Stony Brook University

A Reconsideration of Labor Supply of Immigrants and Social Welfare Programs

A Dissertation presented

by

Yi Zhang

to

The Graduate School

in Partial Fulfillment of the

Requirements

for the Degree of

Doctor of Philosophy

in

Economics

Stony Brook University

August 2014

Stony Brook University

The Graduate School

Yi Zhang

We, the dissertation committee for the above candidate for the

Doctor of Philosophy degree, hereby recommend

acceptance of this dissertation

Hugo A. Benítez-Silva
Dissertation Advisor
Associate Professor, Department of Economics

Sílvio Rendon
Chairperson of Defense
Assistant Professor, Department of Economics

Warren C. Sanderson
Professor, Department of Economics

Susan Elizabeth Chen
Assistant Professor, Department of Economics
University of Alabama

This dissertation is accepted by the Graduate School

Charles Taber
Dean of the Graduate School

Abstract of the Dissertation

A Reconsideration of Labor Supply of Immigrants and Social Welfare Programs

by

Yi Zhang

Doctor of Philosophy

in

Economics

Stony Brook University

2014

This dissertation contributes to the discussion of the labor market performance of immigrants and their economic assimilation in terms of welfare program participation.

The composition of immigrant labor force in U.S. has been fluctuating dramatically. In 1980, for example, the immigrant share of persons aged 50–74 was 8.9% but in 2000, more than 14.5% of this older population group were from foreign countries. Then in 2010, this proportion dropped to around 13.2%. Part of this variation is due to the aging of previous immigrants residing in U.S. but many recent inflows also include a surprisingly high proportion of people in their late 50s or even older. In the meantime since the elimination of origin-quota in immigration laws in 1965, the source countries with the major inflows of immigrants have shifted from predominantly European countries to non-European origins. Since the 1980's, more than 85% of the immigrants admitted to the US have come from Asian and Latin American countries with Mexico, Philippines, China, and India consistently sending the most number of immigrants. The variations in the general demographic characteristics of recent immigrants have an in-depth impact on the labor market experience of the recent arrival cohorts. Thus in the empirical analysis I focus on the labor force participation of recent elderly entrants and the welfare participation behaviors of immigrants from both Hispanic and Asian origins and especially the countries like Mexico, Cuba, China and Philippines.

This dissertation includes two chapters. In the first chapter, using the 1980–2000 Census and 2010 American Community Survey data I examine the labor supply decisions of recent immigrant cohorts near retirement ages. The analysis extends the double-cohort method to reveal that there are cohort effects not only in the rate of labor market assimilation, with elderly newcomers working harder approaching retirement ages than those who entered as young workers, but also in the entry labor market participation, with post-1990 arrivals showing less incentive to contribute to the pay-as-you-go system. Our empirical analysis also shows that the ten-year working requirement rule can explain the kink on older entrants' employment profiles: before reaching the required 40 quarters the elderly exert efforts in labor market participation, and they choose to drop out of the

labor market immediately after they become eligible to claim the Social Security Old Age benefits. The immigrants who entered in their prime ages pursue a slightly higher but same smoothly declining employment profile approaching retirement ages as their native counterparts do. Furthermore the inclusion of the ownership of residence accounts for more than one third of the decline in the entry level of labor force participation for the post-1990 arrivals.

In the second chapter, I use the 2000 U.S. Census and the 2010 American Community Survey extracted from the Integrated Public Use Microdata Series (IPUMS) to study the economic assimilation of recent immigrants in terms of welfare participation. By adding the interaction between duration of stay and specific arrival cohort indicator, we generalize the traditional Age, Period and Cohort method to allow for the cohort difference not only in the entry level but also in the growth rate in economic assimilation. Estimations are carried out on female and male household heads separately. The welfare participation in Social Security, Supplemental Security Income(SSI) and The Aid to Families with Dependent Children Program (AFDC)/Temporary Assistance for Needy Families(TANF) programs are analyzed exclusively. Four major source countries of recent arrivals studied are Mexico, Cuba, China and Philippines. The major findings of this study are: first, consistent with previous studies, once observable characteristics are controlled for, many groups of immigrants have a comparable or lower propensity to participate in welfare programs than natives with one exception of the elderly female Mexican household heads migrated before 1980s. Second, the Cuban immigrants exceed other source countries in terms of the pace to assimilate out of welfare programs. The longer a Cuban headed household stays in the U.S., the less likely for the whole household to participate in any type of social assistance programs. This trend is statistically significant for both male and female Cuban household heads. Third, The Aid to Families with Dependent Children Program (AFDC)/Temporary Assistance for Needy Families (TANF) works better than Supplemental Security Income (SSI) program in terms of promoting self sufficiency. Immigrants from all four source countries are more likely to assimilate out of AFDC/TANF programs than out of SSI(with an exception of the Mexican female heads migrated before 1980). A number of new immigration legislations and welfare program implementations have been proposed to promote the self sufficiency of immigrants in the new era.

To My Loving Family

Contents

List of Tables

List of Figures

Chapter 1

Labor Supply of Immigrants near Retirement Age and Social Security Old Age Program Eligibility Rules

1.1 Introduction

The composition of immigrant labor force in U.S. has been fluctuating dramatically. In 1980, for example, the immigrant share of persons aged 50–74 was 8.9% but in 2000, more than 14.5% of this older population group were from foreign countries. Then in 2010, this proportion dropped to around 13.2%. Part of this variation is due to the aging of previous immigrants residing in U.S. but many recent inflows also include a surprisingly high proportion of people in their late 50s or even older.

In this paper, we analyze the difference in labor supply decisions of immigrants based on their age-at-entry and duration of stay, and examine how the retirement options vary with respect to different demographic and socio-economic characteristics of immigrants and natives. The findings suggest that first, immigrants who entered when they were young ($<$ 34 years old) get the chance to assimilate and pursue similar labor market patterns as their native counterparts after controlling for family structure, educational attainment, language abilities and other socio-demographic features. Second, the older incomers in prior 1980 arrivals who entered in their late 50s choose to work more passing retirement age before they suddenly drop out of the labor force, i.e., there is a kink on their employment profiles. Before that point, these elderly immigrants tend to maintain a higher participation rate than natives in the labor market. After that point, immigrants' employment rate declined much faster. The two profiles then converge around age 70. Third, recent older immigrants who entered after 1990 exhibit less incentive in working near their retirement ages.

The possible explanation for the older immigrants to postpone their retirement is the eligibility requirement for Social Security Old Age benefits. These cohorts who entered in their late 50s have not stayed long enough in United States therefore have not attained the 40 quarters working history to qualify for these benefits even if he or she has reached the retirement ages. And due to the lack of international agreements on Social Security with many countries, most of these immigrants cannot transfer their working history from their home countries to the U.S. system. This ten-year rule will not affect the retirement decisions of natives nor the immigrants who entered as kids,

since they have contributed the required credits to the system long before they reach their 60s. Put differently, the possibility of becoming eligible to Social Security Old Age benefits lures the elderly newcomers into the labor market, and once they achieve the entitlement to these welfare benefits, they quit working. In the mean time, other sources of wealth can compete with this incentive, i.e., wealthier newly arrived older immigrants find the Social Security benefits less appealing and choose to stay out of the labor market even during the first ten years of their stay.

