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**LEFT OUT OF THE EQUATION: OLDER IMMIGRANTS AND
HEALTH INSURANCE COVERAGE**

A Thesis in
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by
Adriana Marie Reyes

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The thesis of Adriana Marie Reyes was reviewed and approved* by the following:

Melissa Hardy
Professor of Sociology, Demography and Human Development
Thesis Advisor

Jennifer Van Hook
Director of Population Research Institute and Professor
of Sociology and Demography

Mark Leach
Assistant Professor of Rural Sociology and Demography

John Iceland
Department Head, Professor of Sociology and Demography

*Signatures are on file in the Graduate School.

Abstract

The older immigrant population has increased from 2.7 million in 1990 to 4.6 million in 2010 (US Census). Although Medicare provides health insurance coverage for many older people, older immigrants may not be covered by this social contract. As the number of older immigrants has increased, immigrants access to social welfare programs has been dramatically curtailed. Specifically, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 redefined eligibility for public programs by citizenship status. While a few states chose to address this hole in the safety-net, most states provide coverage only for immigrants who naturalize. I rely on data from the 2001, 2004 and 2008 cohorts of the Survey of Income and Program Participation for respondents aged 50 and older. Rather than limit analysis to coverage at one point in time, I use discrete-time hazard models to examine how health insurance coverage and changes in coverage are related to immigration status and factors that distinguish a heterogeneous immigrant population. Results suggest that immigrants are less likely than native-born to have health insurance at first observation, with immigrants from Latin America being least likely to be covered. Older immigrants are less likely to gain coverage and more likely to lose the coverage they have during a two to four year period of observation. Being in a state that offers supplemental insurance increases the likelihood of initially having coverage and gaining coverage, and reduces the probability that coverage is lost. Among immigrants, proficiency in the English language also increases the likelihood of initially having coverage and gaining coverage, and reduces the chance that coverage is lost. In sum, historic changes in federal policy and variation in state policy shape older immigrants access to health insurance even when the effects of employment, income, and other personal characteristics are taken into account.

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Left Out of the Equation: Older Immigrants and Health Insurance Coverage

1.1 Introduction

Immigration research in the US often focuses on younger immigrants and their demographic impact on the lowest tiers of the age pyramid, but not all immigrants are young. A growing number of immigrants now enter the country at older ages, and those who enter at younger ages, grow older. The elderly immigrant population increased from 2.7 million in 1990 to 4.6 million in 2010 (U.S. Census Bureau), making immigrant aging an important component of population aging.

In the US, beginning with the New Deal of the 1930s through the Great Society of the 1960s, the elderly have relied on a social contract. This contract guaranteed that contributions made earlier in life would be repaid through income support and health care in old age and that those without sufficient resources to cover basic needs would be buoyed by safety net programs. Social Security has clearly and dramatically reduced poverty among the elderly, and since the introduction of Medicare in 1965, health insurance coverage for the elderly has become close to

universal. Further, for those not entitled to Medicare or with minimal financial resources, Medicaid would cover health care costs. However, this social contract does not automatically extend to immigrants. In recent years, as immigrants rights to public goods have been questioned, their access to social welfare programs has been dramatically constrained.

In the US, health insurance coverage has been the focus of political debate and bitterly contested legislation since the mid-20th century. Aside from the benefits granted veterans, it was not until 1965 that any form of national health care was enacted, and these programmatic exceptions Medicare and Medicaid covered only the elderly and the poor. Because health insurance had become a popular fringe benefit offered by employers, the passage of Medicare and Medicaid appeared to address the major gaps in coverage. Before age 65, two thirds of Americans rely primarily on private health insurance; however at age 65 the source of coverage alters and the proportion of Americans with some type of public health insurance expands to 93.5 percent (U.S. Census Bureau). For those younger than age 65, public health insurance works as a safety net, extending coverage to those unable to obtain coverage through work or private vendors. Nonetheless, this safety net currently excludes many uninsured individuals. Coverage among both the employed and the non-employed has declined steadily in the past decade. Even with the proposed changes in the Affordable Care Act, these programs will continue to exclude many legal immigrants. At age 65, when coverage shifts from private or employer-sponsored to federal programs, the disparity between natives and immigrants grows more pronounced as many immigrants are not entitled to these benefits (Buettgens 2011 and Zuckerman et al 2011). Given that some avenues of public health insurance are blocked for immigrants, private coverage via employment, and therefore extended access to employment opportunities, may be more critical for immigrants. As the immigrant population grows in size, we need to examine the acquisition, loss, and maintenance of health insurance coverage among older immigrants within a dynamic framework, since episodic coverage often coincides with episodic access to health care.

1.1.1 Immigrant Diversity

Although immigrants are often alluded to as one subgroup, considerable diversity exists within the immigrant population, and this diversity can produce further inequalities within the immigrant population. Immigrants differ not only by race, ethnicity, and country of origin, but also by legal status, which has implications for their eligibility for public programs. Over time, the composition of the immigrant population has changed, with the large numbers of European immigrants who entered the US in the 19th and early 20th centuries being replaced by a growing proportion of immigrants from Asian and Latin American countries.

In addition, older immigrants are comprised of both those who migrated at younger ages and have grown old in the US and those who migrated to the US at older ages. While those who have aged while in the US have had a longer time to assimilate, all elderly migrants may face special barriers. Elderly migrants may be less adaptable and more isolated, making it important to consider both types of older immigrants in my research.

Another set of assimilation barriers have been introduced by recent changes in public policy, which has created variability in policy contexts across both time and space, since policies and enforcement can also differ across states and communities. Perhaps the most important policy change occurred with the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996, which redefined eligibility for public programs by citizenship status. After the passage of PRWORA, the number of immigrants in social welfare programs declined precipitously: approximately 935,000 noncitizens lost welfare benefits in the aftermath of PRWORA (Fix and Passel 2002). Some states developed programs to fill this five-year healthcare gap, thereby introducing an important element of spatial variation. Compounding the barriers to health care imposed by PRWORA are the challenges facing many newly arrived immigrants. Immigrants who come to the US to be reunited with their families at older ages are not likely to have access to health insurance through an employer nor are they likely to have sufficient funds to purchase private health insurance, making them a particularly vulnerable section of the population.

Not having health insurance limits access to medical care, particularly preventive care. Being uninsured correlates with worse health and places a heavy

financial burden on individuals and families (Bovbjerg and Hadley 2007). While new immigrants are waiting for this 5-year period to expire, they may forego preventative care, which means the cost of subsequent care may be higher because problems that could have been resolved at an earlier stage may become chronic. In the current anti-immigrant climate, these changes in policy may have a chilling effect on program participation even among those who are eligible because of confusion about eligibility, fear, or stigma attached to welfare. Much of assimilation theory has been developed at the level of the individual and emphasized the actions people can take to better fit into US culture. The process of assimilation varies across immigrant groups as well as by age at immigration because language ability and networks are important in the process of assimilation (Alba and Nee 2003). Some less-assimilated immigrants who are eligible for public assistance may not receive the benefits due to them because of language barriers and limited education. Immigrant policies also can interfere with the process of assimilation by restricting migrants access to and participation in major social institutions (Portes and Rumbaut 2006).

1.1.2 Age, Immigrant Status, and Access to Health Insurance

In the US, health care access and utilization is structured by health insurance coverage. Older immigrants are one subpopulation that is often on the margin of health insurance coverage, since policies that limit access to health care disproportionately affect the young and the elderly. For example, while Medicare typically covers most individuals over the age 65, entitlement is also based on having worked at least 40 quarters in covered employment or having a spouse who did so.¹ Approximately 25 percent of elderly immigrants do not qualify (Friedland and Pankaj 1997). Even elderly immigrants who have been here for more than ten years may not qualify if they are working in uncovered jobs, and immigrants are more likely to

¹Covered employment refers to those jobs in which the employer and employee pay Social Security and Medicare taxes or Railroad Retirement, quarters in which too little income is earned do not count, in 1978 the minimum was \$250 a quarter and in 2012 it is \$1,130 a quarter. Other jobs that would not be covered would include informal jobs in which pay was not recorded as well as some types of self-employment.

work in these low wage jobs. Additionally, even some immigrants who are eligible to receive public assistance may not apply because of language barriers, limited education, and advanced age (Angel 2003). Due to many of the policies in place, elderly immigrants may be heavily reliant on family support or live in poverty.

