigrants without citizenship will be less likely to use discretionary health care services than those with citizenship, based on the studies by, for example, Echeverria and Carrasquillo (2006), Alba et al. (2005), and Saint-Jean and Crandall (2005). To be eligible for citizenship test, they have to live at least five years in the United States as green card holders, as in Choi's (2006) study reporting that health insurance coverage status was a complete mediator between healthcare service use and durations in the United States.

Although the requirement for citizenship was imposed at the federal level by PRWORA, its effects are likely to be closely related to culture (i.e., race/ethnicity or language they use) since elderly immigrants from non-English-speaking countries will have trouble passing citizenship test although they are qualified for taking the test. In addition, they may not be sensitive in the changes of eligibility rules and their changed status in Medicaid. Although they caught the changes, elderly immigrants may have difficulty negotiating the changes or reapplying for Medicaid (Kandula et al., 2004) due to limited fluency in English. The prejudices of frontline workers in the welfare system (Bhuyan, 2010; Grewal, 2005; Ong, 1996, 2003; Park, Bhuyan, Richards, & Rundle, 2011) and wide-spread negative portrayal during political discourses (Fujiwara, 2005; Yoo, 2002, 2008) on racial and ethnic minority groups may also affect disparities in their healthcare service access and in turn health status.

Many studies (Angel & Guarnaccia, 1989; Aroian, 2005; Howard, 1986; Underwood & Adler, 2005; CDC & MIAH, 2004; Wei & Spigner, 1994 ; Wheat, Brownstein, & Kvitash, 1983) documented that cultural differences in health beliefs also affect immigrants' healthcare service use. However, comparing the two welfare regimes of immigrants suggests that aside from language barriers to gaining citizenship, racial/ethnic groups' different cultural beliefs could be ruled out in explaining elderly immigrants' limited healthcare service utilization if any changes are observed among racial/ethnic group after the PRWORA. This is because cultural differences in health beliefs are assumed not to be easily altered solely by the introduction of a new welfare policy.

At the state level, according Fremstad and Cox (2004), most of states where immigrants are concentrated provided state-funded Medicaid to very limited categories of elderly immigrants (i.e., Illinois and New Jersey) or do not have state-funded Medicaid for elderly immigrants at all (i.e., Texas, Florida, Arizona, Washington DC, Hawaii, Maryland, Nevada, Washington, and Virginia) in 2004. Numerous administrative changes, confusion over Medicaid, and failure to update automatic eligibility notification systems (Ku & Garrett, 2000) make prediction of variations among states suspicious. Even within states which provide state-funded Medicaid to unqualified elderly immigrants, who immigrated to the United States after welfare reform and do not have citizenship, some factors including "chilling effect" (Fix & Passel, 1999; Feld & Power, 2000), the numerous administrative changes, confusion over Medicaid case rules, and failure to update automatic eligibility notification systems (Ku & Garrett, 2000) may not also make variations among states significant.

Non-Discretionary Healthcare Service Use

Andersen's (1995) model suggests that an individual's use of nondiscretionary healthcare services will be mostly determined by need of healthcare service use (e.g., health status) and demographic characteristics (i.e., sex and age). Since use of nondiscretionary care is based more on need than predisposing or enabling factors, there should be less change in the use of nondiscretionary care after PRWORA. In addition, the PRWORA allows elderly immigrants to use non-discretionary healthcare services (i.e., emergency Medicaid) regardless of citizenship status if their medical condition is serious enough to threaten their life since emergency medical care is allowed even for otherwise unqualified indigent immigrants without citizenship.

At the culture level, as previously described, it is expected that elderly immigrants from non-English speaking countries are less likely than those from English speaking countries to use discretionary healthcare services (i.e., primary and preventive healthcare services) use, resulting in increased ailments. Therefore, it is a logical conclusion that there will be significant variations among racial/ethnic group in elderly immigrants non-discretionary healthcare service use (i.e., inpatient healthcare services). That is, their serious medical conditions to be treated will not allow them to be discreet in their use of healthcare services and emergency medical care is allowed even for unqualified indigent immigrants without citizenship.

Health Status

Elderly immigrants' health will be affected by availability and quality of healthcare. Therefore, health insurance is a significant indicator of their health. Unlike working-aged immigrants who positively self-select good health maintenance in order to

achieve better odds of gaining entry from a receiving country whose immigration policies favor individuals with better health, skills, and education (Jasso et al. 2004), better health care availability in receiving countries may be of far greater concern to elderly immigrants who are mostly invited by their adult children and may not intend to work in a receiving country. Therefore, during the pre-PRWORA era, newly arrived elderly immigrants' health status will be poor but this disadvantage will diminish or disappear among longer duration of resident cohorts. This is because like most liberal industrialized democracies (e.g., Canada and Australia), the United States granted permanent residents eligibility for the same health benefits as citizens until the PRWORA was enacted in 1996 (Aleinikoff & Klusmeyer 2002; Fix & Laglagaron, 2002).

However, during the post-PRWORA era, newly arrived elderly immigrants' initial health is more likely than the immigrant cohorts with longer residence to report good health. This is because working adults will invite their parents only if they consider the parents to be healthy because the availability of healthcare for their parents is restricted. However, this advantage disappears among those who have lived longer in the United State due to restricted availability of healthcare.

Research Hypotheses

Based on the review of literature, the following research hypotheses for this study are posed in relation to the research questions raised in Chapter I. The research hypotheses related to elderly immigrants' healthcare service use will be described separately for 'discretionary healthcare service use' and 'non-discretionary healthcare service use' because, as Andersen illustrated, factors which explain individuals' healthcare service use behavior is different depending on the level of seriousness of their

diseases and ailments. The research hypotheses related to elderly immigrants' health status are developed in terms of self-assessed health and activity limitations.

Research Hypotheses Related to Healthcare Service Use

1. Discretionary Healthcare Service Use:

1.1) Before the PRWORA, variance at state and federal policy levels will not be significant in elderly immigrants' discretionary healthcare service (i.e., primary and preventive healthcare service) use. After the PRWORA, state and policy levels' variance still will not be significant. However, culture level variance will be significant in elderly immigrants' discretionary healthcare service use before and after PRWORA, suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.

1.2) There will be a significant association between citizenship status and discretionary healthcare service use among elderly immigrants after the PRWORA, while holding other covariates effects constant.

1.3) Before the PRWORA, there will not be a significant association between duration of residence and discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant. However, after the PRWORA, (a) there will be a significant association between duration of residence and discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant, and (b) those with longer residence in the United States will be more likely than newcomers to use discretionary healthcare services only if they are naturalized and insured.

1.4) There will be a significant association between health insurance coverage and discretionary healthcare service use among elderly immigrants both before and after PRWORA, while holding other covariates effects constant.

2. Non-discretionary Healthcare Service Use

2.1) Before the PRWORA, variance at culture, state, and policy levels will not be significant in elderly immigrants' non-discretionary healthcare service use (i.e., inpatient healthcare service). After the PRWORA, only culture level variance will be significant in elderly immigrants' non-discretionary healthcare service use,

suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.

2.2) There will not be a significant association between citizenship status and non-discretionary healthcare service use among elderly immigrants after the PRWORA, while holding other covariates effects constant.

2.3) There will not be a significant association between duration of residence and non-discretionary healthcare service use among elderly immigrants either before PRWORA or after PRWORA, while holding other covariates effects constant.

2-4) Before the PRWORA, there will not be a significant association between health insurance coverage and non-discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant. However, after the PRWORA, there will be a significant association between health insurance coverage and non-discretionary healthcare services among elderly immigrants, while holding other covariates effects constant.

Research Hypotheses Related to Health Status

1. Before the PRWORA, variance at policy, state, and culture levels will not be significant in elderly immigrants' self-assessed poor health and activity limitation due to chronic disease. After the PRWORA, state and policy levels' variance will not be significant, either. However, culture level variance will be significant in elderly immigrants' self-assessed health and activity limitation due to chronic disease after PRWORA, suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.
2. There will be a significant association between citizenship status and elderly immigrants' self-assessed health after the PRWORA, while holding other covariates effects constant. However, there will not be a significant association between citizenship status and elderly immigrants' activity limitation due to chronic disease after the PRWORA because even unqualified indigent immigrants without citizenship with serious medical conditions are allowed to use emergency medical care.
3. Before the PRWORA, there will be a significant and negative association between duration of residence and elderly immigrants' self-assessed poor health and activity limitation due to chronic disease, while holding other covariates effects constant. That is, before the PRWORA, elderly immigrants with longer residence in the United States will be less likely than newcomers to report poor health and activity limitation due to chronic disease. However, after the PRWORA, there

will be a significant and positive association between duration of residence and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant. That is, after the PRWORA, elderly immigrants with longer residence in the United States will be more likely than newcomers to report poor health and activity limitation due to chronic disease.

4. Before the PRWORA, there will not be a significant association between health insurance coverage and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant. However, after the PRWORA, there will be a significant association between health insurance coverage and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant.

The present study has reviewed and developed research hypotheses based on the review of the literature. In the next section, Chapter III, the author of the present study will describe data, measures, data management procedures, research design, and data analysis methods.

CHAPTER 3

DESIGN & METHODS

Chapter III includes description of data, measures, data management procedures, research design, and data analysis methods.

Data and Sample Design

NHIS Data

73 The present study uses the National Health Interview Survey (NHIS) gathered by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC) since the NHIS is the principal source of information on the health of the civilian non-institutionalized population residing in the United States (NCHS, 2009). Since 1957, the NCHS has collected health related information from this population which excludes patients in long-term care facilities, persons on active duty with the Armed Forces, persons incarcerated in the prison system, and U.S. nationals living in foreign countries.

The data are collected through household, face-to-face interviews conducted by interviewers employed and trained by the U.S. Bureau of the Census according to procedures specified by the NCHS. When individuals are not present at the time of interview or they are physically or mentally incapable of responding for themselves, proxy responses by their family members are accepted (NCHS, 2009).

The contents of the NHIS survey have been updated about every 10-15 years. A recent substantial revision was implemented in 1997. Before the last revision, the NHIS data consisted of two parts: 1) a set of basic health and demographic items called the Core Questionnaire; and 2) based on current public health data needs, one or more sets of questions which were called Supplements (NCHS, 2009). Information on insurance, access to health care, and health behaviors, all of which is essential to the present study, was collected in the Health Insurance Supplement File. This file is only available for the years 1986, 1989, and 1992 through 1996 in the NHIS data base.

The last revision in the NHIS program starting from 1997 has three modules: 1) a Basic Module; 2) a Periodic Modules; and 3) a Topical Module (NCHS, 2009). The Basic Module contains three components: the Family Core, the Sample Adults Core, and the Sample Child Core. Starting in 1997, health insurance status has been collected in the Family Core component of the NHIS questionnaire for all members of the family, in addition to each household's composition and socio-demographic characteristics.

NHIS allows for data from more than one year to be pooled to increase the sample size in order to boost the reliability of estimates (NCHS, 2009). For the present study, in order to provide sufficiently large samples of the racially and ethnically diverse elderly immigrant populations, datasets have been pooled: combining the 1993 through 1996 NHIS data from the Health Insurance Supplement files and Family Resource files, combining the 2002 through 2008 NHIS data in the Health Care Access and Utilization (FAU) section in the Person Level file and Family Files from the Family Core. There are reasons why the present study does not include the 1997-2001 NHIS data which were collected right after a series of welfare reforms were implemented. During this time

period, some of the states in the U.S. had eligibility rules in terms of access to public benefits which differ from the ones that they currently implement (Zimmermann, & Tumlin, 1999; Fremstad, & Cox, 2004).

All these data files are available online at the NHIS website, in the form of electronic data files with related documentation, which can be downloaded for free and without obtaining permission. However, information necessary to analyze state level effects and variations among states is restricted in use to protect survey respondents' anonymity (National Center for Health Statistics, NCHS 2009). Researchers who want to use any restricted variables are required to consult with NCHS at CDC to obtain access to the variables. NCHS further stipulates that researchers use the data for aggregated statistical reporting and analysis only, with no reference to source of the data that could lead to identification or contact of survey respondents.

Sampling Methods & Sample Design

The NHIS is a cross-sectional household interview survey and data are collected continuously throughout each year and identified by quarter, which helps to reduce any potential seasonal biases (NCHS, 2009). The data are collected based on a complex, multistage probability sample design that incorporates stratification, clustering and oversampling of some subpopulations. The first stage of the current sampling involves dividing the U.S. into approximately 1,900 geographically defined areas called Primary Sampling Units (PSUs) that mostly consist of a metropolitan area, a large county, or a group of smaller adjacent counties. PSUs are grouped into strata using social and demographic characteristics of the area. In the second stage of sampling, geographic area segments are selected within each PSU, comprising some households. All the selected

households are then assigned a quarter of the year for their interview. Survey participation is voluntary and the confidentiality of responses is assured under Section 308(d) of the Public Health Service Act (NCHS, 2009).

To increase the reliability of estimates, the NHIS started to redesign samples by oversampling the Black population beginning in 1985, based on 1980 Census information, Hispanics starting in 1995, based on 1990 Census information, and the Asian population beginning in 2006, based on 2000 Census information (NCHS, 2009). Each person from these oversampled groups represents a smaller number of individuals than do other persons in the sample. Due to this oversampling, the use of sampling weights is required to as a corrective measure in the present study in order to yield representative population estimates. The major recent redesigns of the survey divide the annual datasets into the following periods: 1985-1994, 1995-2005, and 2006 - present. The data within the same sample design period with the same public use design variables are considered as being statistically dependent since even though the data were collected from different households over multiple years, the data were drawn from the same geographic areas.

Measures

The NHIS program advises that data sets across years can be combined when the questions remain essentially the same over the years. For some variables, however, questions aimed at eliciting basically the same information are not always worded exactly the same way. For accurate analysis, the author of this study sought the advice of statisticians at the NCHS about whether the selected variables from pre-and post-1997

Table 3-1: Variables Used for the Study

Variable Name	PRE (1993-1996)	POST (2002-2008)	Value Categories
[Level Indicators]			
State	Level-three indicator (51 states)		
Culture	Level-two indicator (51 states * 10 race/ethnicity = 510 units of race/ethnicity)		
ID	Level-one indicator (Individuals in the data)		
[Level Variable]			
Race/Ethnicity at Culture Level	RACE HISPANIC	MRACRPI2 HISPAN_1	“Non-Hispanic White” (=0), “Non-Hispanic Black” (=1), “Chinese” (=2), “Filipino” (=3), “API” (=4), “Puerto Rican” (=5), “Cuban” (=6), “Mexican-Mexicano” (=7), “Mexican-American” (=8), “Other Hispanics” (=9)
[Level-1 Variables]			
Length of residence	YRSLIUS	YRSINUS	“Less than 5 years” (=0), “5- 14 years” (=1), or “15 years or more” (=2)
Citizenship	N/A	CITIZENP	“Yes” (=1) or “No” (=0)
Age	AGER1	AGE_P	“65-69” (=0), “70-74” (=1), or “75 or older” (=2)
Marital status	MARSTAT	R_MARITL	“Not married” (=0) or “Married” (=1)
Education	EDUCR	EDUC1	“Less than high school” (=0), “High school” (=1), or “At least some college degree” (=2)
Poverty	POVERTY	RAT_CAT	“Not Poverty” (=0) “Poverty” (=1)
Health insurance	NOTCOV	NOTCOV	“Not covered” (=0) or “Covered” (=1)
Sex	SEX	SEX	“Male” (=0) or “Female” (=1)
Activity limitation	LATOTAL	LACHRONR	“Not limited” (=0) or “Limited” (=1)
Health	HEALTH	PHSTAT	“Healthy” (=0) or “Unhealthy” (=1)
2-week doctor visits	DV2*	PHCDV2W PHCHM2W PHCPH2WR	“Not Visited” (=0) or “Visited” (=1)
Short-stay hospital use	PHOSPYR2*	PHOSPYR2	“Not Used” (=0) or “Used” (=1)

Note: The asterisk (*) indicates that the variables are newly created for this present study. "API" refers to Asian (except Chinese and Filipino) and Pacific Islanders, including native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2009). "Other Hispanic" is operationalized as those who self-identify themselves as "multiple Hispanic," "Chicano," "Other Latin American," and "Other Spanish." Respondents' citizenship status is asked from the 1997 NHIS onward. DV2 was created using the number of 2-week doctor visits. PHOSPYR2 was created using the number of short-stay hospital use during the past 12 months.

NHIS data are comparable with each other. As the following table illustrates, some variables in the post-1997 data needed to be combined to be compatible with the equivalent variable in the pre-1997 data. The following section of this chapter provides operational definitions of the main concepts and an explanation of their recoding as variables for the present study. The original questions described in the NHIS code book are introduced in the appendix.

Measures Used for the Study

Welfare Regime. The welfare regime variable is newly created and used to indicate the two different welfare regimes: periods of the pre-PRWORA (=1) and the post-PRWORA (=2) for this study. Since the PRWORA was implemented in 1996, the pre-PRWORA in this study refers to the pooled data collected through the years from 1992 through 1995 (i.e., from the 1993 to 1996 NHIS data) while the post-PRWORA indicates the pooled data collected from the years of 2001 through 2007 (i.e., from the 2002 to 2008 NHIS data).

State. The term refers to the 50 states and Washington D.C. This state indicator variable is set to state level (Level 3), taking into account the variations of states' different adaptation of the PRWORA.

Race/Ethnicity. This study controlled for the effects of racial/ethnic variations in multilevel models, setting it at Level 2 and naming it “culture level,” based on review of the literature, for example, “groups identified in terms of nationality, race, ethnicity, or socioeconomic status (SES) are often attributed to cultural differences without defining what is meant by culture” (Betancourt & Lopez, 1993, pp. 630) and “the standard practice in cross-cultural psychology is to use the words *society*, *nation*, and *ethnic group*

as practically equivalent to *culture*” (van de Vijver et al., 2008, pp. 52). In addition, it is said that being part of an ethnic group is associated with perceived discrimination and bilingualism (Betancourt & Lopez, 1993; Hayes-Bautista & Chapa, 1987), which contribute to racial/ethnic health and healthcare service use disparities in the United States.

The NHIS program asks respondents’ race and Hispanic origin separately. The designation Hispanic is not a race, but rather, refers to individuals who claim any Spanish speaking country of origin. For the current study, elderly immigrants were divided into 10 groups using race and Hispanic variables from the NHIS program. These variables coded as: non-Hispanic White (=0), non-Hispanic Black (=1), Chinese (=2), Filipino (=3), other API (hereafter, API: =4), Puerto Rican¹² (=5), Cuban (=6), Mexican-Mexicano (=7), Mexican-American (=8), Other Hispanics (=9). Other groups and those who did not identify their race or ethnicity were excluded from the study. The term "API" refers to Asian (except Chinese and Filipino) and Pacific Islanders, including native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2009).

The categories of race and ethnicity in the U.S., which are used in the NHIS program, are defined by the Office of Management and Budget's (OMB) Office of

¹² According to *Downes v. Bidwell*, 182 U. S. 244, one of the U.S. Supreme Court cases, Puerto Rican has a republican form of government, subject to U.S. jurisdiction and sovereignty, but it is not a part of the U.S. Since 1917, people born in Puerto Rico have been give U.S. citizenship, but they are not qualified to vote in federal elections. That is, the United States Constitution does not fully enfranchise US citizens residing in Puerto Rico. In addition, they can renounce U.S. citizenship.

Regulatory Affairs, Statistical Programs and Standard (NCHS, personal communication, June 1, 2012). However, Hispanic ethnicity groups in the NHIS are not defined using the same standards as OMB (1997), but the NHIS and other federal surveys typically use the ethnicity categories that are used in the Decennial Census and the American Community Survey (NCHS, personal communication, June 1, 2012). As the subgroups of Hispanic ethnicity groups, the NHIS contains "Mexican-Mexicano," "Mexican-American," and "Puerto Rican." According to the NCHS, "The terms "Mexican" and "Mexicano" usually represent persons born in Mexico, while the term "Mexican-American" usually represents persons of Mexican ancestry born in the United States. This is not always the case, but it is most often true (NCHS, personal communication, June 1, 2012). " As for the reasons why Mexican-Americans and Puerto Rican can be grouped as "immigrants," the NCHS explains as follows:

"if the person is reported to be born outside the US, they may still report Mexican American for at least two reasons; they came to the US as small children and consider themselves to be Americans or they were born overseas to parents who were citizens and, for instance, in the military. In the same sense, a person who identifies as Puerto Rican could have been born anywhere in the world and still choose to identify themselves as Puerto Rican. A respondent who self-identifies as Puerto Rican cannot be assumed to be American (NCHS, personal communication, June 1, 2012)."

As for defining Puerto Rican and Mexican American as immigrants, they recommend that using the length of time in the U.S. is the most relevant variable for research on immigrants' health (NCHS, personal communication, June 1, 2012). The term "Other Hispanic" is operationalized as those who self-identify themselves as "multiple Hispanic," "Chicano," "Other Latin American," and "Other Spanish."

Health Care Services Use. This study selected from the NHIS data (1) "2-week doctor visits" as a discretionary behavior and (2) "short-stay hospital use" as a non-

discretionary behavior. “Short-stay hospital use” asks whether respondents used a hospital overnight during the past 12 months, and coded “yes” (= 1) or “no” (= 0). The items which constitute the term “2-week doctor visits” in the post-1997 NHIS data include doctor visit, home visits, and phone call contacts with a medical professional. In the pre-1997 data, all these categories are contained in the two questions: one is “care at home or doctor’s visit,” and the other is “phone call contacts with care providers.” There are some differences in the wordings of the questions about health care professionals: The pre-1997 NHIS program defined health care professionals as “all types of doctors, such as dermatologists, psychiatrists, and ophthalmologists, as well as general practitioners and osteopaths,” and defined health care as “care from a nurse or anyone working with or for a medical doctor.” The post-1997 NHIS asks survey respondents to consider health care to be “care from all types of medical doctors, such as dermatologists, psychiatrists, ophthalmologists, and general practitioners,” as well as “care from other health professionals such as nurses, physical therapists, and chiropractors.” For this study, a respondent who received any medical services during the past-2 weeks such as doctor visits, home visits, and phone call contacts was coded as yes (= 1), otherwise he/she was coded as no (= 0).

Health Status. For this study, respondents’ (1) self-assessed health status and (2) activity limitation status due to one or more chronic diseases were selected as variables. The Health Insurance Supplement file in the pre-1997 data and the Health Status and Limitation of Activity Section (FHS) in the Person-Level File of the post-1997 data contain information about respondent-assessed overall health status (HEALTH and PHSTAT) and respondent-assessed disabilities and limitations (LATOTAL and

LACHRONR respectively). For the purpose of analysis in this study, self-assessed health status was collapsed into a binary variable, distinguishing between those who reported themselves to be “healthy” (= 0) (in excellent, very good, or good health) or “unhealthy” (= 1) (in fair or poor health). According to McGee, Liao, Cao, & Cooper (1999), self-perceived health status is commonly used for respondents’ general health status and is correlated with mortality to a high degree. In addition, self-assessed health can be a good proxy for health status (Idler, Kasl, & Lemke, 1990; Newbold, 2005) and can reflect physical as well as mental health (Davies & Ware, 1981). In this sense, Young and Spitzer (1999) further defined self-assessed health as a viable measure of adaptation to one’s environment. The concept of disabilities and activity limitations status refers to whether respondents were limited in their activities due to one or more chronic conditions. The question for limitation of activity includes work limitations, the need for assistance with personal care needs such as eating, bathing, dressing, getting around inside the home, the need for personal assistance with handling routine tasks such as everyday household chores, doing necessary business, and shopping or running errands (NCHS, 2009). It is also coded for this study as “limited in activities” (= 1) or “limited in activities” (= 0).

Citizenship. Respondents’ citizenship status is asked from the 1997 NHIS onward. That is, the data before the enactment of the PRWORA do not elicit the variable pertaining respondents’ citizenship status.

Duration of Residence in the United States. This study use YRSLIUS (pre-1997) and YRSINUS (post-1997) in the NHIS program for the duration of residence in the U.S. after combining them. For this study, the duration of residence variable is

collapsed into three categories: less than 5 years of residence (= 0), 5 – 14 years of residence (= 1), and 15 or more years of residence (= 2).

Health Insurance Coverage. The NHIS program measured health insurance coverage status by combining all public and private health insurance coverage. Public health insurance coverage includes any health insurance such as Medicare, Medicaid, and SCHIP, which are provided by the government at federal, state, or local levels (NCHS, 2009). The Indian Health Service, TRICARE for the Military, the Veterans Administration, and CHAMP-VA are also considered public coverage health insurance. Private coverage health insurance includes any form of insurance purchased and obtained through a method other than governmental health insurances. This study considers individuals as “not insured” (= 0) if they had no form of any public or private health insurance coverage or “insured” (= 1) if they were covered by any types of health insurance.

Poverty. While the pre-1997 NHIS data used the poverty thresholds as a (POVERTY) variable, the post-1997 NHIS data use the income-to-poverty ratios (RAT_CAT in the 1997-2006 data and RAT_CAT2 in the 2007-2008 data). The poverty threshold is a ratio of the previous calendar year’s income value reported by respondents to the poverty threshold for the same year, given the information of the family’s overall size as well as the number of children aged 17 and under who were resided with the family. The poverty status variables in the NHIS program indicate that the poverty status of a family group is assigned to each member of the family in order to treat it as a person-level variable. The indicator of poverty status was created by utilizing published

information from the U.S. Bureau of Census regarding poverty 99 thresholds (NCHS, 2009).

Marital Status. The marital status variable in the post-1997 data contains two more value categories which are “Married-spouse in household unknown” and “Living with partner”. To make the variable comparable across NHIS data years in this study, the present study dichotomized this variable as “Married” (= 1) or “Others” (= 0) except for the “Unknown” category in pre-and post-NHIS data. The main reason is that a person could be both “divorced” and “living with partner,” both “never married” and “living with partner,” etc. The value category for “Married” (= 1) includes only those who are married at the time of interview regardless of whether they cohabit with their partners.

Elderly immigrants’ age is coded “65-69” (=0), “70-74” (=1), and “75 or older” (=2). Their educational achievement level is coded “less than high school diploma” (=0), “high school diploma” (=1), and “at least some college degree” (=2). As for their gender, male elderly immigrants are referenced (=0).

Data Management

Data management was conducted using SAS version 9.2 (SAS Institute Inc., 2008). The data in this study are derived from the Health Insurance Supplement File and Family Resources File of the NHIS from 1992 through 1996 and also from the Person Level File and Family Level File of the Family Core of the NHIS from 2002 through 2008. After all the necessary data were downloaded from the NHIS webpage on the Internet (with the exception of the state indicator variable since it is a restricted variable to the Research Data Center at CDC), efforts for setting the data to analyze included identifying and selecting variables of interest, matching and cleaning the variables across

different datasets across years for analysis. Following these steps, the datasets were combined while some variables have been relabeled for easier analysis, and values of some variables were re-categorized appropriately in accordance with the goals of the present study. The data were screened and checked for any mistakes by running frequencies and matching these results with the ones before combination of the data sets in order to provide a true quality control prior to the analysis of the data.

Data merging and appending. The NCHS provides information on how to merge data files within a data set (usually called data merging) and how to pool data across different data years (usually called data appending). It also provides recommended methods for analysis of pooled data. These methods have been applied for the present study as recommended by the NCHS. The pooled data set was completed through a combination of within and across sample designs: 1993-1994, 1995-2005, and 2006-2008. During those sample design periods, there have been changes of design variables (e.g., PSU, STRAT, WTFA): 1993-1994, 1995-1996, 1997-2005, and 2006-2008. The range from 1995 to 2005 is one sample design period, but there are different public-use variance estimation structures for 1995-1996 and 1997-2005. The following table presents the time period changes in sample design and design variables. The table does not include the time period 1997-2001 because the data from that time period are omitted from this study. After selecting the variables including the design variables, the author of this study merged the files within each single year and then combined the data within the same design variable period, according to the recommendations of the NHIS (NCHS, 2009).

Table 3-2: Data Years for Sample Designs and Design Variables

YEAR	1993-1994	1995-1996	2002-2005	2006-2008
TIME	PRE-PRWORA		POST-PRWORA	
SAMPLE DESIGN				
DESIGN VARIABLE				

The following discussion explains the details of merging files within each single year and of combining datasets across the same design variable years.

Merging files. NHIS data files can be merged within a data year to incorporate variables from different files when respondents are common to both files (NCHS, 2009). For this study, data merging occurred in each NHIS data set. In the datasets before the 1997 NHIS, the Health Insurance Supplements files are merged with the Family Resources file for the health insurance coverage status. In the data sets after the 1997 NHIS, the Person Level files are merged with the Family Level files for the poverty level status.

The NOTCOV (Health insurance coverage status), SSIPX (SSI status) and WFRTYP (Welfare recipient status) variables in the Family Resources file need to be merged into the Health Insurance Supplements file, using the household (e.g., HHID) and person number (e.g., PNUM) identifiers. The Person Level files in data sets after the 1997 NHIS program do not contain the poverty level status, so it is only available from the Family Level files. To incorporate the poverty level variable (RAT_CAT or RAT_CAT2) to Person Level file, the household, family, and person record identifiers (HHX, FAX and FPX, respectively) are used.

Appending years of data. The NHIS data are allowed to combine across years to increase the sample size for the precision of estimates (NCHS, 2009). Since the NHIS

program collects information from the representatives of the civilian non-institutionalized population of the U.S. each year, combining data years without adjusting the weights for the population will inflate the size of the populations as many times as the years are combined (NCHS, 2009). To address this inflation of representative population, the NCHS recommends that the sum of weights for the combined datasets be divided by the number of years of datasets which are being used. The combined data across years with weights adjusted for the civilian non-institutionalized population can be treated as a single year.

To combine the datasets across years, the datasets from the same design variable (e.g., STRATA, PSU, and WTFA) years are first combined: in this case, combining from 1993 to 1994, from 1995 to 1996, from 2002 to 2005, and from 2006 to 2008. Even though the range from 1995 to 2005 is one sample design period, meaning the datasets share the same sampling methods, the sample design between the 1995-1996 data and the 1997-2005 NHIS data are not the same. Before appending data across different sample design periods, therefore, the 1995-2005 datasets should be combined first while renaming the design variables to have consistent names across and adjusting the weights by the number of year which are being used (NCHS, 2009). The variance estimation variables in the Person Level file of the 1995 NHIS data are VARSTRAR (STRATA for variance estimation), VARPSUR (PSU for variance estimation), PANEL (PANEL4), and TYPEPSU (Type of PSU). For the 1996 NHIS data, COLVARST (Collapsed variance stratum) and PANEL (PANEL4) are used. COLVARST is a modified design variable provided with the 1996 data files. The author of this study followed the guidance in

Design Information Available on the 1995 NHIS public Use Data Files by NCHS

(NCHS, 2009). The SAS codes used for this procedure are as follows:

```
/*FOR 1995 DATA*/
STRATUM=VARSTRAR;
PSU=PANEL;
IF (VARPSUR=5) THEN PSU=INT ( (PANEL+1) /2) ;
IF (VARPSUR=8) THEN STRATUM=553;
IF ( (TYPEPSU=1) AND (VARPSUR IN (2,4)) ) THEN STRATUM=(VARSTRAR-
1) ;
IF ( (VARSTRAR=921) AND (VARPSUR=3) ) THEN STRATUM=901;
RUN;

/*FOR 1996 DATA*/
STRATUM=INT (COLVARST/10) *10;
PSU=PANEL;
RUN;
```

Once the datasets are appended within the sample design periods, the datasets are combined across the three different sample design periods while recalculating the variances. Since there are three different sample design periods, the data set has different lengths of the stratum identifiers. To address the issue in pooling the datasets, the NCHS recommends the creation of new design variables to be combined into one set of data (NCHS, 2009). To address the other issue of having different lengths of the stratum identifiers, the NCHS recommends recoding the stratum identifier variables, adding 3 different 4-digit numbers to them in order to give the same length, yet be distinctive from each other. The reason for using a 4-digit number as the stratum identifier instead of a 2 or 3 digit number is that the number of stratum identifiers starts from 1, 2, ..., and so on, and does not exceed 3 digit numbers. To ensure that the stratum identifiers have the same length but are distinctive from each other, this study followed the formula as follows:

1993-1994 data: New stratum (NSTRATUM) is old stratum (CSTRATUM) + 1000

1995-2005 data: New stratum (NSTRATUM) is old stratum (STRATUM) + 2000

2006-2008 data: New stratum (NSTRATUM) is old stratum (STRAT_P) + 3000

Variance Estimation and Sampling Weights

The data collection methods used for the NHIS program are very complex, involving stratification, clustering, and oversampling for certain populations. Moreover, NCHS makes post-stratification adjustments by age-sex-race to the Census Bureau: The 1982-1994 weights derived from 1980 census-based population estimates; the 1995-2002 weights derived from 1990 census-based population estimates; and starting with 2003, weights derived from 2000 census-based population estimates. Due to the sample design and the ratio adjustments to the Census Bureau, each variable in the data should be weighted by using relevant weight variables which are included in the accompanying data file for analyses. For the present study, three technical variables are needed for analysis of the NHIS data: 1) a Final annual weighting variable (e.g., WTFA), 2) a Strata design variable for public use file variance estimation (e.g., STRATUM), and 3) a Primary Sampling Units variable for public use file variance estimation (e.g., PSU).