The empirical analysis uses the 1980–2000 U.S. Census and the 2010 American Community Survey extracted from the Integrated Public Use Microdata Series (IPUMS). The *double-cohort* method has been extended to disentangle the aging, period and cohort effects in immigrant assimilation, program participation and retirement timing. We find that there are cohort effects not only in the rate of labor market assimilation, with elderly newcomers work harder approaching retirement ages than their fellows who entered as young workers, but also cohort effects in the entry labor market participation, with recent arrivals contributing less to the pay-as-you-go system. We also show that the variation in the labor market participation trends of recent elderly newcomers can be jointly explained with the ten-year working rule and personal wealth levels. The rest of this paper proceeds in the following way. Section two introduces the alternative approaches of modeling labor supply of immigrants in the previous literature. Section three presents the data characteristics and the empirical evidence on aging, period and cohort effects. Section four introduces the *double-cohort* method and report sensitivity and robustness testings of the estimations. Section five constructs a theoretical labor-leisure model to include the expected Social Security benefits to explain the household head's labor supply decision. Section six extends the *double-cohort* regression model and discusses the determinants of the cohort effect in elderly newcomers' labor market participation. Section seven compares the *double-cohort* method with a traditional *Duration Model* and tests the estimations with different sample selections regarding immigrant status, the gender of the household head, educational attainments, and country of origin. Section eight concludes with policy implications.

1.2 Alternative Approaches of Modeling Labor Supply of Immigrants

1.2.1 Reduced Form Models

Although some early studies examined how both earnings and labor force participation adjust over the immigrant's life cycle (see Carliner (1980)), almost all the subsequent literature focuses on the economic assimilation (evolution of wages and earnings) of immigrants.[1] And among those limited studies on immigrant labor supply, most of them discussed the female labor supply decision (see Duleep and Sanders (1993) Chiswick and Miller (2008) Bredtmann and Otten (2013)). Only recently did some labor economists start to reconsider the labor market and welfare program participation of immigrant population (see Kaushal (2008)).

There is no canonical empirical analysis of the determinants of labor supply of immigrants. Previous studies have controlled for general demographic or economic characteristics and focus on the impact of unobservables captured by a specific variable representing foreign birth. Each of

[1] See Chiswick (1978), LaLonde and Topel (1990), Singh and Kposowa (1996)

them can have distinct setup for the empirical model, however the simplest version of the reduced form model by Chiswick (1978) is:

$$P_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Y_i + \alpha_3 Z_i + \varepsilon_i \tag{1.1}$$

where P_i is the labor market outcome of person i in the host country; X_i is a vector of socioeconomic characteristics, which often includes education and age (or working experience); Y_i is an dummy variable indicating person i's immigrant status; Z_i gives the number of years that the immigrant has resided in the host country and is set to zero if i is a native. In this benchmark setting aging effect and period effect are assumed to be the same and controlled for both immigrants and natives, thus the coefficient α_3 measures the economic assimilation of an immigrant in the host country's labor market.

It was initially the decision to work based on the cross-sectional regression model proposed by Duleep and Sanders (1993), where P_i was whether a woman worked at least one week in 1979. Using 1980 Census data, the authors analyze the labor force participation of married immigrant Asian women by country of origin, compared with that of married immigrants from Europe and Canada. Several extensions have been made to the benchmark model in the past four decades. The dependent variable can be different specifications of labor market outcome for a immigrant in the host country. In Baker and Benjamin (1997), the conventional price explanation (i.e. immigrants' wage assimilation can account for corresponding assimilation in their employment) was replaced with a family investment model, where the joint decision of family labor supply was made given both husband and wife's characteristics. Lopez and Lozano (2009) extended the original dependent variable to three different specifications: the 1990-2000 change in the gender Labor Force Participation Rate (LFPR) gap, gender employment gap, and gender hours of work gap.

The explanatory variables in the basic reduced form model can be divided into those affecting an immigrant's reservation wage and those affecting his or her market wage. An immigrant's reservation wage is affected by the monetary and psychic costs of his or her working outside the home and by the generosity and certainty of other sources of income. In general variables that are used to capture the cost of an immigrant working outside the home include several child status variables (the number of children at home, the number of kids under the age of 5, and whether children 12 years of age and older are present in homes with children under 12 years of age) and whether the spouse is self-employed. Variables measuring the availability and certainty of other sources of income include the spouse's earnings, whether the spouse had ever been unemployed in previous twelve months, and the family's level of assets.

An immigrant's market wage is affected by his or her skills and by employment opportunities in the area in which he or she lives. Skill levels are usually measured by attainment of education, English language proficiency, level of disability, work experience, and year of immigration. To adjust for labor demand and macro economic conditions, different region indicators, state specific unemployment rate and urban/rural location might also be included.

Borjas (2003) aimed at explaining the incentive for immigrants to increase labor supply due to the welfare reform in 1996. He differentiated the eligibility of immigrant households receiving assistance for pre and post enactment periods. By exploiting these changes in eligibility rules he succeeded in examining the link between the welfare cutbacks and health insurance coverage in the immigrant population. The immigrants responded by increasing their labor supply, thereby raising the probability of being covered by employer-sponsored health insurance. The Kaushal (2008)

study is also related to the incentive induced by the generosity of welfare programs. They examined the impact of Supplement Security Insurance program (SSI) on the labor supply of elderly immigrants. They found that denial of SSI was associated with a 5 percentage point (15 percent) increase in the employment of non-citizen elderly men and a 5.6 percentage point (11 percent) decrease in their retirement rate. And the newly arrivals are most likely to be affected by the stricter policy in immigrant eligibility for SSI.

1.2.2 Models to Disentangle Aging, Period and Cohort Effects

It is well known that the disentangling of aging, period and cohort effects raises difficult methodological problems, however with the limited availability of longitudinal datasets on the general immigrant population, economists tried their utmost to identify the aging and level cohort effects using the pooled cross-sections. In such a study applied to the earnings assimilation of foreign-born men, Chiswick (1978) concluded that although initial male immigrant earnings are below those of comparable natives, they increase rapidly and eventually surpass native earnings levels. Borjas (1985), using two census years, allowed for structural differences across immigrant entry cohorts and found that Chiswick (1978) significantly overestimated earnings growth within an entry cohort as well as the earnings growth of immigrants relative to natives. This first indicated the major frailty of any empirical analysis using a single cross-sectional census dataset. The lack of history of labor force participation and the uncontrolled unobserved qualities in different entry cohorts led to the completely different conclusions by Borjas and Chiswick. Based on the accumulated literature in analyzing the earnings assimilation, Duleep and Sanders (1993) first applied the reduced form model originated from the human capital theoretical consideration to identify the labor force participation assimilation of Asian married women. He extended the previous benchmark model by adding source country indicator, however the using of a single 1980 census data still raised controversial criticism over the sample selection problems. Obviously, the ideal identification process requires the availability of longitudinal data where a particular immigrant or native is observed over time, or, at least, the availability of a number of randomly drawn cross-sections so that specific cohorts can be "tracked" and treated as synthetic cohorts across census years.