Adult immigrants, especially non-citizen immigrants, have lower rates of health insurance coverage than natives (Carrasquillo, Carrasquillo, and Shea 2000 and Ku and Matani 2001). Some of the differences between citizen and non-citizen immigrants are attributable to differences in rates of employer sponsored health insurance (Carrasquillo, Carrasquillo, and Shea 2000). Length of time in US, English proficiency, and access to publicly funded health insurance also influence health insurance coverage and access to care for immigrants (Derose et 2007). Health insurance transitions among immigrants in the Los Angeles Family Neighborhoods Study are more frequent for non-citizens, as immigrants are both less likely to gain coverage and more likely to lose coverage (Prentice, Pebley and Sastry 2005).

Focusing on older immigrants, social policy, and immigrant specific characteristics are an important part of the story. Recently arrived and non-citizen older immigrants are more likely to be uninsured than established citizen immigrants and natives (Lum and Vanderaa 2010). Differences in type specific health insurance coverage for older immigrants has been observed since welfare reform in 1996, with a decrease in non-citizens on Medicaid and an increase in naturalized citizens on Medicaid (Nam 2008). Access to health insurance is stratified along immigrant/native dimensions as well as among immigrants. Immigrant specific characteristics and assimilation may play a key role in acquiring health insurance; these factors are discussed in greater detail below. Assimilation

Foreign residents trying to legally move to the United States have two options, employment sponsorship or family sponsorship. The 1965 Hart-Cellar Act placed a premium on family ties and reunification without numerical limits and today a large majority of immigrant visas are through family reunification. Family reunification is when an immigrant has a relative who is a US citizen and agrees to sponsor them to come to the US. Many who immigrate at older ages do so as part of the family reunification provision of United States immigration; in 1991 more than two-thirds of older immigrants gained citizenship as parents of US citizens (Treas 1995). With no limit on the number of visas for the relatives of citizens, the

number of immigrants who come at older ages may continue to increase. Little is known about this growing and vulnerable segment of the population. Immigrants who migrate at older ages face a unique set of challenges, as these immigrants come at an age when assimilation may be more difficult and their ability to operate independently waning.

New immigrants to the US are racially and ethnically more diverse than ever before, combined with racial/ethnic discrimination and the prevalence of anti-immigrant sentiment in many areas of the United States the social and economic assimilation of immigrants may be more limited (Alba and Nee 2003). Employment is a key variable in health insurance coverage. The income gap between natives and the foreign-born closes the longer the foreign-born reside in the US (Lubotsky 2000); however the new generation of immigrants have less education and lower skills, casting doubt on the ability of these immigrants to successfully assimilate and close the wage gap (Borjas 1995). Immigrants who come at older ages may not be employed, making it more difficult to join social and work-related networks that include natives. Without these experiences, it may be difficult to close the gap between natives and immigrants.

One way assimilation is often measured is by English proficiency. The link between duration in the United States and English language ability is clear (Bean and Stevens 2003) the longer immigrants have been in the United States the more likely they are to be assimilated. However, the process of assimilation may vary across different immigrant groups as well as by age at immigration (Carliner 1995). Assimilation is easier for the young, especially those who attend school in the United States. Factors such as language ability and exposure to other people are important in the process of assimilation (Carliner 1995).

Another frequent measure of assimilation is citizenship. Citizenship is a key determinant of health insurance coverage (Ku 2009). Citizenship is imperative as a qualification for public programs. It is important to remember, non-citizen immigrants are made up of both legal permanent residents and undocumented immigrants. Undocumented immigrants do not have any access to health insurance while legal permanent residents have access to health insurance after five years of residence. Therefore, differences between immigrants are more nuanced than simply citizen and non-citizen.

English proficiency and citizenship differences lead to other important questions about access to or knowledge of public health insurance programs. Eligible immigrants may simply be unaware of these programs as well as the importance of having health insurance. Immigrant characteristics may proxy for other barriers such as lack of knowledge about US health system or attitudes towards preventive care. Eligibility rules for immigrants are especially complicated given the federal-state division of coverage and differences in eligibility across states. Some immigrants are afraid to apply for benefits such as Medicaid for fear it will prevent them from eventually gaining citizenship (Park 2011). It may not be only immigrants who are confused about eligibility policies. The level of training and information provided to social workers on changes in welfare eligibility is lacking in some areas (Hagan et al 2003).

It has been well documented that racial and ethnic minorities have lower health insurance coverage rates and more reliance on public health insurance (DeNavas-Walt, Proctor, and Lee 2005). Health insurance coverage also varies substantially by region of origin, much of which may be due to differences in human capital and compositional factors. Immigrants from different regions vary in skills and education. Asian Americans are more likely to work in jobs that offer private insurance (Schur and Feldman 2001). Immigrants from Latin America are more likely to be uninsured than immigrants from Asia, though heterogeneity exists within Latin America and Asia (Alegria et al 2006). The process of assimilation and obtaining health insurance may be distinctly different for these groups. It is important to take these regional differences into account, especially since these two regions make up over three quarters of the current immigrant population (Martin and Midgley 2010).

1.1.3 Policy

Prior to 1996 public assistance programs did not discriminate by nativity or citizenship. In fact immigrants were more likely than natives to receive public assistance though, controlling for poverty, noncitizens and natives had similar rates of public assistance benefits (Fix and Passel 1997). In 1996 with the passage of the PRWORA, an incontrovertible distinction was drawn between citizens and immi-

grants (PRWORA Public Law 104-193). Most immigrants arriving in the United States after August 22, 1996 are ineligible for welfare or public benefits for their first 5 years in the United States. Refugees and asylees are exceptions to this rule because they are eligible for first 5-7 years. Immigrants who served in the military as well as their families are also excepted. After the initial 5 year period, immigrants become eligible. But in determining their income and asset eligibility, they must include a portion of their sponsors income as their own. This practice, known as sponsor deeming, lasts until the immigrant becomes a citizen or is employed for 40 quarters and may prevent otherwise qualified immigrants from obtaining eligibility.

Whereas the impact of PRWORA on immigrants access to welfare is documented, less is known about its implications for the Medicaid and health insurance coverage rates of immigrants. After the passage of PRWORA, a steep decline in the number of immigrants on welfare was observed: 935,000 noncitizens lost their benefits (Fix and Passel 2002). PRWORA has been demonstrated to impact noncitizens more than their naturalized counterparts (Gerst and Burr 2011). The loss of Medicaid that has been found, is not being balanced by access to other forms of health insurance. Rather, the resulting loss of health insurance has increased the size of the uninsured population by about 4.5% among legal permanent residents (Fix and Passel 2002). The impact of PRWORA is not uniform, but may have disproportionately affected rate of insurance coverage among the less educated and immigrant populations (Kaestner and Kaushal 2005). The 2000 National Health Interview Survey found that newly arrived older immigrants were less likely to have health insurance, although the sample of newly arrived older immigrants was small (Choi 2006). Some of the decline in participation by noncitizens may be a factor of declines in the labor market, but this does not account for all of the decline (Lofstrom et al 2002).

Not only has PRWORA limited federal eligibility for key safety net programs, but because Medicaid is a jointly federal-state program, the determination of eligibility criteria has also been passed to individual states, creating wide variations across states in program access for immigrants. This devolution in eligibility criteria has placed a greater burden on state and local governments to deal with issues of public assistance to immigrants (Okafor 2009). Some states use state funds to

provide health insurance to immigrants who do not qualify for federal benefits; however access varies substantially by state (Ellwood 1998 and Zimmermann and Tumlin 1999). With the exception of California, the states with the largest immigrant populations provide very limited aid to immigrants during their initial 5 years. States also vary in their rates of insurance coverage. Texas has the highest levels of no insurance coverage (27%), and Massachusetts has the lowest rate of no insurance coverage (6%). This variation reflects a number of factors, such as public programs, local labor market conditions, and other compositional differences (Streeter et al. 2011).

The rate of insurance coverage for the children of immigrants varies widely across states, though how much of this variation is a function of policy is unknown (Acevado-Garcia and Stone 2008). The role of state variations for health insurance coverage for adults is unknown. Recent attention to federal and state policies for older immigrants Medicaid participation demonstrates the difference in coverage rates by state since welfare reform (Nam 2011).

Given state variations in welfare benefits for immigrants, not only through Medicaid but other programs such as TANIF and SSI, generous state welfare policies could attract immigrants who otherwise would not have migrated to those states. States with generous policies, such as California, may operate as a welfare magnet (Borjas 1999); however network effects on migration location are stronger (Dodson 2001). Welfare magnets may be more pro-immigrant in general, having more favorable attitudes and a better labor market for immigrants. When controlling for legal status and region of origin in migration decision, there is no support for the welfare magnet theory (Kaushal 2005 and Zavodny 1999). Given the evidence, welfare magnets have little to no effect on the state location choices of immigrants. This new policy environment has had a chilling effect on welfare participation even among immigrants who are eligible. Welfare reform led to large reductions in the receipt of most public benefits by non-citizens even among groups that were not affected by PRWORA (Fix and Haskins 2002). In some areas of Texas, 20% of citizens and 30% of legal permanent residents reported losing their Medicaid coverage because of PRWORA. Some of those lost benefits because of the new criteria, but some may have lost their benefits in error. Social service workers provided erroneous information, especially on mixed status households, which account for 72%

of sample (Hagan et al. 2003). Forty percent of immigrants are misinformed about welfare eligibility, and those who are misinformed are less likely to be enrolled in Medicaid (Capps et al. 2002).