Variance estimation. The Strata design variable (e.g., STRATUM or STRAT_P) represents the sample design stratification. This variable facilitates the stratification effects on the variance estimation. The Primary Sampling Units variable (e.g., PSU or PSU_P) is a sample design clustering variable. This variable facilitates the sample clustering's effects on variance estimation. These design variables share the same name within a sample design period with the exception of 1995 and 1996. For example, the years 1995-2005 are in the same design period, but VARSTRAR is used for strata design variable in 1995-1996 and STRATUM is for 1997-2005. The procedure follows the NCHS advice that the data in the two different design variable periods (1995-1996 and

1997-2005) within the same sample design period (1995-2005) should be treated as independent samples.

Adjusting sampling weights. Since each respondent in the NHIS data represents the total group of U.S. non-institutionalized civilians for a given year, pooling multiple years of data without weighting inflates the number of populations by a multiple equal to the number of years of data being pooled. Therefore, sampling weights need to be adjusted by the number of years by using an appropriate weighting variable. The final annual weighting variable such as WTFA is based on sample design, ratio, non-response and post-stratification adjustments. NCHS advises that this variable be used in most analyses of family and person level data. This final annual weighting variable facilitates national estimates of all person level variables.

After the data within the same design variable by recalculating weights has been pooled, it results in the construction of three structures of sample design periods: 1993-1994, 1995-2005, and 2006-2008. The data in each sample design period are considered as one year of data since when pooling within the same design period, the weight each pooled dataset is already divided by the number of years in the set. When finally pooled from different sample design periods, the data only needs to have its weight divided by three since there are three different sample design periods.

Research Design

Reasons for Use of Multilevel Models

The current study uses multilevel models in order to resolve some technical issues inherent in its design, as well as to take advantage of certain features of multilevel models. One of the assumptions in the use of ordinary least squared (OLS) models in the

standard regression model is that the residual from individual i should not be correlated with any of the other residuals in the sample, as usually illustrated in the statistics notation, $e_i \sim i. i. d. N(0, \sigma^2)$ (Bryk & Raudenbush, 1992; Kenny & Judd, 1986).

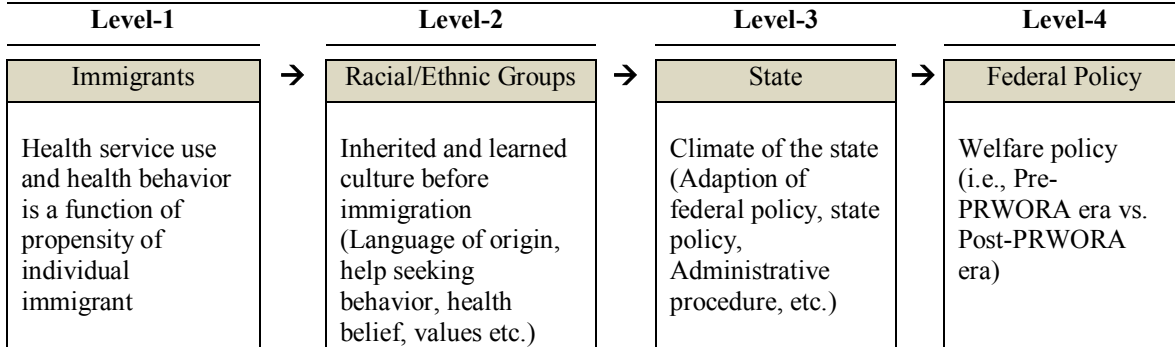
However, the literature cited in the previous section in this chapter includes reports of variations between racial/ethnic groups, but some correlation within a racial/ethnic group. The differences among racial/ethnic groups in terms of immigrants' health status and their use of health care services may have come from different culture and health beliefs or from different levels of acculturation, responding to characteristics of the receiving society (e.g., discrimination and opportunity structures). In other words, individuals within a racial/ethnic group are likely to share a similar culture, language, and belief systems; moreover, they may experience similar discrimination and opportunity. In this case, the unit of analysis cannot be independently observed since the individuals seem to be correlated with each other within a given racial/ethnic group.

The literature also reports that implementation of the PRWORA in 1996 affected people's behaviors in seeking public assistance, which suggests that there might be differences between pre- and post-PRWORA behaviors with respect to this variable. In addition, after this welfare reform, some states have continued to allow even post-enactment elderly immigrants without citizenship to use public assistance, while others have not. Based on these facts, it is assumed that people are supposed to be affected by the state policies so their behaviors will be different, depending on the states they belong to. With this consideration in mind, any differences among racial/ethnic groups within a state which has one certain policy should not be interpreted in the same way as the differences among racial/ethnic groups within a state which has a different policy.

However, OLS models are not robust to the violation of independence assumption (Bean, 1975; Binder, 1983; Bryk & Raudenbush, 1992; Kenny & Judd, 1986; Pavur & Nath, 1984). For example, at Level 1, researchers will conclude that Level 1 variables are less likely significant than is warranted by the data (Type II error), but at Level 2, the opposite effect occurs, i.e., the Level 2 variables are too likely to be significant (Type I error). Van de Vijver, Van Hemert, and Poortinga (2008) have also advised one not to interpret the differences between individuals within the same racial/ethnic group in the same way as the differences between individuals from different racial/ethnic groups. According to these researchers, disregarding the correlation in the hierarchical structure and simply running a traditional multiple regression modeling will lead to a failure of accuracy in the variance estimation, the standard errors of regression coefficients will be underestimated, and in turn, will overestimate the statistical significance. By contrast, multilevel models can tell whether the response variables cluster as a function of group membership (e.g., race/ethnicity, and state in this present study) by testing whether between-group variation is significant or not and how much the variations exist across groups (Bliese, 2000).

Another reason for using multilevel modeling is the structured nature of the data (Bliese, 2002). Data from social science and human behavioral science are often hierarchical in nature. The NHIS data contain hierarchical structure variables of year and state. Moreover, in the study of social and human science in which designs are commonly unbalanced, missing data occur frequently, while the researcher often has both continuous and categorical predictors. Multilevel models have considerable utility as a way of controlling for non-independence of data and are robust with respect to

Figure 3-1: Hierarchical Data Structure in the Study



unbalanced data (Bryk & Raudenbush, 1992; Bliese, 2002). However, ANOVA which uses OLS methods is based on the conditions of balanced data, the absence of missing data, and independent variables being categorical.

Furthermore, Carle (2009) and Bliese (2002) have recommended using multilevel modeling in studying the impact of a policy. Nested data provide an opportunity to incorporate different levels of analysis into a single statistical model simultaneously, thus allowing for investigation of contextual effects. In OLS models, individual level and group level random errors are not separately estimated (Bryk & Raudenbush, 1992; Hofmann, Griffin, Gavin, 2000), but multilevel modeling allows researchers to better understand individual and cluster level influences on policy successes since this approach facilitates the investigation of individual and contextual (cluster) level differences simultaneously (Bryk & Raudenbush, 1992; Carle, 2009; Hofmann, Griffin, & Gavin, 2000). On the other hand, if one tries to infer relationship between variables at cluster level with variables at the individual level, one commits an ecology fallacy (Van de Vijver, Van Hemert, & Poortinga, 2008). Multilevel models can also tell whether response variables cluster as a function of group membership by testing if any between-

group variations are significant and to what extent these variations exist across groups (Bliese, 2002).

According to Van de Vijver, Van Hemert, & Poortinga (2008), acculturation issues have a strong multilevel component because individual-level outcomes involve cultural and ethnic traits as well as immigration policies. As a possible solution, they suggest using multilevel analysis to examine study participants' perception of cultural distance.

Acculturation issues have a strong multilevel component. Psychologists are usually interested in individual-level outcomes such as knowledge of the language of the host country and mental health, while the distal data with a bearing on these outcomes are usually nonpsychological and involve cultural distance, ethnic vitality, and immigration policies. It is possible to “psychologize” these variables by examining the perception of the cultural distance by participants. Such an approach can be sensible if only a single group of immigrants is studied who by definition all have the same standing on the antecedent variables. However, a study in which a sufficient number of immigrant groups are included to enable multilevel analysis offers a much better approach to address the influence of the antecedent variables. We expect to see a growing number of acculturation studies that use multilevel approaches (pp.425).

As for hierarchical dimension of the current study, Figure 3-3 illustrates that individual elderly immigrants (Level 1) are nested within the racial/ethnic groups¹³ (Level 2) they belong to, in which they are assumed to share the same cultural practices, health beliefs

¹³ Andrew Gelman and Jennifer Hill (2007) described the use of race/ethnicity and states in their book, *Data Analysis Using Regression and Multilevel/Hierarchical Models*, stating “We consider multilevel modeling as generally applicable to structured data, not limited to clustered data, panel data, or nested designs. For example, in a random-digit-dialed survey of the United States, one can, and should, use multilevel models if one is interested in estimating differences among states or demographic subgroups-even if no multilevel structure is in the survey design” (pp. 9).

and acculturation. The diverse racial/ethnic groups within states are assumed to be affected by their states' different adaptations (Level 3) of the federal welfare policies, as well as by different welfare regimes (Level 4), i.e., pre-and post-PRWORA. For this study, the data will be analyzed using random intercept, as well as variance component models.

Number of Groups per Level in Multilevel Analysis

The minimum number of groups per level that are required in order to use multilevel analysis seems to be controversial. However, Gelman and Hill (2007) insist that the requirement of a minimum number of groups per level is misguided. According to these researchers, the main issue arising from the use of small sample sizes is related to a technical issue in the estimation of variance parameters between groups. Thus, a multilevel model should still work at least as well as classical regression at the same time, it can sometimes facilitate easier interpretation of parameters. For example, because a multilevel model can include indicators for all groups at levels while a classical regression model needs to select one group as a reference group. Gelman and Hill sum up their position, saying "Even with only one or two groups in the data, multilevel models can be useful for making predictions about new groups (pp. 276)."

Assumption Test for Multilevel Models

In checking multilevel model assumptions, the following are the assumptions to be checked for continuous response variables when using multilevel random slope models (Snijders & Bosker, 1999, pp. 120):

- 1) The linear dependence of the dependent variable on the explanatory variables and the random effects

- 2) The independence of the residuals at Level 1 as well as the higher level or levels
- 3) The specification of the variables having random slopes which implies a certain variance and correlation structure for the observation
- 4) The normal distributions of the residuals

In sum, these assumptions are related to the correct specifications of variables in the fixed part and the random part of the model, the normal distribution and the constant variance of Level 1 residuals, and the normal distribution and the constant covariance matrix of the random coefficients of the upper level or levels (Snijders & Bosker, 1999). As for the correct specifications of variables in the fixed and random parts of the model, there is the possibility that some possible covariates can be omitted in the present study due to the use of secondary data. In this case, Snijders and Bosker (1996) suggest careful interpretation in making causal relationship. In support of this position, they assert that “in a multilevel design, there is possibility that supposed level-one effects are in reality, completely or partially, higher level effects of aggregated variables” (pp.124). Another option suggested by Snijders and Bosker (1996) is to transform explanatory variables using, for example, aggregation to group means or group standard deviations, calculating products or other interaction variables, as well as quadratic splines. On the other hand, with categorical responses and explanatory variables in the current study models, careful interpretation in making causal relationship will be made, instead of transforming the variables.

As for the normal distribution and the constant variance of level-one residuals assumption, the assumption of normality is not met and the assumption of homoscedastic errors is violated when the response variable is binary (Hox & Maas, 2005) as in the current study. Hence, there is no need to check for the normality and homoscedasticity assumptions. However, Snijders and Bosker (1996) suggest that using generalized linear

models (GLM) with the appropriate link function can resolve this violation of the normality assumption. The current study used logistic regression with the logit link function to estimate the parameters.

Snijders and Bosker (1996) also warn that if certain variables are mistakenly omitted from the random part of the model, the tests of their fixed coefficients may also be unreliable. A random slope implies a heteroscedastic specification of the variances in the observations and of the covariance between level-one units in the same group (Level 2 unit). The current study checked for randomness of slopes of explanatory variables by looking at kernels of each density of distribution which are provided through trajectories of each model in MLwiN with Markov Chain Monte Carlo (MCMC) methods, finding no particular randomness within level-one units in the same group. Hence, the current study will use random intercept models. In addition, because of the non-linear nature of the link function, there is no simple relation between the variance of probabilities and the variance of the deviations (Snijders & Bosker, 1999). So, approximation is applied for the estimation of the population variances. The current study used MCMC for approximation. According to Browne (2009), the MCMC methods, which allow Bayesian models to be fitted where prior distributions for the model parameters are specified, are the best with a small number of Level 2 or upper level units with discrete response models. In addition, the MCMC procedure does not require the normality assumption when making inferences for variance parameters.

Software Packages Used in the Study

The NHIS data are not from a random sample, but from complex survey designs involving stratification, clustering, and unequal sampling to match current populations

proportionally to those in the U.S. Census. The final weights (e.g., WTFA) are already given by NCHS for analytic purposes, which have been adjusted in several ways to permit calculation of valid estimates for the civilian, noninstitutionalized population of the United States (NCHS, 2009). For the weights at the individual level and descriptive statistics for the population, the current study will use SAS 9.2. The sampling weight used in estimating single-level models in SAS 9.2 is computed as the inverse of the probability that the individual was selected from the population and represents the number of individuals in the population that are likely to answer the survey in a manner similar to the individual interviewed (Chantala & Suchindran, 2006). The present study uses SURVEYFREQ and SURVEYMEANS procedures in SAS 9.2 for descriptive statistics including means, totals, and proportions of the population because in SAS 9.2 these procedures produce accurate values by taking into account the unequal probabilities of selection (An, 2004; Carlson, 1998).

Even though SAS 9.2 uses appropriate design-based analysis techniques for complex survey data, it estimates single-level (population-average or marginal) models from such data (Chantala & Suchindran, 2006). Therefore, it cannot analyze multilevel models with complex survey data. The software programs which allow for multilevel analysis with complex survey data include MPLUS, LISREL, GLLAMM, and MLwiN. From among these groups, the current study will use MLwiN 2.02 (Rasbash et al, 2009) for inferential statistics in multilevel models since it is “the best-known specialized software for multilevel analysis” (Hox & Maas, 2005, p.792). Various researchers contend that MLwiN produces better variance estimates in multilevel models and can fit

models with up to five levels with complex survey data (Carle, 2009; Chantala & Suchindran, 2006).

In terms of its estimation procedures, MLwiN uses Iterative Generalized Least Squares (IGLS), Repeated Iterative Generalized Least Squares (RIGLS), and MCMC (Browne, 2009). The current study will use MCMC since it is best with a small number of Level 2 or upper level units with discrete response models; moreover, its procedures do not require the normality assumption when making inferences concerning variance parameters (Browne, 2009). This requirement does not apply because MCMC methods allow Bayesian models to be fitted where prior distributions for the model parameters are specified.

Analytical Methods

The analysis for the current study will be performed in two stages. First, main predictors will be descriptively analyzed with respect to each response variable by using the proportion of the weighted values developed by the NHIS program. The analysis incorporates the PROC SURVEY procedures in SAS 9.2. After descriptively analyzing the data, a series of multilevel models will be analyzed, starting from the variance component models. Afterwards, analyses will be further extended by including predictor variables, allowing variables of interest to vary at upper levels. The details of the analysis methods are as follows.

Fitting Binary Response Variables

For binary response variables (DV2, PHOSPYR2, HEALTH, and LATOTAL), the current study will use a logit model. The standard assumption is that the response

variable has a Bernoulli distribution. The form of a logit model with one predictor variable is as follows:

$$\text{logit}(\pi_i) = \log\left(\frac{\pi_i}{1 - \pi_i}\right) = \beta_0 + \beta_1 x_i$$

where π_i are probabilities. In the logit model, $\frac{\pi_i}{1 - \pi_i}$ is the ratio of the probability of occurrence of an event to the probability of its not-occurrence. When logit is used as a link function, the parameters denoted as β are the log of the odds ratio for the occurrence of the event at $x + 1$ (i.e., one unit increase in x) to the occurrence of the event at x . The exponential of the log of the odds ratio (i.e., $\exp(\beta)$) is the predicted odds. A predicted odds ratio = 1 (i.e., $\exp(\beta) = 1$) indicates that the probability that Y equals 1 is the same value as when X is increased by one unit. For example, a predicted odds ratio of 0.5 indicates that $Y = 1$ is half as likely with an increase of X by one unit. Similarly, a predicted odds ratio of 1.5 indicates that $Y = 1$ is 1.5 times more likely with an increase of X by one unit.

Multilevel Models Related to Healthcare Service Use and Health

The models below will be used in this study to examine the effect of PRWORA on elderly immigrants' use of healthcare services and their health, as well as disparities between the health and use of healthcare services on the part of U.S.-born older adults and their foreign-born counterparts, in an attempt to provide answers to the previously stated research hypotheses.

Variance components model. To develop a baseline for further analyses, as well as to locate the greatest variation among the levels, this study will first do variance

components analysis with respect to each response variable. Variance components analyses allow the investigator to estimate the amount of variation among groups relative to the amount within groups, enabling the investigator to compare the groups (Snijders & Bosker, 1999). The variance components model (VCM) presents how the residual variance is partitioned into components corresponding to each level in the hierarchy since it allows the overall probability of the response variable to vary across groups at each level. This model helps to identify the main source of any variation of each response variable, and to estimate the amount of variation of between-groups relative to that which occurs within-groups, through use of the Intra-Class Correlation (ICC; Goldstein, Browne, & Rasbash, 2002). It measures the extent to which the response value, y , of individuals in the same group is similar to each other as compared to those from individuals in a different group (Goldstein, Browne, & Rasbash, 2002). The following is a four-level logistic variance component model.

$$\text{logit}(\pi_{ijkl}) = \beta_{0jkl}$$

$$\beta_{0jkl} = \beta_0 + f_{0l} + v_{0kl} + u_{0jkl} + (e_{ijkl})$$

$$[f_{0l}] \sim N(0, \Omega_f): \Omega_f = [\sigma_{f0}^2]; [v_{0kl}] \sim N(0, \Omega_v): \Omega_v = [\sigma_{v0}^2]; [u_{0jkl}] \sim N(0, \Omega_u): \Omega_u = [\sigma_{u0}^2] \quad (1)$$

Where $i=1, \dots, N(\text{elderly immigrants})$, $j=1, \dots, C(\text{culture level}^4)$, $k=1, \dots, S(\text{state level})$, $l=1, \dots, T(\text{policy level})$

Equation (1), which has no explanatory variables, is formulated to present the variations of healthcare service utilization and health. The policy level represents the

years under the differential welfare policies' influence. The culture level represents diverse racial/ethnic groups. This culture level helps characterize the social context within which individuals (e.g., elderly immigrants) were socialized (Smith, 2002). This model has three random intercepts which indicate policy level variation [f_{0l}], state level variation [v_{0kl}], and culture level variation [u_{0jkl}]. They are assumed to follow normal distribution with a mean of zero and variance of $\sigma_{f_0}^2$ for policy level, $\sigma_{v_0}^2$ for state level, and $\sigma_{u_0}^2$ for culture level.

The Level 1 variance, which is denoted as e_{ijkl} in the parenthesis, is set to $\frac{\pi^2}{3}$ since the Level-1 residual has the logistic distribution (Snijders & Bosker, 1999). Hence, the Level 1 variance is not explicitly specified in the model. Any level which has severe variations might invite an investigation of its inherent differences by identifying level variables which can plausibly explain the variations. The level with severe variations also draws policy makers' attention for policy implications (Carle, 2009).

Multilevel random intercept models. Variance components models do not explain the effects of covariates in the model since the models only present the amount of response variations at each level. To examine the effects of covariates and contexts, the variance component models have been extended by including covariates and contextual variables (i.e., level variables) into the model.

$$\text{logit}(\pi_{ijk}) = \beta_{0jk} + \beta_1 x_{ijk} + \beta_2 x_{jk}$$

$$\beta_{0jk} = \beta_0 + v_{0kl} + u_{0jkl}$$

$$[v_{0kl}] \sim N(0, \Omega_v): \Omega_v = [\sigma_{v_0}^2]; [u_{0jkl}] \sim N(0, \Omega_u): \Omega_u = [\sigma_{u_0}^2] \quad (2)$$

Where $i=1,\dots,N(\text{elderly immigrants})$, $j=1,\dots,C(\text{culture level}^{15})$, $k=1,\dots,S(\text{state level})$

Equation (2) presents the effects of main research explanatory variables (i.e., duration of residence, health insurance coverage status, and other covariates at the individual level. In this equation, for simplicity, $\beta_1 x_{ijkl}$ represents a vector of explanatory variables at the individual level, including citizenship ($\beta_{1-8} x_{CITIZENP}$), length of residence in the United States ($\beta_{1-1} x_{YRS-IN-US}$), health insurance coverage ($\beta_{1-2} x_{INSURANCE}$), poverty ($\beta_{1-3} x_{POVERTY}$), age ($\beta_{1-4} x_{AGE}$), educational achievement ($\beta_{1-5} x_{EDUC}$), marital status ($\beta_{1-6} x_{MARITL}$), and sex ($\beta_{1-7} x_{SEX}$). This model also includes a level variable to examine contextual effects. This study had one level variable at Level-2. The term $\beta_2 x_{jk}$ represents the fixed effects of racial/ethnic groups in Level 2. In order to investigate the effects of citizenship, the parameters in the model were estimated without citizenship initially, and then were estimated after citizenship is added to the model. This model will be estimated separately for the pre-PRWORA and the post-PRWORA, resulting in three-level modeling analyses.

The current study provides Bayesian Deviance Information Criterion (DIC) values for each model in the tables to diagnose how well the models fit the data. The deviance with MCMC sampling to derive a diagnostic is a generalization of the Akaike's Information Criterion (Spiegelhalter et al., 2002). Like AIC, models with smaller Bayesian DIC values fit better to the data.

CHAPTER 4

ANALYSIS

Descriptive Analysis

Proportional Differences by Race/Ethnicity and by the PRWORA

According to Table 4-1, the average number of elderly immigrants in the United States ages 65 or older was approximately 2.7 million from 1993 through 1996. However, during 2002 through 2008, the number increased to approximately 3.8 million. In 2008, the number was as high as 4.4 million. Duration of residence in the U.S. (shown in Table 4-1), however, reflects that the number of newly-arrived elderly immigrants conspicuously decreased. Among the racial/ethnic groups, the greatest decreases were observed in the Chinese (from 20% to 6%, $p<.001$), Filipino (18% to 3%, $p<.001$), and API (16% to 4%, $p<.001$) groups.

The percentage of elderly immigrants without health insurance coverage before the enactment of the PRWORA was 3.5%, but it rose to 4.2% after the PRWORA (not seen in Table 4-1). However, the percentage of coverage among Chinese immigrants, in particular, greatly increased from 87% to 96% and the changes were significant ($p<.001$). Considering Choi's (2006) study reporting that there is a positive correlation between the duration of residence in the U.S. and health insurance coverage status, the high proportion of health insurance coverage among Chinese immigrants after the PRWORA reflects the decrease in numbers of newly-arrived elderly immigrants, resulting in small proportion of newly-arrived elderly immigrants.

Table 4-1: Proportional Distribution of Select Immigrant Populations in the United States for Period of 1993-1996 (Pre-PRWORA) and 2002-2008 (Post-PRWORA)

	White ¹		Black ²		Chinese		Filipino		API ³		Puerto Rican ⁴		Cuban		Mexican-Mexicano ⁵		Mexican-American ⁶		Other Hispanic ⁷		
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Unhealthy	27	25	32	32	19	26 [†]	17	24 [†]	36	29 [†]	41	41	44	35 [†]	42	44	41	33 [†]	34	33	
Disabled	37	33 ^{**}	43	30 ^{**}	22	29 [†]	29	23	22	25	44	36 [*]	46	29 ^{***}	45	36 ^{**}	48	33 ^{**}	36	27 ^{**}	
DV2 ⁸	22	30 ^{***}	25	28	13	23 ^{**}	19	22	21	24	18	31 ^{**}	25	27	28	23	17	26 [*]	24	24	
PHOSPYR ⁹	15	16	12	18	10	12	15	12	6	10 [†]	18	20	15	13	17	15	18	22	15	12	
YRSINUS ¹⁰	3	1 ^{***}	6	3	22	7 ^{***}	17	2 ^{***}	14	4 ^{***}	10	4 [*]	1	4 ^{***}	4	4	1	2 ^{**}	8	6 ^{**}	
<5																					
5-14	5	7	15	13	37	15	40	16	31	15	8	6	6	9	11	11	1	7	18	11	
15+	92	92	78	84	41	78	42	81	55	81	82	91	92	87	85	86	98	91	74	83	
Covered	98	98	90	94	84	97 ^{***}	95	98 [*]	93	96 [*]	99	99	99	97 ^{***}	93	87 ^{**}	97	95 [†]	89	91	
Poverty	7	11 ^{**}	16	23	10	24 ^{**}	16	14	15	19	38	27 ^{**}	13	25 ^{***}	31	33	22	18	24	28	
Age																					
65-69	26	29 ^{***}	37	42	27	32	29	44 ^{***}	51	41 ^{**}	37	38	35	31 ^{***}	36	41	36	39	37	38	
70-74	27	21	27	28	32	27	34	24	25	29	30	26	28	19	25	26	26	24	21	25	
75+	47	50	36	33	41	41	37	32	23	31	33	36	36	50	38	33	38	37	42	37	
Education < High	38	26 ^{***}	55	42 ^{***}	54	32 ^{***}	43	19 ^{***}	49	32 ^{***}	75	58 ^{***}	57	48 ^{***}	88	85	79	79	58	48 [†]	
=High	33	31	35	27	17	23	21	15	22	25	17	26	18	24	5	8	13	9	20	23	
>High	29	43	10	31	29	45	36	66	29	43	8	16	45	28	6	6	8	12	22	29	
Married	55	56	46	48	64	71 [†]	62	63	53	67 ^{**}	47	44	52	55	52	57	55	64 [*]	47	46	
Male	39	39	41	42	50	48	44	40	29	43 ^{***}	40	40	40	44	43	44	34	49 ^{**}	37	36	
Citizenship ¹¹		85		75		75		84		76		99		83		50		75		67	
N ¹²																					
PRE		751,932 ¹³		44,571		57,772		54,108		63,347		65,362		128,699		93,329		20,138		87,867	
		(1,895) ¹⁴		(158)		(154)		(145)		(167)		(215)		(408)		(412)		(88)		(294)	
POST		761,149		96,793		92,926		95,119		194,432		129,021		138,440		206,716		43,102		197,394	
		(2,709)		(499)		(438)		(412)		(824)		(633)		(1,069)		(1,437)		(279)		(1,008)	

Note:

1. "White" refers to non-Hispanic Whites.

2. "Black" refers to non-Hispanic Blacks.

3. "API" refers to Asian (except Chinese and Filipino) and Pacific Islanders, including native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2009)

4. The NHIS distinguishes Puerto Ricans between those born in Puerto Rico and those born elsewhere in the world. Puerto Ricans born outside of Puerto Rico are considered as immigrants in the U.S. (NCHS, personal communication, June 1, 2012).

5. The term "Mexican-Mexicano" refers to persons of Mexican ancestry born in Mexico (NCHS, personal communication, June 1, 2012).

6. 'Mexican-American' usually represents persons of Mexican ancestry born in the United States. However, they self-identify themselves as immigrants when they were born overseas. Mexicans who came to the U.S. as a child and became a U.S. citizen can also self-identify themselves as Mexican-American (NCHS, personal communication, June 1, 2012).

⁷ "Other Latino/Hispanic" is operationalized as those who self-identify themselves as "multiple Hispanic," "Chicano," "Other Latin American," or "Other Spanish."

⁸ DV2 refers to 'doctor visits' during the past 2 weeks.

⁹ PHOSPYR refers to 'hospital overnights' during the past 12 months.

¹⁰ YRSINUS refers to duration of residence in the U.S.

¹¹ Citizenship status variable is available only for post-PRWORA in the National Health Interview Survey program.

¹² All estimates were weighted using the final annual weighting variables, calculated based on sample design, ratio, non-response and post-stratification adjustments by age-sex-race to the Census Bureau.

¹³ Weighted sample size of each racial/ethnic groups

¹⁴ The figures in the parenthesis indicate un-weighted sample size of each racial/ethnic group.

* The average number of elderly immigrants was approximately 2,772,000 during the pre-PRWORA (1993-1996) era and approximately 3,729,500 during the post-PRWORA (2002-2008) era. In 1993, the number was around 2,647,700, but in 2008, the number became 4,402,600.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

Compared to those of the pre-PRWORA period, the percentages of those without a high school diploma decreased among all the racial/ethnic groups but Mexican-Americans, Mexican-Mexicanos, and the group termed 'Other Latino/Hispanics' after the PRWORA. Table 4-1 also presents that after the PRWORA, the poverty rates of all the racial/ethnic elderly immigrant groups increased except Filipino, Puerto Rican, and Mexican-American. As for citizenship status, including Mexican-American¹⁶, all Hispanic/Latino groups but Puerto Rican¹⁷ and Cuban¹⁸ show the lowest percentage of citizenship

¹⁶ According to the NCHS (personal communication, June 1, 2012), the terms 'Mexican' usually represent persons born in Mexico, while the term 'Mexican-American' usually represents persons of Mexican ancestry born in the United States. Mexican-Americans can be born overseas, or they came to the U.S. as a child and became a U.S. citizen. In such a case, the Mexican-Americans usually self-identify themselves as foreign-born. In the present study, approximately 75% among the elders who self-reported themselves as Mexican-Americans are naturalized.

¹⁷ Puerto Rican has a republican form of government, subject to U.S. jurisdiction and sovereignty. However, it is not a part of the U.S. (Downes V. Bidwell, 182 U. S. 244, 1901). Since 1917, people born in Puerto Rico have been give U.S. citizenship, but they are not qualified to vote in federal elections. That is, the United States Constitution does not fully enfranchise US citizens residing in Puerto Rico. They can also renounce U.S. citizenship (U.S. Department of State, 2008). In addition, a person who identifies as Puerto Rican could have been born in anywhere in the world and still choose to identify themselves as Puerto Rican. In such a case, a respondent who self-identifies as Puerto Rican cannot be assumed to be American (NCHS, personal communication, June 1, 2012). Therefore, the rates of their citizenship are high, but the rates do not necessarily reach 100 percent.

¹⁸ Not all Cubans are refugees since the term 'Cuban' is applied to persons who identified themselves as such in responding to a question on Hispanic or Latino origins, which includes both persons born in Cuba and those born elsewhere who identified themselves as being of Cuban origins (Pew Hispanic Center, 2010). Approximately 59% of all Cubans in the United States are foreign born and only approximately 58%

acquisition. Non-Hispanic Black, Chinese, and API elderly immigrant groups show that around 75-76 % of their population acquired citizenship.