Previous works on the related issue (see Borjas (1985), Borjas (1995), Borjas (2003)) have typically resorted to analyzing synthetic cohorts over time. Borjas constructed cohorts based solely on the year of entry into U.S.. In order to track the same arrival cohort from one census to another, suppose that two cross-section surveys are available, with cross-section τ (τ = 1, 2) being observed in calendar year T_τ, Stack the data for immigrants and natives across the cross-sections, and consider the two-equation regression model:

Immigrants' labor supply:

$$P_{l\tau} = X_{l\tau}\delta_i + \alpha y_{l\tau} + \beta C_{l\tau} + \gamma_i \pi_{l2} + \varepsilon_{l\tau} \tag{1.2}$$

Natives' labor supply:

$$P_{l\tau} = X_{l\tau}\delta_n + \gamma_n \pi_{l2} + \varepsilon_{l\tau} \tag{1.3}$$

where $P_{l\tau}$ gives the probability of employment for person l, and $X_{l\tau}$ is the generalized demographic control variables, which typically includes the worker's age and education attainment. $C_{l\tau}$ gives the calendar year in which the immigrant arrived in the host country, a.k.a. the arrival cohort indicator; $y_{l\tau}$ gives the number of years that the immigrant has resided in the host country

($y_{l\tau} = T_\tau - C_{l\tau}$); and π_{l2} is a dummy variable indicating if person l was drawn from cross-section 2.

γ_i and γ_n give the period effect for immigrants and natives associated with the macro economic conditions. Since the vector $X_{l\tau}$ includes the worker's age (or experience), the parameter δ_n in the native function measures the aging effects for natives—the rate at which native employment changes as the person ages. Respectively the aging effect for immigrants is given by the sum of coefficients ($\delta_i + \alpha$). For the identification purpose, the immigrant is assumed to have the same "aging" effect with respect to the natives, i.e. δ_i and δ_n are restricted to be equal; therefore the parameter α in the immigrant function measures the "excess" value of acquiring a year of experience in the host country's labor market, and represents the aging effect; Last but not least, the vector $C_{l\tau}$ contains the fixed effects indicating the arrival cohort, thus the coefficient β captures the cohort effects—differences in time-of-entry employment probabilities across cohorts.

As is well known in the literature, the parameters in this basic linear probability model measuring the aging, cohort, and period effects in equation (1.2) and (1.3) are not separately identified. In order to separately identify the two period effects, the aging effects and the cohort effects, we must impose some additional restriction to the model. The typical restriction by researchers is to set the period effect to be the same for immigrants and natives.

$$\gamma_i = \gamma_n \tag{1.4}$$

Put differently, changes in aggregate economic conditions have the same impact on the labor supply of immigrants and natives ceteris paribus. This is a typical assumption adopted by previous studies. It eases the identification issue, however its validity still needs to be verified in next section.

In order to disentangle the aging, cohort and period effects, the most challenging work was presented by Myers and Lee (1998). In their analysis of assimilation based on rates of home ownership, Myers et al. innovated the *double cohort* method which involved embedding age cohorts within migration cohorts and allowed for the identification of both duration and aging effects. The estimation of natives and immigrants earnings function differ in an important way, in that the latter includes an assimilation or duration factor absent in the former. Within time related factors, earnings for immigrants can be understood as a function of aging, duration and period effects. Natives, on the other hand, are affected by aging and period effects but not duration. The three time related factors are linear combinations of each other which means without further assumptions they cannot be individually identified in a model. The double cohort method recognizes the above dynamics and makes two important assumptions:

$$Age = Period - Birth\ Cohort \tag{1.5}$$

$$Duration = Period - Migration\ Cohort \tag{1.6}$$

In the empirical analysis section we will apply this *double cohort* method to analyze the labor market assimilation of immigrants comparing to natives.

1.3 Data and Empirical Evidences on Aging and Cohort Effects

1.3.1 Characteristics of The Dataset

My empirical analysis relies on all available decennial census data from 1980 to 2000, as well as the 2010 American Community Survey. Data for immigrants are extracted from 5 percent sample of the first three census years and the five-year ACS for 2010[2]. Owing to the extremely large sample size of natives, I use the 1 percent sample to extract data on natives. All data were downloaded from the Integrated Public Use Microdata Series (IPUMS) website. In each cross-section the sample consists of individuals aged 18–75 as of the time of the survey, who are not living in group quarters and had never served in the military. In addition, the immigrant is defined as someone whose birth place was outside U.S. and was not born to parents who were U.S. citizens.

I report summary statistics, by immigration status and Census years, on the key characteristics analyzed in the paper in Table 1.1. Relative to natives, immigrants have low proficiency in speaking English and the percentage of English-speaking immigrants is decreasing through the four decades. The proportion of immigrants trends is consistent with the previous literature: Hispanic composes more than one third of the new immigrant flows, while the overall Hispanic percentage among the whole native population increased from 4 to slightly over 7 percentage points. Over the past four decades the immigrants seem to get married at younger ages and have a lower divorce rate. By 2010 the difference in the proportion of being married and with a spouse presented between the native and immigrant population increased steadily from 6 to above 10 percentage points. And it is also commonly known that immigrant families tend to have a larger family size and raise more children in their households. However within these past four decades we also see a clearly descending trend in the number of children and number of family members for the immigrant population.

More descriptive statistics are reported in Table 1.2 where natives and immigrants are compared across different educational attainment and age categories. The age profiles highlight two interesting phenomena: first, immigrant population are not as young as we expected. Across the four decades, the stock of immigrants contains smaller proportion of prime age (18–45 years old) workers than their native counterparts; second, the immigrant population also starts the aging process in recent years. More than 6 percentage points of the whole immigrant population has been shifting from the younger ages (18–45) to older ages (60–75). It is a combination of the aging of previous entry cohorts and the admission of more new elderly immigrants. The immigrant population looks substantially different from their historical young and hard-working image. Furthermore they tend to be catching up with the natives in educational investments. Although immigrants always have lower percentage in the secondary educational levels, the gap has been narrowing down since 1980s. And they beat the natives in the bi-modal educational attainment levels. In other words, we see a larger percentage of immigrants either obtain extremely low level of education as grade school drop-outs or pursue higher education as a master degree or Ph.D., M.D..and J.D.. This is consistent with the projection made by the Bureau of Labor Statistics[3]: *As the U.S. popu-*

[2]The five-year ACS for 2010 includes 5–in–100 national random sample of the population. It contains all households and persons from the 1% ACS samples for 2006, 2007, 2008, 2009 and 2010, identifiable by year.

[3]See *Labor force projections to 2016: more workers in their golden years* by *Mitra Tossi*, Employment Outlook: 2006–2016

lation ages, the labor force will grow more slowly during the next decade; the older labor force is projected to grow more than 5 times faster than the overall labor force, which will become ever more racially and ethnically diverse.

Table 1.3 presents the labor market participation of the overall population of both natives and immigrants. For the whole 18–75 age group, natives generally retain a higher labor force participation rate and work more weeks during the previous year. However when the age group is constrained to the older population (Age 60–75), the elderly immigrants present a higher labor force participation than the natives in the first three decades except for 2010. And they choose to work around 14 weeks during 1990 and 2000, which is approximately 3 weeks more than the length of the natives choose to work in that two decades. Data on labor market outcomes in Table 1.4 show that during the past four decades, foreign-born men were somewhat less likely to work but less likely to have taken retirement than similar native men. Especially during the Census year 1990, 50 percent of male immigrants and 42 percent of male natives were employed, with a statistical significant 8 percentage points gap; By 2010 this gap has been narrowed by more than 6 percentage points to 2 percentage points only. Foreign-born women were slightly less likely to work than US born women, and also had a slightly higher retirement rate. Overall, through the forty years, we see more female immigrants joining the labor market activity, they become more likely to be working at a job than their predecessors.