The reduction in non-citizen welfare participation may actually be a result of changes in the naturalization rate of immigrants, as the rate of naturalization increases post welfare reform (Van Hook 2003). However, naturalization does not account for noncitizen exits from public benefit use (Fix and Passel 1999; Fix and Passel 2002). The reasons for the increase in naturalization may be more complex. Immigrants who obtain welfare benefits are not more likely to naturalize as a result of the reforms. The pursuit of naturalization is dependent on social contextual factors or the reception of immigrants in certain states (Van Hook, Brown and Bean 2006). Factors in sending countries may also be responsible for increased naturalization in the case of some Latin American countries; laws in a number of Latin American countries (e.g., Colombia, the Dominican Republic, Ecuador, Costa Rica, and Brazil) changed by allowing immigrants to naturalize in the US without losing their citizenship in their home countries (Mazzolari 2011). Given the evidence that there are other stronger forces encouraging the naturalization of immigrants, welfare reform does seem to be encouraging an increase in naturalization.

1.1.4 Importance of Health Insurance

Health insurance is an important indicator of access to health care (Zuvekas and Taliaferro 2003). Uninsured people not only receive less medical care but have worse health outcomes than those with health insurance (Bovbjerg and Hadley 2007). Not having health insurance is associated with higher rates of mortality even when controlling socioeconomic, demographic, and health variables (Wilper et al 2009). Even if higher coverage rates increased overall medical spending, the higher health care costs would have to be weighed against the costs of reduced longevity, productivity, and other factors, which could yield a net gain (Miller, Vigdor, and Manning 2004). All individuals, including undocumented immigrants, are eligible for emergency Medicaid, which means many will wait until problems are so advanced they need to go to the emergency room. This is much more

costly than it would be for them to get treatment in other settings such as clinic or doctors office. Furthermore, this may not even be accomplishing the goal of minimizing the government aid to immigrants because with emergency room charity and emergency Medicaid coverage, it may be costing more money in the end. In New Jersey older individuals generate much higher costs per in-patient admissions than younger charity care patients, with a growing proportion of charity care patients being uninsured older patients and likely immigrants (DeLia 2006). Emergency Medicaid expenditures for recent and undocumented immigrants are rising more rapidly among the elderly than other groups (DuBard and Massing 2007). Older immigrants are more likely to be uninsured and are increasing the burden of emergency Medicaid and charity care in many places.

Immigrants are less likely to use preventative care, not surprising given that economically immigrants also face higher costs for preventative care due to lack of health insurance (Pylypchuk and Hudson 2009). While not all preventative services save money, increasing the use of proven clinical preventative services could lead to a potential total savings of \$3.7 billion (Maciosek et al. 2010). Health insurance is a large barrier to preventative services for many people including older immigrants, who may require more services than others. Older immigrants health services utilization is significantly related to their insurance status (Choi 2006). Recent health reform does not include provisions for increasing health insurance coverage of immigrants, researchers argue that extending access to health care to all residents of the US, including undocumented immigrants is beneficial from a population health perspective and that universal health insurance coverage may reduce net costs by increasing primary prevention and reducing the emphasis on emergency care for preventable conditions (Nandi, Loue and Galea 2009: 435). Overall immigrants have lower rates of health insurance, use less health care, and receive lower quality of care than US born populations (Derose et al 2007).

Intermittent lack of health insurance results in less use of preventative services (Sudano and Baker 2003). Lack of health insurance overtime results in a decrease in overall health quality for the near elderly compared to those with private insurance (Baker et al 2006). Little is known about intermittent health insurance for immigrants and its effects on access to care. The benefits of continuous coverage are well documented, therefore understanding not only changes in coverage but

health insurance transitions for older immigrants is important in understanding the full extent of the effects caused by PRWORA.

Research on health insurance inequality can prompt consideration of the societal consequences of these low rates of coverage; ignoring the problem will potentially impact more than 40 million people, many of whom came to the US to find a better life. My research design improves upon previous research that uses cross-sectional data and looks only at current coverage, thereby missing intermittent coverage. My study will explore how variation in immigrant characteristics, degree of assimilation, and differences in public policy regimes predict initial coverage, loss of coverage among those initially insured, and coverage gained among those initial without insurance. I will address not only the disparity in access to health insurance between immigrants and natives, but also disparities among immigrants.

1.2 Hypotheses

Among the hypotheses I plan to examine given previous literature on the theory of assimilation and public policy are the following: 1) In states that offer supplemental Medicaid coverage to immigrants without residency restrictions, immigrants will have higher rates of health insurance coverage, will be more likely to gain health insurance, and will be less likely to lose health insurance coverage because they will be more likely to be eligible for coverage and eligible immigrants will use Medicaid in these states; 2) The health care gap between natives and immigrants will be greater for immigrants from Latin America than immigrants from Asia, which will be evident in lower rates of coverage, less likely to gain health insurance and more likely to lose health insurance because these immigrants are more likely to be low skilled migrants and have less access to resources; 3) Immigrants not affected by PRWORA (that is those that arrived before 1996 and have been here more than 5 years) will have higher coverage rates and more continuous coverage than immigrants that are affected by PRWORA because the policy may create confusion and have a chilling effect on welfare participation; 4) Employment will increase coverage for everyone but be more beneficial for migrants because of blocked access to public health insurance.

1.3 Data and Methods

To examine health insurance transitions I use the Survey of Income Participation Program (SIPP) data collected by the U.S. Census Bureau. SIPP is a monthly survey of a nationally representative of the non-institutionalized population, which follows respondents from two to four years. SIPP is a multi-panel longitudinal survey with monthly data collected from interviews of participants every 4 months for approximately four years. Each individual in the household is then interviewed. SIPP then follows the original sample members regardless of household composition. I use three cohorts from the Survey of Income and Program Participation those initiated in 2001, 2004, and 2008 merging across study cohorts to build a sufficiently large sample that includes immigrants who arrived before and after 1996. I rely on the core data as well as various topic modules in those years. For this analysis I created person-level datasets for each year, merging the topic module on immigration to the core data and then stacked all three panels to create a longitudinal dataset for event history analysis.

Information on region of origin and year of arrival are collected in the second round in a special topic module. Between the start of the survey and the second round the attrition rate varies between 13 and 15 percent for the different survey years. Given the centrality of identifying immigrants and their characteristics, I define the sample by those who are available in the second round and refer to this as the initial observation. The immigrant module is collected only in the second round and is not added for members who move into the sample after round two. I restrict the analytic sample to individuals over the age of 50 at time of first observation and who were present for the Migration Topic module. Using these criteria, I define a sample of 76,754 respondents. I begin by estimating the likelihood of having health insurance at first observation in the survey for the entire sample. Then I split the sample into two groups, those who have health insurance at the beginning of the survey (59,539) and those who do not have health insurance at the beginning of the survey (17,215). I compile observations by quarters, using the most recent month from each four-month wave. Panels range from 5-11 observation points, 2001 panel has 8 observation points (2 years), 2004 has 11 observation points (one quarter shy of 3 years), and 2008 has 5 observation points (1 year plus 1

quarter) because the survey is still in progress. In my analysis of the data, I adjust for clustering and weight the data to make it nationally representative. The Census Bureau has already imputed the data using the hot deck method for most demographic variables. However there is missing data from the topic modules from which key variables are taken, including migration history and English language ability; listwise deletion is used to handle missing data on these variables.²

For each subsample, those with health insurance at first observation and those without health insurance at first observation, I examine the first observed health insurance transition by estimating discrete-time hazard models. Time is measured in quarters (four-month intervals), using the current month of data from each wave of collection. Looking at health insurance at just one point in time fails to capture the volatility of coverage experienced by many; by examining transitions in health insurance I can get a better understanding of who has health insurance and who is at risk of losing health insurance. During the survey about 17% of the sample experiences a health insurance transition.

1.4 Measures

1.4.1 Dependent variable

The dependent variable is health insurance coverage. This variable is a dichotomous variable coded 0, for not covered by any health insurance in reference month and 1, for covered by health insurance in reference month. At first observation approximately 80% of the sample has health insurance. SIPP estimates of people without health insurance coverage are higher than Current Population Survey (CPS) but CPS reports coverage at any point in previous year whereas SIPP reports coverage in previous month capturing more variation than CPS.