After the PRWORA, only Mexican-Mexicano elderly immigrants decreased in the utilization of doctor visits during the past 2 weeks. Among the groups, the increase rates of doctor visits by non-Hispanic Whites (22% to 30%, $p < .001$), Chinese (13% to 23%, $p < .01$), Puerto Ricans (18% to 31%, $p < .01$), and Mexican-Americans (17% to 26%, $p < .05$) were statistically significant. Meanwhile, Filipino, Cuban, and other Latino/Hispanic elderly immigrants' utilization of 'hospital overnight' services decreased after the PRWORA.

The percentage of reporting poor health for the Chinese, Filipino¹⁹, and Mexican-Mexicano groups was increased after the PRWORA by 7%, 7%, and 2% respectively. The percentages of having disability due to chronic conditions for Chinese and API elderly immigrants increased after the PRWORA by 7% and 3% respectively. However, the disability rates for non-Hispanic Whites (from 37% to 33%, $p < .01$), non-Hispanic Blacks (43% to 30%, $p < .01$), Cubans (46% to 29%, $p < .001$), Mexican-Mexicanos (45% to 36%, $p < .01$), Mexican-Americans (48% to 33%, $p < .01$) and 'Other Latino/Hispanics' (36% to 27%, $p < .05$) were significantly decreased.

Multilevel Analysis: Healthcare Service Use

Variance Component Models

of all Cuban immigrants are U.S. citizens (Dockterman, 2011). In the present study, approximately 83% among Cubans who are 65 years or older are naturalized.

Table 4-2: Comparisons of 4-Level Variance Component Models for Doctor Visits

Unweighted Sample	POOLED MODEL ¹			PRE-PRWORA			POST-PRWORA		
	N = 13245			N = 3936			N = 9309		
<i>Fixed</i>	β	<i>S.E.</i>		β	<i>S.E.</i>		β	<i>S.E.</i>	
<i>Random</i>	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵
Intercept	-1.10	.039		-1.34	.09		-1.06	.046	
Policy ² :	.012	.011	.0036						
State ³ :	.003	.002	.0045	.051	.053	.015	.004	.004	.001
Culture ⁴ :	.058	.019	.0220	.046	.028	.029	.086**	.032	.027
DIC ⁶	14991.2			4237			10578.88		

Note:

¹ POOLED MODEL indicates the pooled data of PRE-and POST-PRWORA.

² Policy level refers to two different policy regimes (i.e., Pre-PRWORA (1993-1996) and Post-PRWORA (2002-2008))

³ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

⁴ Culture level refers to the selected 10 racial/ethnic groups nested within each state.

⁵ ICC refers to 'Intra-Class Correlation Coefficients.'

⁶ DIC indicates Bayesian Deviance Information Criterion for model fit.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

Discretionary healthcare service use (2-week doctor visits). According to

Table 4-2, the culture level has the highest variations in elderly immigrants' healthcare service use across all models in the table. In the pooled model, the reported policy level variance was 0.012 ($S.E. = 0.011$) and the state level variation was 0.003 ($S.E. = 0.002$). However, their variations were not significant. Meanwhile, the variance at the culture level was 0.058 ($S.E. = 0.019$) and the difference was significant ($p < .01$). In the pre-PRWORA model, the culture level variation for '2 week doctor visits' was not significant, but it became significant after the PRWORA. That is to say, the variance at the culture level was $\sigma_{u0}^2 = 0.046$ ($S.E. = 0.028$) before the PRWORA, but the variation became doubled and became significant after the PRWORA ($\sigma_{u0}^2 = 0.086$, $S.E. = 0.032$, $\chi^2 = 7.22$, $0 < .01$). Meanwhile, the state level variations were not significant before the PRWORA and even after the PRWORA.

The Intra-Class Correlation coefficients ($ICC = 0.022$) at the culture level in the pooled data were highest among the levels. That is, the correlation within a group is 6.1 times²⁰ greater than the correlation within a same policy influence. The ICC values at the culture level in PRE-PRWORA and POST-PRWORA models were also higher than those at the state level. Their values at the culture level are 0.029 and 0.03 respectively, suggesting two randomly selected elderly immigrants within a racial/ethnic group share more similarities than those from other groups in their behavior in terms of healthcare service utilization.

The VCM model in Table 4-2 also presents that the estimated average log-odds for ‘2-week doctor visits’ were -1.34 for the pre-PRWORA model, and -1.06 for the post-PRWORA model. The corresponding probabilities (and population variances²¹) of elderly immigrants’ ‘2-week doctor visits’ were 0.207 (0.0026), and 0.257 (0.0033) respectively. This result suggests that compared to the pre-PRWORA, the probability of elderly immigrants’ utilization of healthcare services increased²², but the population variance became 1.3²³ times greater after the PRWORA.

²⁰ $0.022/0.0036 = 6.1$

²¹ Approximation is applied for the estimation of the population variances. This is because there is not a simple relation between the variance of probabilities and the variance of the deviations due to the non-linear nature of the link function. The formula guided by Snijders and Bosker (1999, pp. 214) is $\text{var}(P_j) \approx (\pi_0(1 - \pi_0))^2 \tau_0^2$ where $\pi_0 = \frac{\exp(\text{intercept})}{1 + (\exp(\text{intercept}))}$ and $\tau_0^2 =$ level variance.

²² This result may require a careful interpretation since there has some wording changes in the NHIS program since 1996. Please refer to the variable table in Chapter I.

²³ $0.0033/0.0026=1.3$

Non-discretionary healthcare service use (hospital overnights). According to Table 4-3, the culture level also has the highest variations in elderly immigrants' 'hospital overnights' service use across all models in the table. In the pooled model, the reported policy level variance was 0.011 ($S.E. = 0.012$) and the state level variation was 0.009 ($S.E. = 0.005$) while the variance at the culture level was 0.033 ($S.E. = 0.021$). However, the variations were minor and not significant at all levels.

In the pre-PRWORA model, the culture level variation for 'hospital overnights' was $\sigma_{u0}^2 = 0.041$ ($S.E. = 0.033$, $p = 0.21$) and the difference was not statistically significant before the PRWORA. However, the variation almost doubled and the difference in probability became $p=0.077$ after the PRWORA ($\sigma_{u0}^2=0.076$, $S.E.=0.043$).

The Intra-Class Correlation coefficients at the culture level in pre-PRWORA and post-PRWORA models were all $ICC=0.021$, suggesting two randomly selected elderly immigrants within a racial/ethnic group share 2.1% similarities in the use of 'hospital overnights' services. Even though the ICC values at the culture level are similar before ($ICC=0.029$) and after ($ICC = 0.027$) the PRWORA, the culture level ICC is 2.3 times²⁴ greater than the state level ICC before the PRWORA. However, it becomes 5.3 times²⁵ greater than the state level ICC after the PRWORA. This result suggests that the variations in elderly immigrants' 'hospital overnights' service use, depending on the states they lived in, became greater after the PRWORA. This may reflect states' different adaptation of the PRWORA.

²⁴ $0.021/0.009 = 2.3$ times

²⁵ $0.021/0.004 = 5.25$ times

Table 4-3: Comparisons of 4-Level Variance Component Models for Hospital Overnights

Unweighted Sample	POOLED-PRWORA ¹			PRE-PRWORA			POST-PRWORA		
	N = 13245			N = 3936			N = 9309		
Fixed	β	S.E.		β	S.E.		β	S.E.	
Intercept	-1.72	0.043		-1.769	0.072		-1.667	0.051	
Radom	Var.	S.E.	ICC ⁵	Var.	S.E.	ICC ⁵	Var.	S.E.	ICC ⁵
Policy ²	.011	.012	.003						
State ³	.009	.005	.006	.03	.03	.009	0.013	0.012	.004
Culture ⁴	0.033	0.021	.016	.041	.033	.021	0.076 [†]	0.043	.021
DIC ⁶	10255.03			3332.81			6838.02		

Note:

¹ POOLED MODEL indicates the pooled data of PRE-and POST-PRWORA.

² Policy level refers to two different policy regimes (i.e., Pre-PRWORA (1993-1996) and Post-PRWORA (2002-2008)).

³ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

⁴ Culture level refers to the selected 10 racial/ethnic groups nested within each state.

⁵ ICC refers to 'Intra-Class Correlation Coefficients.'

⁶ DIC indicates Bayesian Deviance Information Criterion for model fit.

[†] $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

According to the VCM model in Table 4-3, the estimated average log-odds for 'hospital overnights' were -1.769 for the pre-PRWORA model, and -1.667 for the post-PRWORA model. The corresponding probabilities (and population variances) of elderly immigrants utilization of 'hospital overnight' services were 0.146 (0.0011), and 0.1588 (0.0016) respectively. This result suggests that compared to the pre-PRWORA, the probability of elderly immigrants' hospital overnight use increased by 1.3%, but the population variance became 1.45 times greater after the PRWORA.

In summary, the VCM analysis suggests that compared to the pre-PRWORA, the probability of elderly immigrants' 'doctor visits' and 'hospital overnights' use increased slightly. However, the variations in their using healthcare services became wider after the PRWORA, and the greatest variations were observed at the culture level. In addition, compared to those of the state level ICC, the ICC values at the culture level increased after the PRWORA. The results indicate that the discrepancies in using healthcare

services among elderly immigrants became greater after the PRWORA depending on 1) which racial/ethnic group they belonged to and 2) which states they lived in.

Three-Level Random Intercept Models: Covariate Effects at Level 1

The effects of each covariate were examined for '2-week doctor visits' and 'hospital overnights' separately while controlling for the effects of the states and race/ethnicity variations. The parameters in Tables 4-4 were estimated based on Equation (2) in Analysis Methods in CHAPTER III.

Discretionary healthcare service use (2-week doctor visits). During the pre-PRWORA period, health insurance coverage status, being ages 75 or older, and health status significantly explained elderly immigrants' doctor visits. However, after the PRWORA, living at least 15 years in the U.S., and achieving at least some college level education additionally contributed to elderly immigrants' '2-week doctor visits.' Following are more detailed information on these variables.

As for health insurance coverage status, the odds of visiting doctor among elderly immigrants with health insurance were 3.82 ($\exp(1.34)$, $S.E.=0.288$, $\chi^2=21.6$, $p<.001$) times greater than the odds among elderly immigrants without health insurance during the pre-PRWORA era, while holding other variables constant. After the PRWORA, the insurance coverage status still maintain a positive and significant relationship to elderly immigrants' doctor visits during the past 2 weeks ($\exp(1.001)$, $S.E.=0.213$, $\chi^2=22$, $p<.001$).

Before the PRWORA, the duration of residence did not explain significant variations in elderly immigrants' doctor visits even though it had a positive relationship to the doctor visits. After the PRWORA, however, the odds became greater: the odds of

Table 4-4: Changes of Individual Level Covariates with Respect to Doctor Visits and Hospital Overnights Before and After PRWORA in 3-Level Random Intercept Model

Unweighted Sample	Doctor Visits						Hospital Overnights					
	PRE-PRWORA N = 3936			POST-PRWORA N = 9309			PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
Random	σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2	
State Level:	.054 (.05)	1.17		.013 (.019)	.47		.018 (.025)	.52		.018 (.021)	.73	
Culture Level:	.021 (.028)	.56		.081 (.045)	3.24		.061 (.051)	1.43		.156 (.089)	3.07	
DIC ¹	3210.03			6200.09			2413.85			3957.69		
Fixed intercept	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
	-3.349 (.391)			-3.077 (.354)			-2.85 (.498)			-3.4 (.333)		
<i>Level-1</i> YRSUS ²												
5 – 14	.217 (.262)	.69	1.24	.395 (.236)	2.8	1.48	.023 (.291)	.01	1.02	.132 (.234)	.32	1.14
≥15	.192 (.235)	.67	1.21	.552 (.214)	6.7*	1.74	.014 (.255)	.05	1.01	.079 (.212)	.14	1.08
Covered	1.34 (.288)	22***	3.82	1.001 (.213)	22***	2.72	.36 (.461)	.61	1.43	.945 (.282)	11***	2.57
Below Poverty	-.115 (.126)	.83	.89	.054 (.077)	.49	1.06	.095 (.139)	.47	1.1	.148 (.097)	2.33	1.16
Age ³												
70-74	-.005 (.116)	.002	.99	.092 (.086)	1.14	1.1	.27 (.154)	3.1 [†]	1.31	.205 (.116)	3.1 [†]	1.23
≥ 75	.239 (.104)	5.3*	1.27	.072 (.074)	.95	1.07	.673 (.141)	23***	1.96	.546 (.102)	29***	1.73
Educ ⁴												
high school	-.058 (.118)	.24	.94	.083 (.088)	.89	1.09	.072 (.139)	.27	1.07	.026 (.116)	.05	1.03
>high school	.113 (.122)	.86	1.12	.298 (.083)	13**	1.35	-.14 (.156)	.81	.87	.196 (.115)	2.90 [†]	1.22
Not married	-.077 (.101)	.58	.93	.1 (.07)	2.04	1.11	-.15 (.128)	1.37	.86	.008 (.091)	.01	1.01

Female	.191 (.101)	3.58 [†]	1.21	.083 (.066)	1.58	1.09	-.21 (.124)	2.98 [†]	.81	-.121 (.088)	1.89	.89
Poor Health	.722 (.104)	48 ^{***}	2.06	.639 (.075)	73 ^{***}	1.89	.69 (.118)	34 ^{***}	1.99	.737 (.094)	62 ^{***}	2.09
Activity limited	.46 (.101)	21 ^{***}	1.58	.59 (.076)	60 ^{***}	1.8	.827 (.12)	48 ^{***}	2.29	.786 (.092)	73 ^{***}	2.19

Note:

¹. DIC indicates Bayesian Deviance Information Criterion for model fit.

². YRSINUS: Duration of residence in the U.S. (Those with less than 5 years of residence are referenced.)

³. Those who are 65-69 years old are referenced.

⁴. Those who do not have high school diploma are referenced.

[†] $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

doctor visits for those with 15 or more years of residence in the U.S. became 1.74 ($\exp(0.552)$, $S.E.=0.214$, $\chi^2=6.7$, $p<.01$) times greater than for those with 5 or less years of residence in the U.S. However, the odds for those with 5 – 14 years of residence were 1.48 ($\exp(0.395)$, $S.E.=0.236$, $\chi^2=2.8$, $p<.10$) times greater than newcomers. After the PRWORA, having at least some college level education became influential in elderly immigrants' doctor visits: the odds for those with at least some college level education were 1.35 ($\exp(0.298)$, $S.E.=0.083$, $\chi^2=12.89$, $p<.001$) times greater than those without a high school diploma.

Non-discretionary healthcare service use (hospital overnights). During the pre-PRWORA era, age, self-assessed health, and functional disability significantly explained elderly immigrants' hospital overnights. After the PRWORA, however, health insurance coverage status additionally contributed to their use of inpatient services and the relationship of insurance coverage to hospital overnights became statistically significant. That is to say, the odds of using inpatient services for those with health insurance during the pre-PRWORA era were only 1.43 ($\exp(0.36)$, $S.E.=0.46$, $\chi^2=0.61$, $p=0.43$) times greater than for those without health insurance, but after the PRWORA, the odds for those with health insurance became 2.57 ($\exp(0.945)$, $S.E.=0.282$, $\chi^2=2.07$, $p<.001$) times greater and the difference was statistically significant.

Duration of residence in the U.S. did not affect the variations in elderly immigrants' inpatient service use during either pre- or post- PRWORA periods. During the post-PRWORA era, compared with newcomers, the odds for those with 5-14 years of residence were 1.14 ($\exp(0.132)$, $S.E.=0.234$, $\chi^2 =0.32$, $p=0.57$) times greater, which is

Table 4-5: Changes of Doctor Visits by Select Racial/Ethnic Groups Before and After PRWORA in 3-Level Random Intercept Model (Ref. non-Hispanic White)

Unweighted Sample	PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
Non-Hispanic White Ref.						
Non-Hispanic Black	.27 (.24)	1.21	1.31	-.137 (.201)	.46	.87
Chinese	-.44 (.33)	1.83	.64	-.608 (.239)	6.47*	.54
Filipino	-.37 (.31)	1.43	.69	-.644 (.245)	6.91*	.53
API ¹	-.147(.274)	.29	.86	.346 (.167)	4.29*	.71
Puerto Rican	-.219 (.227)	.93	.80	-.283 (.185)	2.34	.75
Cuban	.059 (.216)	.07	1.06	.109 (.226)	.23	1.12
Mexican-Mexicano	.089 (.197)	.20	1.09	-.694 (.201)	11.9**	.50
Mexican-American	-.078 (.335)	.05	.92	-.448 (.27)	2.75	.64
Other Latino/Hispanic	.104 (.192)	.29	1.11	-.234 (.171)	1.87	.79

Note: This table was excerpted from Table 4- 4.

¹ Other API includes native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2008).

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

1.12 times²⁶ greater in terms of odds ratio compared to the odds for those 5-14 years of residence during the pre-PRWORA era. The odds for those 15 or more years of residence after the PRWORA were 1.08 ($exp(0.079)$, $S.E.=0.212$, $\chi^2=0.14$, $p=0.71$) times greater, which is 1.07 times²⁷ greater in terms of odds ratio compared to the odds for those 15 or more years of residence during the pre-PRWORA era. Having at least some college education also became marginally significant at alpha = 0.05: The odds of using inpatient services for those with some college education became 1.22 ($exp(0.196)$, $S.E.=0.115$, $\chi^2=2.92$, $p=0.09$) times greater than for those without a high school diploma.

Three-Level Random Intercept Models: Race/Ethnicity at Level 2

²⁶ $exp(0.132)/exp(0.023) = 1.12$ times in terms of odds ratio

²⁷ $exp(0.079)/exp(0.014) = 1.07$ times in terms of odds ratio

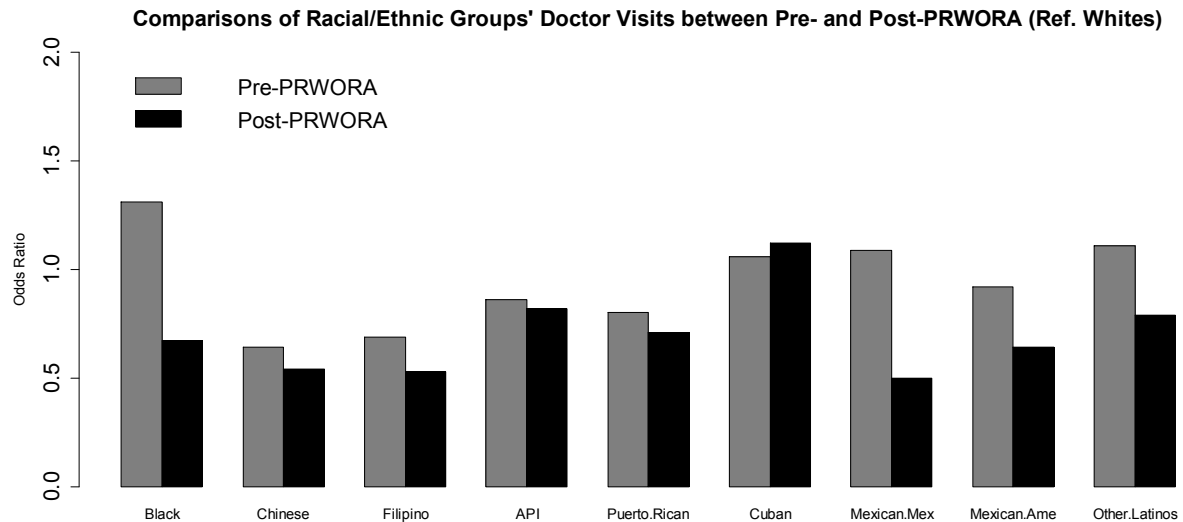


Figure 4-1: A Bar Plot Explaining Changes of Racial/Ethnic Groups' Doctor Visits Before and After PRWORA Displayed in Terms of Odds Ratio (Ref. Non-Hispanic White)

In multilevel analysis, level variables affect the variance of explanatory variables at lower levels, but they are not supposed to affect the coefficients of the variables, while explaining the variations of their own levels (Goldstein & Browne, 2003; Snijders & Bosker, 1999). Since in the variance component models, the greatest variations in ‘2-week doctor visits’ and ‘hospital overnights’ originated from the culture level, this study investigated the variations among racial/ethnic elderly immigrant groups with respect to their healthcare service use (‘2-week doctor visits’ and ‘hospital overnights’) while setting non-Hispanic White as a reference group. The comparisons by using a reference group give the relative differences between the pre-PRWORA and post- PRWORA models. The relative difference in examining the effects of PRWORA on racial/ethnic

Table 4-6: Changes of Hospital Overnights by Select Racial/Ethnic Groups Before and After PRWORA in 3-Level Random Intercept Model (Ref. non-Hispanic Whites)

Unweighted Sample	PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
Non-Hispanic White Ref.						
Non-Hispanic Black	-.426 (.357)	1.42	.65	.163 (.277)	.35	1.18
Chinese	-.596 (.40)	2.22	.55	-.47 (.313)	2.25	.63
Filipino	-.118 (.358)	.11	.89	-.834 (.358)	5.43	.43
API ²	-.956 (.436)	4.81	.38	-.574 (.252)	5.19	.56
Puerto Rican	.093 (.269)	.12	1.1	.042 (.237)	.03	1.04
Cuban	-.257 (.283)	.82	.77	-.059 (.278)	.05	.94
Mexican-Mexicano	.16 (.265)	.36	1.17	-.069 (.225)	.09	.93
Mexican-American	.095 (.37)	.07	1.1	.076 (.329)	.05	1.08
Other Latino/Hispanic	-.141 (.248)	.32	.87	-.272 (.215)	1.6	.76

Note: This table was excerpted from Table 4-4

¹ Other API includes native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2008).

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

elderly immigrant groups' use of healthcare services seemed to be reasonable since it helps reveal some unobserved extraneous factors including cultural differences in seeking health services and in health-related beliefs²⁸. It can be assumed that elderly immigrant groups' diverse behavioral patterns will be the same before and after the PRWORA if the PRWORA does not have any effects on the groups.

Discretionary healthcare service use (2-week doctor visits). According to the parameters in Table 4-5 which were estimated based on Equation (2), before the PRWORA, the odds of elderly immigrants' doctor visits for non-Hispanic Blacks, Cuban, and other Latino/Hispanic groups were a little greater than for non-Hispanic Whites: The

²⁸For examples, Newbold (2005) states that “immigrants may embody different perceptions of health relative to the broader population in general, and health professionals in particular, hindering understanding of health and hindering understanding of health and illness, (pp.1360).”

odds were 1.31 times greater ($\exp(0.27)$, $S.E.=0.24$, $\chi^2=1.21$, $p=0.27$) for non-Hispanic Blacks, 1.06 times greater ($\exp(0.059)$, $S.E.=0.216$, $\chi^2=0.07$, $p=0.79$) for Cuban, and 1.09 times greater ($\exp(0.089)$, $S.E.=0.197$, $\chi^2=0.2$, $p=0.65$) for Mexican- Mexicano. Meanwhile, the odds of visiting doctors for the other groups (Chinese, Filipino, API, and Puerto Rican) were much less than for non-Hispanic Whites. The odds for Chinese and Filipino were 0.64 ($\exp(-0.44)$, $S.E.=0.33$, $\chi^2=1.83$, $p=0.176$) times and 0.69 ($\exp(-0.37)$, $S.E.=0.31$, $\chi^2=1.43$, $p=0.232$) times less than for non-Hispanic Whites. However, all the p-values indicate that the difference was not significant.

After the PRWORA, however, the pattern changed greatly as in Table 4-5 and Figure 4-1. Only Cuban used healthcare services 1.15 times more than non-Hispanic Whites with no significant difference ($\exp(0.14)$, $S.E.=0.22$, $\chi^2=0.41$, $p=0.52$). Meanwhile, the odds for all the other groups were much less than non-Hispanic Whites and the differences were significant. For example, the odds for Mexican and Mexicano were 0.52 times less ($\exp(-0.65)$, $S.E.=0.19$, $\chi^2=11.7$, $p<.001$), the odds for Filipino were 0.53 times less ($\exp(-0.636)$, $S.E.=0.24$, $\chi^2=7.08$, $p<.01$), and the odds for Chinese were 0.57 times less ($\exp(-0.57)$, $S.E.=0.22$, $\chi^2=6.59$, $p<.01$). The odds for API were 0.85 times less ($\exp(-0.31)$, $S.E.=0.17$, $\chi^2=3.29$, $p=0.07$). As in Figure 4-1, all but Cubans showed a great decrease in doctor visits after the PRWORA. Among them, Mexican-Mexicanos, non-Hispanic Blacks, and Mexican-Americans showed the greatest decrease (ratio²⁹ = 0.46, 0.67, and 0.69, respectively) among the groups.

²⁹ Ratio was calculated as $\exp(\beta)_{\text{POST}}/\exp(\beta)_{\text{PRE}}$.

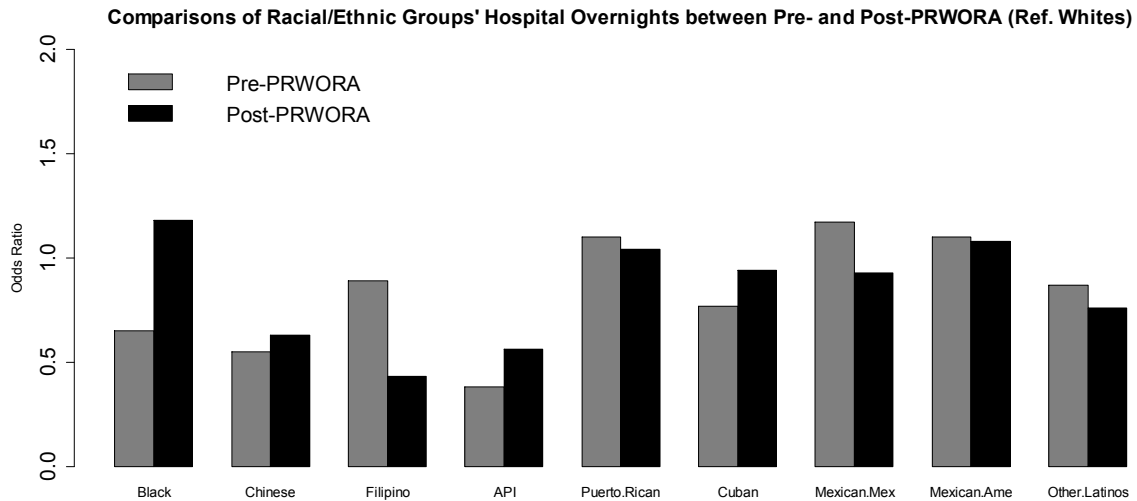


Figure 4-2: A Bar Plot Explaining Changes of Racial/Ethnic Groups' Hospital Overnights Before and After PRWORA Displayed in Terms of Odds Ratio (Ref. Non-Hispanic White)

Non-discretionary healthcare service use (hospital overnights). As for the use of hospital overnights, the parameters in Table 4-6, which were also estimated based on Equation (2) in CHAPTER III, present that only the Puerto Rican, Mexican-Mexicano, and Mexican-American elderly immigrants groups were more likely than non-Hispanic White to use inpatient services during the pre-PRWORA era. However, the differences were not significant at all.

Among the other groups, the API elderly immigrants were significantly less likely to inpatient services during the same period: the odds were 0.38 ($\exp(-0.956)$, $S.E.=0.436$, $\chi^2 = 4.81$, $p=0.028$) times less than for the non-Hispanic White group. During the Post-PRWORA era, the non-Hispanic Black, Puerto Rican, Mexican-American elderly immigrants were more likely to use inpatient services than their non-Hispanic White counterparts. However, none of the groups showed a significant

Table 4-7: Effects of Citizenship on Doctor Visits and Hospital Overnights in 3-Level Random Intercept Model (Citizenship-Only models)

Unweighted Sample	Doctor Visits N = 9309			Hospital Overnights N = 9309		
	σ^2	<i>S.E.</i>	χ^2	σ^2	<i>S.E.</i>	χ^2
Random Effect						
State Level ¹ :						
$\sigma_{v_0}^2 = var(v_{ok})$	0.012	0.016	0.56	.012	.011	1.19
Culture Level ² :						
$\sigma_{u_0}^2 = var(u_{0jk})$	0.031	0.015	4.27*	.019	.018	1.11
Fixed Effect	β (<i>S.E.</i>)	χ^2	$exp(\beta)$	β (<i>S.E.</i>)	χ^2	$exp(\beta)$
Intercept	-1.234 (.067)			-1.73 (.074)		
$\beta_{citizenship}$.264 (.061)	18.73***	1.30	.076 (.073)	1.1	1.079
Bayesian DIC ³	10612.34			6838.01		

Note:

¹ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

² Culture level refers to the selected 10 racial/ethnic groups nested within each state.

³ DIC indicates Bayesian Deviance Information Criterion for model fit.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

difference from the non-Hispanic White group. Meanwhile, among the other groups, the Filipino and API elderly immigrants were significantly less likely to use inpatient services than the non-Hispanic White group: The odds for the Filipino group were 0.49 ($exp(-0.834)$, $S.E.=0.358$, $\chi^2 =5.43$, $p=0.02$) times less, while the odds for the API group were 0.56 ($exp(-0.574)$, $S.E.=0.252$, $\chi^2 =5.19$, $p=0.023$) times less than for the non-Hispanic White group.

Comparing the differences before and after the PRWORA in hospital overnights of each racial/ethnic group, Figure 4-2 shows that the inpatient service use of the non-Hispanic Black, Chinese, API, and Cuban elderly immigrant groups increased after the PRWORA. Meanwhile, the Filipino group's use of 'hospital overnights' services 0.49 times³⁰ decreased, followed by Mexican-Mexicano (ratio = 0.80), other Latino/Hispanic (ratio = 0.88), and Mexican-American (ratio = 0.98).

³⁰ Ratio was calculated as $exp(\beta)_{POST}/exp(\beta)_{PRE}$.

As Figure 4-1 and 4-2 present, this study observed that the PRWORA made the ‘2-week doctor visits’ by all racial/ethnic groups except Cuban decreased greatly, and made the ‘hospital overnights’ service use by the Filipino, Mexican-Mexicano, and other Latino/Hispanic groups decreased greatly. Even though the Chinese and API groups’ ‘hospital overnights’ service use increased after the PRWORA, they belong to the group which used ‘hospital overnights’ services least. The results also informs that less frequent use of doctor visits may lead to more frequent use of inpatient services since the racial/ethnic groups, who had less doctor visits than before the PRWORA, were more likely to use inpatient services after the PRWORA.

Three-Level Random Intercept Models: Citizenship Effects

To investigate the effects of citizenship on elderly immigrants’ healthcare service use and health, this study examined 3-level multilevel random intercept citizenship-only models for doctor visits and hospital overnights, and then extended them to 3-level multilevel intercept full models including the citizenship variable as well as other covariates. According to Snijders and Bosker (1999), when a new variable is added to Level-1, there will be either increased or decreased variances at upper levels in the hierarchical linear models for dichotomous data. According to them, increased variance at Level-2 can be considered to indicate that a variable with strong effects was added at Level-1; in contrast, decreased variance at Level-2 indicates that the added Level-1 variable has a large Intra-Class Correlation. In other words, variations between groups differ greatly.

Citizenship-only model. According to Table 4-7, a naturalized elderly immigrant was 1.3 times more likely to visit doctors in the odds ratio than those without citizenship,

and the difference is significant ($exp(0.264)$, $S.E.=0.061$, $\chi^2=18.72$, $p<.001$). Meanwhile, the odds of using inpatient services for those with citizenship were 1.08 ($exp(0.076)$, $S.E.=0.073$, $\chi^2=1.1$, $p=0.29$) times greater than for those without it. This phenomenon (i.e., significant difference in use of doctor visits but no significant difference in use of hospital overnights between citizens and noncitizens) suggests that citizenship status may be associated with elderly immigrants' access to healthcare services (i.e., being covered by health insurance): the uninsured are less likely to consume primary care (Ayanian et al., 2000), but they are more likely to be hospitalized (Weissman, Gatsonis, & Epstein, 1992), given that doctors can refuse services to the uninsured whereas hospitals cannot refuse services to the seriously ill uninsured under federal law.