1.3.2 Empirical Evidence on Cross–Sectional Differences

It is enlightening to begin the discussion of the difference in *labor force participation* of older natives and immigrants by identifying the sensitivity of the coefficients in equation (1.1) using U.S. Census cross-sections. The dependent variable is the labor market participation of the person, where it equals one if the person worked during the previous year and zero otherwise. The regression specification used in the empirical analysis expands (1.1) by introducing both age and years-since-migration as a second-order polynomial, and includes the number of completed years of schooling and the respondent's gender[4]. All the estimations are weighted using the person weight in the census data files.

The various columns of Table 1.5 report estimates of the regression model in equation (1.1) using each Census cross–section. Consistent with the previous literature, the coefficient α_2 is negative, so that for given levels of education, immigrants had less chance to participate in the labor market comparing to the same aged natives at the time of entry. The main lesson learned from the various coefficients in Table 1.5 is that the estimates are essentially variable through different cross-sections. For example, in 1980 the coefficient α_2 was -0.544, which meant that being an immigrant brought down the possibility of joining the labor market by more than 54 percentage points. By 2010, the coefficient α_2 remained negative but it had reduced in its magnitude to around 37 percentage points. That was a compelling twenty percent drop in level. Other commonly adopted estimates (like α_3), which indicated the labor supply choice assimilation depending on an immigrant's duration in the host country, also expressed a drastic fluctuation from decade to decade. We saw that the immigrants were more likely to participate in the labor force with more years residing in U.S., although this positive effect of the duration had been fading all through the

[4]The years of schooling are categorized into the following groups: Less than high school, High school graduate, Some college, and College and higher.

past forty years[5].

Before entering the generic extension of the synthetic cohort model, it is instructive to regress the linear probability model based on equation 1.1 again by adding the simple arrival cohort indicator[6]. In Table 1.6 arrival cohort is constructed solely on the year of entry into U.S.. Here in X, we only control for the age of the worker. As seen in the listed coefficients, even by using the basic single cross-section regression, we can trace the fixed cohort effects assuming that changes in aggregate economic conditions do not affect the immigrants and natives differently. The trends in these fixed effects across censuses can be used to describe the nature of the aging and cohort effects in the (age-adjusted) data. An examination of the fixed effects reported in Table 1.6 reveals two interesting findings that previous literature has paid attention to. The first, is the existence of numerically sizable level cohort effects, with the more recent cohorts (Post 1990 arrivals) having a relatively lower probability to participate in labor market than earlier cohorts. For example, the trend in the LFPR gap between the immigrants who entered U.S. before 1950s and the comparable natives is quite different from the trend of those who arrived in U.S. in the 2000s.

Of course these coefficients are difficult to interpret because they are contaminated by the aging and cohort effects in the immigrant population. The aging effect arises because immigrants acquire relatively more human capital upon their arrival and have to coordinate their labor supply according to their individual characteristics and family structure (see Duleep and Sanders (1993)). The cohort effect arises because there may be unobserved permanent skill and quality differences among the arrival cohorts that could impact the long term labor supply (see Borjas (1985)).

1.3.3 Empirical Evidence on Aging and Cohort Effects

In Figure 1.1 and 1.2 we construct the age-adjusted employment profiles of a particular immigrant cohort being defined in terms of both age at arrival and calendar year of entry. To simplify exposition, in both graphs we focus on individuals between age 50 and age 75. In Figure 1.1 the thin lines represent immigrants who entered U.S. between age 50 and 54 in the periods 1975–1979, 1985–1989 and 1995–1999. For example, in the very left, the blue line represents the immigrants who migrated between 1975 and 1979. They were first observed in Census 1980 in their 50–54 years old. Fast-forward ten years, the original immigrant cohort were 60–64 years old in Census 1990. The dash lines represent the age comparable natives as the control group. To understand this figure more clearly, follow this 1975–1979 cohort through three decades. At the time of entry in 1980, approximately 79% of this immigrant group worked in the previous year, just about two percent lower than the same labor force participation rate of the same aged native counterparts. By 1990, this immigrant cohort and natives were both 60–64 years old, when the immigrant population began to participate more in the labor market than natives: 68 percent versus 58 percent. In the last observation year 2000, these two groups converged to approximately 20 percent as the common labor force participation rate. Comparing through the three available immigrant cohorts in Figure 1.1 also proves the existence of sizeable cohort effect as the vertical gap in participation rates between immigrants and natives at the time of entry. For instance, the difference between the labor force participation rates of recent entrants in 1980 and natives of same age in that year

[5]The variation in the effect of length of residency, in fact, signifies the key empirical results reported later in this paper.

[6]See Borjas (1985), Borjas (1995), and Borjas (2003)

was just 2 percentage points. In 1990, only around 72 percent recently arrived immigrants worked while the natives pertained almost 85 percent, a gap of 13 percentage points. By 2000, the gap between these two groups declined by around 4 percentage points, but still sustained a sizeable wedge. The history of 30-year of the three different arrival cohorts listed in Figure 1.1 suggests the presence of cohort differences not only in the beginning *level* of the immigrant participation in labor market, but also in the *rate of growth* of immigrant work propensity. For the 1980 entrant cohort, there existed the cross-over point where immigrants had a larger propensity to participate in labor force. For 1990 and 2000 arrivals, the immigrant disadvantage presented all through the 30 years (20 years for the 2000 arrivals). There was clearly a systematic break in the relative employment propensity of immigrants around in the late 1980s. Specifically, the immigrants who arrived on or after 1985 experience much less employment propensity than earlier elderly arrivals.

In contrast to Figure 1.1, Figure 1.2 illustrates the age-employment profiles of immigrants who arrived at younger ages. To make it comparable to Figure 1.1, i.e., the immigrants in the first line are also in their 50–54 in Census 1980 and so on. In this figure, the blue line represents those who came before 1960s when they were in their 20s or early 30s. The participation rate of this group is essentially equal to that of natives: about 80% of the population of both groups worked during the previous year. From 1980 to 1990, both groups pursued similar patterns and the immigrant group had a slightly lower labor force participation rate. By 2000, the immigrants surpassed the native counterparts ahead by around 10 percentage points.

By comparing Figure 1.1 and 1.2 we can observe the interesting difference in labor supply decisions between the younger and older entrants during the same period: first, there exists sizeable cohort difference in both *level* and *growth rate* of labor force participation; second, although the older entrants in 1980s tended to work more than natives after their normal retirement age, the recent older entrants didn't show much incentive in participating in the labor market in their older ages; third, younger entrants who entered in their 20s or 30s pursued a similar working profile as their native counterparts. In Figure 1.3 and 1.4, we use an alternative measure of employment: the fraction of weeks worked in the calendar year prior to Census (including all persons who work zero weeks). Regardless of how labor market participation is defined, these three findings stated above persist in the comparable graphs.