²6.5% of the sample is eliminated using listwise deletion. Item non-response on migration history for immigrants accounts for about 4% of the missing cases. Item non-response for English language ability accounts for the other 2.5% of missing cases and is equally distributed between natives and immigrants.

1.4.2 Independent variables

The independent variables used for this analysis include demographic characteristics, indicators of assimilation, dimensions of variability among immigrants, measures of SES, and state policy regime. Age is measured at age as of last birthday and is centered at age 50. A dichotomous variable indicating age 65 and greater is included for gaining health insurance to account for the transition to eligibility for Medicare for health insurance coverage. Sex is measured as a dichotomous variable with females coded as 1. Marital status is a dichotomous variable coded 1 for currently married and 0 for all other statuses. It has been well documented that being married increases the likelihood of health insurance coverage.

Immigrants are grouped into three categories based on region of birth, Latin American Origin, Asian Origin, and Other Origin which is comprised primarily of Europe, which are coded as a set of dummy variables with natives being the reference group. In the SIPP 2001 and 2004 country of birth is recoded to match the region categories in 2008. Citizenship is measured for immigrants, coded 1 for immigrants that are naturalized citizens and 0 for natives and immigrants that are not citizens. State Medicaid Policy is a dichotomous variable to indicate those states that offer have policies that supplement federal Medicaid policies and offer state Medicaid to immigrants without residency restrictions, coded 1 for states that do have Medicaid policies for immigrants and 0 for states that do not offer Medicaid to immigrants. Non-immigrants are also coded as 0. The states that offer Medicaid to immigrants without residency restrictions are California, Delaware, Hawaii, Maine, Massachusetts, Minnesota, Nebraska, New York, and Pennsylvania. This variable is time-varying to account for between-state mobility. Arrival is a dichotomous variable coded to indicate 1 for those that arrived in or after 1996 and 0 for those who arrived before 1996 to correspond with the year PRWORA took effect. English language ability is a variable indicating those that have self rated English ability of not well or not very well from the question: How well does ... speak English? Duration is coded for immigrants as 0 for those who have been in the United States for less than 5 years, and coded as number of years in the United States, constructed from year of arrival variable in SIPP. All non-immigrants are coded as 0 for duration.

Education is measured using a seven category, ordinal variable measuring the

highest level of education achieved, and it ranges from less than 6th grade education to having an advanced degree. Income is measure in SIPP as the raw total personal income. I transform income for our analysis by taking the natural log of the positive values and truncating all values less than zero at zero. I also include a dummy variable to indicate those who reported negative income in our analysis. Employment measures full time employment, which is coded 1. Self-Employment is a dichotomous variable indicating if individual is self-employed rather than a wage-and-salary worker. Self-employment is an important control variable because it is well known self-employed individuals have lower rates of health insurance coverage than salaried workers (Hamilton 2000). Interaction terms between employment and immigrant status and self-employment and immigrant status are included to test whether employment operates differently for natives and immigrants.

Time is measured in two ways in the longitudinal data analysis. I use dummy variables for each wave of data, excluding the first wave, to specify the underlying hazard rate. Year is also measured as the calendar year of interview ranging from 2001-2009 to address historical differences in coverage.

1.4.3 Analytic Approach

First, a model predicting the likelihood of having health insurance at first observation is estimated to understand the characteristics that sort individuals into having and not having health insurance. A probit model is also estimated for having health insurance, to calculate lambda following the Heckman selection method (Heckman 1990). This estimates the selection into the groups of having health insurance and not having health insurance, to address the possible error correlation across equations. When the sample is divided into those who have health insurance and those who do not have health insurance at first observation, lambda is used to control for selection into these groups. I use discrete-time hazard models to examine change in health insurance coverage. First a model examining individuals transition from having health insurance to not having health insurance is estimated to explore the risk of losing health insurance coverage. Then a model is estimated to investigate individuals transition from not having health insurance to having health insurance to capture the likelihood of gaining health insurance.

The equation for the discrete-time hazard is:

$$\begin{aligned} \text{Logith}(t_{ij}) = & [\alpha_2 d_2 + \alpha_3 d_3 + \alpha_4 d_4 + \alpha_5 d_5 + \alpha_6 d_6 + \alpha_7 d_7 + \alpha_8 d_8 + \alpha_9 d_9 + \alpha_{10} d_{10}] + \\ & [\beta(\text{year})_{ij} + \beta(\text{age})_{ij} + \beta(\text{age65})_{ij} + \beta(\text{RegionofOrigin})_i + \beta(\text{StatePolicy})_{ij} + \\ & \beta(\text{YearofArrival})_i + \beta(\text{Citizenship})_i + \beta(\text{EnglishProficiency})_{ij} + \beta(\text{Duration})_{ij} + \\ & \beta(\text{Gender})_i + \beta(\text{MaritalStatus})_{ij} + \beta(\text{Education})_{ij} + \beta(\text{Income})_{ij} + \beta(\text{Employment})_{ij} + \\ & \beta(\text{Self-Employment})_{ij} + \beta(\text{Employment*RegionofOrigin})_{ij} + \beta(\text{Self-Employment*} \\ & \text{RegionofOrigin})_{ij} + \beta(\text{lambda})_i \end{aligned}$$

1.5 Results

Table 1 presents the descriptive statistics for the analytic sample at first observation conditioned on region of origin.³ Natives have the highest rates of insurance coverage (80.93%). Natives also have the highest income although education levels are similar to Asian immigrants.

Immigrants from Latin America are the most disadvantaged group. They have the lowest rates of insurance (41.52%), lower rates of educational attainment, lower incomes and are less likely to live in states that offer Medicaid with no waiting period. Approximately half the immigrants from Latin America have poor English skills. Immigrants from Latin America are younger than natives and immigrants from other areas as well.

Immigrants from Asia have lower rates of health insurance coverage than natives (60.89%). Among immigrants, those from Asia are more likely to live in states that offer Medicaid with no waiting period. Self-employment is also higher among immigrants from Asia. Only 28.9% of Asians have poor English skills, and Asians have the highest average education.

Immigrants from other regions are least likely to live in states that offer Medicaid with no waiting period; however the immigrants from other regions have been in the US longer and have a higher rate of citizenship. They also have an education level similar to than of natives.

³See Appendix A for descriptive statistics on sub samples of those with and without health insurance at baseline.

Table 1.1: Descriptive Statistics of Immigrants

	Total	Natives	Immigrants	Asian Origin	Latin American Origin	Other Origin
Health Insurance		80.93%	57.57%	60.89%	41.52%	68.68%
Immigrant	9.21%					
% of immigrants				25.39%	33.61%	41.00%
Age	63.76	63.72	62.55	61.95	60.35	64.73
Female	54.57%	54.14%	55.33%	54.57%	53.27%	57.49%
Married	63.65%	63.38%	66.18%	75.63%	64.80%	61.45%
Education (1-7)	4.08	4.22	3.67	4.32	2.64	4.12
Income	0.3	0.41	0.1165	0.1302	0.11348	0.2108
Employed	46.47%	47.04%	47.64%	51.23%	47.37%	45.65%
Self-employed	9.48%	9.49%	9.77%	11.21%	7.75%	10.55%
State Policy			45.17%	58.60%	45.99%	36.17%
Arrival after 1996			20.20%	21.45%	21.91%	18.01%
Poor English			31.16%	28.87%	50.97%	16.33%
Duration			26.4	22.37	25.43	29.68
Citizenship			69.02%	74.39%	57.38%	75.24%

1.5.1 At first Observation

Table 2 shows the likelihood of having health insurance at first observation to establish a baseline for how individuals are sorted into having and not having health insurance. Controlling for age, Model 1 looks at the difference between natives and all immigrants, whereas Model 2 specifies region of origin among immigrants. Each additional model adds a new element, starting with the state policy variable, then immigrant specific characteristics of length and assimilation, socioeconomic variables, and then employment variables in Model 6.

Model 7 introduced interaction terms between employment and region of origin.

As expected, results from Model 1 indicate that immigrants are less likely to have health insurance. When looking at immigrants by region of origin in Model 2, immigrants from Latin America are least likely to have coverage, followed by those from Asia, and then those from other regions. The odds of having health insurance are 7 percent higher for immigrants who live in states that offer Medicaid with no waiting period supporting hypothesis 1. The other variables that relate to the PRWORA policy, arrival after 1996 and duration, are both significant:

immigrants who arrived after 1996 are less likely to have health insurance, and the longer an immigrant has been in the US, the more likely they have health insurance, supporting hypothesis 2. The odds of having insurance coverage are 3% greater for each additional year past the initial 5 years. Also as expected, the odds of having health insurance are 26% higher for immigrants who have become citizens than for non-citizens. Speaking poor English is linked to lower rates of health insurance coverage.