Full models with citizenship for '2-week doctor visits'. Table 4-8 is developed based on the 3-level random intercept logistic full models with citizenship variable. With the aforementioned nature of the hierarchical linear model for dichotomous response variables guided by Snijders and Bosker (1999), the citizenship variable has strong effects in elderly immigrants' doctor visits: the inclusion of citizenship increased the variance at the culture level from 0.081 in the model without citizenship to 0.086 in the model with citizenship. As for the coefficient value of the citizenship variable, even though the variable itself is not significant in the full model ($exp(0.106)$, $S.E.=0.09$, $\chi^2=1.4$, $p=0.24$), it still maintains a positive relationship to doctor visits. The odds of visiting doctors for naturalized elderly immigrants were 1.1 times greater than for the odds for those without citizenship while holding other variables constant.

The citizenship variable altered the strength of the relationship of health insurance coverage and duration of residence in relation to doctor visits: the strength of relationship

Table 4-8: Effects of Citizenship on Individual Level Covariates in Doctor Visits and Hospital Overnights after PRWORA in 3-Level Random Intercept Model

Unweighted Sample	Doctor Visits N = 9309						Hospital Overnights N = 9309					
	Without Citizenship			With Citizenship			Without Citizenship			With Citizenship		
<i>Random</i>	σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2	
State Level:	.013 (.019)	.47		.019 (.024)	.63		.018 (.021)	.735		.015 (.02)	.563	
Culture Level:	.081 (.045)	3.24		.089 (.045)	3.91		.156 (.089)	3.07		.072 (.065)	1.23	
DIC ¹	6200.09			6153.56			3957.69			3925.93		
<i>Fixed intercept</i>	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
	-3.077 (.354)			-2.898 (.264)			-3.4 (.333)	104		-3.51 (.337)	109	
<i>Level-1</i> YRSINUS ²												
5 – 14	.395 (.236)	2.8†	1.48	.224 (.247)	.82	1.25	.132 (.234)	.318	1.14	.155 (.268)	.334	1.17
15+	.552 (.214)	6.65**	1.74	.332 (.238)	1.95	1.39	.079 (.212)	.138	1.08	.121 (.25)	.234	1.13
Covered	1.001 (.213)	22.1***	2.72	.99 (.175)	32***	2.69	.945 (.282)	11***	2.57	.967 (.222)	19	2.63
Below Poverty	.054 (.077)	.49	1.06	.057 (.078)	.53	1.06	.148 (.097)	2.33	1.16	.145 (.098)	2.19	1.16
Age ³												
70-74	.092 (.086)	1.14	1.1	.098 (.087)	1.27	1.1	.205 (.116)	3.12†	1.23	.211 (.118)	3.20†	1.23
75+	.072 (.074)	.95	1.07	.071 (.078)	.83	1.07	.546 (.102)	28.7***	1.73	.537 (.107)	25.2***	1.71
Education ⁴												
high school	.083 (.088)	.89	1.09	.057 (.087)	.43	1.06	.026 (.116)	.05	1.03	.007 (.117)	.004	.95
> high school	.298 (.083)	12.9***	1.35	.266 (.083)	10.3***	1.3	.196 (.115)	2.90†	1.22	.194 (.104)	3.48†	1.21
Not married	.1 (.07)	2.04	1.11	.097 (.068)	2.03	1.1	.008 (.091)	.008	1.01	-.018 (.092)	.04	.845
Female	.083 (.066)	1.58	1.09	.084 (.067)	1.57	1.09	-.121 (.088)	1.89	.89	-.108 (.087)	1.54	.89

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Unhealthy	.639 (.075)	72.6***	1.89	.626 (.076)	67.8***	1.87	.737 (.094)	61.5***	2.09	.171 (.094)	58.2***	2.05
Activity limited	.59 (.076)	60.3***	1.8	.589 (.074)	63.4***	1.8	.786 (.092)	73***	2.19	.795 (.096)	68.6***	2.21
Citizenship				.106 (.09)	1.39	1.112				.047 (.106)	.20	1.05

Note:

¹ DIC indicates Bayesian Deviance Information Criterion for model fit.

² YRSINUS: Duration of residence in the U.S. (Those with less than 5 years of residence are referenced.)

³ Those who are 65-69 years old are referenced.

⁴ Those who do not have high school diploma are referenced.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

of health insurance coverage to '2-week doctor visits' decreased with the introduction of citizenship (from the odds ratio (OR)=2.72 and $p < .0001$ ($\exp(1.001)$, $S.E. = 0.213$, $\chi^2 = 22.1$) to OR=2.69 and $p < .001$ ($\exp(0.99)$, $S.E. = 0.32$, $\chi^2 = 32$). Meanwhile, the magnitude of relationship of duration of residence to doctor visits decreased for those with 15 or more years of residence in the United States, the odds ratio and p-value were from 1.74 and $p = 0.01$ ($\exp(0.552)$, $S.E. = 0.214$, $\chi^2 = 6.65$) to 1.39 and $p = 0.17$ ($\exp(0.332)$, $S.E. = 0.238$, $\chi^2 = 1.95$). This result may suggest indirect effects of citizenship in elderly immigrants' visiting doctors.

This study preliminarily analyzed the data to find a parsimonious model which best predicts the probability of having health insurance, and found that duration of residence and citizenship status significantly predict the probability of elderly immigrants having health insurance. Next, the parsimonious model was estimated to get the magnitude of the parameters in the parsimonious model. With negligible changes compared to the full model, the parameters for the probability of having health insurance are were estimated for the duration of residence ($\exp(0.919)$, $S.E. = 0.153$, $\chi^2 = 36.08$, $p < .0001$ for 5-14 years of residence; $\exp(2.435)$, $S.E. = 0.153$, $\chi^2 = 253.29$, $p < .0001$ for 15 or more years of residence) and for citizenship status ($\exp(1.895)$, $S.E. = 0.137$, $\chi^2 = 191.33$, $p < .001$). This study confirms Nam's (2008) study with Current Population Survey's Annual Social and Economic Supplement from 1994 to 1996 and 2001 to 2005, in that the results indicate health insurance status is significantly positively related to their citizenship status and duration of residence in the U.S.

Full models with citizenship for 'hospital overnights'. Table 4-8 also presents that as for the effects of citizenship in inpatient service use in the full model, the

inclusion of the citizenship variable greatly decreased the variance at the culture level from 0.156 in the model without citizenship to 0.072 in the model with citizenship. Based on the nature of the hierarchical linear model for dichotomous response variables, citizenship has large effects of Intra-Class Correlation in elderly immigrants' use of inpatient services. That is, the effects of citizenship status in use of inpatient services differ greatly among the racial/ethnic groups.

The citizenship variable also altered the relationship between the health insurance coverage and inpatient service use: Without the citizenship variable, the odds ratio and p-value were 2.57 and $p=0.001(\exp(0.945), S.E.=0.282, \chi^2=11)$, but inclusion of the citizenship variable changed them to 2.63 and $p<.0001(\exp(0.967), S.E.=0.222, \chi^2=19)$. As for the coefficient value of the variable in hospital overnight service use, even though the citizenship variable itself is not significant in the full model ($\exp(0.047), S.E.=0.106, \chi^2=0.20, p=0.65$), it still maintains a positive relationship. The odds of using inpatient services for the naturalized elderly immigrants were 1.05 times greater than for the odds for those without citizenship.

Multilevel Analysis: Health Status

Variance Component Models

Self-assessed poor health. According to Table 4-9 for self-assessed poor health, the culture level displays the greatest variations across all the models in the table: in the pooled mode, the policy level variance was 0.005 ($S.E.=0.005$) and the state level variation was 0.065 ($S.E.=0.03$). The variances of these two levels are not significant. Meanwhile, the variance at the culture level was 0.217 ($S.E.=0.036, \chi^2=6.03, p=0.012$), a significant finding.

The culture level variances were also greater than those of the state level in both pre- and post-PRWORA models. During the pre-PRWORA period, the culture level variance was not significant ($\sigma_{u0}^2=0.158$, $S.E. = 0.057$, $\chi^2=2.77$, $p=0.096$) at $\alpha=0.05$ level, but it became significant ($\sigma_{u0}^2=0.411$, $S.E. = 0.1$, $\chi^2=4.11$, $p=0.042$) after the PRWORA.

The Intra-Class Correlation coefficient at the culture level was highest ($ICC=0.08$) in the pooled model as well as in the models for pre-PRWORA ($ICC=0.054$) and post-PRWORA ($ICC=0.116$) in elderly immigrants' self-assessed health. This result suggests that two randomly selected elderly immigrants within a racial/ethnic group share more similarities in self-assessed health than either one does with those from other groups.

The estimated average log-odds for the general health of elderly immigrants were -0.879 , -0.898 , and -0.910 for the pooled-PRWORA, pre-PRWORA, and post-PRWORA models, respectively. The corresponding probabilities (and population variances) of elderly immigrants reporting poor health were 0.293 (0.012), 0.289 (0.008), and 0.287 (0.018), respectively. Compared to the pre-PRWORA model, the probability of elderly immigrants' reporting poor health slightly decreased from 28.9% to 28.7%, but the population variance doubled after the PRWORA took effect.

Activity limitations. According to Table 4-10 for activity limitations due to chronic conditions, as in the results from the models for self-assessed poor health, the culture level displays the greatest variations across all the models in the table: The reported policy level variance was 0.017 ($S.E.=0.014$, $\chi^2 = 1.47$, $p=0.23$), which is not significant. The state level variation was 0.029 ($S.E.=0.017$, $\chi^2=2.9$, $p=0.088$), but was

Table 4-9: Comparisons of 4-Level Variance Component Models for Self-Assessed Poor Health

Unweighted Sample	POOLED-PRWORA ¹ N = 13245			PRE-PRWORA N = 3936			POST-PRWORA N = 9309			
	<i>Fixed</i>	β	<i>S.E.</i>	β	<i>S.E.</i>	β	<i>S.E.</i>			
Intercept		-0.879	0.04	-0.898	0.078	-0.91	0.07			
		2								
	<i>Random</i>	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i> ⁵
Policy ²		.005	.005	.001						
State ³		.065	.030	.020	.03	.036	.009	0.02	0.031	.005
Culture ⁴		.217***	.036	.080	.158**	.057	.054	0.411***	0.10	.116
DIC ⁶		16376.63			4790			11341.27		

Note:

¹ POOLED MODEL indicates the pooled data of PRE-and POST-PRWORA.

² Policy level refers to two different policy regimes (i.e., Pre-PRWORA (1993-1996) and Post-PRWORA (2002-2008)).

³ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

⁴ Culture level refers to the selected 10 racial/ethnic groups nested within each state.

⁵ ICC refers to 'Intra-Class Correlation Coefficients.'

⁶ DIC indicates Bayesian Deviance Information Criterion for model fit.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

insignificant at $\alpha=0.05$ level. However, the variance at the culture level was 0.087

($S.E.=0.021$, $\chi^2=17.16$, $p<.001$), showing a substantial statistical significance.

The culture level variances were also greater than those of the state level in both pre- and post-PRWORA models. During the pre-PRWORA period, the culture level variance was not significant ($\sigma_{u0}^2=0.075$, $S.E.=0.04$, $\chi^2=3.52$, $p=0.06$) at $\alpha=0.05$ level, but the variance became significant after the PRWORA ($\sigma_{u0}^2=0.19$, $S.E.=0.062$, $\chi^2=9.39$, $p=0.002$).

The Intra-Class Correlation coefficient at the culture level was highest ($ICC=0.036$) in the pooled model as well as in the models for pre-PRWORA ($ICC=0.03$) and post-PRWORA ($ICC=0.06$) in elderly immigrants' having activity limitation due to chronic diseases. This result suggests that two randomly selected elderly immigrants

Table 4-10: Comparisons of 4-Level Variance Component Models for Functional Limitations

Unweighted Sample	POOLED-PRWORA ¹ N = 13245			PRE-PRWORA N = 3936			POST-PRWORA N = 9309			
	<i>Fixed</i>	β	S.E.	β	S.E.		β	S.E.		
Intercept		-.72	.047	-0.557	.062		-0.80	.054		
<i>Radom</i>		<i>Var.</i>	<i>S.E.</i>	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i>	<i>Var.</i>	<i>S.E.</i>	<i>ICC</i>	
Policy:		.017	.014	.005						
State:		.029	.017	.013	.026	.036	.010	.033	.038	.010
Culture		.087** *	.021	.036	.075 [†]	.040	.030	.190** *	.062	.060
DIC ²		16551.41			5156.71			11173.91		

Note:

¹ POOLED MODEL indicates the pooled data of PRE-and POST-PRWORA.

² Policy level refers to two different policy regimes (i.e., Pre-PRWORA (1993-1996) and Post-PRWORA (2002-2008)).

³ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

⁴ Culture level refers to the selected 10 racial/ethnic groups nested within each state.

⁵ ICC refers to 'Intra-Class Correlation Coefficients.'

⁶ DIC indicates Bayesian Deviance Information Criterion for model fit.

[†] $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

within a racial/ethnic group share more similarities in having disabilities than either one does with those from other groups.

The estimated average log-odds for elderly immigrants having activity limitations due to chronic diseases were -0.72 , -0.557 , and -0.80 for each model. The corresponding probabilities (and population variances) of elderly immigrants having disabilities were 0.33 (0.0042), 0.36 (0.004), and 0.31 (0.0086), respectively. That is, compared to pre-PRWORA data, the probability of elderly immigrants' having disabilities due to chronic diseases decreased, but the variance doubled after the PRWORA was implemented.

In summary, the variance component model analysis suggests that compared to the pre-PRWORA era, the probability of elderly immigrants' reporting poor health and of

Table 4-11: Changes of Individual Level Covariates with Respect to Poor Health and Functional Limitations Before and After PRWORA in 3-Level Random Intercept Model

Unweighted Sample	Poor Health						Functional Limitations					
	PRE-PRWORA N = 3936			POST-PRWORA N = 9309			PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
Random	$\sigma^2(SE)$			$\sigma^2(SE)$			$\sigma^2(SE)$			$\sigma^2(SE)$		
State Level	.017 (.02)			.041 (.04)			.04 (.036)	1.23		.109 (.091)		
Culture Level	.026 (.02)			.291 (.12)			.062 (.037)	2.81		.247 (.086)		
DIC ¹		3429.3			5484.05			3745.58			5217.28	
Fixed Effects	$\beta (SE)$	χ^2	$exp(\beta)$	$\beta (SE)$	χ^2	$exp(\beta)$	$\beta (SE)$	χ^2	$exp(\beta)$	$\beta (SE)$	χ^2	$exp(\beta)$
Intercept	-0.856 (.25)			-2.05 (.338)			-1.18 (.306)			-2.52 (.334)		
<i>Level-1</i>												
YRSINUS ²												
5 – 14 yrs	-.269 (.212)	1.61	.76	.652 (.209)	9.7**	1.92	-.163 (.217)	.56	.85	.609 (.22)	7.7**	1.84
≥15	-.637 (.191)	11**	.53	.149 (.181)	.68	1.16	-.227 (.197)	1.33	.80	.321 (.196)	2.7	1.38
Covered	-.059 (.197)	.09	.94	.442 (.186)	5.7**	1.56	.367 (.255)	2.07	1.44	.577 (.184)	9.8**	1.78
Below Poverty	.479 (.114)	18***	1.61	.558 (.082)	46***	1.75	.515 (.114)	20***	1.67	.571 (.083)	47***	1.77
Age ³												
70-74	.237 (.116)	4.17**	1.27	.108 (.093)	1.35	1.11	-.194 (.109)	3.2*	.82	-.034 (.095)	.13	.97
≥75	.486 (.107)	21***	1.63	.281 (.082)	12***	1.32	.396 (.102)	15***	1.49	.752 (.083)	82***	2.12
Education ⁴												
High school	-.417 (.108)	15***	.66	-.509 (.09)	32***	.60	-.24 (.106)	5.1**	.79	-.337 (.099)	12***	.71
>high school	-.491 (.116)	18***	.61	-.801 (.093)	74***	.45	-.322 (.114)	7.9**	.72	-.51 (.096)	28***	.60
Not married	-.091 (.094)	.94	.91	-.083 (.076)	1.19	.92	.368 (.091)	16***	1.44	.285 (.073)	15***	1.33
Female	.094 (.093)	1.02	1.1	.061 (.074)	.68	1.06	-.071 (.094)	.57	.93	.126 (.071)	3.15*	1.13

DV2 ⁵	.828 (.097)	73***	2.29	.709 (.072)	97***	2.03	.653 (.094)	48***	1.92	.669 (.074)	82***	1.95
PHOSPYR ⁶	.93 (.111)	70***	2.53	.919 (.089)	107***	2.51	1.045 (.109)	92***	2.84	.936 (.087)	116***	2.55

Note:

¹. DIC indicates Bayesian Deviance Information Criterion for model fit.

². YRSINUS: Duration of residence in the U.S. (Those with less than 5 years of residence are referenced.)

³. Those who are 65-69 years old are referenced.

⁴. Those who do not have high school diploma are referenced.

⁵. DV2 refers to 'doctor visits' during the past two weeks.

⁶. PHOSPYR refers to 'hospital overnights' during the past 12 months.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

their having disability due to chronic diseases decreased after the implementation of PRWORA. However, the variations in their having disabilities became wider with the greatest variations observed at the culture level. This finding indicates that, among individuals, discrepancies in having disabilities and reporting poor health became greater after the PRWORA. Furthermore, depending on which racial/ethnic group he/she belonged to, the probability of having disabilities and reporting poor health differed more after the PRWORA was implemented.

Three-Level Random Intercept Models: Covariate Effects at Level 1

Table 4-11 presents the results of the three-level random intercept models estimated by explanatory variables with respect to self-assessed poor health and activity limitation due to chronic conditions for pre-PRWORA and post-PRWORA, separately.

Self-assessed poor health. During the pre-PRWORA period, elderly immigrants' residing in U.S. for 15 or more years and their achieving a higher level of education than high school were negatively related to their reporting poor health; in contrast, falling below the poverty threshold was positively related to elderly immigrants' reporting poor health. More specifically, during the pre-PRWORA period, elderly immigrants' health insurance coverage status did not have any statistically significant relationship with reporting poor health even though they had a negative relationship: While holding other variables constant, the odds of an elderly immigrant with health insurance were 0.94 , ($\exp(-0.095)$, $S.E.=0.197$, $\chi^2=0.09$, $p=0.76$) times the odds for an elderly immigrants without health insurance. However, during the post-PRWORA period, elderly immigrants' health insurance coverage status became significant and the relation became reversed (now positive): While holding other variables constant, the odds of an elderly

immigrant with health insurance were 1.56 ($\exp(0.442)$, $S.E.=0.186$, $\chi^2=5.7$, $p=0.017$) times the odds for an elderly immigrant without health insurance.

Moreover, elderly immigrants' self-assessed health improved with the passage of time in U.S. during the pre-PRWORA period: Compared to those of newcomers, the odds of reporting poor health for those with 5-14 years of residence in United States were 0.76 times ($\exp(-0.269)$, $S.E.=0.212$, $\chi^2=1.61$, $p=0.20$), and the odds for those with 15 or more years of residence in U.S. were 0.53 times ($\exp(-0.637)$, $S.E.=0.191$, $\chi^2=11.12$, $p<.001$). However, the pattern was reversed (now, their self-assessed health deteriorated with passage of time) after the PRWORA took effect: Compared to those of newcomers, the odds of reporting poor health for those with 5-14 years of residence in United States were 1.92 times ($\exp(0.652)$, $S.E.=0.209$, $\chi^2=9.7$, $p=0.002$), and the odds for those with 15 or more years of residence in United States were 1.16 times ($\exp(0.149)$, $S.E.=0.181$, $\chi^2=0.68$, $p=0.41$).

Activity limitations. During the pre-PRWORA period, as in the case of elderly immigrants' self-assessed health, the positive relationship between disability status due to chronic diseases and health insurance coverage was not significant ($\exp(0.367)$, $S.E.=0.255$, $\chi^2=2.07$, $p=0.15$). However, after the PRWORA was implemented, the relationship, while continuing to be positive, achieved statistical significance ($\exp(0.577)$, $S.E.=0.184$, $\chi^2=9.8$, $p=0.0017$). In other words, after the PRWORA, the odds of elderly immigrants with health insurance having a disability were 1.78 times the odds for those without health insurance. This positive relationship may suggest that elderly immigrants tend to purchase or obtain health insurance for the purpose of curing or maintaining their ability to manage the disease or disability, rather than for the preventive purposes.

Table 4-12: Changes of Poor Health by Select Racial/Ethnic Groups
Before and After PRWORA in 3-Level Random Intercept Model
(Ref. non-Hispanic White)

Unweighted Sample	PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
Non-Hispanic Whites Ref.						
Non-Hispanic Black	.083 (.25)	.11	1.09	.202 (.298)	.46	1.22
Chinese	-.8 (.302)	7.5*	.45	-.06 (.308)	.04	.94
Filipino	-.7 (.285)	5.96*	.5	.237 (.326)	.53	1.27
API ¹	.483 (.229)	4.45*	1.62	.332 (.228)	2.12	1.39
Puerto Rican	.408 (.209)	3.81*	1.5	.869 (.261)	11.1***	2.38
Cuban	.584 (.191)	9.35**	1.79	.748 (.339)	4.87*	2.11
Mexican-Mexicano	.44 (.184)	5.75*	1.55	.722 (.219)	10.9***	2.06
Mexican-American	.565 (.229)	6.09*	1.76	.395 (.367)	1.16	1.48
Other	.138 (.191)	.52	1.15	.603 (.262)	5.3*	1.83
Latino/Hispanic						

Note: This table was excerpted from Table 4-11.

¹ Other API includes native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2008).

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

As with elderly immigrants' self-assessed health, before the PRWORA, duration of residence was negatively associated with elderly immigrants having a disability, but the relationship was not significant: Compared to those of newcomers, during the pre-PRWORA period, the odds of having disabilities for those with 5-14 years of residence in United States were 0.85 times ($exp(-0.163)$, $S.E.=0.217$, $\chi^2=0.56$, $p=0.46$), and the odds for those with 15 or more years of residence in the United States were 0.80 times ($exp(-0.227)$, $S.E.=0.197$, $\chi^2=1.33$, $p=0.25$). However, after the PRWORA, the relationship

Changes of Racial/Ethnic Groups' Self-Assessed Poor Health Before and After PRWORA (Ref. W

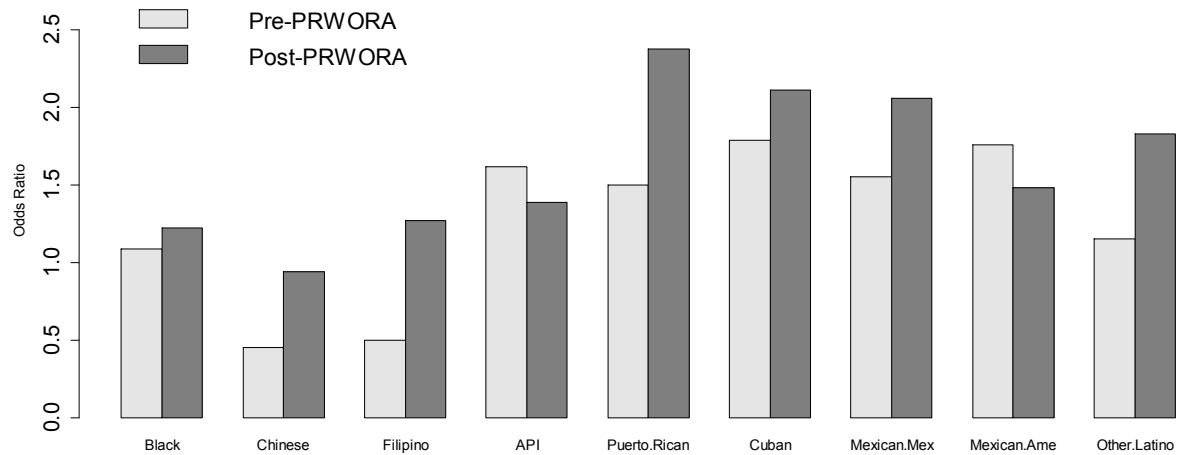


Figure 4-3: A Bar Plot Explaining Changes of Racial/Ethnic Groups' Self-Reported Poor Health Before and After PRWORA Displayed in Terms of Odds Ratio (Ref. Non-Hispanic White)

was reversed (now positive) and significant, evidence that elderly immigrants' disabilities increased as they lived for longer periods in the United States: Compared to those of newcomers, the odds of having disabilities for those with 5-14 years of residence in the United States were 1.84 times ($\exp(0.609)$, $S.E.=0.22$, $\chi^2=7.7$, $p=0.005$), and the odds for those with 15 or more years of residence in the United States were 1.38 times ($\exp(0.321)$, $S.E.=0.196$, $\chi^2=2.7$, $p=0.1$). The poverty status of elderly immigrants was positively related to their having disability; moreover, the relationship was significant ($p<.001$ for both) for both pre- and post- PRWORA periods, suggesting that those below the poverty threshold were more likely to have disability.

Overall, before the PRWORA, elderly immigrants who are older, below the poverty threshold, not married, and without a high school diploma explained to a degree of statistical significance their having disabilities. For the period after the PRWORA took

Table 4-13: Changes of Functional Limitations by Select Racial/Ethnic Groups Before and After PRWORA in 3-Level Random Intercept Model (Ref. non-Hispanic White)

Unweighted Sample	PRE-PRWORA N = 3936			POST-PRWORA N = 9309		
	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
Non-H. Whites Ref.						
Non-Hispanic Black	.056 (.268)	.04	1.06	-.198 (.325)	.37	.82
Chinese	-.681 (.289)	5.55*	.51	-.35 (.314)	1.24	.705
Filipino	-.316 (.291)	1.18	.73	.326 (.331)	.97	1.39
API ¹	-.642 (.263)	5.96*	.53	.162 (.237)	.47	1.18
Puerto Rican	.361 (.223)	2.62	1.43	.48 (.275)	3.05†	1.62
Cuban	.287 (.243)	1.39	1.33	.064 (.337)	.04	1.07
Mexican-Mexicano	.04 (.218)	.03	1.04	-.002 (.255)	.00	1.0
Mexican-American	.295 (.33)	.80	1.34	.386 (.342)	1.27	1.47
Other Latino /Hispanic	-.141 (.281)	.25	.87	-.347 (.263)	1.74	.71

Note: This table was excerpted from Table 4-11.

¹. Other API includes native Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, and Samoan (NCHS, 2008).

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

effect, however, duration of residence was shown to be significant in explaining which elderly immigrants would have limitations in activities due to chronic conditions.

The Three-Level Random Intercept Models: Race/Ethnicity at Level 2

Self-assessed poor health. According to the parameters in Table 4-12 which were estimated based on Equation (2), during the pre-PRWORA period, compared to the non-Hispanic Whites, the Chinese and Filipinos were less likely to report poor health:

Compared to the non-Hispanic Whites, the odds of the Chinese reporting poor health were 0.45 times ($exp(-0.8)$, $S.E. = 0.302$, $\chi^2 = 7.5$, $p = 0.008$), and the odds of Filipinos

Changes of Racial/Ethnic Groups' Functional Limitations Before and After PRWORA (Ref. White)

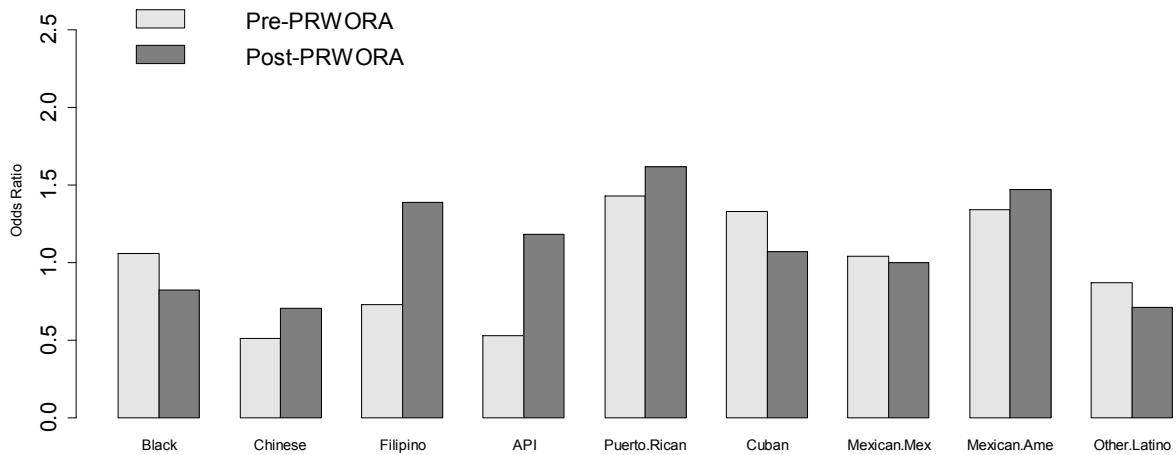


Figure 4-4: A Bar Plot Explaining Changes of Racial/Ethnic Groups' Activity Limitations Due to Chronic Diseases Before and After PRWORA Displayed in Terms of Odds Ratio (Ref. Non-Hispanic White)

were 0.50 times ($\exp(-0.696)$, $S.E.=0.285$, $\chi^2=5.96$, $p=0.015$). However, compared with the PRE-PRWORA models, during the post-PRWORA period, the odds of their reporting poor health greatly increased by 2.1 times³¹ more for the Chinese and by 2.5 times more for Filipinos as in Figure 4-3.

During the pre-PRWORA period, except for the Chinese and Filipino groups, the other racial/ethnic groups were also more likely to report poor health, compared to the non-Hispanic Whites. However, during the post-PRWORA period, the odds of all the groups except for APIs and Mexican-Americans reporting poor health greatly increased as the Chinese and Filipino groups did: Compared to those of the pre-PRWORA period, the odds were 1.59 times greater ($\exp(0.869)$, $S.E.=0.261$, $\chi^2=11.1$, $p=0.0017$) for Puerto Ricans, 1.59 times greater ($\exp(0.603)$, $S.E.=0.262$, $\chi^2=5.30$, $p=0.02$) for “Other

³¹ Ratio was calculated as $\exp(\beta)_{\text{POST}}/\exp(\beta)_{\text{PRE}}$.

Latino/Hispanics,” 1.33 times greater ($\exp(0.722)$, $S.E.=0.219$, $\chi^2=10.9$, $p<0.001$) for Mexican-Mexicans, 1.18 times greater ($\exp(0.748)$, $S.E.=0.339$, $\chi^2=4.87$, $p=0.027$) for Cubans, and 1.13 times greater ($\exp(0.202)$, $S.E.=0.298$, $\chi^2=0.46$, $p=0.5$) for non-Hispanic Blacks. Among the groups, the greatest increases in reporting poor health were observed in the Chinese and Filipino groups after the PRWORA.

Activity limitations. As for LATOTAL, the parameters in Table 4-13, which were also estimated based on Equation (2), indicates that before the PRWORA, the odds of elderly immigrants having a disability due to chronic diseases for the Chinese, Filipinos, and APIs were less than for non-Hispanic White. Furthermore the difference was significant except for the Filipino group: The odds of having a disability for the Chinese were 0.51 times ($\exp(-0.681)$, $S.E.=0.289$, $\chi^2=5.555$, $p=0.018$) those of non-Hispanic Whites, the odds for API were 0.53 times ($\exp(-0.642)$, $S.E.=0.263$, $\chi^2=5.96$, $p=0.015$) those of non-Hispanic Whites, and the odds for Filipino were 0.73 times as great ($\exp(-0.316)$, $S.E.=0.291$, $\chi^2=1.18$, $p=0.28$). In contrast, non-Hispanic Blacks and all groups of Latino and Hispanic origins except for the group designated “other Hispanics” had greater odds of having a disability than did non-Hispanic Whites. However, none of these differences was significant.

After the PRWORA, however, disability status due to chronic conditions increased in all of the Asian groups. As Figure 4-4 indicates, after the PRWROA, the odds of having disability increased by 1.39 times³² for the Chinese, by 1.9 times for Filipinos, and by 2.23 times for the API group. On the other hand, all Latino and Hispanic groups except for the group labeled “Other Latino/Hispanics” maintained the

³² Ratio was calculated as $\exp(\beta)_{\text{POST}}/\exp(\beta)_{\text{PRE}}$.

same pattern: The odds for Puerto Rican increased by a factor of 1.13 after the PRWORA. Among the groups, the APIs had the greatest increase in the odds of having a disability (ratio³³ = 2.23) after the PRWORA, followed by Filipinos (ratio = 1.90) and the Chinese (ratio = 1.39) as in Figure 4-4.