1.4 *Double-Cohort* Method

1.4.1 *Double Cohort* Method

Following the *double cohort* method outlined in Myers and Lee (1998) I estimate the following regression equation:

$$P_i = \alpha_0 + \alpha_1 X_i + \sum_{j=1}^{3} \alpha_{4j} YEAR_{ij} + \sum_{k=1}^{4} \alpha_{5k} BIRTH_{ik} + \sum_{l=1}^{6} \alpha_{6l} IMMIG_{il} + \sum_{k=1}^{4}\sum_{j=1}^{3} \alpha_{7kj} BIRTH_{ik} * YEAR_{ij} + \sum_{l=1}^{6}\sum_{j=1}^{3} \alpha_{8lj} IMMIG_{il} * YEAR_{ij} + \sum_{k=1}^{4}\sum_{l=1}^{6}\sum_{j=1}^{3} \alpha_{9klj} BIRTH_{ik} * IMMIG_{il} * YEAR_{ij} + \varepsilon_i \quad (1.7)$$

where P_i is the probability of individual i participate in the labor force in the pooled 1980, 1990, 2000 census datasets and 2010 American Community Survey. *BIRTH* indexed by the letters *ik* stands for a specific birth cohort, coded in 1980 as 15–24, 25–34, 35–44, 45–54, and 55–64. In 1990, each cohort is then 10 years older. In 2010, the oldest age cohort is then 85–94 years old, while the youngest is 45–54 years old. The final dataset contains only those individuals belonging to the five birth cohorts. Similarly *IMMIG* indexed by the letters *il* represents natives and specific migration cohorts of immigrants based on their time of entry into the U.S.. With natives as the base group (*IMMIG* has value 0 for natives), the remaining values of the *IMMIG* variable indicate immigrants of 1960s arrival, 1970s arrival, 1980s arrival, 1990s arrival and 2000s arrivals. Natives and each of the migration cohorts, except for the 2000s arrivals, appear at least twice in the dataset. In Equation 1.7 above, *YEAR* indexed by ij is an indicator variable for the Census years. X_i is a vector of control variables including highest level of education completed, interactions of migration cohorts and education levels, married with spouse present, and interactions of immigrant status and region of origin.

In general, the estimates from equation 1.7 can be understood as the relative difference in labor force participation between immigrants with varying duration of stay in the US and age at entry, relative to a base native group. Estimates of coefficients on the interactions, between birth cohort and year, and migration cohort and year represent aging and duration effects respectively. The estimate α_{6l} is the effect of belonging to migration cohort l in 1980 relative to natives. α_{5k} is the age effect or the estimated probability difference in labor force participation between the youngest and older birth cohort. α_{4j} represents the period effect and captures structural changes across different Census periods. α_{7kj} is the aging effect for birth cohort k , for natives and immigrants alike. α_{8lj} represents duration effects for the youngest migration cohorts. Finally, α_{9klj} is the additional duration effect for older immigrants above that of the youngest immigrants. The sum of α_{8lj} and α_{9klj} is the total duration effect for the older migration cohorts. Similarly, summing the migration cohort effects and the respective duration effects gives the effect of being an immigrant in a particular census year relative to natives.

The first column of Tables 1.7,1.8,1.9 presents regression coefficients from the benchmark model using all available data from the entire 1980–2010 period. We report the Effect of being an Immigrant, Birth Cohort Effect and Period Effect in Table 1.7. The Aging Effect, Duration Effect and Additional Effect of older cohorts are reported in Table 1.8 and 1.9. The second column of these three tables report the estimates using only household heads in the sample, while the rest two

columns use either male or female household heads records specifically.

For all four selected sample groups, the estimates of the entry cohort effects, entail that unlike the migration cohorts of prior 1960s and 1970s, those entered after 1990 have a smaller propensity to participate in labor market than natives. The magnitude of the migration cohort effects, however, differ across the four selections. The males are most likely to be affected according to the arrival cohort they are affiliated with. Males who entered in the 1990s are more than forty percent less likely to participate in the labor market than the native counterparts, while the same negative entry cohort effect shows for both female and the general immigrant population at lower than twenty percentage points. The Period Effect (α_{4k}) captures the reasonable turmoils in macro economic conditions of the year 2010. From 1980 to 2010, we see a major drop in labor market participation around the financial market meltdown in 2008.

The birth cohort effect in Table 1.7, α_{5k}, which are equivalent for natives and immigrants show that in general older individuals are less likely to be participating in the labor market. The magnitudes again are different among the four samples, with the male group obtains the highest negative age effect of more than seventy percentage points. Accompany with the initial age effect, *aging* effects in Table 1.8 (α_{7kj}) again are different among the four samples. The first column with estimates from the overall population shows the fastest decreasing in labor force participation impact of aging. This can be inferred because the dependent members of a family are more likely to quit the labor market once they reach their normal retirement ages, while the household heads (male or female) have more responsibility and might need to stay working even passing their 65s or more.

Table 1.8 also provides estimated duration effects for selected entry cohorts (1970–1979, 1980–1989 and 1990–1999 arrivals). These coefficients combined with the additional duration effects in Table 1.9 can easily illustrate the direction and magnitude of the level and growth cohort differences. There clearly exists a break around 1990. Duration effects for those arriving in the 1960s and 1970s are significantly positive except for the female group of 1970s arrivals in 1990. In contrast to that, among the recent cohorts (those entered after 1990), duration effects of ten additional years are negative for all four samples. The magnitudes however, are significantly larger for the most recent 1990s arrivals in their first ten years in U.S.. Keep in mind that all these duration effects are for the youngest birth cohort of different entry cohort. Finally the total duration effect (duration effect + additional duration effect) are reported in Table 1.10. The reported coefficients are constructed in a way to be matched with the raw data illustrated in Figure 1.1 and 1.2. From top to bottom, we have the three birth cohorts defined as 50–54 in 1980, 40–44 in 1980 and 30–34 in 1980. The generalization of the *double-cohort* method leads to estimates of the level cohort differences that are much more aligned with the raw data summarized in the descriptive figures, put in another way, the estimates prove the two interesting findings we introduced in the previous section. First, by comparing the second row against the first row within each birth cohort, the immigrants of the same age tend to work more approaching their retirement ages if they entered the country in their 50s than those who entered in their younger 20s except for the 1990s arrivals. For example, for the immigrants aged 50–54 in 1980, they all turn 60–64 years old in 1990. The ones who entered prior to 1960s (i.e., entered in their 20s) have a sightly lower chance to be working comparing with the native counterparts, a negative .7 percentage point range. But those who arrived in the 1970s (i.e., entered in their 50s) beat the labor market participation of the natives by a significant eighteen percentage points.

Second, by comparing the second rows across all three different birth cohorts, those who en-

tered in their 50s in 1970s have a much higher propensity to be working approaching 65 years old than those who entered in the same age but arrived in the 1990s. For instance, among the oldest birth cohort, 60–64 years old in 1990, for the first ten years in U.S. they work at a significant higher probability (more than eighteen percentage points) approaching their retirement ages with respect to the natives. Fast forward three decades, the newly arrived 60–64 years old cohort in 2010 seem to lack the work passion and quit the labor market as soon as they turn to 65s.