Model 5 adds demographic and socioeconomic variables; women and the married have higher odds of coverage. Having more education and greater income increases the odds of having health insurance. Adding these demographic and socioeconomic variables attenuates the effects of speaking poor English and having citizenship. Model 6 adds employment variables: being employed full-time triples the odds of coverage compared to those not employed or employed less than 40 hours a week, and self-employment decreases the odds of coverage compared to those that are not self-employed (-.914). Finally, Model 7 adds interaction terms for the employment variables. The interaction variables indicate that being employed full-time is more beneficial for immigrants from Latin America and Asia compared to natives supporting hypothesis 4. Similarly self-employment is more damaging for immigrants from Latin America and other regions compared to natives. All the effects hold in the final model except arriving after 1996, which becomes only marginally significant.

Table 1.2: Logistic Regression of Having Health Insurance Coverage At First Observation

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
Age	0.985***	-0.001	0.983***	-0.001	0.983***	-0.001	0.983***	-0.001	0.997**	-0.001	1.022***	-0.001	1.021***	-0.001
Foreign-born	0.312***	-0.009												
Latin American			0.156***	-0.008	0.154***	-0.007	0.156***	-0.018	0.216***	-0.029	0.169***	-0.023	0.126***	-0.021
Asian Origin			0.353***	-0.017	0.345***	-0.017	0.283***	-0.03	0.231***	-0.029	0.187***	-0.024	0.142***	-0.021
Other Origin			0.523***	-0.023	0.519***	-0.023	0.312***	-0.035	0.317***	-0.042	0.257***	-0.034	0.234***	-0.036
State Policy					1.071**	-0.024	1.079***	-0.025	1.065*	-0.027	1.070**	-0.027	1.072**	-0.027
Arrival 1996							0.806*	-0.084	0.774*	-0.092	0.802+	-0.096	0.814+	-0.102
English							0.219***	-0.013	0.373***	-0.025	0.361***	-0.025	0.354***	-0.025
Duration							1.019***	-0.003	1.022***	-0.003	1.026***	-0.003	1.029***	-0.004
Citizenship							1.460***	-0.101	1.155+	-0.092	1.220*	-0.098	1.263**	-0.105
Female									1.595***	-0.037	1.540***	-0.036	1.542***	-0.036
Married									3.917***	-0.09	3.937***	-0.092	3.939***	-0.092
Education									1.429***	-0.011	1.424***	-0.011	1.426***	-0.011
Income									1.392***	-0.011	1.251***	-0.01	1.251***	-0.01
Non-Zero Income									3.706***	-0.17	2.376***	-0.113	2.334***	-0.113
Employment											3.198***	-0.11	3.018***	-0.106
Self-employment											0.401***	-0.018	0.434***	-0.02
EmploymentLA													1.738***	-0.243
EmploymentA													1.660***	-0.254
EmploymentO													1.224	-0.171
Self-EmpRA													0.826	-0.185
Self-EmpRL													0.474**	-0.125
Self-EmpRO													0.555**	-0.11

N=76,754

Exponentiated coefficients; Standard errors in parentheses

+ p_i.10, * p_i.05, ** p_i.01, *** p_i.001

1.6 Results for Hazard Models

The frequencies of changes in health insurance status are larger for immigrants. Among all immigrants, 12% will start with health insurance and subsequently lose coverage, compared to only 10.5% of natives (see Figure 1). A greater proportion of immigrants also gain coverage (12% vs. 7.5%); however a larger number of immigrants are uninsured at baseline. Among those who are insured at baseline, 7,762 lose health insurance during the survey; among those who are uninsured at baseline, 6,347 gain coverage. On average, coverage is gained after 18 months and lost after 22 months.

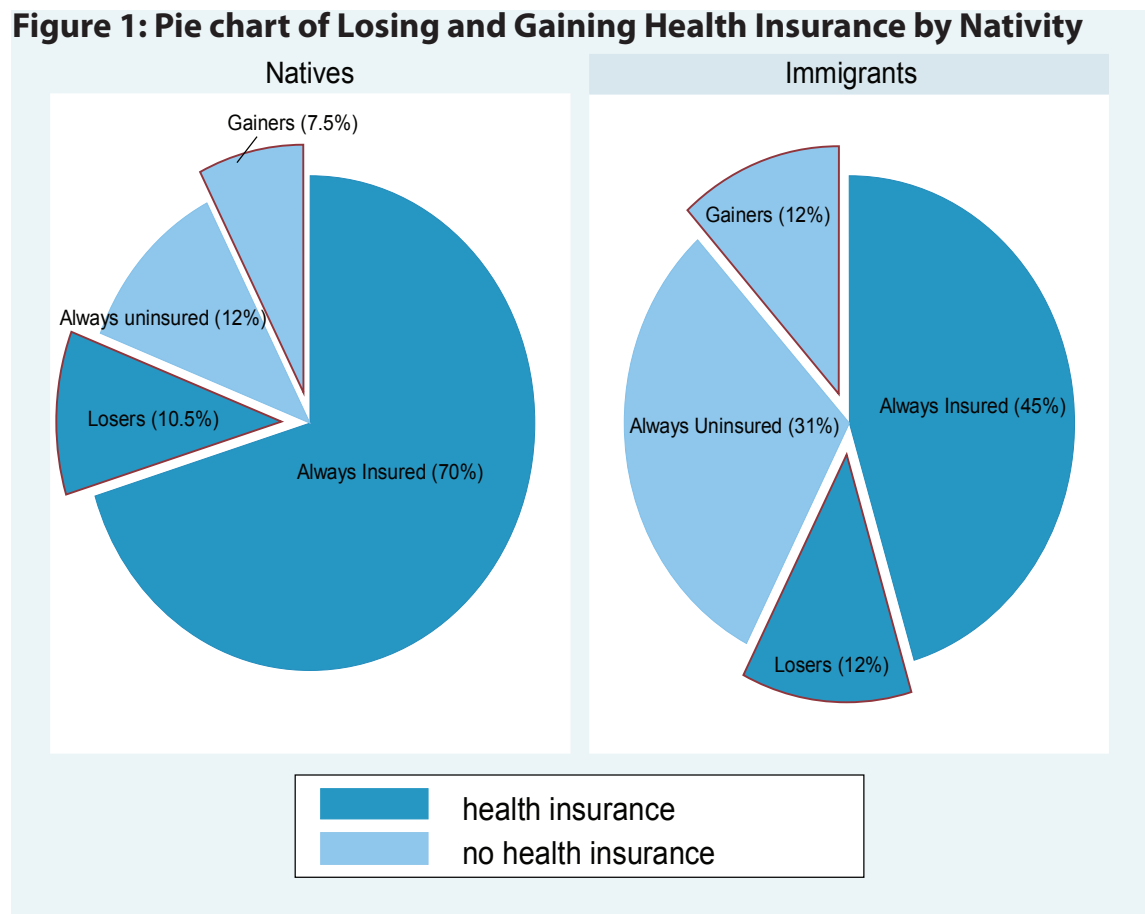


Figure 1.1: Health Insurance Gainers and Losers by Immigrant Status

Table 1.3: Table 3: Probit Model for Selection

	b	se
Age	0.010***	(0.00)
Other Origin	-0.808***	(0.05)
Latin American Origin	-1.069***	(0.05)
Asian Origin	-0.962***	(0.05)
State Policy	0.029*	(0.02)
English	-0.565***	(0.04)
Duration	0.018***	(0.00)
Female	0.225***	(0.01)
Married	0.680***	(0.01)
Education	0.190***	(0.00)
Income	0.089***	(0.01)
Non-Zero Income	0.335***	(0.03)
Poverty	-0.663***	(0.02)
Employment	0.596***	(0.02)
Self-Employment	-0.442***	(0.02)
Constant	-0.974***	(0.04)

N=76,754

Standard errors in parentheses

* p<.05, ** p<.01, *** p<.001

1.6.1 Gainers

To assess how health insurance coverage changes over time, hazard models of gaining health insurance coverage are estimated. Respondents who had health insurance at baseline are followed across the full observation period and are removed from the risk set as they gain coverage or attrite. All models include a specification of the underlying hazard function using dummy variables, making the time specification as general as possible and allowing the hazard to differ across survey periods. I then add sets of predictors that may influence the timing of transitions from not having to having health insurance. The complete model includes many of the same predictors used in the model for health insurance at first observation, which is used as the basis for the sample selection adjustment; however, both models also include unique predictors (see Table 3).⁴

Table 4 shows how the acquisition of health insurance among the uninsured is

⁴See Appendix B for models without sample selection adjustment.

structured. Model 1 includes three different time scales that are relevant to how this process unfolds. The first is the underlying hazard which indicates that the rate of acquisition is higher in 4 months after baseline. The second time scale, the year variable, adjusts for the stacking of the three SIPP cohorts, and indicates that transitions into insured status increases across calendar year (i.e., not only by time in survey, but by calendar time). The third time scale, age and a dummy variable for age 65 and older are also included. Since age 65 signals first eligibility for the major federal health insurance program for the elderly, I include it to estimate the magnitude of the regression discontinuity for those transitioning into Medicare eligibility. Models 1 and 2 differ in how immigrant status is specified: Model 1 treats immigrants as a homogeneous group; Model 2 disaggregates by region of origin. These and all subsequent models are corrected for the sample selection bias that may be introduced by beginning with the sample of uninsured.