Unlike other groups, the odds of having a disability for non-Hispanic Blacks, Cubans, and the group labeled “Other Hispanics” decreased. The ratios for the groups were: a decrease to 0.78 times for non-Hispanic Blacks, to 0.80 times as much for Cubans, and to 0.81 times as much for “Other Hispanics”.

In summary, according to the relative difference established by setting non-Hispanic Whites as a reference group, after the implementation of PRWORA, the odds of having a disability due to chronic diseases greatly increased among all Asian groups, while the Puerto Rican and Mexican-American groups showed somewhat of an increase.

Three-Level Random Intercept Models: Citizenship Effects

To investigate the effects of citizenship on elderly immigrants’ self-assessed health and activity limitations, this study ran 3-level multilevel random intercept citizenship-only models for self-assessed poor health and activity limitation due to chronic conditions, and then extended them to 3-level multilevel intercept full models including the citizenship variable as well as other covariates.

Citizenship-only model. Table 4-14 shows that a naturalized elderly immigrant was 91% less likely to report poor health in the odds ratio than those without citizenship, but the difference was insignificant at $\alpha=0.05$ level ($\exp(-0.096)$, $S.E.=0.058$, $\chi^2=2.74$, $p=0.094$). Meanwhile, in comparing the odds of having disabilities due to chronic

³³ Ratio was calculated as $\exp(\beta)_{\text{POST}}/\exp(\beta)_{\text{PRE}}$.

Table 4-14: Effects of Citizenship on Self-Assessed Poor Health and Functional Limitations in 3-Level Random Intercept Model (Citizenship-Only models)

Unweighted Sample	Self-Assessed Poor Health N = 9309			Functional Limitations N = 9309		
	σ^2	S.E.	χ^2	σ^2	S.E.	χ^2
Random Effect						
State Level ¹ : $\sigma_{v_0}^2 = var(v_{0kl})$	0.06	0.043		0.08	0.048	
Culture Level ² : $\sigma_{u_0}^2 = var(u_{0jkl})$	0.241	0.068		0.092	0.04	
Fixed Effect	β (S.E.)	χ^2	$exp(\beta)$	β (S.E.)	χ^2	$exp(\beta)$
Intercept	-0.881 (0.087)			-0.83 (0.067)		
$\beta_{citizenship}$	-0.096 (0.058)	2.74 [†]	0.91	0.001 (0.053)	0.0	1.001
Bayesian DIC ³	11366.68			11177.82		

Note:

¹ Each data year contains the state indicator variable (i.e., 50 states and Washington DC), which is referred to as state level. Each state was assumed to be influenced by federal welfare policy.

² Culture level refers to the selected 10 racial/ethnic groups nested within each state.

³ DIC indicates Bayesian Deviance Information Criterion for model fit.

[†] $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

diseases there were no significant differences between elderly immigrants with citizenship and those without citizenship ($exp(0.001)$, $S.E.=0.053$, $\chi^2=0.00$, $p=0.98$).

Citizenship effects in the full models for ‘self-assessed poor health’. Table 4-15 is from 3-level random intercept logistic full models with the citizenship variable. The inclusion of the citizenship variable decreased the variance at the culture level from 0.291 in the model without citizenship to 0.278 in the model with citizenship, resulting in 0.013 points difference. With the nature of the hierarchical linear model for dichotomous response variables, the effects of citizenship in elderly immigrants’ self-assessed health differ among the racial/ethnic groups.

Inclusion of citizenship variable into the model does not significantly change the direction and strength of other explanatory variables with respect to self-assessed poor health except health insurance coverage. In the relationship between health insurance

Table 4-15: Effects of Citizenship on Individual Level Covariates in Self-Assessed Poor Health and Functional Limitations in 3-Level Random Intercept Model

Unweighted Sample	Self-Assessed Poor Health N = 9309						Functional Limitations N = 9309					
	Without Citizenship			With Citizenship			Without Citizenship			With Citizenship		
	σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2		σ^2 (SE)	χ^2	
Random												
State Level:	.041 (.04)	1.05		.043 (.031)	1.92		.109 (.091)	1.43		.106 (.082)	1.67	
Culture Level:	.291 (.12)	5.88*		.278 (.101)	7.58*		.247 (.086)	8.25*		.286 (.101)	8.02*	
DIC ¹	5484.05			5422.83			5217.28			5208.19		
Fixed	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$	β (SE)	χ^2	$exp(\beta)$
intercept	-2.046 (.338)			-1.983 (.242)			-2.517 (.334)			-2.639 (.409)		
<i>Level-1</i>												
YRSINUS ²												
5 – 14 yrs	.652 (.209)	9.73**	1.92	.575 (.19)	9.16**	1.78	.609 (.22)	7.66**	1.84	.712 (.24)	8.8**	2.04
≥15	.149 (.181)	.68	1.16	.045 (.18)	.063	1.05	.321 (.196)	2.68	1.38	.406 (.22)	3.41†	1.5
Covered	.442 (.186)	5.65*	1.56	.448 (.136)	11***	1.57	.577 (.184)	9.83**	1.78	.678 (.176)	14.8***	1.97
Below Poverty	.558 (.082)	46***	1.75	.565 (.083)	47***	1.76	.571 (.083)	47.3***	1.77	.579 (.083)	48.7***	1.78
Age ³												
70-74	.108 (.093)	1.35	1.11	.097 (.089)	1.19	1.10	-.034 (.095)	.13	.97	-.013 (.098)	.02	.99
≥ 75	.281 (.082)	12***	1.32	.271 (.082)	11	1.31	.752 (.083)	82.1***	2.12	.787 (.083)	89.9***	2.2
Education ⁴												
high school	-.509 (.09)	32***	.60	-.517 (.093)	31***	.60	-.337 (.099)	11.6***	.71	-.331 (.095)	12.1***	.72
>high school	-.801 (.093)	74***	.45	-.828 (.10)	69	.44	-.51 (.096)	28.2***	.6	-.501 (.096)	27.2***	.61
Not married	-.083 (.076)	1.19	.27	-.066 (.076)	.75	.94	.285 (.073)	15.2***	1.33	.298 (.078)	14.6***	1.35
Female	.061 (.074)	.68	1.06	.055 (.071)	.60	1.06	.126 (.071)	3.15†	1.13	.114 (.075)	2.31	1.12

DV2 ⁵	.709 (.072)	97***	2.03	.691 (.077)	81***	2.0	.669 (.074)	81.7***	1.95	.948 (.091)	109***	2.58
PHOSPYR ⁶	.919 (.089)	107***	2.51	.903 (.091)	98***	2.47	.936 (.087)	116***	2.55	.948 (.091)	108***	2.58
Citizenship				.081 (.094)	.74	1.08				-.13 (.091)	2.04	.89

Note:

¹ DIC indicates Bayesian Deviance Information Criterion for model fit.

² YRSINUS: Duration of residence in the U.S. (Those with less than 5 years of residence are referenced.)

³ Those who are 65-69 years old are referenced.

⁴ Those who do not have high school diploma are referenced.

⁵ DV2 refers 'doctor visits' during the past 2 weeks.

⁶ PHOSPYR: Short-stay hospital overnight during the past 12 months.

† $p < 0.1$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$

coverage and self-assessed health, the citizenship variable altered the strength of the relationship: Without the citizenship variable, the odds ratio was 1.56 and the p -value was 0.017 ($\exp(0.442)$, $S.E.=0.186$, $\chi^2=5.65$), but it became 1.57 and $p<.001$ ($\exp(0.448)$, $S.E.=0.136$, $\chi^2=11$). As for the parameter in self-assessed health, the citizenship variable itself is not significant in the full model ($\exp(0.081)$, $S.E.=0.094$, $\chi^2=0.74$, $p=0.39$).

Citizenship effects in the full models for ‘activity limitation’. As for the effects of citizenship in elderly immigrants having disabilities due to chronic conditions in the full model, the inclusion of the citizenship variable somewhat decreased the variance at the culture level, from 0.247 in the model without citizenship to 0.286 in the model with citizenship. Based on the nature of the hierarchical linear model for dichotomous response variables, the increase of variance at the upper level (here, culture level) suggests that citizenship effects differ depending on elderly immigrants’ racial/ethnic group membership in having functional disabilities.

Inclusion of citizenship variable into the model does not significantly change the direction and association of other explanatory variables with respect to activity limitation due to chronic conditions except for the health insurance coverage status variable and for those with 15 or more years of residence in the United States. The citizenship variable altered the strength of the relationship between elderly immigrants’ health insurance coverage and activity limitations: Without the citizenship variable, the odds ratio is 1.78 ($p=0.002$), but it became 1.97 ($p<.0001$). As for those with 15 or more years of residence, the citizenship variable also altered the strength of the relation between those with 15 or more years of residence and health: Without citizenship, the odds ratio is 1.38 ($p=0.11$), but it became 1.50 ($p=0.064$). As for the estimated parameter for the

citizenship in elderly immigrants' disability status, even though the citizenship variable itself is not significant in the full model, it has a negative relationship (i.e., an elderly immigrant with citizenship is less likely to have disabilities): The odds of the naturalized elderly immigrants having disabilities due to chronic conditions were $0.89(p=0.15)$ times the odds for those without citizenship.

CHAPTER 5

SUMMARY & DISCUSSION

This chapter is designed to present discussion and conclusions based on research findings in relation to elderly immigrants' healthcare service use and their health status in the following sequence: (1) Summary of Concept Models and Confirmed Research Hypotheses for Healthcare Service Use, (2) Summary of Theories and Confirmed Research Hypotheses for Health Status, (3) Discussions of the Research Findings, (5) Limitations of the Study, (6) Implications for Policy and Practice, and (7) Directions for Future Research.

Summary of Concept Model and Confirmed Research Hypotheses:

Healthcare Service Use

Summary of Concept Models

To explain elderly immigrants' healthcare service use behavior, this study adopted Andersen's (1995) healthcare service use behavior. Andersen (1968, 1995, & 2008) differentiated two types of healthcare service utilization behavior that each individual may display. One is discretionary behavior, which would generally be viewed as less serious and demanding. In this sense, 'doctor visit' in the current study can be viewed as a discretionary health service use behavior. In the NHIS program survey, the item 'doctor visits' asks whether respondents visited doctors for healthcare services during the past two weeks (i.e., receiving healthcare services from all types of doctors including dermatologists, psychiatrists, and ophthalmologists, as well as general practitioners and

osteopaths), had healthcare providers' home visits, and contacted healthcare providers via phone call. Andersen's model says the use of these ambulatory physician services can be explained by all the components (i.e., predisposing, enabling, and need factors) of the model.

The second type of health care utilization behavior is non-discretionary, which would be considered as healthcare service use for serious health problems, for example, those leading to inpatient care. Hence, health care service use in this category would be determined by the health care provider. In this sense, 'short-stay hospital overnights' in the present study can be considered as non-discretionary healthcare services use behavior. 'Short-stay hospital overnights' asks whether respondents used a hospital overnight during the past 12 months. According to Andersen's (1968, 1995, & 2008) model, non-discretionary behavior would primarily be explained by need and predisposing demographic characteristics (e.g., age, gender).

Andersen (1968, 1995, & 2008) has traditionally defined 'equitable access' as occurring when predisposing demographic characteristic (e.g., age and gender) and need variables account for most of the variance in utilization. Meanwhile, 'inequitable access' occurs when social structure, health beliefs, and enabling resources determine who receives medical care.

Summary of the Confirmed Research Hypotheses

By comparing data from two different U.S. welfare regimes, this study tested hypotheses developed from Andersen's (1995) behavioral model in use of healthcare services and review of the literature (1) to examine the effect of welfare reform on elderly immigrants' healthcare service use behavior and (2) to find an appropriate model which

explains elderly immigrants' healthcare service use behavior after the PRWORA was implemented in 1996. To this aim, the 1995 Andersen model was adapted by this researcher. According to the adapted model, individuals' healthcare service use behavior among elderly immigrant population will be affected by (1) federal welfare policy³⁴, (2) state adaptation of welfare policy (i.e., Medicaid, specifically), and (3) the racial/ethnic group to which they belong. Among individual characteristics, possible factors which may affect elderly immigrants' healthcare service use behavior, include (1) demographic characteristics (i.e., sex, age, marital status), (2) social structure (i.e., education level and duration of residence), (3) enabling resources (i.e., economic status, health insurance coverage status, and citizenship status), and (4) perceived needs for healthcare (i.e., self-assessed health status and activity limitation due to chronic disease). Research hypotheses which were postulated from the review of literature and the adapted model were tested (1) to identify level variables that can plausibly explain the variations and/or have important policy implications and (2) to find the relationship of duration of residence, health insurance coverage, and citizenship to elderly immigrants' healthcare service use. The research hypotheses were developed for non-discretionary healthcare service use and discretionary healthcare service use, respectively. To find answers to the developed research hypotheses, this study analyzed data from the 1993-1996 (for pre-welfare

³⁴ In this study, federal welfare policy refers to PRWORA. State level includes 50 individual states plus the District of Columbia, which were allowed to offer state-funded Medicaid under different state-determined restrictions. Racial/ethnic groups which were nested within each state are the term to label the variable used by the NHIS survey to sort immigrants by not only race/ ethnicity *per se* but also, in some cases, by national origin.

reform) and 2002-2008 (for post-welfare reform) National Health Interview Survey. The methods of data analysis were (1) proportion and Rao-Scott Chi-Square Tests for descriptive analysis and (2) multilevel random intercept models for inferential analysis.

Confirmed research hypotheses for discretionary healthcare service use:

1.1) Before the PRWORA, variance at state and federal policy levels will not be significant in elderly immigrants' discretionary healthcare service (i.e., primary and preventive healthcare service) use. After the PRWORA, state and policy levels' variance still will not be significant. However, culture level variance will be significant in elderly immigrants' discretionary healthcare service use before and after PRWORA, suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.

This hypothesis was confirmed. The culture level has the highest variations in elderly immigrants' 'hospital overnights' service use across all models in the table. The culture level variation for 'doctor visits' was not statistically insignificant before the PRWORA. However, the variation almost doubled and the difference became significant after the PRWORA.

1.2) There will be a significant association between citizenship status and discretionary healthcare service use among elderly immigrants after the PRWORA, while holding other covariates effects constant.

This hypothesis was partially confirmed. There was a statistically significant and positive relationship between citizenship and discretionary healthcare service use in multilevel random intercept models when there were no other covariates at individual level. However, when the individual level variables including duration of residence and health insurance coverage were added to the model, the relationship between citizenship and healthcare service use was not significant. The citizenship variable changed the coefficients of duration of residence, suggesting that there was an indirect effect of

citizenship between duration of residence and healthcare service use (Statistical significance test for the indirect effect was not tested due to limited data access).

1.3) Before the PRWORA, there will not be a significant association between duration of residence and discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant. However, after the PRWORA, (a) there will be a significant association between duration of residence and discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant, and (b) those with longer residence in the United States will be more likely than newcomers to use discretionary healthcare services only if they are naturalized and insured.

This hypothesis was confirmed. Before the PRWORA, the duration of residence did not explain significant variations in elderly immigrants' doctor visits even though it had a positive relationship to the doctor visits. After the PRWORA, however, those with at least 15 years of residence, whose health insurance coverage and naturalization rates were 97 percent and 84 percent, for each characteristic respectively (not shown in tables), were significantly more likely than newcomers to use discretionary healthcare services. On the other hand, those with 5 to 14 years of residence, whose health insurance coverage and naturalization rates were 85 percent and 45 percent, respectively (not shown in tables), were more likely than newcomers to use discretionary healthcare services, but the difference was not statistically significant.

1.4) There will be a significant association between health insurance coverage and discretionary healthcare service use among elderly immigrants both before and after PRWORA, while holding other covariates effects constant.

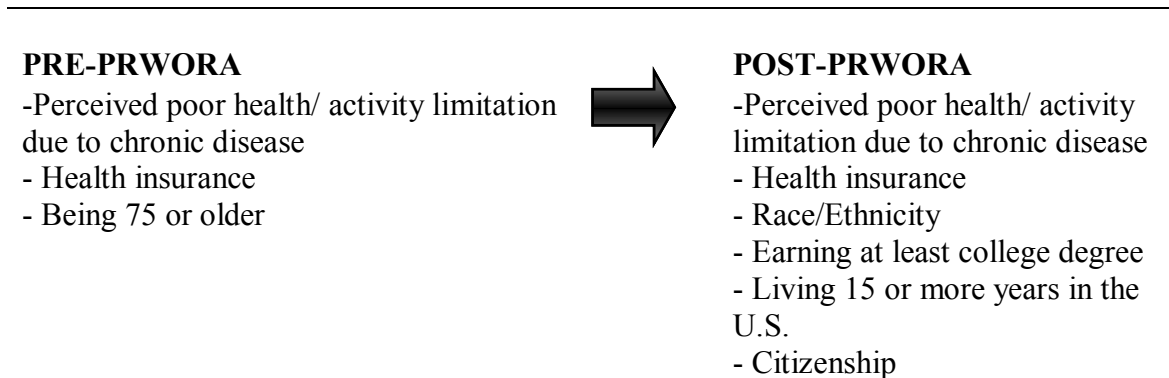
This hypothesis was confirmed. Elderly immigrants with health insurance were more likely than elderly immigrants without health insurance to use discretionary healthcare services during the pre-PRWORA era, while holding other variables constant. After the PRWORA, the insurance coverage status still maintained a positive and significant relationship to elderly immigrants' discretionary healthcare service use.

Summary of findings for discretionary healthcare service use: During the pre-PRWORA period, only being 75 or older significantly explained discretionary service use behavior. However, during the post-PRWORA period, having earned at least a college degree, race/ethnicity, citizenship, and the length of residence in the U.S. became important indicators in elderly immigrants' discretionary service use behavior. Before the PRWORA, racial/ethnic minority groups' use of discretionary healthcare service use was not significantly different from that of non-Hispanic whites. However, after the PRWORA, all racial/ethnic groups but Cubans were much less likely than non-Hispanic whites to use discretionary healthcare services. In particular, the differences in service use by Chinese, Filipino, API, and Mexico-Mexicano individuals gained statistical significance. In addition, the ratios of the adjusted odds ratio³⁵ suggest that the rate changes in the discretionary service use varied depending on elderly immigrants' racial/ethnic group membership. For example, non-Hispanic blacks' reduction rates in terms of the ratio of the odds ratio were greatest, followed by Mexican-Mexicanos, 'other Latinos/Hispanic', and Mexican-Americans.

In the citizenship-only model, the relationship between citizenship and doctor visits was positive and significant. In the full model, the inclusion of citizenship increased the variances at the upper levels, indicating citizenship has a strong effect.

³⁵ The ratio of the adjusted odds ratio is calculated by dividing $\text{odds ratio}_{\text{POST-PRWORA}}$ by $\text{odds ratio}_{\text{PRE-PRWORA}}$

Figure 5-1: Changes in Contributing Factors Explaining Elderly Immigrants' Discretionary Health Service Use Behavior



Moreover, the Bayesian Deviance Information Criterion (DIC)³⁶ for model fit also supports that inclusion of a citizenship variable explains a better model fit.

As in the study by Leclere, Jensen, and Biddlecom (1994), the length of residence in the United States became a significant indicator of elderly immigrants' healthcare service use after the PRWORA. In particular, unlike the pre-PRWORA immigrants, the post-PRWORA immigrants living in the U.S. at least 15 years became a significant indicator of elderly immigrants' use of discretionary healthcare services.

Adhering to the principle of parsimony³⁷ in developing a model, a possible model in explaining elderly immigrants' discretionary health service use behavior after the PRWORA contains, as illustrated in Figure 5-2, health care service needs, health

³⁶ The deviance with MCMC sampling to derive a diagnostic is a generalization of the Akaike's Information Criterion (Spiegelhalter et al., 2002). Like AIC, models with smaller Bayesian DIC values fit better to the data.

³⁷ Regression parameters in any model are estimated with the data. The more parameters we have in a model, the more data we need to use to estimate them. This leaves us with less information to estimate other quantities such as residual variance etc. In the end, we have regression estimates that are less precise.

insurance coverage status, citizenship status, earning at least some college degree, living at least 15 years in the U.S., and race and ethnicity.

Confirmed research hypotheses for non-discretionary healthcare service use:

2.1) Before the PRWORA, variance at culture, state, and policy levels will not be significant in elderly immigrants' non-discretionary healthcare service use (i.e., inpatient healthcare service). After the PRWORA, only culture level variance will be significant in elderly immigrants' non-discretionary healthcare service use, suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.

This hypothesis was confirmed. The culture level has the highest variations in elderly immigrants' non-discretionary healthcare service use (i.e., hospital overnight service) in the Pre-PRWORA model and in the post-PRWORA model. The culture level variation was not statistically significant before the PRWORA. However, after the PRWORA, the variation almost doubled and became significant.

2.2) There will not be a significant association between citizenship status and non-discretionary healthcare service use among elderly immigrants after the PRWORA, while holding other covariates effects constant.

This hypothesis was confirmed. The relationship between citizenship and non-discretionary healthcare service use was not significant either in the citizenship-only model (i.e., covariates' effects were not controlled) or in the full model (i.e., covariates' effects were controlled).

2.3) There will not be a significant association between duration of residence and non-discretionary healthcare service use among elderly immigrants either before PRWORA or after PRWORA, while holding other covariates effects constant.

This hypothesis was confirmed. Duration of residence in the U.S. did not affect the variations in elderly immigrants' inpatient service use during either pre- or post-

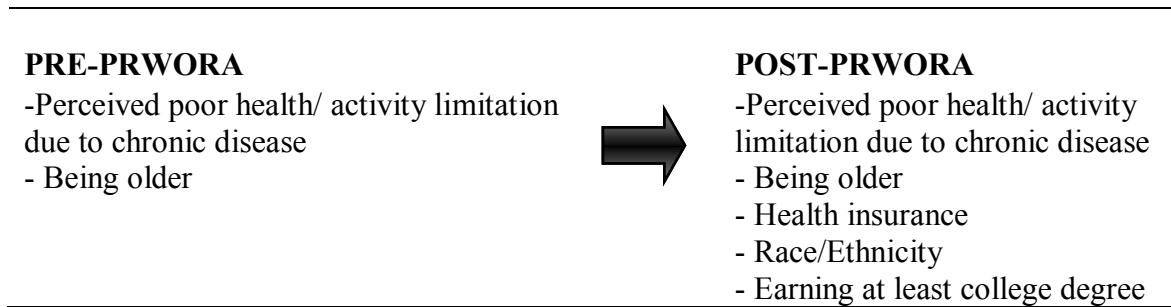
PRWORA periods. During the two different U.S. welfare periods, compared with newcomers, those with 5 or more years of residence were more likely to report activity limitation due to chronic disease, but the difference was not statistically significant, holding other covariates constant.

2-4) Before the PRWORA, there will not be a significant association between health insurance coverage and non-discretionary healthcare service use among elderly immigrants, while holding other covariates effects constant. However, after the PRWORA, there will be a significant association between health insurance coverage and non-discretionary healthcare services among elderly immigrants, while holding other covariates effects constant.

This hypothesis was confirmed. During the pre-PRWORA era, only age, self-assessed health, and activity limitation due to chronic disease significantly explained elderly immigrants' hospital overnights. After the PRWORA, however, there was a positive and significant relationship between health insurance coverage status and non-discretionary healthcare service use.

Summary of findings for non-discretionary health service use behavior: This study observed that elderly immigrants' activity limitation due to chronic disease and being 75 or older substantially and significantly explained their non-discretionary health service use both before and after PRWORA. During the pre-PRWORA era, duration of residence in the U.S. as well as educational achievement level, marital status, and sex did not contribute to non-discretionary service use behavior. Even health insurance coverage status was not a contributing factor in explaining elderly immigrants' use of hospital overnights. However, during the post-PRWORA era, elderly immigrants' health insurance coverage status became a significant contributor, in addition to educational achievement level.

Figure 5-2: Changes in Contributing Factors Explaining Elderly Immigrants' Non-Discretionary Health Service Use Behavior



In addition to health insurance status and educational achievement level, race/ethnicity and citizenship status also became important indicators in explaining elderly immigrants' non-discretionary healthcare service use. During the pre-PRWORA era, the use of hospital overnights among all racial/ethnic groups except API was not significantly different from that of non-Hispanic whites. However, all but non-Hispanic blacks, Puerto Ricans, and Mexican-Americans were less likely than non-Hispanic whites to use non-discretionary healthcare service during the post-PRWORA era. In particular, the difference by Filipinos and APIs were significantly different from non-Hispanic whites. The reduction rates which were calculated by using ratios of the adjusted odds ratio were greatest among Filipinos, followed by Mexican-Mexicanos, 'other Latino/Hispanics,' and 'Puerto Ricans.

Based on the results, the parsimonious model to explain elderly immigrants' non-discretionary health service use behavior after the PRWORA includes, as in Figure 5-1, health care service needs (i.e., perceived health and activity limitation), health insurance coverage status, citizenship status, earning at least some college degree, being older, and race and ethnicity.

Summary of Theories and Confirmed Research Hypotheses for Health Status

Summary of Theories Related to Elderly Immigrants' Health

To explain elderly immigrants' initial health on arrival in a receiving country and subsequent changes with time since immigration, this study reviewed the theories related to healthy immigrant effect. Healthy immigrant effect theory (Wingate & Alexander, 2005) states that foreign-born populations are healthier than native-born counterparts on arrival, but that the advantage diminishes or disappears with time residing in the adoptive country. The healthy immigrant effect occurs because immigrants positively self-select migration in order to enter the labor market in a receiving country (Jasso et al., 2004). However, since joining the labor market in a receiving country is less important for elderly immigrants because many do not intend to work, Jasso et al. (2004) postulate that better health care availability in receiving countries may be of far greater concern to elderly immigrants. Since elderly immigrants are mostly invited by their naturalized adult children, the quality and availability of good health care in a receiving country may be a critical determinant in working adults' decision to invite their parents. Therefore, based on the theory by Jasso et al. (2004), if a country allows elderly immigrants to access healthcare services based on need (as was the case before PRWORA), their initial health on arrival may be poor, but the disadvantage should diminish or disappear. This is because their naturalized working children will be more likely to invite elderly parents. However, if the quality and availability of the health care for elderly immigrants is restricted (as is the case after PRWORA), their initial health will be good. This is because naturalized adult children will invite their parents only if their parents are considered to be healthy. However, the advantage will disappear over time due to the limited availability of health care despite their increasing demand for healthcare due to aging.

Research hypotheses which were postulated from the review of literature and the theory by Jasso et al. (2004) were tested (1) to identify level variables that can plausibly explain the variations in elderly immigrants' health and/or have important policy implications and (2) to find the relationship of duration of residence, health insurance coverage, and citizenship to elderly immigrants' health status. To find answers to the developed research hypotheses, this study analyzed data from the 1993-1996 (for pre-welfare reform) and 2002-2008 (for post-welfare reform) National Health Interview Survey. The methods of data analysis were (1) proportion and Rao-Scott Chi-Square Tests for descriptive analysis and (2) multilevel random intercept models for inferential analysis.

Confirmed research hypotheses for health:

1. Before the PRWORA, variance at policy, state, and culture levels will not be significant in elderly immigrants' self-assessed poor health and activity limitation due to chronic disease. After the PRWORA, state and policy levels' variance will not be significant, either. However, culture level variance will be significant in elderly immigrants' self-assessed health and activity limitation due to chronic disease after PRWORA, suggesting the need for further investigation of the differences by identifying level variables that can plausibly explain the variations and/or have important policy implications.

This research hypothesis was confirmed. The culture level displays the greatest variations in the pre-PRWORA model and the post-PRWORA model. During the post-PRWORA era, the culture level variance doubled and was statistically significant. However, the variance at both state and policy levels were not significant either before PRWORA or after PRWORA.

2. There will be a significant association between citizenship status and elderly immigrants' self-assessed health after the PRWORA, while holding other covariates effects constant. However, there will not be a significant association between citizenship status and elderly immigrants' activity limitation due to

chronic disease after the PRWORA because even unqualified indigent immigrants without citizenship with serious medical conditions are allowed to use emergency medical care.

This research hypothesis was partially confirmed. The hypothesis, which states there will not be a significant association between citizenship and activity limitation due to chronic disease among elderly immigrants, while other covariates are controlled, was confirmed. As for the hypothesis for elderly immigrants' self-assessed health, however, there was a significant negative association between citizenship and elderly immigrants' self-assessed poor health, when no covariates at individual level were controlled. However, the significant relationship disappeared when covariates at the individual level were taken into account.

3. Before the PRWORA, there will be a significant and negative association between duration of residence and elderly immigrants' self-assessed poor health and activity limitation due to chronic disease, while holding other covariates effects constant. That is, before the PRWORA, elderly immigrants with longer residence in the United States will be less likely than newcomers to report poor health and activity limitation due to chronic disease. However, after the PRWORA, there will be a significant and positive association between duration of residence and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant. That is, after the PRWORA, elderly immigrants with longer residence in the United States will be more likely than newcomers to report poor health and activity limitation due to chronic disease.

This research hypothesis was confirmed (also see Figure 5-4). Before the PRWORA, elderly immigrants with longer residence were less likely than newcomers to report poor health and activity limitation due to chronic disease as time since immigration in the United States increased, with the best perception of health and least reports of activity limitation due to chronic disease among those with 15 or more years of residence in the United States. However, after the PRWORA, elderly immigrants were more likely than

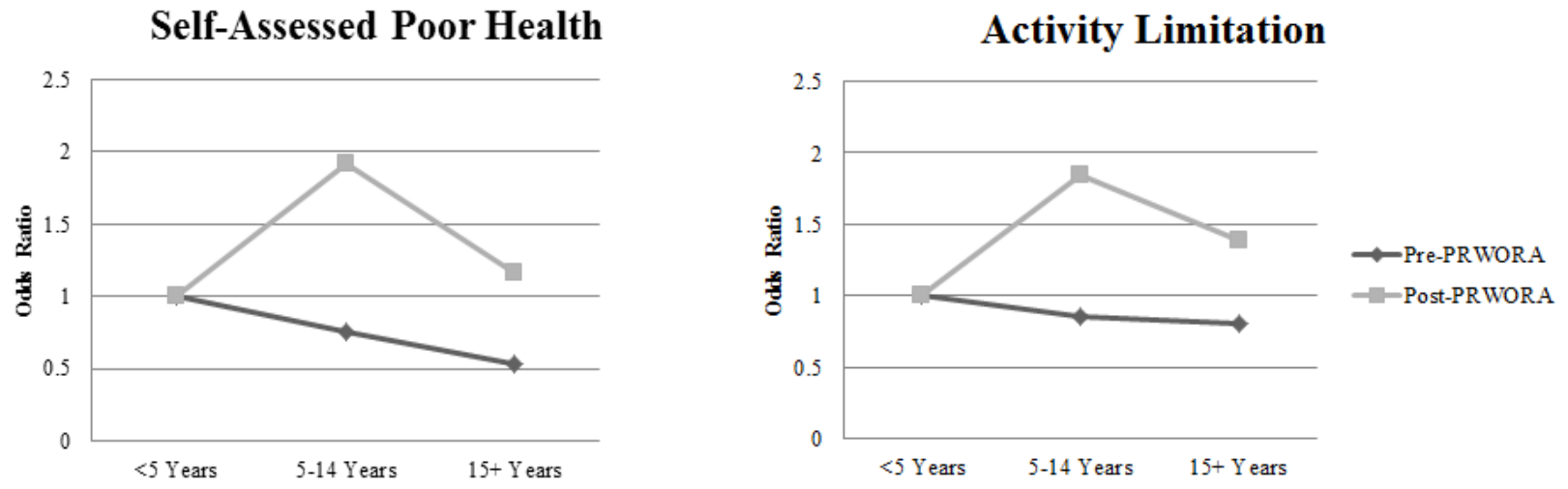


Figure 5-3: Trajectories of Elderly Immigrants' Self-Assessed Poor Health and Activity Limitation Over Time in the United States: Comparisons between Pre-PRWORA and Post-PRWORA

newcomers to report poor health and activity limitation due to chronic disease as time since immigration increased, with the worst perception of health and most reports of activity limitation due to chronic disease among those 5 to 14 years of residence in the United States. As previously described, health insurance coverage and naturalization rates among those 5 to 14 years of residence were only 85 percent and 45 percent, respectively.