The above results suggest that the timing of immigration does have a significant impact on the labor force participation of elderly immigrants and its direction and magnitude has been changing through the four decades: before 1990, older immigrants tend to work more in the first ten years upon arrival; for recent arrival cohorts, younger immigrants still pursue a similar labor force participation pattern as the natives, while the older entrants no longer experience the catching up activity in labor market assimilation for the first decade they stay in U.S..

1.4.2 Sensitivity and Robustness of the Empirical Results

There are two potential explanations for this lassitude in the rate of labor force participation of elderly immigrants. The first is that it represents a failure of the benchmark regression model to properly account for various factors that may be leading to lower relative probabilities for elder immigrants to participate in the labor market and that have nothing to do with the underlying process of *actual* labor force assimilation. The second is that it reflects a tangible decline in the labor market attachment at which more recent elderly immigrant waves lack after their entry in the U.S.. Before proceeding to discuss the plausibility of the second hypothesis, it is important to devote some effort to determining if the result "vanishes" when the model is confronted with various sensitivity tests that attempt to more properly account for the evolution of labor market participation of both native and immigrant populations.

The changing rate of labor force participation could be due to the changing geography of immigrant settlement in the U.S.. More and more non–traditional immigrant–receiving States are seeing incoming immigrant waves. The geographic location of recent immigration could, in theory, alter the rate of labor market progress of immigrants since there exist dramatic differences in the labor market composition of jobs, and these difference may stimulate or dampen the labor force participation of newcomers. Column 2 of Table 1.11 controls for the state of residence in the regression model to determine if the results are sensitive to geographic location. It is evident that the inclusion of the state fixed effects barely alters the estimates of the various parameters.

It is well known that a substantial part of the decline in the entry wage of successive immigrant cohorts can be explained by the changing of skill composition of immigrant workers (see Borjas and Trejo (1993)). The labor market participation may also be highly correlated with the changing quality of the immigrant entry cohorts. Column 3 of Table 1.11 adds the categorized educational attainment to the basic setting. However, the inclusion of these education fixed effects does not affect the overall magnitude of the estimated rates of labor market assimilation process. The gap between the different entry elderly groups even expands from around 5 percentage points to 8 percentage points between the 1970 arrivals and 1980 arrivals. In other words, changes in the educational attainment mix of immigrants cannot explain why the more recent elderly cohorts have a much lower rate of labor market participation.

One major culture difference between the immigrants and natives would be the different styles for the adults to take care of younger and elder family members. In Duleep and Sanders (1993),

asian women (except of Japanese women) are more likely to serve as the bread winner for the household if their husbands need more time invested in human capital accumulation in U.S.. And it is reasonable to assume that immigrants may have different family structures that are increasing or decreasing the possibility of their labor market participation. Thus in column 4 of Table 1.11 we control for the family size (marital status, number of family members in household, and number of children under the age of 5) Similar as previous two columns, this addition to the model does not affect the overall performance of the estimation.

The last column of the Table 1.11 concludes the series of sensitivity tests by including the Hispanic origin indicator in the regression model. Regardless of the specification, the data clearly documents a steep decline in the rate of labor market participation beginning with the elderly cohort that entered the U.S. after 1990.

1.5 Theoretical Considerations of Modeling Labor Supply of Elderly Immigrants

The available evidence suggests that the observed lower propensity of labor market participation for the post 1980 cohort is not a spurious finding resulting from changes in the macro economic environment or from changes in the demographic composition of the immigrant population. In order to identify the cause of the change in recent immigrants labor force participation behaviors, therefore, it is useful to derive the implications of a model of the neoclassical model of labor-leisure choices for the rate of labor market assimilation of elderly immigrants.

Suppose the individual has the option of working, retiring and collecting retirement benefits if qualifies. The individual maximizes utility, which depends positively on consumption (C), leisure (L) subject to a budget constraint. The budget constraint depends on the hours worked (H), the wage of the individual (W), other non-wage income (V), and the reservation wage (W^*). An individual can claim Social Security Old Age benefits if he or she choose to retire and satisfies the working history requirement. If the reservation wage of the individual is less than the market wage, he or she will choose to participate in the labor market. If the reservation wage is higher than the market wage, the individual will drop out of the labor market. In this case, if the individual qualifies for the social security benefits, the total income is composed of non–wage income and social security payments (Y). Explicitly, the individual faces the problem as follows:

$$u = u(C,L) \tag{1.8}$$

subject to

$$P*C = \begin{cases} W*H+V & \text{if } W > W^*, \\ Y+V & \text{if } W < W^* \text{ and the individual qualifies} \\ & \text{for social security benefits,} \\ V & \text{if } W < W^* \text{ and the individual ineligible} \\ & \text{to receive social security benefits.} \end{cases}$$

where total time available for the individual to allocate is

$$T = L+H \tag{1.9}$$

The reservation wage (W^*) depends on private wealth and the value of leisure time. Wealth theoretically increases the reservation wage due to the diminishing marginal utility of money. Suppose, for instance, that an immigrant has worked the requisite forty quarters required for Social Security. His or her present value of lifetime wealth includes the discounted amount of Social Security benefits that he/she can expect to receive. In contrast to that, if an immigrant has not met the ten-year working requirement, he or she faces a much lower level of lifetime wealth. At any point of time, the decision of whether to work is based on comparing the reservation wage with the market wage. As long as leisure is a normal good, the greater wealth associated with being eligible for Social Security benefits implies that potential eligible immigrants would have higher reservation wages. As a result, the labor supply elasticity estimated in Table 1.11 should be lower for workers who are already eligible for Social Security. Put differently, the model can explain the higher labor force participation we saw among those elderly immigrants in their first ten years in U.S.. Since they have been in the host country less than ten years, there is no way for them to qualify for the ten-year working rule, especially if we consider that it is not likely that the newly elderly entrants would start working immediately upon arrival. Thus any given wage change will be more likely to draw such an elderly immigrant into the labor market since the person is not yet eligible for the retirement benefits. This theory fits the behaviors we observe for the early arrival cohorts (arrivals prior to 1990), however in order to explain the steep drop in labor market attachment for the post-1990 elderly cohorts, we also need to test the possible structural variations in private non–wage wealth levels. If the recent elderly entrants are systematically wealthier than their predecessors, and the increase in the amount of wealth significantly out beats the potential Social Security benefits, then the individual would possess a statistically higher reservation wage which will lead him or her choose alternative activities other than participating in the labor market.