Table 1.4: Table 4: Discrete-Time Hazard Model of Gaining Health Insurance

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
d2	23.944***	(3.07)	23.954***	(3.07)	23.999***	(3.08)	23.975***	(3.07)	24.184***	(3.11)	24.282***	(3.13)	24.264***	(3.12)
d3	13.547***	(1.77)	13.557***	(1.77)	13.582***	(1.78)	13.632***	(1.78)	13.979***	(1.84)	14.002***	(1.84)	14.006***	(1.84)
d4	8.597***	(1.15)	8.604***	(1.15)	8.624***	(1.15)	8.662***	(1.16)	8.931***	(1.20)	8.949***	(1.20)	8.956***	(1.20)
d5	14.116***	(1.83)	14.124***	(1.84)	14.158***	(1.84)	14.243***	(1.85)	14.574***	(1.90)	14.507***	(1.90)	14.483***	(1.89)
d6	9.990***	(1.33)	9.989***	(1.33)	10.024***	(1.33)	10.116***	(1.34)	10.505***	(1.40)	10.454***	(1.40)	10.461***	(1.40)
d7	10.720***	(1.42)	10.720***	(1.42)	10.762***	(1.43)	10.860***	(1.44)	11.144***	(1.49)	11.123***	(1.49)	11.128***	(1.49)
d8	9.913***	(1.36)	9.905***	(1.36)	9.955***	(1.36)	10.060***	(1.38)	10.265***	(1.41)	10.152***	(1.40)	10.160***	(1.40)
d9	11.473***	(1.67)	11.469***	(1.67)	11.547***	(1.68)	11.739***	(1.71)	12.131***	(1.79)	11.966***	(1.76)	11.958***	(1.75)
d10	11.236***	(1.51)	11.233***	(1.51)	11.307***	(1.53)	11.502***	(1.56)	11.870***	(1.62)	11.712***	(1.60)	11.748***	(1.60)
Year	1.015*	(0.01)	1.015*	(0.01)	1.015*	(0.01)	1.012+	(0.01)	1	(0.01)	1	(0.01)	1	(0.01)
Age	1.010**	(0.00)	1.011***	(0.00)	1.010**	(0.00)	1.011***	(0.00)	1.015***	(0.00)	1.021***	(0.00)	1.021***	(0.00)
Age65	1.392***	(0.10)	1.389***	(0.10)	1.403***	(0.10)	1.406***	(0.10)	1.357***	(0.09)	1.409***	(0.10)	1.427***	(0.10)
Foreign-born	1.117+	(0.07)												
Lambda	0.294***	(0.02)	0.289***	(0.02)	0.291***	(0.02)	0.283***	(0.02)	0.699**	(0.09)	1.07	(0.15)	1.137	(0.16)
Latin American			1.239*	(0.13)	1.174	(0.12)	1.518+	(0.37)	0.886	(0.23)	0.623+	(0.16)	0.436**	(0.12)
Asian			1.106	(0.10)	1.006	(0.09)	1.206	(0.22)	0.747	(0.15)	0.553**	(0.11)	0.422**	(0.09)
Other Origin			1.026	(0.10)	0.993	(0.10)	1.253	(0.25)	0.818	(0.17)	0.623*	(0.14)	0.509**	(0.12)
State Policy					1.205***	(0.06)	1.213***	(0.06)	1.202***	(0.06)	1.221***	(0.06)	1.226***	(0.06)
Arrival							1.350+	(0.24)	1.309	(0.24)	1.297	(0.23)	1.324	(0.24)
Citizenship							0.856	(0.12)	0.923	(0.14)	0.988	(0.15)	1.044	(0.16)
English							0.888	(0.10)	0.690**	(0.08)	0.568***	(0.07)	0.564***	(0.07)
Duration							0.995	(0.01)	1.002	(0.01)	1.008	(0.01)	1.011	(0.01)
Female									1.116*	(0.05)	1.148**	(0.05)	1.156***	(0.05)
Married									1.453***	(0.09)	1.676***	(0.11)	1.707***	(0.11)
Education									1.116***	(0.02)	1.162***	(0.02)	1.170***	(0.02)
Income									1.398***	(0.05)	1.360***	(0.04)	1.359***	(0.04)
Non-zero Income									1.376***	(0.12)	1.328**	(0.12)	1.294**	(0.11)
Employment											1.591***	(0.11)	1.510***	(0.11)
Self-Employment											0.622***	(0.05)	0.640***	(0.06)
EmploymentLA													1.864***	(0.33)
EmploymentA													1.650*	(0.36)
EmploymentO													1.098	(0.24)
Self-EmpRA													0.796	(0.25)
Self-EmpRL													0.578+	(0.19)
Self-EmpRO													1.214	(0.34)

N=17,215

Exponentiated coefficients; Standard errors in parentheses

+ p_i.10, * p_i.05, ** p_i.01, *** p_i.001

Whereas each additional year of age increases the relative risk ratio of acquiring health insurance by 1%, reaching age 65 increases the relative risk ratio of acquiring health insurance by 39%. These effects are consistent across the first two models, as is the sample selection parameter estimate. However, whereas the dummy variable for immigrant status is only significant in a one-tailed test in Model 1, when immigrants are disaggregated by region of origin, it appears that immigrants from Latin America acquire health insurance at the fastest rate, with odds 24% greater than that of natives, the opposite of the hypothesized direction.

Model 3 further disaggregates immigrants by state of current residence and suggests that immigrants from all regions who live in states that provide Medicaid with no waiting period have 21% higher odds of securing health insurance than immigrants living in states that do not offer these supplementary programs, supporting hypothesis 1. This difference in the policy environment of states supersedes the differences among country of origin, which suggests that immigrants from Latin America are more likely to live in states with favorable policies.

In Model 4, I specify additional temporal differences among immigrants, i.e., how long they've been in the US and whether they arrived after 1996, as well as two measures of cultural adaptation (i.e., facility with English and citizenship status). Once controlling for these differences, the effect of calendar year weakens and the difference between immigrants from Latin America and natives strengthens (though still significant in only a one-tailed test). The effect of state policy is stable. Only the dummy variable for whether they arrived pre- or post- 1996 is near significance among the temporal and cultural adaptation variables, partially supporting the third hypothesis.

Model 5 adds the socioeconomic variables gender, marital status, education, and income. Being female, married, more educated, and higher income all increase the relative risk ratio of acquiring health insurance. Once these factors are controlled for in the model, year of arrival becomes insignificant; however not speaking English well becomes significant, reducing the odds of gaining health insurance by 30%.

Once employment and self employment are added in Model 6, the selection effect of lambda becomes non-significant. Employment and self-employment appear to have a suppression effect on regional differences among immigrants. Reversing

the direction of the effect of being from Latin America in Model 2, all immigrant groups have lower odds of gaining health insurance than natives, which still does not support the hypothesis since Asians are actually the most disadvantaged for gaining health insurance. The effect of policy environment, English ability, and socioeconomic variables are all stable. Being employed in full time employment as opposed to no employment or less than full-time employment increases the relative risk ratio of gaining health insurance by 59% whereas self-employment decrease the relative risk ratio by 38% compared to wage and salaried workers. Immigrants from Asia and Latin America are younger on average than natives and more likely to be engaged in full time employment, which may factor into the suppression effect in Model 6. To further explore the relationship, interaction terms are added in Model 7. Being employed full-time versus no employment or less than full time employment is more predictive of gaining health insurance for immigrants from Latin America and Asia compared to natives, supporting the fourth hypothesis.