4. Before the PRWORA, there will not be a significant association between health insurance coverage and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant. However, after the PRWORA, there will be a significant association between health insurance coverage and elderly immigrants' self-assessed health and activity limitation due to chronic disease, while holding other covariates effects constant.

This research hypothesis was confirmed. During the pre-PRWORA period, when elderly immigrants enjoyed the same access to public assistance as U.S.-born citizens, elderly immigrants' health insurance coverage was not related to their self-assessed poor health and activity limitation due to chronic disease. However, after the PRWORA, health insurance had a significant and positive relationship with elderly immigrants' self-assessed poor health and activity limitation due to chronic disease.

Summary findings for health: Based on the analyses from the multilevel analysis, the population variations became greater. The variations were observed at the culture level: the culture level variations were greater than policy and state levels both before and after PRWORA, but the culture level variations became substantially and significantly greater during the post-PRWORA era. The results indicate that elderly immigrants' response to the PRWORA in relation to their self-assessed health differed by their racial/ethnic identity.

As suggested in the patterns of health service use, the odds of all racial and ethnic minority groups but API and Mexican-American groups reporting poor health became greater than the odds for non-Hispanic white after the PRWORA. In addition, half of the minority groups reported increased activity limitation due to chronic disease after the PRWORA.

As Jasso et al (2004) postulated, the findings show a “reversed healthy immigrant effect” before welfare reform: newly arrived immigrants were more likely than immigrants who had lived longer in the United States to report poor health and activity limitation due to chronic disease, with the best perception of good health and the least reports of activity limitation due to chronic disease among those with 15 or more year residents. The opposite pattern in the period after welfare reform was observed: newcomers were more likely than immigrants who had lived longer in the United States to report good health, with the worst perception of poor health and the most reports of activity limitation due to chronic disease among those the 5- to 14-year residents.

Discussions of the Research Findings

To discuss the findings of the present study, this part consists of (1) Prominent Inequitable Access Indicators in Use of Healthcare Services, (2) Greater Variations at the Culture Level than the State Level, (3) Increased Health Disparities among Racial and Ethnic Groups, (4) Marginalized Immigrant Cohort: 5-14 Year Residence in the United States, and (5) ‘Healthy Immigrant Effect’ due to Restrictive Welfare Reform.

Prominent Inequitable Access Indicators in Use of Healthcare Services

The present study found that health status, education, race and ethnicity, and health insurance were significant factors in commonly accounting for both discretionary

and nondiscretionary healthcare service use during the post-PRWORA period. Among these factors, race and ethnicity was not a contributing factor to discretionary and nondiscretionary healthcare service use during the pre-PRWORA period. Unlike Choi's (2006) study which reports no direct relationship between elderly immigrants' discretionary healthcare service use and duration in the United States, duration of residence in the United States was also a contributing factor in explaining elderly immigrants' discretionary healthcare service use during the post-PRWORA period even when holding other independent variables constant. The duration of residence variable was not a significant variable during the pre-PRWORA period. Choi's study has no direct effect between duration of residence and healthcare service use, but it has an indirect effect between duration of residence and healthcare service use by health insurance coverage. This may be because Choi's study (1) did not take into account variations among racial and ethnic groups (Rather, Choi's study asks whether an elderly immigrant's place of birth is Mexico, Central/South America, Europe, or Other), (2) did not control for states' various adaptations of welfare reform, (3) did not control for the effects of citizenship, and (4) categorized the duration of residence variable into only two groups (i.e., whether living at least 5 years or more in the United States) while the present study categorized the variable into three groups (i.e., less than 5 years of residence, 5-14 years of residents, and 15 or more years of residents).

There are a dearth of studies in the United States that examine the relationship of citizenship to health and healthcare service use among elderly immigrant population. One of the examples is Saint-Jean and Crandall's (2005) study, reporting that citizenship status was the strongest independent predictor of service utilization. However, they

sampled 184 households only from immigrants of Haitian origin living in Miami, Florida. Echeverria and Carrasquillo (2006) and Alba et al. (2005) reports significant effects of citizenship on immigrants' healthcare service use. However, the age group of these studies is female aged 18-65 years or female aged 18 or older.

The present study, with nationally representative data, found that citizenship was a significant factor in explaining elderly immigrants' discretionary healthcare service use. However, the significant relationship was found in the citizenship-only model in three-level random intercept models (i.e., taking into account race/ethnicity variations and state variations, but there are no other predictor variables except for citizenship in the model). When other predictor variables including health insurance and duration of residence were added to the three-level random intercept model, the significant effects of citizenship faded away. This result suggests that there are compounding effects among citizenship, duration of residence, and health insurance in explaining elderly immigrants' self-assessed health and discretionary healthcare service use.

In applying Andersen's Behavioral Model, this study found that elderly immigrants' health status (= need factor) and health insurance coverage status (= enabling factor) significantly explained their discretionary healthcare service use both before and after PRWORA. This study also documented that after the PRWORA, elderly immigrants' discretionary health service use behaviors are affected by social structural differences (= education, race/ethnicity, citizenship, and the length of residence) and enabling factor (= health insurance coverage) as well as need factors (= perceived health status and activity limitation due to chronic disease).

In Andersen's model (1968, 1995, 2008), predisposing factors, which refer to an individual's characteristics leading them to need and use a particular service, encompass demographics, social structures, and health beliefs. Among predisposing indicators, social structure includes education, occupation, social networks, social interactions, ethnicity, culture, and other factors measuring status in the community (Andersen & Newman, 1973). Based on these definitions, the social structure may also include citizenship and duration of residence, which are not in Andersen's model, in explaining immigrants' healthcare service use behavior. As mentioned in Chapter I, Andersen (1968, 1995, and 2008) postulated that individuals' healthcare service use that was explained by the social structure as well as enabling factor can be an indicator of 'inequitable' access. Based on Andersen's definition of inequitable access, the findings of this study may suggest that the implementation of the PRWORA has led to inequitable access in elderly immigrants' healthcare service use.

Greater Variations at the Culture Level than the State Level

The multilevel analysis made it possible to simultaneously incorporate both individual and group level models within the contexts of changing policies at the federal and state level. Increasingly greater variations at any level suggest the need for further investigation within that level (Carle, 2009). Borjas (2002) predicted great interstate disparities in welfare benefits due to states' different adaptation of PRWORA and Nam (2011) observed that elderly immigrants in states with state-funded Medicaid are more likely than those in states without state-funded Medicaid to be insured. Based on these studies, great variations in healthcare service use would be at the state level. However, the present study found that the variations at the culture level were greater than the

variations at the state level both before and after PRWORA. The culture level variations became statistically significant during the post-PRWORA era.

The fact that only a handful of states provide state-funded Medicaid to unqualified elderly immigrants (Fremstad, & Cox, 2004; Nam, 2012) may contribute to less variation at the state level. As of 2004, among the states with high levels of immigrant population (e.g., California, Florida, Illinois, New Jersey, New York, and Texas), only California and New York provide state-funded Medicaid to elderly immigrants. Except these previously mentioned states, many of other states with at least 15 percent of immigrants out of total state population still do not have state-funded Medicaid for elderly immigrants (e.g., Arizona, District of Columbia, Hawaii, Maryland, Nevada, Virginia, and Washington). As a result, only eight states (i.e., California, Connecticut, Delaware, Maine, Minnesota, Nebraska, New York, and Pennsylvania) have state-funded Medicaid program for elderly immigrants in 2004 (Fremstad & Cox, 2004).

Even among the states which had state-funded Medicaid program for federally unqualified elderly immigrants, contributing factors to ‘less variation at the state level but greater variation at the culture level’ may include (1) administrative changes, confusion over Medicaid case rules, and failure to update automatic eligibility notification systems (Ku & Garrett, 2000), (2) “chilling effect” in immigrants using public assistance for fear of possibly negative impacts on their immigrant status and their family members who invited them (Derose, Escarce, & Lurie, 2007; Feld & Power, 2000; Fix & Passel, 1999; Kaushal & Kaestner, 2005), and (3) negative portrayal of racial and ethnic minority groups among immigrant population, which was prevalent in the U.S. society in general as well as in discourses in the U.S. Congress specifically (Fujiwara, 2005; Yoo, 2008),

affecting frontline workers' discretion in deciding who may benefit from citizen entitlements (Bhuyan, 2010; Park, Bhuyan, Richards, & Rundle, 2011). According to several studies (Bhuyan, 2010; Grewal, 2005; Ong, 1996, 2003), there are governance mechanisms and control technologies through which frontline workers, including Medicaid personnel, are guided in assessing worthiness of receiving public assistance. According to Katz (2001) the assessment of worthiness is based on dominant ideological values for gender, race, and class. According to Yoo (2008), during the years of 1994 to 1996, the transcripts of U.S. Congressional hearings on immigrants frequently depicted immigrants as committing fraud and as abusing public assistance. As presented to the elected officials, immigrant families were portrayed as being irresponsible and negligent, moreover, their elderly parents were labeled noncontributing members of society. This portrayal to the politicians made immigrants appear to be unworthy of receiving public assistance. Elderly immigrants, in particular, those of Asian ancestry or origin, were portrayed in this manner (Yoo, 2008).

Decreased Discretionary, but Increased Non-Discretionary, Healthcare Service Use

Figure 5-3 presents the changes of the odds of elderly immigrants with health insurance coverage using discretionary and non-discretionary healthcare service use. It says the odds of their use of discretionary healthcare services greatly decreased after the PRWORA (effect size in terms of odds ratio is $2.72_{\text{post-PRWORA}}/3.82_{\text{pre-PRWORA}} = 0.71$). On the other hand, the odds of elderly immigrants' non-discretionary healthcare service use greatly increased after the PRWORA (effect size in terms of odds ratio is $2.57_{\text{post-PRWORA}}/1.43_{\text{pre-PRWORA}} = 1.80$).

This pattern clearly describes that post-welfare reform elderly immigrants, although they were covered by health insurance, were less likely than pre-welfare reform elderly immigrants to use primary and preventive healthcare services, but the post-welfare reform elderly immigrants were more likely than pre-welfare reform elderly immigrants to use expensive hospital healthcare services.

Increased Health Disparities among Racial and Ethnic Groups

National Institute of Health (2000) defined that Health disparities include differences in adverse health conditions that exist among specific population groups in the United States. Reducing health disparities is related to reducing financial burdens, preserving moral obligation, and upholding social justice (Braveman et al., 2010; Freudenberg & Olden, 2010). This study found increased health disparities among racial and ethnic groups including Asians and non-Hispanic blacks after the PRWORA. After the PRWORA, when non-Hispanic whites were referenced, almost all racial and ethnic minority groups reported increased poor health. In addition, Chinese, Filipinos, APIs, and Mexican-Americans reported their activity limitation also increased after the PRWORA. The groups with the highest odds of activity limitations were Filipinos and APIs among Asian groups and Puerto Ricans and Mexican-Americans among Hispanic groups.

Interestingly, this study also found that while non-Hispanic white immigrants' health insurance coverage rates during the post-PRWORA era remained the same (98%) as during the pre-PRWORA era, the coverage rates of those of Asian ancestry or origin increased (from 84% to 97% for Chinese immigrants and from 95% to 98% for API immigrants). However, counter intuitively, the odds of the Asian groups' healthcare service use decreased.

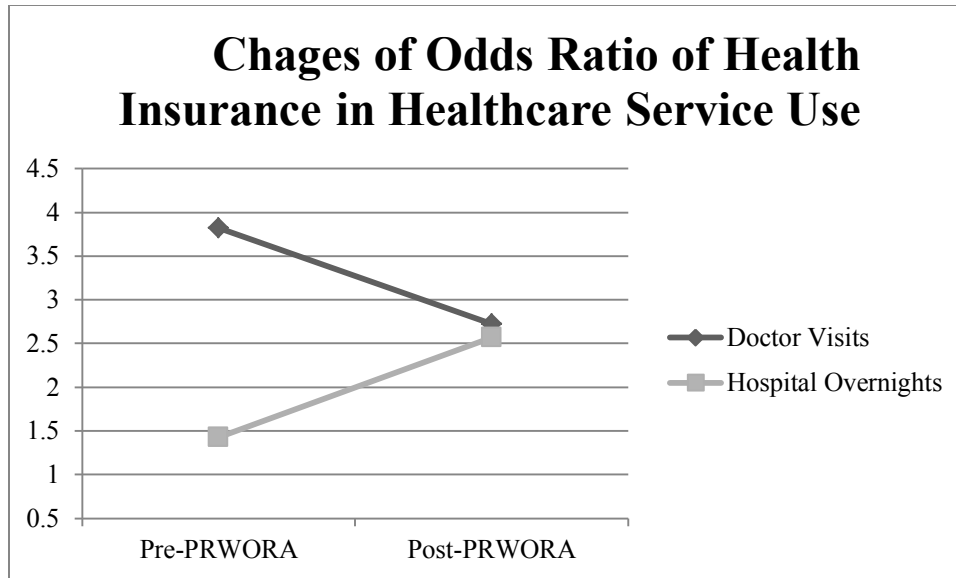


Figure 5-4: Changes of Odds Ratio of Elderly Immigrants' Health Insurance Coverage Status in Their Use of Healthcare Service Use

One possible explanation may be related to increased poverty rates among the Asian groups. In particular, Chinese elderly immigrants' poverty rates greatly increased from 10% to 24% while non-Hispanic whites' poverty rates increased from 7% to only 11%. Increased poverty rates among immigrant population suggest the rates of immigrant population who were “near poor” also increased. Those who are “near poor” are not eligible for public assistance, including Medicaid. Rowland and Lyons (1996) says that low income older adults with Medicare tend not to use healthcare services unless they are covered by Medicaid at the same time because they lack the ability to purchase medicine or follow subsequent treatments recommendations without Medicaid coverage.

It is also assumed that language barriers, and in turn lack of information about the changed welfare rule, may bar the Asian groups from acknowledging their eligibility for public assistance and changed welfare reform, considering that English language

proficiency strongly affects immigrants' access to and quality of care (Ku & Waidmann, 2003). Including the Asian elderly immigrants, almost 71 percent of newly-arrived elderly immigrants spoke no English or did not speak English well in 2006 (Leach, 2009) and among the total elderly immigrants in 2010, as much as 56 percent reported limited command of English (Batalova, 2012). Considering this, elderly immigrants from non-English speaking countries may be more likely than those from English speaking countries to be disadvantaged by the PRWORA.

The PRWORA also inhibits elderly immigrants with limited proficiency of English from participating in formal citizenship (i.e., such citizenship rights as social rights, civil rights, and political rights are limited only to those who have citizenship). To attain the formal citizenship, elderly immigrants have to pass the citizenship test which requires English language proficiency in terms of listening, speaking and writing. That is to say, elderly immigrants from non-English speaking countries are precluded from participating in formal citizenship rights.

Before the PRWORA was implemented, citizenship laws and naturalization policies were more inclusive than formal citizenship, meaning that access to citizenship was opened to long-term residents, rather than limited to only those who are naturalized. However, the United States retrenched the "inclusive citizenship" (which was valid until 1996) to "formal citizenship" by implementing the PRWORA in 1996 (Fix & Laglaron, 2002). It is important to note that the elderly immigrants from non-English speaking countries are even more limited in joining the formal citizenship after the PRWORA due to their limited command of English, which automatically precludes attaining political rights as well as social rights and civil rights, no matter how long they live in the United

States. Considering that government policies in democracies reflect the individual preferences of voters (O'Rourke & Sinnott, 2004), their voice and interests may be hardly represented on policy decision making. They may be considered as "invisible beings" although they assume all the responsibilities and duties as civilians (e.g., paying all necessary taxes and observing laws and rules which the U.S. society requires). The PRWORA is open to being misunderstood as an example of covert, but *de jure* discrimination against certain racial and ethnic groups.

Frontline workers' discrimination against certain racial and ethnic groups (Hagan et al., 2003; Marchevsky & Theoharis, 2008) can also be one of the possible factors that explain the disparities in elderly immigrants' healthcare use and health. That is, possibly eligible elderly immigrants may not have applied for Medicaid or their application for Medicaid may have been denied due to frontline workers' discretion on their assessment of worthiness for receiving public assistance. Frontline workers' refusal to grant eligible immigrants access to guaranteed benefits may be due to ignorance of the eligibility rules (Fix & Passel, 1999) and/or prejudice against racial and ethnic minorities (Bhuyan, 2010; Hagan et al., 2003; Marchevsky & Theoharis, 2008).

Studies (Bhuyan, 2010; Grewal, 2005; Ong, 1996, 2003) claim that the discrimination by social service providers, including Medicaid personnel, affects immigrants' participation in citizenship rights. As described in Chapter II, their evaluation of worthiness in immigrants is based on dominant ideological values for gender, race, and class toward ensuring citizen subjects who will be productive in a market economy and loyal to the state (Katz, 2001). In supporting this assertion, a study by Park, Bhuyan, Richards, and Rundle (2011) documented that social workers working

for governmental bodies, which, in particular, require citizenship identification for use of public assistance, are less favorable towards immigrants than social workers who work for not-for-profit agencies. An ethnographic study by Marchevsky and Theoharis (2008) also observed that the PRWORA confers considerable discretion over eligibility standards and benefits to individual caseworkers, resulting in their discrimination against foreign-born minorities in a “highly diffuse, yet system-wide” manner (p.71).

Marginalized Immigrant Cohort: 5-14 Year Residence in the United States

In line with many studies, the present study found a significant relationship of duration of residence to elderly immigrants’ health (Angel et al., 2010; Choi, 2012; Gee, Kobayashi, & Prus, 2004; González et al., 2009; Kobayashi & Prus, 2012; Thamer, Richard, Casebeer, & Ray, 1997) and their healthcare service use (Leclere, Jensen, & Biddlecom, 1994). Before the PRWORA, elderly immigrants’ self-assessed health and activity limitation due to chronic disease improved as time since immigration to the United States increased. That is, newly arrived pre-PRWORA immigrants reported the worst health and most activity limitation due to chronic disease; those with at least 15 years of residency in the United States reported the best health and least activity limitation due to chronic disease. However, the pattern is reversed after the PRWORA. Newly arrived post-PRWORA elderly immigrants reported the best health and least activity limitation due to chronic disease. However, elderly immigrants with 5-14 years of residence in the U.S. had the worst perceptions of health and the most activity limitation due to chronic disease due to chronic conditions. The pattern of health deterioration as time since immigration increases is not linear but rather quadratic, which rules out Jasso et al.’s (2004) theory of ‘a simple process of regression toward the mean’

following strong health selection effects in explaining elderly immigrants' deteriorating health after immigration.

Those with 5-14 years of residence became the most marginalized immigrant cohort after the PRWORA. They were eligible to take the citizenship test, but citizenship rates were very low among racial/ethnic minority groups. In particular, looking at the citizenship rates of this 5-14 year resident cohort, the rates seem to be related to whether they were from English-speaking countries (i.e., 45%, 36%, 52%, 44%, 9%, 2%, and 31% for non-Hispanic black, Chinese, API, Cuban, Mexican-Mexicano, Mexican-American, and other Hispanic, respectively, versus 64% for non-Hispanic white and Filipino). This result suggests that language seems to become an important indicator measuring elderly immigrants' successful adjustments to the life and in turn, life satisfaction in the United States.

Considering that after the PRWORA took effect, (1) citizenship status became important to elderly immigrants' access to health care services, but the naturalization rate for the cohort was only 45% (not seen in the tables), and (2) the health insurance coverage for those with 5-14 years of residence in the U.S. decreased from 92% to 85% while the poverty rate increased from approximately 23% to 32% (not seen in the tables), the PRWORA's requirement of citizenship for access to healthcare services has had the most negative effects on this immigrant cohort.

Healthy Immigrant Effect due to Restrictive Welfare Reform

The present study found that there was 'reversed' healthy immigrant effect before the PRWORA took an effect (i.e., elderly immigrants' health improved as they live longer in the United States). However, there existed healthy immigrants effect after the

PRWORA was implemented (i.e., elderly immigrants' health deteriorated as they lived longer in the United States), while those with 5 to 14 years of residence had the worst perception of health and most activity limitations. To explain this changed pattern in elderly immigrants' health, present study employed theories related to healthy immigrant effects.

As previously described in Chapter II, the literature (Antecol & Bedard, 2006; Dey & Lucas, 2006; Dunn & Dyck, 2000; Halli & Anchan, 2005) have documented that when immigrants' positive health selectivity for migration plays a role, newly arrived foreign-born populations are healthier than those with longer years of residency. Newly arrived immigrants tend to be healthy due to their positive health self-selective behaviors before migration in order to secure better odds of being admitted to a receiving country, which requires good health, skills, and knowledge needed in the labor market. However, empirical studies (Hummer & Chinn, 2011; Jasso, et al., 2004; Terrazas, 2009) also suggest that the positive health selection effect may be quite different among elderly immigrants since the positive self-selection is based on labor market considerations, which are less important for elderly immigrants because they may not intend to work in the labor market. Rather, Jasso et al (2004) postulate that better health care available in the receiving country may be of far greater concern among older immigrants.

Based on Jasso et al (2004), since older immigrants are generally invited to the receiving country by their adult children who may have to take care of their parents when they become ill, the quality and availability of good health care in the receiving country will be among working adults' consideration when they make a decision on migration and they invite their parents to follow. Hence, it is a logical consequence that if the receiving

country allows all residents, including immigrants and refugees, to enjoy universal access to all medical services on the basis of need, naturalized working immigrants will be more likely than otherwise to invite their elderly parents. In this case, elderly immigrants' initial health on arrival may be poor, but the disadvantage will diminish or disappear due to quality and availability of good healthcare. However, if the availability of health care is limited, working adults will be less likely than otherwise to invite their parents. They will invite their parents only when their parents are considered to be healthy. In this case, elderly immigrants' initial health is considered to be good, but the advantage will disappear over time due to limited availability of health care while their demand for medical care will increase due to aging.

Researchers both in Canada (Gee, Kobayashi, & Prus, 2004; Kobayashi, & Prus, 2012) and in the United States (Angel et al., 2010; Choi, 2012; González et al., 2009) support the study by Jasso et al. (2004): in many measures, newly-arrived elderly immigrants' health status was not healthy on arrival, but the disadvantage disappears or diminishes over time. This is because in Canada, all residents including immigrants and refugees enjoy universal access to all medically necessary physician and hospital services on the basis of need, regardless of willingness or ability to pay for services (Birch & Gafni, 1999) and the aforementioned studies with data from the United States contain elderly immigrants who migrated before the PRWORA was implemented in 1996. They were not affected by the PRWORA restrictions, but like the immigrants in Canada, they enjoyed the same benefits as the U.S.-born citizens did.

As for the situation where elderly immigrants' use of good health care is limited, the implementation of the PRWORA can be an example. Although there is a paucity of

studies on this topic with the post-PRWORA elderly immigrants, a qualitative study by Binstock and Jean-Baptiste (1999) can be a good example. They observed that within three years of the legislation's enactment, stresses associated with the loss of public benefits had already begun to affect the mental health of immigrants in Dade County, Florida, suggesting that elderly immigrants' health condition may become poor over time under the PRWORA. Supporting the postulation by Jasso et al. (2004), the present study observed that unlike the pre-PRWORA elderly immigrants, the post-PRWORA elderly immigrants' health was good on arrival in the U.S. but their health deteriorated over time.

In addition, as previously introduced in Chapter II, comparing the two welfare cohorts of immigrants in terms of health suggests that aside from limited access to healthcare due to restrictive welfare reform, the proposed theories such as limited access due to cultural differences, acculturation to unhealthy lifestyles, and reporting biases in initial health due to differences in immigrants' perception of health conditions, could be ruled out in explaining elderly immigrants' health changes over time. This is because they are assumed not to be easily altered solely by the introduction of a new welfare policy and thus equal before and after the PRWORA. In addition, this study documented that the pattern of health deterioration as time since immigration is not linear, which does not support the theory of a simple process of regression toward the mean in a receiving country's norm in disease rates of the foreign-born, immigrants' health. The findings of this present study may support the theory of 'limited access to healthcare,' due to restrictive welfare reform in explaining elderly immigrants' deteriorating health as time since immigration to the United States increases.

Limitations of the Study

Findings of this study should be interpreted in light of its limitations. First, since NHIS is a cross-sectional data set, causal interpretation is limited. The data do not trace the same individuals over time. Hence, research which may employ longitudinal data that follow late-life immigrants' health and healthcare service use over time and over periods of policy changes would resolve this issue. However, to the author's best knowledge, there exist no national longitudinal data whose samples are large enough to examine ten racial and ethnic group differences among elderly immigrant population in the study of health and health care service utilization. Using the NHIS data may not be the best option due to the aforementioned limitations, but it may be the best alternative.

The present study found that after the PRWORA, elderly immigrants' discretionary healthcare service use increased slightly in variance component models. The result reflects the variance component model refers to a model with no other variables except a dependent variable to be estimated. That is to say, the variance component models do not control for the effects of variables from a micro-level (e.g., individuals variations in terms of, for example, socio-demographic and economic characteristics) to a macro-level (e.g., any changes in national economy, Gross Domestic Product, standard of living, etc.), which may have affected elderly immigrants' healthcare service use.

This study also found that the variations at culture level became great during the post-PRWORA era. However, finding the factors which had influenced the increased variations is beyond the scope of this study. Hence, this present study suggests a need for further investigation and analysis of policy implications for racial/ethnic groups and states when considering elderly immigrants' utilization of healthcare services.

Another limitation of this study is its reliance on survey questions which have undergone wording changes, given that the content of the survey used to collect NHIS data has been updated about every 10 to 15 years with recent substantial revision of the 1997 NHIS data questions. Accordingly, the contexts of the questions and their wording have experienced some changes. For example, as indicated in the Methods part of Chapter I, there were changes in wordings of the doctor visit variable, which may contribute to these observed differences. These changes may have affected the responses and thus may prevent definitive conclusions in terms of the questions raised by this present study.

Another limitation of this analysis is related to instrumental errors which can selectively reduce certain racial/ethnic groups' participation in the survey. The NHIS survey is conducted in either English or Spanish (NCHS, 2009); consequently, the participation rates of people who were in the NHIS sampling frame but are not fluent in either of the two languages may be low. This possibility suggests that the variations of the possible outcomes related to language and acculturation in this present study may be larger than the proposed estimates in the outcome of the analyses.

Implications for Policy and Practice

Discretionary healthcare services, that is, preventive and primary care, are the first level of health care encompassing a range from health-related counseling and patient education to diagnosis and treatment of acute and chronic illnesses. Hence, it is important to note for policy decision makers that limited access to outpatient services can cause delayed diagnosis of disease and lead to serious consequences for health outcomes (IOM, 2002). Studies (IOM, 2002; Politzer et al., 2001; Shi et al., 2005; Rust & Cooper, 2007;

Starfield, Shi, & Macinko, 2005) univocally claim that increasing access to quality primary care can reduce health disparities. In addition to serious consequences for health outcomes, the citizenship requirement by the PRWORA will (1) increase administrative expenditures incurred by the states (GAO, 2007), (2) reduce the level of service received by legal residents including U.S.-born citizens (Bhuyan, 2010; GAO, 2007), and (3) increase the utilization of expensive health care services (i.e., emergency Medicaid) because the emergency Medicaid is allowed for those unqualified indigent immigrants without citizenship and health insurance (GAO, 2007; Wallace, Enriquenz-Haass, & Markides, 1997)

According to Public Law 104-193 which is another name of PRWORA, welfare reform was expected to conserve more public funds and to address welfare deficits by reducing the number of immigrants on welfare rolls and by discouraging immigrants with the potential to become public charges from entering the U.S. Decreases in the number of welfare and Medicaid enrollees (Merrill & Ellwood, 2005) and of newly-arriving elderly immigrants seems to suggest that welfare reform has achieved at least one of its goals. However, consistent with Nam and Kim's (2012) study, the present study also casts doubt on the long term effectiveness of welfare reform's eligibility restrictions on immigrants to achieve the goals of reserving more public financing and addressing welfare deficits. This is because this study documented that after the PRWORA, elderly immigrants' reported greatly increased perception of poor health and of activity limitation due to chronic conditions among those with 5-14 years of residence and among racial/ethnic minority groups. This is a trend that requires the U.S. society to pay increased costs for elderly immigrants' medical care by using Emergency Medicaid more

frequently. McDonald and Kennedy (2004) emphasized the importance of promoting health of the ever-increasing immigrant population since the health among this demographic group is an important determinant of general measures of population health and is directly related to issues involving the cost and adequacy of the healthcare system.

Access to the healthcare system and the health of the immigrant population are also an issue of social justice and moral obligation (Freudenberg & Olden, 2010; Braveman et al., 2010). Several studies (IOM, 2002; Politzer et al., 2001; Shi et al., 2005) report that reducing the differences caused by, for example, sex, socioeconomic status, age, or race and ethnicity in access to and use of quality care can reduce health disparities. Many entities are also trying to reduce the disparities. For example, in 2008, NIH sponsored the first NIH Summit showcasing its investment and contribution to health disparities research, and emphasized finding research gaps within health disparity populations and noted that health disparities research needs to include the social, cultural, economic, and political context that influence disease risk and health outcomes (Dankwa-Mullan et al., 2010; Freudenberg & Olden, 2010). Federal agencies also began to have interest in health disparities among minority groups, which was triggered by the Institute of Medicine's Report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, published in 2003.

Like the immigrants in such advanced countries as Canada, Australia, and recently Spain, before the PRWORA was implemented, elderly immigrants and refugees in the U.S. were eligible for the same benefits as citizens. Three considerations suggest that welfare reform requirements related to elderly immigrants need to be revoked:

deteriorating health among these populations, expectations of increased costs for their medical care, and American values of fairness.

Until the end state is achieved, there need to be more programs designed to help elderly immigrants access healthcare services and also help them achieve citizenship, which allows indigent elderly immigrants to access the Medicaid program. However, the author of this study further recommends that policy makers consider the fact that some elderly immigrants may not be able to learn English due to age-related physical or mental limitations and that even if this is the case, their social and human rights should not be overlooked. In addition, developing and running more programs may also invoke more expenses. Alternatively, omitting the English test from citizenship test can be considered.

Based on the studies by Hagan et al. (2003) and Marchevsky and Theoharis (2008), a suggested policy response would be to extend government-sponsored outreach to ethnic groups and communities as well as to religious groups that have high levels of immigrant members in order to educate them about their eligibility for public service programs. Alternatively, as findings by Fix and Passel (1999) suggest, this kind of pattern may not be caused by the aforementioned ‘chilling effects’ but might be caused by the systematic denial of applications from eligible immigrants on the part of front line workers. An additional implication would be enforcing education of frontline workers on changing eligibility rules and the importance of observing their own personal ethics in practice. Increasing the number of frontline workers who are from the various racial and ethnic immigrant groups should also be considered. These workers can secure better healthcare for their elders, given the workers’ greater understanding of the elderly immigrants’ concerns and culture.

Directions for Future Research

This study found that the variations at culture level and state level became greater during the post-PRWORA era. However, finding the factors which had influenced the increased variations is beyond the scope of this study. Hence, this present study suggests a need for qualitative studies on, for example, how racial and ethnic minority immigrants, in particular, from non-English speaking countries are living in the United States under the welfare reform or how frontline workers are trained or respond to racial and ethnic minority elderly immigrants.

There also needs to be further investigation and analysis of policy implications on racial/ethnic groups and states when considering elderly immigrants' utilization of healthcare services.

This study found that citizenship status has an indirect effect on elderly immigrants' discretionary healthcare service use. However, this study is limited in testing the statistical significance level of the indirect effect of citizenship, which requires additional data analysis using the NHIS data sets and examining state level indicators, including state-level changes over time (This would require additional funds and approval of research proposals by the Research Data Center at CDC). Hence, this study suggests a further research on testing the indirect effect of citizenship on elderly immigrants' healthcare service use.