1.6 Determinants of the Labor Market Participation of the Recent Elderly Immigrants

The neoclassical labor-leisure choices model introduced in previous section provides a useful framework for thinking about and interpreting the cross-birth/entry cohort variation in the rate of labor force participation, and for examining the extent to which changes in the underlying determinants can account for the observed lassitude of the elderly newcomers. The model includes two variables that act as the kernel in the working decision of the elderly individuals: the initial private wealth (V); and the potential eligibility to access Social Security benefits (Y). Consider initially the determinants of the rate of labor force participation by adding to the *double-cohort* regression model:

$$P_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Y_i + \alpha_3 Z_i + \sum_{j=1}^{3} \alpha_{4j} YEAR_{ij} + \sum_{k=1}^{4} \alpha_{5k} BIRTH_{ik} + \sum_{l=1}^{6} \alpha_{6l} IMMIG_{il} + \sum_{k=1}^{4}\sum_{j=1}^{3} \alpha_{7kj} BIRTH_{ik} * YEAR_{ij} + \sum_{l=1}^{6}\sum_{j=1}^{3} \alpha_{8lj} IMMIG_{il} * YEAR_{ij} + \sum_{k=1}^{4}\sum_{l=1}^{6}\sum_{j=1}^{3} \alpha_{9klj} BIRTH_{ik} * IMMIG_{il} * YEAR_{ij} + \varepsilon_i \quad (1.10)$$

where we add the two potential determinants to the benchmark framework: Y_i includes the potential eligibility to Social Security benefits; Z_i presents the ownership of residence and the value of the house/apartment, which is used as a proxy for personal asset. For natives, Y_i contains two dummy variables indicating whether the individual has reached the early and normal retirement ages. For immigrants, Y_i is more complicated constructed as a combined age and working rule requirements. Immigrants' potential eligibility will be measured with both their ages and their duration of stay in the host country, i.e., the interacted indicator of age (62–65, 65 and more) and duration of stay(years since entry < 10, years since entry $>= 10$).

In the first column of Table 1.12, we keep the estimates from the benchmark regression model, where all coefficients reveal the fixed effects of belonging to each birth and migration cohort. The difference in the total duration effect of the first ten years living in U.S. for different birth/entry cohort has been captured in the sum of α_{8lj} and α_{9klj}. Specifically, the labor force participation rate of the elderly immigrants (aged 50–54 at entry) that arrived in the late 1990s is almost fifty percentage points lower than that of the cohort who arrived in the 1980s. The estimates in the first column also suggests that among the immigrants of the same age group, those who entered in their late 50s tend to work more approaching retirement age than those who migrated during their prime ages. This is only true for the pre–1990 arrivals.

Column 2 of Table 1.12 introduces the Social Security benefits eligibility indicators into the $double - cohort$ regression and shows that the potential eligibility has a strong negative effect of the rate of labor force participation for the elderly incomers who entered before 1990s. The magnitude of this impact is sizable in the top two panels of Table 1.12: for example, the second birth cohort (40–44 in 1980) in the middle panel sees a drop of 17 percentage points in the labor force participation once the elderly immigrants achieve the access to Social Security benefits. As for those who entered in their 20s or 30s, the eligibility to receive social security benefits does not affect their working decisions much. This aligns with the kink in labor supply we observed for the early entrants in the raw data, i.e., elderly new incomers seem to make up the social security's ten-year working requirement by intensely working during the first ten years arriving in U.S. and quit the labor market immediately after becoming eligible. This has also been explained with the theoretical labor-leisure model we analyzed in previous chapter, where the elderly individual is being driven by the increase in expected income thus he/she raises his/her reservation wage and chooses to work less once turning qualified for such a welfare benefit. However the eligibility variable cannot explain the the relative decline experienced by the last entry cohort post late 1990s.

In column 5 of Table 1.12, we use the ownership of the residence and its value as a proxy for private asset level. Living conditions have been commonly used to indicate an individual's economic status, and especially for immigrants, owning a house/apartment can be viewed as a long-term investment and controls for the unobserved future migration plans. The introduction of these variables significantly narrows the size of the cohort effect. After controlling for private asset level, the relative decline in the rate of labor force participation experienced by the last entry cohort in the late 1990s reduces from -36.5 percentage points to -24.8 percentage points. To put differently, the inclusion of private asset variables accounts for more than 32 percent of the decline in the rate of labor force participation for those post 1990 arrivals. It proves that the increasing in the private asset level nudges the recent elderly newcomers to re-evaluate the potential benefits from Social Security system, and they just decide to choose alternative activities (e.g., home production, child-care) rather than working in the labor force to meet the ten-year requirement upon arrival. Column 4 goes a step further and controls *all* the generalized demographic characteristics illustrated in the sensitivity tests we verified, and the evidence is generally robust to the better controlled analysis.

Finally as noted in literature that the number of years that an immigrant has lived in U.S. is a fuzzy proxy for the "quarters of employment", since the employment rates of older immigrants in their 50s are far below 100%, we might understate the true fraction of ineligible immigrants in the older immigrant population. Thus in the last column of Table 1.12, we define the working requirement rule to be a "fifteen-year" instead of the ten-year in the realistic world. The estimation results however show a similar pattern as column 5, where the gap across different entry-cohort has been narrowed.

In sum, the extended regression model has consistently identify two factors-potential Social Security eligibility and private asset level—are driving the observed cross-cohort difference and the decline in recent elderly newcomers. This proves the important hypothesis that is certainly to become future focus of research: the more recent elderly immigrant cohorts have fewer incentives to participate in the labor market because the different asset level of the immigrant population makes the Social Security benefits less appealing than they used to be.

1.7 Alternative Duration Model Comparisons

1.7.1 Duration Model

To further verify the sensitivity and robustness of the estimation results, we compare the $Double-Cohort$ method with an alternative traditional Duration Model. Different from the the $Double-Cohort$ method, which uses an identification of a birth cohort embedded in an entry cohort, the traditional $Duration\ Model$ prefers to only use the length of stay/duration of each immigrant to estimate the assimilation effect(See Borjas (1985), Borjas and Trejo (1993) and Borjas (1995)). However in the discussion of the labor force participation of recent elderly immigrants using the $Double-Cohort$ method, we have shown the importance of allowing for different duration effects for different birth and migration cohorts. In order to capture the inherent instability in the potential economic assimilation rate in terms of labor force participation, we need to generalize the traditional $Duration\ Model$ to allow for cohort differences in both the entry level and the growth rate economic assimilation of immigrants. Thus we allow interactions between the variables measuring

the calendar year of arrival and the variable measuring the number of years since migration. The generalized *Duration* estimation can be specified as:

$$P_i = \alpha_0 + \alpha_1 X_i + \beta YSM_i + \gamma IMMIG_i + \theta(YSM_i * IMMIG_i) + \phi YEAR_i + \varepsilon_i \quad (1.11)$$

where P_i is the same labor force participation indicator, where $P_i = 1$ if the household head worked during the past year(Census 1980, 1990 and 2000) or worked during the past 12 months(American Community Survey 2010), and P_i equals to 0 otherwise. X_i includes the generalized demographic and socio-economic characteristics, which includes the age of the head, squared age, educational attainment, whether the household speaks English well at home, the number of young children under 5 years old in the household, the total number of family members in the household, the region where the household resides(nine regions on the continental U.S.), whether the head has a disability that hinders working, whether the head is married and with the spouse present, whether the spouse is employed and the market wage of the spouse. YSM_i represents the $years-since-migration$ for immigrant household head, which would be treated as a continuous variable and is zero for natives. YSM_i is the key variable to capture the economic assimilation of immigrant arrivals after assuming that immigrants and natives endure the same period effect. $IMMIG_i$ is defined in the same way as before: with natives as the base group (*IMMIG* has value 0 for natives), the immigrants are labeled as "1" for arrival cohort prior to 1960, "2" for 1960–1969 arrivals, "3" for 1970–1979 arrivals, "4" for 1980–1989 arrivals and "5" for 1990–1999 arrivals. By adding the interaction term $(YSM_i * IMMIG_i)$ to the traditional Duration Model, we can allow different growth rates of economic assimilation (θ) for different arrival cohorts in terms of labor force participation. The coefficient β would still measure the trend in the entry level of each arrival cohort, while the coefficient θ would be positive or negative depending on whether more recent arrivals have a larger or smaller rate of economic assimilation in terms of labor force participation.