1.6.2 Losers

Hazard models of losing health insurance are estimated to evaluate how health insurance changes overtime. Insured respondents at baseline are followed across the full observation period and removed from the risk set if they gain coverage or if they attrite. All models include a specification of the underlying hazard function and then add sets of predictors that may influence the timing of transitions from not having to having health insurance. The process of losing health insurance over time is estimated in Table 5. These models also include three different time scales, the underlying hazard measured with the dummies for each wave allowing the hazard to vary freely from wave to wave, the year variable as calendar year, and age as biographical time. The odds of losing health insurance decrease over the length of the survey but increase across the calendar year. Age is included only as a continuous variable, indicating that for each year increase in age the odds of losing health insurance increase by 2%. Immigrants are more likely to lose health insurance, particularly those from Asia and other regions compared to natives.

Table 1.5: Table 5: Discrete-Time Hazard Model of Losing Health Insurance

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
d2	11.472***	(1.07)	11.472***	(1.07)	11.471***	(1.07)	11.460***	(1.07)	11.589***	(1.08)	11.442***	(1.06)	11.454***	(1.07)
d3	8.664***	(0.82)	8.664***	(0.82)	8.662***	(0.82)	8.666***	(0.82)	8.744***	(0.83)	8.596***	(0.81)	8.603***	(0.81)
d4	6.566***	(0.63)	6.566***	(0.63)	6.565***	(0.63)	6.572***	(0.63)	6.616***	(0.64)	6.490***	(0.62)	6.495***	(0.63)
d5	7.289***	(0.71)	7.290***	(0.71)	7.288***	(0.71)	7.298***	(0.71)	7.370***	(0.72)	7.188***	(0.70)	7.195***	(0.70)
d6	5.581***	(0.55)	5.582***	(0.55)	5.581***	(0.55)	5.597***	(0.56)	5.628***	(0.56)	5.485***	(0.54)	5.490***	(0.55)
d7	5.556***	(0.55)	5.556***	(0.55)	5.555***	(0.55)	5.572***	(0.55)	5.564***	(0.55)	5.405***	(0.54)	5.408***	(0.54)
d8	5.066***	(0.52)	5.067***	(0.52)	5.065***	(0.52)	5.083***	(0.52)	5.058***	(0.52)	4.865***	(0.50)	4.865***	(0.50)
d9	3.951***	(0.48)	3.951***	(0.48)	3.950***	(0.48)	3.977***	(0.49)	3.947***	(0.48)	3.762***	(0.46)	3.760***	(0.46)
d10	4.020***	(0.45)	4.020***	(0.45)	4.019***	(0.45)	4.047***	(0.46)	3.982***	(0.45)	3.848***	(0.43)	3.844***	(0.43)
Year	1.063***	(0.01)	1.063***	(0.01)	1.063***	(0.01)	1.061***	(0.01)	1.065***	(0.01)	1.065***	(0.01)	1.065***	(0.01)
Age	1.023***	(0.00)	1.022***	(0.00)	1.023***	(0.00)	1.022***	(0.00)	1.025***	(0.00)	1	(0.00)	1	(0.00)
Foreign-born	1.156**	(0.06)												
Lambda	6.128***	(0.35)	6.172***	(0.37)	6.163***	(0.37)	6.556***	(0.40)	0.976	(0.11)	0.358***	(0.05)	0.343***	(0.04)
Latin American			1.088	(0.12)	1.097	(0.12)	1.21	(0.26)	2.835***	(0.58)	5.986***	(1.21)	7.708***	(1.85)
Asian			1.245*	(0.13)	1.258*	(0.13)	1.219	(0.24)	2.709***	(0.52)	5.270***	(1.01)	7.175***	(1.61)
Other Origin			1.148*	(0.08)	1.152*	(0.08)	1.181	(0.23)	2.302***	(0.43)	4.229***	(0.77)	4.892***	(1.02)
State Policy					0.964	(0.03)	0.965	(0.03)	0.941+	(0.03)	0.933*	(0.03)	0.933*	(0.03)
Arrival							0.9	(0.18)	0.925	(0.17)	0.868	(0.16)	0.831	(0.16)
Citizenship							1.487**	(0.20)	1.270+	(0.16)	1.096	(0.13)	1.08	(0.13)
English							0.805+	(0.10)	1.623***	(0.20)	2.617***	(0.32)	2.693***	(0.33)
Duration							0.991+	(0.01)	0.980***	(0.01)	0.969***	(0.01)	0.966***	(0.01)
Female									0.667***	(0.02)	0.621***	(0.02)	0.618***	(0.02)
Married									0.447***	(0.02)	0.328***	(0.02)	0.324***	(0.02)
Education									0.844***	(0.01)	0.779***	(0.01)	0.775***	(0.01)
Income									0.785***	(0.01)	0.822***	(0.01)	0.823***	(0.01)
Non-zero Income									0.257***	(0.02)	0.325***	(0.02)	0.330***	(0.02)
Employment											0.328***	(0.02)	0.344***	(0.02)
Self-Employment											1.734***	(0.11)	1.640***	(0.11)
EmploymentLA													0.644*	(0.12)
EmploymentA													0.496**	(0.11)
EmploymentO													0.82	(0.13)
Self-EmpRA													1.561	(0.45)
Self-EmpRL													2.043*	(0.62)
Self-EmpRO													1.389	(0.34)

N=59,539

Exponentiated coefficients; Standard errors in parentheses

+ p<.10, * p<.05, ** p<.01, *** p<.001

Model 3 adds the control for the policy environment of states, which does not have an effect on losing health insurance. This finding does not support the first hypothesis. All other effects are stable. Model 4 introduced temporal differences among immigrants and measures cultural adaptation. When including these variables the differences by region of origin are eliminated even though only citizenship is significant, with English and duration being significant in a one-tailed test. This model does not support the third hypothesis.

Model 5 adds common socioeconomic controls: gender, marital status, education, and income. Women and married respondents are less likely to lose health insurance. Similarly, being more educated and earning a higher and non-zero income also increase the odds of retaining health insurance. The addition of these controls increases the effect of state policy and region of origin such that Latino, Asian, and other immigrants have at least double the odds of natives of losing health insurance during the period of observation. Model 5 supports both hypothesis one and two. The effect of citizenship also weakens, while the effects of speaking poor English and duration strengthen. Speaking poor English increases the odds of losing health insurance by 62%. The selection effect, λ , also weakens to non-significance in this model.

Employment and self-employment are added in Model 6. Being employed full-time reduces the relative risk ratio of dropping out of coverage by 67% compared to those not employed or only employed part-time and self-employment has the opposite effect of increasing the relative risk ratio of dropping coverage by 73%. Once controlling for employment, the effect of region of origin dramatically increases to about double the effect size for immigrants from Asia, Latin America, and Other regions. Immigrants are more likely to lose health insurance than natives, with immigrants from Latin America being the most disadvantaged. The effect of residing in a more generous state increases, becoming statistically significant only once employment variables are added to the model. Model 6 shows that living in a generous state decreases the odds of losing health insurance by 7%. Age has no effect once employment is controlled in the model.

Interaction terms between region of origin and employment are added in Model 7 to test for differential effects of these variables on losing health insurance. Employment is more protective against losing health insurance for immigrants from

Latin America and Asia compared to natives, while self-employment is more harmful for immigrants from Latin America compared to natives. Model 7 supports the fourth hypothesis that employment matters more for immigrants than natives.

1.7 Discussion

Overall results support the hypothesis that state policy matters for health insurance coverage, losing coverage, and gaining coverage. This effect is most evident for gaining health insurance and has a small impact on initial coverage and losing health insurance. Given the policy has been in place for over 15 years, its impact on losing health insurance, is not surprisingly small. However, I expected state policy to have more of an impact on the initial sorting into having health insurance or being uninsured.

There are mixed results for the second hypothesis, that immigrants from Latin America would be the most disadvantaged. Immigrants from Latin America are least likely to have coverage initially and more likely to lose coverage, however immigrants from Asia least likely to gain health insurance. Immigrants from Asia are more highly educated on average, which may lead to better jobs that are more likely to offer health insurance to their employees. Whereas immigrants from Latin America are typically low skill migrants who have limited opportunities. These global stratifications persist for migrants in the United States. Understanding why Asians are at a greater disadvantage for gaining health insurance needs further exploration.

I found limited support for the third hypothesis that year of arrival matters. It is marginally significant for having health insurance at first observation, but has no effect on gaining or losing health insurance. Other related policy variables, citizenship and duration, both matter for having health insurance initially, with citizenship and having resided in the US longer increasing the probability of health insurance coverage. Having lived in the US longer is also protective against losing health insurance coverage.