Nam (2011) reports that the PRWORA is significantly negatively related with elderly immigrants' Medicaid coverage. States with generous state eligibility policies for elderly immigrants are significantly positively related with continuing Medicaid coverage. Whereas this study examined changes in variances related to state level, it does

not directly compare those states with immigrant friendly policies with other states. Hence, as a future study, a study on differences between states with generous state eligibility policy and other states is recommended to examine the state level differences in health insurance coverage that might account for actual differences between the two groups of states in elderly immigrants' healthcare service use. This suggested study will help to examine health insurance coverage as related to elderly immigrants' actual use of healthcare services. Studies (Angel & Angel, 1992; Krause & Goldenhar, 1992) have documented that even before the PRWORA was implemented in 1996, racial/ethnic minority groups persistently tended to underuse healthcare services for which they were eligible, suggesting that health insurance coverage status does not automatically guarantee healthcare service use.

This study considered individuals to be insured if they had any form of health insurance coverage including private as well as public health insurance coverage. Hence, future studies may be requested to examine differences in elderly immigrants' healthcare service uses and their health depending of the type of health insurance coverage they possess.

The study samples for the post-PRWORA era are not all post-PRWORA immigrants due to limited time lag since the PRWORA was implemented. All 15 or more years of residents in the data are pre-PRWORA immigrants and some of those 5-14 years of residents migrated before the PRWORA took effect. This suggests that some among them are eligible for public assistance as U.S. citizens. Taking into account that those individuals are not influenced by the PRWORA, the health and healthcare service use by the 5-14 year residents, if they all migrated after the PRWORA, actually may be worse

than the results observed from this study. The NHIS data do not provide information about the year when immigrants immigrated to the United States. In addition, enough time has not passed for a study with enough number of post-welfare reform elderly immigrants with at least 15 years of residence. Therefore, further study may replicate this study with all post-welfare reform immigrants for one group and all pre-welfare reform immigrants for the other group in order to better examine the effects of the PRWORA on elderly immigrants' healthcare service use and health status.

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APPENDIX A – COMPARISONS OF MEASURES IN NHIS DATA

In order to compare the wordings of measures between the measures for the pre-1997 NHIS data and the measures for the post-1997 NHIS data, the current study describes the measures which went through some changes, followed by the way of coding used for this study.

1. 2-WEEK DOCTORS VISIT

[PRE-1997 DATA]

1. During those 2 weeks, how many times did – see or talk to a medical doctor? (Include all types of doctors, such as dermatologists, psychiatrists, and ophthalmologists, as well as general practitioners and osteopaths.) (Do not count times while an overnight patient in a hospital)
2. (Besides the time(s) you just told me about) During those 2 weeks, did (you) receive health care at home or go to a doctor’s office, clinic, hospital or some other place? (Include care from a nurse or anyone working with or for a medical doctor.) (Do not count times while an overnight patient in a hospital)
3. (Besides the times(s) you already told me about) During those 2 weeks, did (you) receive get any medical advice, prescriptions or test results over the PHONE from a doctor, nurse, or anyone working with or for a medical doctor?
4. How many times did __ receive this care during that period? [NDV2]

[POST-1997 DATA]

1. These next questions are about health care received during the 2 weeks outlined on that calendar. Include care from ALL types of medical doctors, such as dermatologists, psychiatrists, ophthalmologists, and general practitioners. Also include care from OTHER health professionals such as nurses, physical therapists, and chiropractors.
2. During those 2 weeks, did (you) receive care AT HOME from a nurse or other health care professional? [PHCHM2W]
1) Yes 2) No 7) Refused 8) Not ascertained 9) Don’t know
3. How many home visits did (you) receive during those 2 weeks? [PHCHMN2W]
4. During those 2 weeks, did (you) see a doctor or other health care professional at doctor’s office, a clinic, an emergency room, or some other place? (Do not include times during an overnight hospital stay) [PHCDV2W]
1) Yes 2) No 7) Refused 8) Not ascertained 9) Don’t know

5. How many times did (you) visit a doctor or other health care professional during those 2 WEEKS? [PHCDVN2W]
6. During those 2 weeks, did (you) get any medical advice or test results over the PHONE from a doctor, nurse, or other health care professionals? [PHCPH2W]
 - 1) Yes
 - 2) No
 - 7) Refused
 - 8) Not ascertained
 - 9) Don't know
7. During those 2 weeks, how many telephone calls (did you make/were made about ALIAS)? [PHCPHN2W]

Way of Coding:

The NDV2 variable which is being used in this study is the generated variable by the NHIS program, based on respondents' answers to the question 1, 2 and 3 under [PRE-1997 DATA] above. The DV2 variable which will be used as a dichotomous response (1=Yes vs. 2=No) in this study will be newly created based on the NDV2 variable in the pre-1997 data and combining the PHCDV2S, PHCHM2W, and PHCPH2W variables in the post-1997 data. The NDV2 variable which is being used as a count variable in the pre-1997 data will be also created for the post-1997 data by combining the PHCDVN2W, PHCHMN2W, and PHCPHN2W variables in the post-1997 data.

2. SHOR-STAY HOSPITAL USE

NUMBER OF SHORT-STAY HOSPITAL EPISODES

[PRE-1997 DATA]

How many different times did __ stay in any hospital overnight or longer since a year ago? [HEP12]

[POST-1997 DATA]

How many different times did (you) stay in any hospital overnight or longer during the past 12 months? [HOSPNO]

NUMBER OF NIGHTS IN HOSPITAL

[PRE-1997 DATA]

How many nights was __ in the hospital? [HDA12]

[POST-1997 DATA]

Altogether, how many nights (were you) in the hospital during the past 12 months? [HPNITE]

HOSPITAL OVERNIGHT

[POST-1997 DATA]

DURING THE PAST 12 MONTHS, (were you) a patient in a hospital overnight?
(Do not include an overnight stay in the emergency room)? [PHOSPYR]

Way of Coding:

The data items for hospital utilization in the post-1997 NHIS data and after are equivalent to those questions in the pre-1997 NHIS data. The questions are composed of three parts: 1) number of short-stay hospital episodes; 2) number of nights in hospital, and 3) use of hospital overnight. The followings are specific questions in the NHIS survey questionnaires. The variables asking number of short-stay hospital episodes and number of nights in hospitals in the pre-1997 data are equivalent to the ones in the post-1997 data. Hence, this current study only renamed the variables to make them have the same name before and after 1997 as HOSPNO12 (number of short-stay hospital episodes) and HPNITE12 (number of nights in hospital) respectively. Meanwhile, the pre-1997 data do not have the dichotomous response regarding use of hospital overnight while the post-1997 data do. A dichotomous response variable for the use of hospital overnight for the pre-1997 data was newly created based on the HDA12 variable and named PHOSPYR2 which is the same as in the post-1997 data.

3. LATOTAL

[PRE-1997 DATA]

Activity limitation status [LATOTAL]

- (0) No chronic conditions
- (1) Unable to perform major activity
- (2) Limited in kind/amount major activity
- (3) Limited in other activities
- (4) Not limited (includes unknowns)

[POST-1997 DATA]

The LACHRONR is based on the LA1AR variable which is a summary measure in which individuals who answered “yes” to the variables asking their activity limitation status in any area (e.g., PLAPLYLM, PSPEDEIS, PLAADL, PLAIADL, PLIMANY, etc.) are coded “1”. The LACHRONR variable has an additional criterion of whether at least one of the reported causal conditions is a chronic condition. This variable has fewer response categories than the LATOTAL variable since it is categorized as “yes” or “no” and resultantly does not allow for levels of limitation as in LATOTAL. The NHIS program reports that this variable is most equivalent with the pre-1997 recode for Activity Limitation (NCHS, 1997).

- (1) Yes
- (2) No
- (7) Refused
- (9) DK

Way of Coding:

The variables for respondent-assessed disabilities and limitations, LATOTAL in the pre-1997 data and LACHRONR in the post-1997 data, have different value categories but are equivalent before and after 1997. The variable LATOTAL and LACHRONR ask whether, and to what extent, persons were limited in their activities due to one or more chronic conditions. The questions for limitation of activity include work limitations, the need for assistance with personal care needs such as eating, bathing, dressing, getting around inside the home, the need for personal assistance with handling routine needs such as everyday household chores, doing necessary business, and shopping or running errands. LATOTAL and LACHRONR have different value categories even though they ask respondents' limitation status in activities. To make these variables have the same categories, the LATOTAL variable was dichotomized as (1) Yes or (2) No and the "refused" (scored=7) and "DK" (scored=9) categories in the post-1997 data were included to "No" (scored=2) since all the "Unknowns" in LATOTAL in the pre-1997 data were added to "Not limited." After all necessary data cleaning, I renamed LACHRONR to LATOTAL.

4. **HEALTH INSURANCE COVERAGE**

[POST-1997 DATA]

Include health insurance obtained through employment or purchased directly, as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills. {Are you/Is anyone in the family} covered by any kind of health insurance or some other kind of health care plan?

(1) Not covered (2) Covered (9) Don't know

Way of Coding:

The variables regarding health insurance coverage status for the 1993-1996 data are available from both NHIS Health Insurance Supplements files and Family Resources files, while for the 1997-2008 NHIS data from the Health Insurance section in the Person Level File of the Family Core. The NHIS program measured health insurance coverage by using a combination of public and private coverage. Public coverage includes any health insurance including Medicare, Medicaid, and SCHIP, provided by the government at the federal, state, or local levels, as well as the Indian Health Service, and Military with TRICARE, the Veterans Administration, and CHAMP-VA. Private coverage includes any form of insurance purchased and obtained through a method other than governmental. This study considered individuals as not insured if they had no form of any public or private health insurance coverage. It is coded 1=Not covered or 2=Covered, and the name of variable used in this proposed study is NOTCOV which is the same in the post-1997 data.

NHIS questions on health insurance coverage are not the same. From the

1997 data, a direct question regarding respondents' coverage status is used, which is NOTCOV. However, the pre-1997 data do not have a single question which can be equivalent to NOTCOV in the post-1997 data. The equivalent NOTCOV variable for the pre-1997 data can be obtained by combining relevant health insurance coverage questions: PRIVHICR for private health insurance; MAIDOTHR for Medicaid and other state sponsored plan; MEDICARE for Medicare coverage; MILHIR for other types of coverage including military coverage; SSIPX for SSI status; and WFRTYP for welfare recipient status. To create this new NOTCOV variable for 1993-1996, Health Insurance Supplement file and Family Resources files need to be merged because SSI status (SSIPX) and welfare recipient status (WFRTYP) are located in Family Resources files. The specific merging procedures are as follows;

```

/* PRIVATE HEALTH INSURANCE RECODE */
IF PRIVHICR = 1 THEN PRICOV=1;
ELSE IF PRIVHICR=0 OR PRIVHICR=2 THEN PRICOV=2;
ELSE IF PRIVHICR=6 OR PRIVHICR=8 OR PRIVHICR=9 THEN
PRICOV=3;

/* MEDICAID AND OTHER STATE SPONSORED PLAN RECODE */
IF MAIDOTHR=1 OR MAIDOTHR=2 THEN MCAID=1;
ELSE IF WFRTYP=1 OR WFRTYP=3 THEN MCAID=1;
ELSE IF MAIDOTHR=3 and (ssipx=2 or ssipx=.) and (wfrTYP=2 or wfrTYP=.)
THEN MCAID=2;
ELSE MCAID=3;

/* MEDICARE COVERAGE */
IF MEDICARE=1 THEN MCARE=1;
ELSE IF MEDICARE=2 THEN MCARE=2;
ELSE MCARE=3;

/* OTHER TYPES OF COVERAGE */
IF MILHIR>=0 AND MILHIR <=2 THEN OTHCOV2=1;
ELSE IF MILHIR=3 THEN OTHCOV2=2;
ELSE OTHCOV2=3;

/* UNINSURED */
IF PRICOV=1 OR MCAID=1 OR MCARE=1 OR OTHCOV2=1 THEN
NOTCOV=2;
ELSE IF MCAID=2 AND PRICOV=2 THEN NOTCOV=1;
ELSE NOTCOV=3;
RUN;

```

5. POVERTY STATUS

[PRE-1997 DATA]

NHIS Poverty Index [POVERTY]

- (1) At or above poverty threshold
- (2) Below poverty threshold
- (3) Unknown

[POST-1997 DATA]

Family Income-to-Poverty Ratios [RAT_CAT or RAT_CAT2]

- | | | |
|---------------------------|--------------------|---|
| (1) Under 0.50
detail) | (8) 2.00 – 2.49 | (15) Less than 1.00 (no further
detail) |
| (2) 0.50 - 0.74 | (9) 2.50 – 2.99 | (16) 1.00 – 1.99 (no further detail) |
| (3) 0.75 – 0.99 | (10) 3.00 – 3.49 | (17) 2.00 and over (no further detail) |
| (4) 1.00 – 1.24 | (11) 3.50 – 3.99 | (96) Undefinable |
| (5) 1.25 – 1.49 | (12) 4.00 – 4.45 | (99) Unknown |
| (6) 1.50 – 1.74 | (13) 4.50 – 4.99 | * (15) (16) (17) and (96) are added in
RAT_CAT2. |
| (7) 1.75 – 1.99 | (14) 5.00 and over | |

Way of Coding:

In this study are used the NHIS poverty thresholds (POVERTY) in the pre-1997 NHIS data and the income-to-poverty ratios for the post-1997 data (RAT_CAT in the 1997-2006 data and RAT_CAT2 in the 2007-2008 data). Poverty threshold is a ratio of the previous calendar year's income value reported by respondents to the poverty threshold for the same year, given the information of the family's overall size as well as the number of children aged 17 and under present in the family. The poverty status variables in the NHIS program indicate that a poverty status of a family group is assigned to each member of the family in order to make it a person-level variable. The indicator of poverty status was created by utilizing published information from the U.S. Bureau of Census regarding poverty thresholds. For the pre-1997 years, data comparing family income to poverty thresholds are only available in dichotomous form in the public use files for the NHIS. For the public use, however, the poverty ratios are ordered into a poverty gradient consisting of 14 categories (RAT_CAT) in the 1997- 2006 data and 17 categories (RAT_CAT2) in the 2007-2008 data. These variables in the post-1997 detailed data on the ratio of family income to the appropriate poverty threshold with categories ranging from under half the poverty threshold to five or more times the poverty threshold.

To facilitate comparisons over time, these more detailed data for 1997 and beyond are recoded into dichotomous categories just like POVERTY in the pre-1997 data, using the poverty line used in NHIS poverty threshold criteria which is \$10,000 per person who is 65 years or older. The value categories from (1) through (3) recoded as "Below the poverty threshold (=2)" and the value categories from (4) through (14) recoded as "At or above the poverty threshold (=1)" The category (15) was assigned to "Below the poverty threshold (=2)" and (16) and (17) were assigned to "At or above the poverty threshold (=1)." The category "(96) Undefinable" started to use from the post-1997 NHIS program for

the public use files. This is coded for families where the number of children aged 17 or under equaled the overall number of family members, but their family income is presumed to be nonexistent. Therefore the ratio of such nonexistent income to the poverty line is undefinable. Minnesota Population Center in University of Minnesota (2008), which has harmonized data and documentation for the U.S. National Health Interview Survey, advises to NHIS data users that it is logical to add the "Undefined" to the "Unknown" when making comparison between pre-and post-1997 NHIS program and it would not cause any serious comparability problem.

6. MARITAL STATUS

[PRE-1997 DATA]

0	= "Under 14 years"
1	= "Married - spouse in household"
2	= "Married - spouse not in household"
3	= "Widowed"
4	= "Divorced"
5	= "Separated"
6	= "Never married"
7	= "Unknown"

[POST-1997 DATA]

0	= "Under 14 years"
1	= "Married - spouse in household"
2	= "Married - spouse not in household"
3	= "Married - spouse in household unknown"
4	= "Widowed"
5	= "Divorced"
6	= "Separated"
7	= "Never married"
8	= "Living with partner"
9	= "Unknown marital status"

Way of Coding:

The recognized categories for the marital status variable (MARSTAT) in the pre-1997 data are slightly different from the ones of the marital status variable (R_MARITL) in the post-1997 data. The MARSTAT variable in the 1992-1996 data asks respondents' legal marital status and the presence of their spouse in the household: "Married with spouse in household (scored=1)," "Married with spouse not in household (scored=2)," "Widowed (scored=3)," "Divorced (scored=4)," "Separated (scored=5)," "Never married (scored=6)," or "Unknown (scored=7)".

However, the R_MARITL variable in the post-1997 data has one additional category which is “Living with partner.” To make the variable comparable across before and after last revision in 1997, I dichotomized this variable as “Married (scored=1)” or “Others (scored=2)”. The main reason is that a person could be both “divorced” and “living with partner,” both “never married” and “living with partner,” etc. The value category for “Married (scored=1)” includes “Married - spouse in household,” and “Married – spouse not in household.” The value category for “Others (scored=2)” includes “Widowed” “Divorced” “Separated” “Never married,” and “Living with partner.” I scored the “Unknown” in the pre- and post-1997 data as “99” in this study.

APPENDIX B – STATES COVERAGE FOR ELDERLY

Table: State Coverage for Elderly & Disabled People, 2004

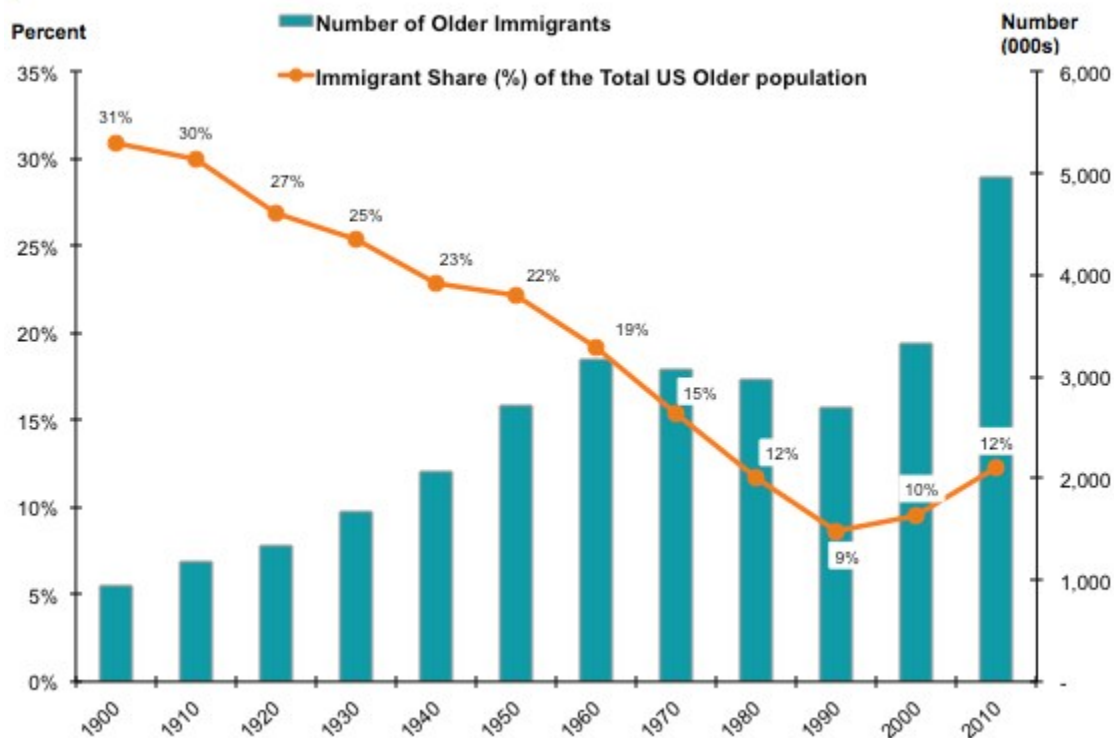
State	Note	Eligibility Notes
CA		Qualified immigrants and PRUCOLs.
CT		Qualified or other lawfully residing immigrants.
DE		Qualified or other lawfully residing immigrants. Subject to availability of state funds, but funding has been sufficient to serve all eligible persons who have applied for coverage.
DC	R	Regardless of immigration status, eligible for DC Health Alliance, which provides limited benefits
IL	L	Qualified immigrants who are victims of domestic violence
MA	Cap	Coverage for most disabled or elderly qualified immigrants and PRUCOLs ends September 2004. Some disabled or elderly immigrants are eligible for a more limited basic health benefit. Certain "grandfathered" immigrants who were receiving Medicaid or in a nursing home on June 30, 1997 are eligible for the same coverage available to citizens under Medicaid.
ME		Qualified immigrants and PRUCOLs.
MN		Qualified immigrants and other lawfully residing immigrants.
NE		Qualified immigrants.
NJ	L	Qualified immigrants. PRUCOLs in Medicaid-approved nursing homes prior to JANUARY 29, 1997 remain eligible for nursing home care.
NM	L	PRUCOLs that arrived prior to August 22, 1996.
NY		Qualified immigrants and PRUCOLs.
PA		Qualified immigrants and PRUCOLs.
RI	L	Adults who are lawfully residing immigrants who resided in the U.S. prior to August 22, 1996 and were residents of Rhode Island prior to July 1, 1997.
WA	R	Legal immigrants eligible for Basic Health, which has limited benefits, cost-sharing, and a waiting list.
WY	L	Certain qualified battered immigrants and immigrants paroled into the U.S. for more than one year. Coverage for the latter group is limited to one year.
Total	16	

Qualified immigrants:	Lawful permanent residents (including Amerasians), refugees, asylees, persons granted withholding of deportation; persons paroled into the United States for at least one year; persons granted conditional entry; certain battered spouses and children; Cuban/Haitian entrants, and certain victims of trafficking.
PRUCOL:	Person who are permanently residing under color of law
Cap:	Program provides same or very similar services as Medicaid subject to a cap on enrollment or funding.
L:	Provides same or very similar services as Medicaid to very limited categories of immigrants.
R:	Provides reduced benefits compared to Medicaid. It may have premiums and cost-sharing requirements and/or a cap on enrollment or funding.

Source: Fremstad, S., & Cox, L. (2004, Nov). *Covering new Americans: A review of federal and state policies related to immigrants eligibility and access to publicly funded health insurance*. Washington, DC: Kaiser Commission on Medicaid and the Uninsured (pp. 17)

APPENDIX B – SUPPLEMENTAL FIGURES

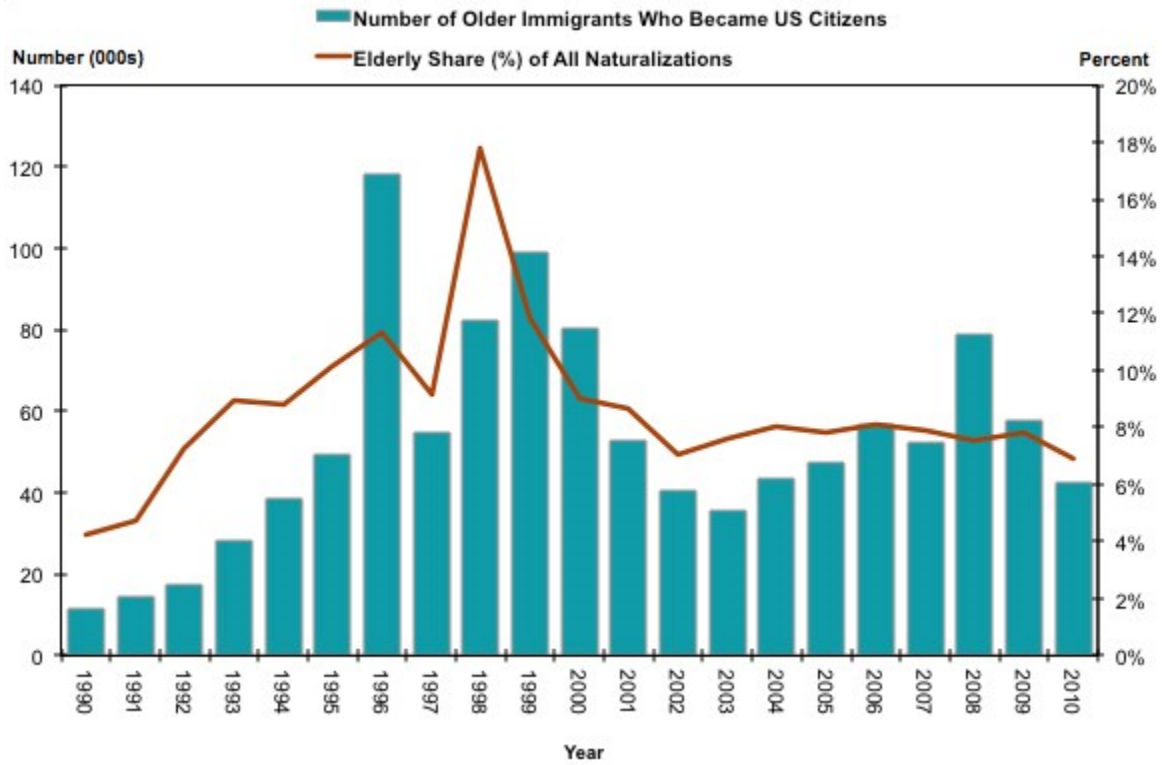
Figure 1: Immigrant Population Age 65 and Older in the United States, 1900 to 2010



Source: Data from 1900 to 1990 are from the US Census Bureau. Campbell J. Gibson and Emily Lennon (1999) Report 29. "Historical Census Statistics on the Foreign-born Population of the US: 1850-1990" Table 7. Age and Sex of the Foreign-Born Population: 1870 to 1990. Available online and US Census Bureau. Various years. "Census of Population and Housing." Available online. Data for 2000 and 2010 are from the Migration Policy Institute analysis of the 2000 Census and 2010 American Community Survey (ACS).

Batalova, J. (2012). *Senior Immigrants in the United States*. Washington, DC: Migration Policy Institute. Retrieved on September 28, 2012 from <http://www.migrationinformation.org/USfocus/display.cfm?ID=894>

Figure 2: Older Immigrants Who Became US Citizens, 1990 to 2010



Source: Department of Homeland Security, Office of Immigration Statistics, Yearbook of Immigration Statistics, various years.

Batalova, J. (2012). *Senior Immigrants in the United States*. Washington, DC: Migration Policy Institute. Retrieved on September 28, 2012 from

<http://www.migrationinformation.org/USfocus/display.cfm?ID=894>

APPENDIX D – PUBLIC LAW 104-193: 104TH CONGRESS

The original descriptions of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Public Law 104-193, 104th Congress) are as follows:

Public Law 104-193 104th Congress

An Act

To provide for reconciliation pursuant to section 201(a)(1) of concurrent resolution on the budget for fiscal year 1997. Aug.22,1996
[H.R.374]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “Personal Responsibility and Work Opportunity Reconciliation Act of 1996”.

PUBLIC BENEFITS FOR ALIENS

SEC. 400. STATEMENTS OF NATIONAL POLICY CONCERNING WELFARE AND IMMIGRATION.

The Congress makes the following statements concerning national policy with respect to welfare and immigration:

- (1) Self-sufficiency has been a basic principle of United States immigration law since this country’s earliest immigration statutes.
- (2) It continues to be the immigration policy of the United States that—
 - (A) aliens within the Nation’s borders not depend on public resources to meet their needs, but rather rely on their own capabilities and the resources of their families, their sponsors, and private organizations, and
 - (B) the availability of public benefits not constitute an incentive for immigration to the United States.
- (3) Despite the principle of self-sufficiency, aliens have been applying for and receiving public benefits from Federal, State, and local governments at increasing rates.
- (4) Current eligibility rules for public assistance and unenforceable financial support agreements have proved wholly incapable of assuring that individual aliens not burden the public benefits system.
- (5) It is a compelling government interest to enact new rules for eligibility and sponsorship agreements in order to assure that aliens be self-reliant in accordance with national immigration policy

- (6) It is a compelling government interest to remove the incentive for illegal immigration provided by the availability of public benefits.
- (7) With respect to the State authority to make determinations concerning the eligibility of qualified aliens for public benefits in this title, a State that chooses to follow the Federal classification in determining the eligibility of such aliens for public assistance shall be considered to have chosen the least restrictive means available for achieving the compelling governmental interest of assuring that aliens be self-reliant in accordance with national immigration policy.

Subtitle A—Eligibility for Federal Benefits

SEC. 401. ALIENS WHO ARE NOT QUALIFIED ALIENS INELIGIBLE FOR FEDERAL PUBLIC BENEFITS.

- (a) **IN GENERAL.**—Notwithstanding any other provision of law and except as provided in subsection (b), an alien who is not a qualified alien (as defined in section 431) is not eligible for any Federal public benefit (as defined in subsection (c)).
- (b) **EXCEPTIONS.**—
 - (1) Subsection (a) shall not apply with respect to the following Federal public benefits:
 - (A) Medical assistance under title XIX of the Social Security Act (or any successor program to such title) for care and services that are necessary for the treatment of an emergency medical condition (as defined in section 1903(v)(3) of such Act) of the alien involved and are not related to an organ transplant procedure, if the alien involved otherwise meets the eligibility requirements for medical assistance under the State plan approved under such title (other than the requirement of the receipt of aid or assistance under title IV of such Act, supplemental security income benefits under title XVI of such Act, or a State supplementary payment).
 - (B) Short-term, non-cash, in-kind emergency disaster relief.
 - (C) Public health assistance (not including any assistance under title XIX of the Social Security Act) for immunizations with respect to immunizable diseases and for testing and treatment of symptoms of communicable diseases whether or not such symptoms are caused by a communicable disease.
 - (D) Programs, services, or assistance (such as soup kitchens, crisis counseling and intervention, and short-term shelter) specified by the Attorney General, in the Attorney General's sole and unreviewable discretion after consultation with appropriate Federal agencies and departments, which (i) deliver in-kind services at the community level, including through public or private nonprofit agencies; (ii) do not condition the provision of assistance, the amount of assistance provided, or the cost of assistance provided on the individual recipient's income or resources; and (iii) are necessary for the protection of life or safety.
 - (E) Programs for housing or community development assistance or financial assistance administered by the Secretary of Housing and Urban Development, any program under title V of the Housing Act of 1949, or

any assistance under section 306C of the Consolidated Farm and Rural Development Act, to the extent that the alien is receiving such a benefit on the date of the enactment of this Act.

- (2) Subsection (a) shall not apply to any benefit payable under title II of the Social Security Act to an alien who is lawfully present in the United States as determined by the Attorney General, to any benefit if nonpayment of such benefit would contravene an international agreement described in section 233 of the Social Security Act, to any benefit if nonpayment would be contrary to section 202(t) of the Social Security Act, or to any benefit payable under title II of the Social Security Act to which entitlement is based on an application filed in or before the month in which this Act becomes law.
- (c) **FEDERAL PUBLIC BENEFIT DEFINED.—**
- (1) Except as provided in paragraph (2), for purposes of this title the term “Federal public benefit” means—
 - (A) any grant, contract, loan, professional license, or commercial license provided by an agency of the United States or by appropriated funds of the United States; and
 - (B) any retirement, welfare, health, disability, public or assisted housing, postsecondary education, food assistance, unemployment benefit, or any other similar benefit or which payments or assistance are provided to an individual, household, or family eligibility unit by an agency of the United States or by appropriated funds of the United States.
 - (2) Such term shall not apply—
 - (A) to any contract, professional license, or commercial license for a nonimmigrant whose visa for entry is related to such employment in the United States; or
 - (B) with respect to benefits for an alien who as a work authorized nonimmigrant or as an alien lawfully admitted for permanent residence under the Immigration and Nationality Act qualified for such benefits and for whom the United States under reciprocal treaty agreements is required to pay benefits, as determined by the Attorney General, after consultation with the Secretary of State.

SEC. 402. LIMITED ELIGIBILITY OF QUALIFIED ALIENS FOR CERTAIN FEDERAL PROGRAMS.

- (a) **LIMITED ELIGIBILITY FOR SPECIFIED FEDERAL PROGRAMS.—**
- (1) **IN GENERAL.—**Notwithstanding any other provision of law and except as provided in paragraph (2), an alien who is a qualified alien (as defined in section 431) is not eligible for any specified Federal program (as defined in paragraph(3)).
 - (2) **EXCEPTIONS.—**
 - (A) **TIME-LIMITED EXCEPTION FOR REFUGEES ANDASYLEES.—**

Paragraph

 - (1) shall not apply to an alien until5 years after the date—
 - (i) an alien is admitted to the United States as a refugee under section 207 of the Immigration and Nationality Act;

- (ii) an alien is granted asylum under section 208 of such Act; or
- (iii) an alien's deportation is withheld under section 243(h) of such Act.

(B) CERTAIN PERMANENT RESIDENT ALIENS.—Paragraph

(1) shall not apply to an alien who—

- (i) is lawfully admitted to the United States for permanent residence under the Immigration and Nationality Act; and
- (ii) (I) has worked 40 qualifying quarters of coverage as defined under title II of the Social Security Act or can be credited with such qualifying quarters as provided under section 435, and (II) in the case of any such qualifying quarter creditable for any period beginning after December 31, 1996, did not receive any Federal means-tested public benefit (as provided under section 403) during any such period.

(C) VETERAN AND ACTIVE DUTY EXCEPTION.—Paragraph

(1) shall not apply to an alien who is lawfully residing in any State and is—

- (i) a veteran (as defined in section 101 of title 38, United States Code) with a discharge characterized as an honorable discharge and not on account of alien age,
- (ii) on active duty (other than active duty for training) in the Armed Forces of the United States, or
- (iii) the spouse or unmarried dependent child of an individual described in clause (i) or (ii).

(2) TRANSITION FOR ALIENS CURRENTLY RECEIVING BENEFITS.—

(i) SSI.—

- (I) IN GENERAL.—With respect to the specified Federal program described in paragraph (3)(A), during the period beginning on the date of the enactment of this Act and ending on the date which is 1 year after such date of enactment, the Commissioner of Social Security shall redetermine the eligibility of any individual who is receiving benefits under such program as of the date of the enactment of this Act and whose eligibility for such benefits may terminate by reason of the provisions of this subsection.
- (II) REDETERMINATION CRITERIA.— With respect to any redetermination under subclause (I), the Commissioner of Social Security shall apply the eligibility criteria for new applicants for benefits under such program.
- (III) GRANDFATHER PROVISION.—The provisions of this subsection and the redetermination under subclause (I), shall only apply with respect to the benefits of an individual described in subclause (I) for months beginning on or after the date of the redetermination with respect to such individual.

- (IV) NOTICE.—Not later than March 31, 1997, the Commissioner of Social Security shall notify an individual described in subclause (I) of the provisions of this clause.
- (i) FOOD STAMPS.—
 - (I) IN GENERAL.—With respect to the specified Federal program described in paragraph (3)(B), during the period beginning on the date of enactment of this Act and ending on the date which is 1 year after the date of enactment, the State agency shall, at the time of the recertification, recertify the eligibility of any individual who is receiving benefits under such program as of the date of enactment of this Act and whose eligibility for such benefits may terminate by reason of the provisions of this subsection.
 - (II) RECERTIFICATION CRITERIA.—With respect to any recertification under subclause (I), the State agency shall apply the eligibility criteria for applicants for benefits under such program.
 - (III) GRANDFATHER PROVISION.—The provisions of this subsection and the recertification under subclause (I) shall only apply with respect to the eligibility of an alien for a program for months beginning on or after the date of recertification, if on the date of enactment of this Act the alien is lawfully residing in any State and is receiving benefits under such program on such date of enactment.
- (i) SPECIFIED FEDERAL PROGRAM DEFINED.—For purposes of this title, the term “specified Federal program” means any of the following:
 - (A) SSI.—The supplemental security income program under title XVI of the Social Security Act, including supplementary payments pursuant to an agreement for Federal administration under section 1616(a) of the Social Security Act and payments pursuant to an agreement entered into under section 212(b) of Public Law 93–66.
 - (B) FOOD STAMPS.—The food stamp program as defined in section 3(h) of the Food Stamp Act of 1977.
- (b) LIMITED ELIGIBILITY FOR DESIGNATED FEDERAL PROGRAMS.—
 - (1) IN GENERAL.—Notwithstanding any other provision of law and except as provided in section 403 and paragraph (2), a State is authorized to determine the eligibility of an alien who is a qualified alien (as defined in section 431) for any designated Federal program (as defined in paragraph (3)).
 - (2) EXCEPTIONS.—Qualified aliens under this paragraph shall be eligible for any designated Federal program.
 - (A) TIME-LIMITED EXCEPTION FOR REFUGEES AND ASYLEES.—
 - (i) An alien who is admitted to the United States as a refugee under section 207 of the Immigration and Nationality Act until 5 years after the date of an alien’s entry into the United States.
 - (ii) An alien who is granted asylum under section 208 of such Act until 5 years after the date of such grant of asylum.

- (iii) An alien whose deportation is being withheld under section 243(h) of such Act until 5 years after such withholding.
- (B) CERTAIN PERMANENT RESIDENT ALIENS.—An alien who—
 - (i) is lawfully admitted to the United States for permanent residence under the Immigration and Nationality Act; and
 - (ii) (I) has worked 40 qualifying quarters of coverage as defined under title II of the Social Security Act or can be credited with such qualifying quarters as provided under section 435, and (II) in the case of any such qualifying quarter creditable for any period beginning after December 31, 1996, did not receive any Federal means-tested public benefit (as provided under section 403) during any such period.
- (C) VETERAN AND ACTIVE DUTY EXCEPTION.—An alien who is lawfully residing in any State and is—
 - (i) a veteran (as defined in section 101 of title 38, United States Code) with a discharge characterized as an honorable discharge and not on account of alien age,
 - (ii) on active duty (other than active duty for training) in the Armed Forces of the United States, or
 - (iii) the spouse or unmarried dependent child of an individual described in clause (i) or (ii).
- (D) TRANSITION FOR THOSE CURRENTLY RECEIVING BENEFITS.—An alien who on the date of the enactment of this Act is lawfully residing in any State and is receiving benefits under such program on the date of the enactment of this Act shall continue to be eligible to receive such benefits until January 1, 1997.
- (3) DESIGNATED FEDERAL PROGRAM DEFINED.—For purposes of this title, the term “designated Federal program” means any of the following:
 - (A) TEMPORARY ASSISTANCE FOR NEEDY FAMILIES.—The program of block grants to States for temporary assistance for needy families under part A of title IV of the Social Security Act.
 - (B) SOCIAL SERVICES BLOCK GRANT.—The program of block grants to States for social services under title XX of the Social Security Act.
 - (C) MEDICAID.—A State plan approved under title XIX of the Social Security Act, other than medical assistance described in section 401(b)(1)(A).

SEC. 403. FIVE-YEAR LIMITED ELIGIBILITY OF QUALIFIED ALIENS FOR FEDERAL MEANS-TESTED PUBLIC BENEFIT.

- (a) IN GENERAL.—Notwithstanding any other provision of law and except as provided in subsections (b), (c), and (d), an alien who is a qualified alien (as defined in section 431) and who enters the United States on or after the date of the enactment of this Act is not eligible for any Federal means-tested public benefit for a period of 5 years beginning on the date of the alien’s entry into the United States with a status within the meaning of the term “qualified alien”.

- (b) EXCEPTIONS.—The limitation under subsection (a) shall not apply to the following aliens:
- (1) EXCEPTION FOR REFUGEES AND ASYLEES.—
 - (A) An alien who is admitted to the United States as a refugee under section 207 of the Immigration and Nationality Act.
 - (B) An alien who is granted asylum under section 208 of such Act.
 - (C) An alien whose deportation is being withheld under section 243(h) of such Act.
 - (2) VETERAN AND ACTIVE DUTY EXCEPTION.—An alien who is lawfully residing in any State and is—
 - (A) a veteran (as defined in section 101 of title 38, United States Code) with a discharge characterized as an honorable discharge and not on account of alien age,
 - (B) on active duty (other than active duty for training) in the Armed Forces of the United States, or
 - (C) the spouse or unmarried dependent child of an individual described in subparagraph (A) or (B).
- (c) APPLICATION OF TERM FEDERAL MEANS-TESTED PUBLIC BENEFIT.—
- (1) The limitation under subsection (a) shall not apply to assistance or benefits under paragraph (2).
 - (2) Assistance and benefits under this paragraph are as follows:
 - (A) Medical assistance described in section 401(b)(1)(A).
 - (B) Short-term, non-cash, in-kind emergency disaster relief.
 - (C) Assistance or benefits under the National School Lunch Act.
 - (D) Assistance or benefits under the Child Nutrition Act of 1966.
 - (E) Public health assistance (not including any assistance under title XIX of the Social Security Act) for immunizations with respect to immunizable diseases and for testing and treatment of symptoms of communicable diseases whether or not such symptoms are caused by a communicable disease.
 - (F) Payments for foster care and adoption assistance under parts B and E of title IV of the Social Security Act for a parent or a child who would, in the absence of subsection (a), be eligible to have such payments made on the child's behalf under such part, but only if the foster or adoptive parent (or parents) of such child is a qualified alien (as defined in section 431).
 - (G) Programs, services, or assistance (such as soup kitchens, crisis counseling and intervention, and short-term shelter) specified by the Attorney General, in the Attorney General's sole and unreviewable discretion after consultation with appropriate Federal agencies and departments, which (i) deliver in-kind services at the community level, including through public or private nonprofit agencies; (ii) do not condition the provision of assistance, the amount of assistance provided, or the cost of assistance provided on the individual recipient's income or resources; and (iii) are necessary for the protection of life or safety.

- (H) Programs of student assistance under titles IV, V, IX, and X of the Higher Education Act of 1965, and titles III, VII, and VIII of the Public Health Service Act.
- (I) Means-tested programs under the Elementary and Secondary Education Act of 1965.
- (J) Benefits under the Head Start Act.
- (K) Benefits under the Job Training Partnership Act.

(d) **SPECIAL RULE FOR REFUGEE AND ENTRANT ASSISTANCE FOR CUBAN AND HAITIAN ENTRANTS.**—The limitation under subsection (a) shall not apply to refugee and entrant assistance activities, authorized by title IV of the Immigration and Nationality Act and section 501 of the Refugee Education Assistance Act of 1980, for Cuban and Haitian entrants as defined in section 501(e)(2) of the Refugee Education Assistance Act of 1980.

SEC. 404. NOTIFICATION AND INFORMATION REPORTING.

- (a) **NOTIFICATION.**—Each Federal agency that administers a program to which section 401, 402, or 403 applies shall, directly or through the States, post information and provide general notification to the public and to program recipients of the changes regarding eligibility for any such program pursuant to this subtitle.
- (b) **INFORMATION REPORTING UNDER TITLE IV OF THE SOCIAL SECURITY ACT.**—Part A of title IV of the Social Security Act is amended by inserting the following new section after section 411:

“SEC. 411A. STATE REQUIRED TO PROVIDE CERTAIN INFORMATION.

“Each State to which a grant is made under section 403 shall, at least 4 times annually and upon request of the Immigration and Naturalization Service, furnish the Immigration and Naturalization Service with the name and address of, and other identifying information on, any individual who the State knows is unlawfully in the United States.”.

- (c) **SSI.**—Section 1631(e) of such Act (42 U.S.C. 1383(e)) is amended—
 - (1) by redesignating the paragraphs (6) and (7) inserted by sections 206(d)(2) and 206(f)(1) of the Social Security Independence and Programs Improvement Act of 1994 (Public Law 103–296; 108 Stat. 1514, 1515) as paragraphs (7) and (8), respectively; and
 - (2) by adding at the end the following new paragraph:

“(9) Notwithstanding any other provision of law, the Commissioner shall, at least 4 times annually and upon request of the Immigration and Naturalization Service (hereafter in this paragraph referred to as the ‘Service’), furnish the Service with the name and address of, and other identifying information on, any individual who the Commissioner knows is unlawfully in the United States, and shall ensure that each agreement entered into under section 1616(a) with a State provides that the State shall furnish such information at such times with respect to any individual who the State knows is unlawfully in the United States.”.

(d) INFORMATION REPORTING FOR HOUSING PROGRAMS.—Title I of the United States Housing Act of 1937 (42 U.S.C. 1437 etseq.) is amended by adding at the end the following new section:

“SEC. 27. PROVISION OF INFORMATION TO LAW ENFORCEMENT AND OTHER AGENCIES.

“Notwithstanding any other provision of law, the Secretary shall, at least 4 times annually and upon request of the Immigration and Naturalization Service (hereafter in this section referred to as the ‘Service’), furnish the Service with the name and address of, and other identifying information on, any individual who the Secretary knows is unlawfully in the United States, and shall ensure that each contract for assistance entered into under section 6 or 8 of this Act with a public housing agency provides that the public housing agency shall furnish such information at such times with respect to any individual who the public housing agency knows is unlawfully in the United States.”.

Subtitle B—Eligibility for State and Local Public Benefits Programs

SEC. 411. ALIENS WHO ARE NOT QUALIFIED ALIENS OR NONIMMIGRANTS INELIGIBLE FOR STATE AND LOCAL PUBLIC BENEFITS.

- (a) IN GENERAL.—Notwithstanding any other provision of law and except as provided in subsections (b) and (d), an alien who is not—
- (1) a qualified alien (as defined in section 431),
 - (2) a nonimmigrant under the Immigration and Nationality Act, or
 - (3) an alien who is paroled into the United States under section 212(d)(5) of such Act for less than one year, is not eligible for any State or local public benefit (as defined in subsection (c)).
- (b) EXCEPTIONS.—Subsection (a) shall not apply with respect to the following State or local public benefits:
- (1) Assistance for health care items and services that are necessary for the treatment of an emergency medical condition (as defined in section 1903(v)(3) of the Social Security Act) of the alien involved and are not related to an organ transplant procedure.
 - (2) Short-term, non-cash, in-kind emergency disaster relief.
 - (3) Public health assistance for immunizations with respect to immunizable diseases and for testing and treatment of symptoms of communicable diseases whether or not such symptoms are caused by a communicable disease.
 - (4) Programs, services, or assistance (such as soup kitchens, crisis counseling and intervention, and short-term shelter) specified by the Attorney General, in the Attorney General’s sole and unreviewable discretion after consultation with appropriate Federal agencies and departments, which (A) deliver in-kind services at the community level, including through public or private nonprofit agencies; (B) do not condition the provision of assistance, the amount of

assistance provided, or the cost of assistance provided on the individual recipient's income or resources; and (C) are necessary for the protection of life or safety.

(c) STATE OR LOCAL PUBLIC BENEFIT DEFINED.—

(1) Except as provided in paragraphs (2) and (3), for purposes of this subtitle the term “State or local public benefit” means—

(A) any grant, contract, loan, professional license, or commercial license provided by an agency of a State or local government or by appropriated funds of a State or local government; and

(B) any retirement, welfare, health, disability, public or assisted housing, postsecondary education, food assistance, unemployment benefit, or any other similar benefit or which payments or assistance are provided to an individual, household, or family eligibility unit by an agency of a State or local government or by appropriated funds of a State or local government.

(2) Such term shall not apply—

(A) to any contract, professional license, or commercial license for a nonimmigrant whose visa for entry is related to such employment in the United States; or

(B) with respect to benefits for an alien who as a work authorized nonimmigrant or as an alien lawfully admitted for permanent residence under the Immigration and Nationality Act qualified for such benefits and for whom the United States under reciprocal treaty agreements is required to pay benefits, as determined by the Secretary of State, after consultation with the Attorney General.

(3) Such term does not include any Federal public benefit under section 4001(c).

(d) STATE AUTHORITY TO PROVIDE FOR ELIGIBILITY OF

ILLEGALALIENS FOR STATE AND LOCAL PUBLIC BENEFITS.—A State may provide that an alien who is not lawfully present in the United States is eligible for any State or local public benefit for which such alien would otherwise be ineligible under subsection (a) only through the enactment of a State law after the date of the enactment of this Act which affirmatively provides for such eligibility.

SEC. 412. STATE AUTHORITY TO LIMIT ELIGIBILITY OF QUALIFIEDALIENS FOR STATE PUBLIC BENEFITS.

(a) IN GENERAL.—Notwithstanding any other provision of law and except as provided in subsection (b), a State is authorized to determine the eligibility for any State public benefits of an alien who is a qualified alien (as defined in section 431), a nonimmigrant under the Immigration and Nationality Act, or an alien who is paroled into the United States under section 212(d)(5) of such Act for less than one year.

(b) EXCEPTIONS.—Qualified aliens under this subsection shall be eligible for any State public benefits.

(1) TIME-LIMITED EXCEPTION FOR REFUGEES AND ASYLEES.—

- (A) An alien who is admitted to the United States as a refugee under section 207 of the Immigration and Nationality Act until 5 years after the date of an alien's entry into the United States.
- (B) An alien who is granted asylum under section 208 of such Act until 5 years after the date of such grant of asylum.
- (C) An alien whose deportation is being withheld under section 243(h) of such Act until 5 years after such withholding.
- (2) CERTAIN PERMANENT RESIDENT ALIENS.—An alien who—
 - (A) is lawfully admitted to the United States for permanent residence under the Immigration and Nationality Act; and
 - (B) (i) has worked 40 qualifying quarters of coverage as defined under title II of the Social Security Act or can be credited with such qualifying quarters as provided under section 435, and (ii) in the case of any such qualifying quarter creditable for any period beginning after December 31, 1996, did not receive any Federal means-tested public benefit (as provided under section 403) during any such period.
- (3) VETERAN AND ACTIVE DUTY EXCEPTION.—An alien who is lawfully residing in any State and is—
 - (A) a veteran (as defined in section 101 of title 38, United States Code) with a discharge characterized as an honorable discharge and not on account of alien age,
 - (B) on active duty (other than active duty for training) in the Armed Forces of the United States, or
 - (C) the spouse or unmarried dependent child of an individual described in subparagraph (A) or (B).
- (4) TRANSITION FOR THOSE CURRENTLY RECEIVING BENEFITS.—An alien who on the date of the enactment of this Act is lawfully residing in any State and is receiving benefits on the date of the enactment of this Act shall continue to be eligible to receive such benefits until January 1, 1997.

**Subtitle C—Attribution of Income and
Affidavits of Support**

**SEC. 421. FEDERAL ATTRIBUTION OF SPONSOR'S INCOME
AND RESOURCES TO ALIEN.**

- (a) IN GENERAL.—Notwithstanding any other provision of law, in determining the eligibility and the amount of benefits of an alien for any Federal means-tested public benefits program (as provided under section 403), the income and resources of the alien shall be deemed to include the following:
 - (1) The income and resources of any person who executed an affidavit of support pursuant to section 213A of the Immigration and Nationality Act (as added by section 423) on behalf of such alien.
 - (2) The income and resources of the spouse (if any) of the person.

- (b) DURATION OF ATTRIBUTION PERIOD.—Subsection (a) shall apply with respect to an alien until such time as the alien—
 - (1) achieves United States citizenship through naturalization pursuant to chapter 2 of title III of the Immigration and Nationality Act; or
 - (2) (A) has worked 40 qualifying quarters of coverage as defined under title II of the Social Security Act or can be credited with such qualifying quarters as provided under section 435, and (B) in the case of any such qualifying quarter creditable for any period beginning after December 31, 1996, did not receive any Federal means-tested public benefit (as provided under section 403) during any such period.
- (c) REVIEW OF INCOME AND RESOURCES OF ALIEN UPON REAPPLICATION.—Whenever an alien is required to reapply for benefits under any Federal means-tested public benefits program, the applicable agency shall review the income and resources attributed to the alien under subsection (a).
- (d) APPLICATION.—
 - (1) If on the date of the enactment of this Act, a Federal means-tested public benefits program attributes a sponsor’s income and resources to an alien in determining the alien’s eligibility and the amount of benefits for an alien, this section shall apply to any such determination beginning on the day after the date of the enactment of this Act.
 - (2) If on the date of the enactment of this Act, a Federal means-tested public benefits program does not attribute a sponsor’s income and resources to an alien in determining the alien’s eligibility and the amount of benefits for an alien, this section shall apply to any such determination beginning 180 days after the date of the enactment of this Act.

SEC. 422. AUTHORITY FOR STATES TO PROVIDE FOR ATTRIBUTION OF SPONSORS INCOME AND RESOURCES TO THE ALIEN WITH RESPECT TO STATE PROGRAMS.

- (a) OPTIONAL APPLICATION TO STATE PROGRAMS.—Except as provided in subsection (b), in determining the eligibility and the amount of benefits of an alien for any State public benefits (as defined in section 412(c)), the State or political subdivision that offers the benefits is authorized to provide that the income and resources of the alien shall be deemed to include—
 - (1) the income and resources of any individual who executed an affidavit of support pursuant to section 213A of the Immigration and Nationality Act (as added by section 423) on behalf of such alien, and
 - (2) the income and resources of the spouse (if any) of the individual.
- (b) EXCEPTIONS.—Subsection (a) shall not apply with respect to the following State public benefits:
 - (1) Assistance described in section 411(b)(1).
 - (2) Short-term, non-cash, in-kind emergency disaster relief.
 - (3) Programs comparable to assistance or benefits under the National School Lunch Act.

- (4) Programs comparable to assistance or benefits under the Child Nutrition Act of 1966.
- (5) Public health assistance for immunizations with respect to immunizable diseases and for testing and treatment of symptoms of communicable diseases whether or not such symptoms are caused by a communicable disease.
- (6) Payments for foster care and adoption assistance.
- (7) Programs, services, or assistance (such as soup kitchens, crisis counseling and intervention, and short-term shelter) specified by the Attorney General of a State, after consultation with appropriate agencies and departments, which (A) deliver in-kind services at the community level, including through public or private nonprofit agencies; (B) do not condition the provision of assistance, the amount of assistance provided, or the cost of assistance provided on the individual recipient's income or resources; and (C) are necessary for the protection of life or safety.

SEC. 423.REQUIREMENTS FOR SPONSOR'S AFFIDAVIT OF SUPPORT.

(a) IN GENERAL.—Title II of the Immigration and Nationality Act is amended by inserting after section 213 the following new section:

“REQUIREMENTS FOR SPONSOR'S AFFIDAVIT OF SUPPORT

“SEC. 213A. (a) ENFORCEABILITY.— (1) No affidavit of support may be accepted by the Attorney General or by any consular officer to establish that an alien is not excludable as a public charge under section 212(a)(4) unless such affidavit is executed as a contract—

“(A) which is legally enforceable against the sponsor by the sponsored alien, the Federal Government, and by any State(or any political subdivision of such State) which provides any means-tested public benefits program, but not later than 10years after the alien last receives any such benefit;

“(B) in which the sponsor agrees to financially support the alien, so that the alien will not become a public charge; and“(C) in which the sponsor agrees to submit to the jurisdiction of any Federal or State court for the purpose of actions brought under subsection (e)(2).

“(2) A contract under paragraph (1) shall be enforceable with respect to benefits provided to the alien until such time as the alien achieves United States citizenship through naturalization pursuant to chapter 2 of title III.

(b) FORMS.—Not later than 90 days after the date of enactment of this section, the Attorney General, in consultation with the Secretary of State and the Secretary of Health and Human Services, shall formulate an affidavit of support consistent with the provisions of this section.

(c) REMEDIES.—Remedies available to enforce an affidavit of support under this section include any or all of the remedies described in section 3201, 3203, 3204, or 3205 of title 28, United States Code, as well as an order for specific performance and payment of legal fees and other costs of collection, and include corresponding remedies available under State law. A Federal agency may seek to collect amounts owed under this section in accordance with the provisions of subchapter II of chapter 37 of title 31, United States Code.

- (d) NOTIFICATION OF CHANGE OF ADDRESS.—
- (1) IN GENERAL.—The sponsor shall notify the Attorney General and the State in which the sponsored alien is currently resident within 30 days of any change of address of the sponsor during the period specified in subsection (a)(2).
 - (2) PENALTY.—Any person subject to the requirement of paragraph (1) who fails to satisfy such requirement shall be subject to a civil penalty of—
 - (A) not less than \$250 or more than \$2,000, or
 - (B) if such failure occurs with knowledge that the alien has received any means-tested public benefit, not less than \$2,000 or more than \$5,000.
- (e) REIMBURSEMENT OF GOVERNMENT EXPENSES.—
- (1) (A) Upon notification that a sponsored alien has received any benefit under any means-tested public benefits program, the appropriate Federal, State, or local official shall request reimbursement by the sponsor in the amount of such assistance. (B) The Attorney General, in consultation with the Secretary of Health and Human Services, shall prescribe such regulations as may be necessary to carry out subparagraph (A).
 - (2) If within 45 days after requesting reimbursement, the appropriate Federal, State, or local agency has not received a response from the sponsor indicating a willingness to commence payments, an action may be brought against the sponsor pursuant to the affidavit of support.
 - (3) If the sponsor fails to abide by the repayment terms established by such agency, the agency may, within 60 days of such failure, bring an action against the sponsor pursuant to the affidavit of support.
 - (4) No cause of action may be brought under this subsection later than 10 years after the alien last received any benefit under any means-tested public benefits program.
 - (5) If, pursuant to the terms of this subsection, a Federal, State, or local agency requests reimbursement from the sponsor in the amount of assistance provided, or brings an action against the sponsor pursuant to the affidavit of support, the appropriate agency may appoint or hire an individual or other person to act on behalf of such agency acting under the authority of law for purposes of collecting any moneys owed. Nothing in this subsection shall preclude any appropriate Federal, State, or local agency from directly requesting reimbursement from a sponsor for the amount of assistance provided, or from bringing an action against a sponsor pursuant to an affidavit of support.
- (f) DEFINITIONS.—For the purposes of this section—
- (1) SPONSOR.—The term ‘sponsor’ means an individual who—
 - (A) is a citizen or national of the United States or an alien who is lawfully admitted to the United States for permanent residence;
 - (B) is 18 years of age or over;
 - (C) is domiciled in any of the 50 States or the District of Columbia; and
 - (D) is the person petitioning for the admission of the alien under section 204.’’.

- b. CLERICAL AMENDMENT.—The table of contents of such Act is amended by inserting, after the item relating to section 213 the following:

“Sec. 213A. Requirements for sponsor’s affidavit of support.”

- c. EFFECTIVE DATE.—Subsection (a) of section 213A of the Immigration and Nationality Act, as inserted by subsection (a) of this section, shall apply to affidavits of support executed on or after a date specified by the Attorney General, which date shall be not earlier than 60 days (and not later than 90 days) after the date the Attorney General formulates the form for such affidavits under subsection (b) of such section.
- d. BENEFITS NOT SUBJECT TO REIMBURSEMENT.— Requirements for reimbursement by a sponsor for benefits provided to a sponsored alien pursuant to an affidavit of support under section 213A of the Immigration and Nationality Act shall not apply with respect to the following:
 - (1) Medical assistance described in section 401(b)(1)(A) or assistance described in section 411(b)(1).
 - (2) Short-term, non-cash, in-kind emergency disaster relief.
 - (3) Assistance or benefits under the National School Lunch Act.
 - (4) Assistance or benefits under the Child Nutrition Act of 1966.
 - (5) Public health assistance for immunizations (not including any assistance under title XIX of the Social Security Act) with respect to immunizable diseases and for testing and treatment of symptoms of communicable diseases whether or not such symptoms are caused by a communicable disease.
 - (6) Payments for foster care and adoption assistance under parts B and E of title IV of the Social Security Act for a parent or a child, but only if the foster or adoptive parent (or parents) of such child is a qualified alien (as defined in section 431).
 - (7) Programs, services, or assistance (such as soup kitchens, crisis counseling and intervention, and short-term shelter) specified by the Attorney General, in the Attorney General’s sole and unreviewable discretion after consultation with appropriate Federal agencies and departments, which (A) deliver in-kind services at the community level, including through public or private nonprofit agencies; (B) do not condition the provision of assistance, the amount of assistance provided, or the cost of assistance provided on the individual recipient’s income or resources; and (C) are necessary for the protection of life or safety.
 - (8) Programs of student assistance under titles IV, V, IX, and X of the Higher Education Act of 1965, and titles III, VII, and VIII of the Public Health Service Act.
 - (9) Benefits under the Head Start Act.
 - (10) Means-tested programs under the Elementary and Secondary Education Act of 1965.
 - (11) Benefits under the Job Training Partnership Act.

Subtitle D—General Provisions

SEC. 431. DEFINITIONS.

- (a) **IN GENERAL.**—Except as otherwise provided in this title, the terms used in this title have the same meaning given such terms in section 101(a) of the Immigration and Nationality Act.
- (b) **QUALIFIED ALIEN.**—For purposes of this title, the term “qualified alien” means an alien who, at the time the alien applies for, receives, or attempts to receive a Federal public benefit, is—
 - (1) an alien who is lawfully admitted for permanent residence under the Immigration and Nationality Act,
 - (2) an alien who is granted asylum under section 208 of such Act,
 - (3) a refugee who is admitted to the United States under section 207 of such Act,
 - (4) an alien who is paroled into the United States under section 212(d)(5) of such Act for a period of at least 1 year,
 - (5) an alien whose deportation is being withheld under section 243(h) of such Act, or
 - (6) an alien who is granted conditional entry pursuant to section 203(a)(7) of such Act as in effect prior to April 1, 1980.

SEC. 432. VERIFICATION OF ELIGIBILITY FOR FEDERAL PUBLIC BENEFITS.

- (a) **IN GENERAL.**—Not later than 18 months after the date of the enactment of this Act, the Attorney General of the United States, after consultation with the Secretary of Health and Human Services, shall promulgate regulations requiring verification that a person applying for a Federal public benefit (as defined in section 401(c)), to which the limitation under section 401 applies, is a qualified alien and is eligible to receive such benefit. Such regulations shall, to the extent feasible, require that information requested and exchanged be similar in form and manner to information requested and exchanged under section 1137 of the Social Security Act.
- (b) **STATE COMPLIANCE.**—Not later than 24 months after the date the regulations described in subsection (a) are adopted, a State that administers a program that provides a Federal public benefit shall have in effect a verification system that complies with the regulations.
- (c) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated such sums as may be necessary to carry out the purpose of this section.

SEC. 433. STATUTORY CONSTRUCTION.

- (a) **LIMITATION.**—
 - (1) Nothing in this title may be construed as an entitlement or a determination of an individual’s eligibility or fulfillment of the requisite requirements for any Federal, State, or local governmental program, assistance, or benefits. For

purposes of this title, eligibility relates only to the general issue of eligibility or ineligibility on the basis of alien age.

- (2) Nothing in this title may be construed as addressing alien eligibility for a basic public education as determined by the Supreme Court of the United States under *Plyler v. Doe* (457 U.S. 202) (1982).
- (b) **NOT APPLICABLE TO FOREIGN ASSISTANCE.**—This title does not apply to any Federal, State, or local governmental program, assistance, or benefits provided to an alien under any program of foreign assistance as determined by the Secretary of State in consultation with the Attorney General.
- (c) **SEVERABILITY.**—If any provision of this title or the application of such provision to any person or circumstance is held to be unconstitutional, the remainder of this title and the application of the provisions of such to any person or circumstance shall not be affected thereby.

SEC. 434. COMMUNICATION BETWEEN STATE AND LOCAL GOVERNMENT AGENCIES AND THE IMMIGRATION AND NATURALIZATION SERVICE.

Notwithstanding any other provision of Federal, State, or local law, no State or local government entity may be prohibited, or in any way restricted, from sending to or receiving from the Immigration and Naturalization Service information regarding the immigration status, lawful or unlawful, of an alien in the United States.

SEC. 435. QUALIFYING QUARTERS.

For purposes of this title, in determining the number of qualifying quarters of coverage under title II of the Social Security Act an alien shall be credited with—

- (1) all of the qualifying quarters of coverage as defined under title II of the Social Security Act worked by a parent of such alien while the alien was under age 18, and
- (2) all of the qualifying quarters worked by a spouse of such alien during their marriage and the alien remains married to such spouse or such spouse is deceased.

No such qualifying quarter of coverage that is creditable under title II of the Social Security Act for any period beginning after December 31, 1996, may be credited to an alien under paragraph

- (1) or (2) if the parent or spouse (as the case may be) of such alien received any Federal means-tested public benefit (as provided under section 403) during the period for which such qualifying quarter of coverage is so credited.