Public policy does exacerbate the inequality in health insurance coverage between natives and immigrants on many dimensions. The aim of many public health insurance programs is to provide coverage to those who do not have access to other

means of coverage, and in this regard these programs fail to adequately include immigrants. At older ages, the shift from private to public health insurance is well established as an aspect of the retirement process; yet many older immigrants are simply left uninsured. Public health insurance only represents one piece of the health insurance story; private health insurance is the other source of insurance in the US.

Employment, as one of the key mechanisms of private health insurance coverage is crucial in sorting people into those who have health insurance, gain health insurance, and lose health insurance. Employment is more instrumental in health insurance coverage for immigrants from Latin America and Asia; these immigrants are younger and slightly more likely to be employed than natives. Employment may also play a larger role for immigrants than natives because of the limited opportunities for government coverage due to eligibility restrictions. As immigrants age, their vulnerability can be exacerbated, because once they retire, they may be left uninsured. In fact, as respondents age, they are more likely both to lose and gain health insurance, indicating that aging may represent a more volatile time in general for health insurance coverage.

1.8 Limitations

There are some limitations, losing and gaining health insurance is only the first observed transition and must occur within a relatively small window of time of 3-4 years. Furthermore, the data is on self reported monthly health insurance coverage. We are unable to identify which non-citizen immigrants are undocumented, which has major implications for eligibility and health insurance coverage. Another limitation of this study is that, while the different state policies are known, enrollment and outreach is unknown and may influence participation in public programs.

Appendix **A**

Supplementary Tables

Table A.1: Descriptive Statistics by Nativity for Uninsured

	Total	Natives	Immigrants	Asian Origin	Latin American Origin	Other Origin
Immigrant	21.62%					
% of immigrants				23.15%	47.65%	29.20%
Age	64.97	65	64.85	66.61	62.46	67.35
Female	56.88%	56.92%	56.75%	54.35%	56.70%	58.72%
Married	40.68%	36.43%	56.08%	64.62%	57.03%	47.75%
Education (1-7)	3.19	3.29%	2.80%	3.28%	2.19%	3.40%
Income (natural log)	-0.17	-0.13	-28.00%	-0.34	-0.29	-0.23
Employed	26.01%	25.53%	27.75%	23.14%	31.11%	25.92%
Self-employed	8.79%	8.85%	8.59%	7.40%	8.09%	10.34%
State Policy			49.72%	70.69%	46.46%	38.39%
Arrival after 1996			22.41%	28.40%	20.16%	21.31%
Poor English			55.70%	55.59%	64.49%	41.45%
Duration			22.94	16.69	24.88	24.73
Citizenship			55.63%	61.16%	46.97%	65.37%

Table A.2: Descriptive Statistics by Nativity for Insured

	Total	Natives	Immigrants	Asian Origin	Latin American Origin	Other Origin
Immigrant	6.97%					
% of immigrants				26.92%	23.27%	49.81%
Age	64.17	64.31	62.34	60.16	59.57	64.81
Female	53.70%	53.68%	53.99%	53.57%	49.05%	56.53%
Married	69.41%	69.15%	72.97%	81.53%	71.29%	69.13%
Education (1-7)	4.46	4.46	4.38	5.01%	3.36%	4.51%
Income (natural log)	0.55	0.56	0.45	0.5	0.39	45.00%
Employed	51.14%	50.61%	58.18%	66.00%	64.62%	50.94.00%
Self-employed	9.73%	9.75%	9.44%	12.03%	6.45%	9.43%
State Policy			41.72%	51.40%	45.99%	34.49%
Arrival after 1996			9.66%	10.74%	9.62%	9.11%
Poor English			15.06%	12.98%	35.06%	6.84%
Duration			31.38	26.59	31.05	34.13
Citizenship			78.21%	82.03%	72.46%	78.82%

Appendix **B**

More Supplementary Tables

Table B.1: Discrete-Time Hazard Model of Gaining Health Insurance Without Selection

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
d2	3.164***	(0.13)	3.163***	(0.13)	3.165***	(0.13)	3.165***	(0.13)	3.183***	(0.13)	3.190***	(0.13)	3.190***	(0.13)
d3	2.561***	(0.13)	2.562***	(0.13)	2.564***	(0.13)	2.571***	(0.13)	2.633***	(0.13)	2.640***	(0.13)	2.641***	(0.13)
d4	2.102***	(0.13)	2.102***	(0.13)	2.105***	(0.13)	2.113***	(0.13)	2.184***	(0.13)	2.193***	(0.13)	2.194***	(0.13)
d5	2.587***	(0.13)	2.588***	(0.13)	2.591***	(0.13)	2.603***	(0.13)	2.671***	(0.13)	2.676***	(0.13)	2.676***	(0.13)
d6	2.225***	(0.13)	2.227***	(0.13)	2.231***	(0.13)	2.248***	(0.13)	2.343***	(0.13)	2.349***	(0.13)	2.351***	(0.13)
d7	2.288***	(0.13)	2.290***	(0.13)	2.295***	(0.13)	2.311***	(0.13)	2.402***	(0.13)	2.411***	(0.13)	2.413***	(0.13)
d8	2.219***	(0.14)	2.221***	(0.14)	2.227***	(0.14)	2.243***	(0.14)	2.319***	(0.14)	2.320***	(0.14)	2.323***	(0.14)
d9	2.356***	(0.14)	2.357***	(0.14)	2.366***	(0.14)	2.387***	(0.15)	2.485***	(0.15)	2.484***	(0.15)	2.486***	(0.15)
d10	2.334***	(0.13)	2.335***	(0.13)	2.343***	(0.13)	2.370***	(0.13)	2.464***	(0.14)	2.463***	(0.14)	2.468***	(0.14)
Year	0.025***	(0.01)	0.024***	(0.01)	0.024***	(0.01)	0.021**	(0.01)	-0.001	(0.01)	0	(0.01)	0	(0.01)
Age	0.008**	(0.00)	0.008*	(0.00)	0.008*	(0.00)	0.008**	(0.00)	0.016***	(0.00)	0.021***	(0.00)	0.020***	(0.00)
Age65	0.409***	(0.07)	0.409***	(0.07)	0.418***	(0.07)	0.419***	(0.07)	0.308***	(0.07)	0.341***	(0.07)	0.352***	(0.07)
Immigrant	-0.451***	(0.06)												
Latin American			-0.564***	(0.09)	-0.618***	(0.09)	-0.398	(0.24)	-0.354	(0.24)	-0.425+	(0.23)	-0.732**	(0.24)
Asian			-0.474***	(0.08)	-0.579***	(0.09)	-0.398*	(0.18)	-0.497**	(0.18)	-0.552**	(0.18)	-0.777***	(0.19)
Other Origin			-0.286**	(0.10)	-0.321***	(0.10)	-0.271	(0.20)	-0.375+	(0.20)	-0.438*	(0.20)	-0.605**	(0.22)
State Policy					0.214***	(0.05)	0.223***	(0.05)	0.189***	(0.05)	0.198***	(0.05)	0.201***	(0.05)
Arrival							0.298	(0.18)	0.266	(0.18)	0.261	(0.18)	0.283	(0.18)
Citizenship							-0.006	(0.14)	-0.049	(0.15)	-0.019	(0.15)	0.029	(0.15)
English							-0.748***	(0.11)	-0.517***	(0.11)	-0.538***	(0.11)	-0.521***	(0.11)
Duration							0.005	(0.01)	0.006	(0.01)	0.007	(0.01)	0.01	(0.01)
Female									0.149***	(0.04)	0.131**	(0.04)	0.132**	(0.04)
Married									0.504***	(0.04)	0.492***	(0.04)	0.489***	(0.04)
Education									0.144***	(0.01)	0.144***	(0.01)	0.145***	(0.01)
Income									0.357***	(0.03)	0.305***	(0.03)	0.303***	(0.03)
Non-zero Income									0.403***	(0.08)	0.271***	(0.08)	0.236**	(0.08)
Employment											0.449***	(0.05)	0.386***	(0.06)
Self-Employment											-0.463***	(0.08)	-0.426***	(0.09)
EmploymentLA													0.605***	(0.18)
EmploymentA													0.477*	(0.22)
EmploymentO													0.089	(0.22)
Self-EmpRA													-0.215	(0.31)
Self-EmpRL													-0.544+	(0.32)
Self-EmpRO													0.193	(0.28)
Constant	-54.330***	-13.003	-53.842***	-13.002	-53.707***	-13.007	-48.031***	-13.144	-5.275	-13.622	-6.397	-13.66	-6.306	-13.638
N=82,350														

Exponentiated coefficients; Standard errors in parentheses

+ p_i.10, * p_i.05, ** p_i.01, *** p_i.001

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