$YEAR_i$ indicates the survey year of the observed respondent. Since we have pooled Census 1980-2000 and American Community Survey 2010 together, 1980 is treated as the base year and $YEAR_i$ contains a dummy indicator for each of the rest three years. The coefficient ϕ captures the period effect of being in a particular Census year in contrast to 1980, which is assumed to be the same for both the natives and the immigrants. In conducting the empirical analysis, I expand the interactive framework suggested by equation 1.11. In particular, I estimate a regression model that allows each arrival cohort to experience different period effect in a particular Census Year, which requires the two assumptions stated in the $double-cohort$ method in previous sections.

$$Age = Period - Birth\ Cohort \quad (1.12)$$

$$Duration = Period - Migration\ Cohort \quad (1.13)$$

1.7.2 Natives and Immigrants Comparisons

With the generalized Duration Model, I can identify the different assimilation rates of each specific arrival cohort. To control for the heterogeneity across native and immigrant groups, Table 1.13 uses natives as the base group while Table 1.14 only includes all the immigrants, and the base group in Table 1.14 is the earliest arrival cohort in our categorization - those who arrived in U.S. before

1960. Since we defined the arrival cohorts in the same way as in previous $Double-Cohort$ method, the duration effects can be compared across these two models.

The four columns of Tables 1.13 and 1.14 each contains more controls than the previous column. In the first column we present the estimations of the benchmark Duration Model based on Equation 1.11, where the X_i contains only the polynomials of age[7] of the household head and the region where the family stays. In the second column we add the educational attainment to the controls, which contains five group dummies for high school dropouts, high school graduates, some college, college graduates, and master and above. The third column of these two tables includes the spouse conditions (whether the household head is married with a spouse presented, whether the spouse is employed during the past year, and the market wage of the spouse). The last but not least, we add the language ability (whether English is spoken at home), the Hispanic background (whether the head is Hispanic originated), the metro location of the family, the family structure (the total number of the family members, the number of children under 5 years old), and the disability of the respondent that could hinder his/her participation at work.

Comparing to the $Double-Cohort$ model examined in previous chapters, the duration effects are assumed to be captured explicitly in βs from Equation 1.11 and are reported in the third row of both Table 1.13 and 1.14. Within the pool of both natives and immigrants, the duration effects are significantly positive while with only immigrants the duration effects are significantly negative. This is reasonable considering that both the natives and immigrants endure period effects (associated with the circumstances of the overall economy in a particular period) and aging effects (associated with the aging process of each individual), but only immigrants need to experience the duration effects (associated with the assimilation process into the host country). Since we have to assume that the aging effects are the same for both the natives and immigrants in Table 1.13, when we pool both groups together, we can only observe the averaged aging effects between both groups. The actual aging effects of immigrants as reported in the first row of Table 1.14 are always around 2 to 3 percentage points higher than the corresponding aging effects in Table 1.13. When we only have immigrants in the selected sample, we observe a significant higher aging effect and a significant negative duration effect. Therefore it is necessary to estimate immigrants separately to avoid the possible heterogeneity between immigrants and natives in the Duration Model.

Adding the interaction between each arrival cohort with the length of duration of stay to the traditional Duration Model allows us to estimate not only the entry level difference in labor force participation for each arrival cohort, but also the different growth rate in assimilation of each arrival cohort as they stay longer in U.S.. Consistent with the $Double-Cohort$ Method, more recent arrivals are less likely to participate in the labor market upon arrival. This can be observed by tracking down each column in Tables 1.13 and 1.14. Comparing to the natives, the immigrants who arrived prior to 1960 are 30 percentage points more likely to participate in labor market, while the recent arrivals who came after 1990 are almost 80 percentage points less likely to start working upon arrival. The similar statistically significant decrease in likelihood of labor force participation for recent arrivals exists in all four specifications of the Duration Model. And when the prior to 1960 arrivals are used as the base group, we can observe even larger decrease in the magnitude of labor force participation among the recent immigrants, of an entry level of 87 percentage points less likely to participate for the post 2000 cohort, which is a less than 80 percentage points difference

[7]In the actual estimation we include age, and age squared(which captures any possible non-linear relationship between the labor force participation and the age of the respondent) of the respondent.

when comparing to the natives.

The lower panel of Tables 1.13 and 1.14 list the growth rate of assimilation in terms of labor force participation, which is associated with the interaction between arrival cohort and their duration of stay. The significant negative marginal effects in 1.13 means comparing to the natives, immigrants are all less likely to work the longer they stay in U.S.. However since the entry level labor force participation rate is the largest among the prior 1960 arrivals and gradually reduces for the more recent entry cohort, the larger the absolute value of the marginal effect, the faster the labor force participation decreases. In other words, the prior 1960 arrivals are most likely to participate in labor force upon arrival but they will drop off of the labor market faster than more recent arrival cohorts. This also matches the findings from the $Double-Cohort$ Method: prior 1960 arrivals tend to work more before they meet the ten-year eligibility requirement and then suddenly drop out of the labor market; more recent arrival cohorts who enter after 1990 are less likely to start working upon arrival and their employment profiles are much smoother comparing to their predecessors.

1.7.3 Male and Female Comparisons

As discussed in the literature review, the labor force participation of male and female could differ greatly due to the cultural difference, family responsibility and gender preference in labor supply decisions. Thus it is also enlightening to estimate the Duration Model for male and female household heads separately. Tables 1.15 and 1.16 report the estimations for male and female household heads separately. In terms of entry level labor force participation, female household heads present a constantly decreasing trend in labor force participation from the prior 1960 arrival to the post 1990 arrival cohort. In contrast to that, the entry level labor force participation for male heads decreases for the first four arrival cohorts then rebounds by around 9 percentage points from the significant negative 68 percentage points for the 1980s arrival to around 58 percentage points for the post 2000 arrival. And the similar pattern exists for all four settings of the Duration Model.

In the bottom panel of the two tables we report the interaction between each arrival cohort and the length of their stay. The first column is based on the benchmark model illustrated in Equation 1.11. The absolute value of the growth rate in labor force participation for each particular arrival cohort decreases from more than 15 percentage points to about 1 percentage point for male heads. In the females' case, the absolute value of the growth rate also decreases from more than 10 percentage points to 3 percentage points. The estimation results by gender unify with the estimations using the overall population, where the entry level labor force participation continues to decrease for the five sequential arrival cohorts and the arrival cohort who entered prior to 1960s present the greatest reduction in terms of labor force participation as they stay longer in U.S.. In other words, the labor force participation rate of the earliest arrival cohort in our sample plummets as they assimilate into the host country while the recent arrivals are less likely to start working upon arrival and obtain a smoother assimilation: a lower entry level participation plus a smaller growth rate. These results are again reasonable based on the theoretical model in Equation 1.8. The expectation of claiming Social Security benefits is critical for the labor supply decisions made by the newly arrived elderly immigrants. Before reaching the forty quarters requirement, the elderly immigrants of the prior 1960 arrivals have a much lower reservation wage, thus they are more likely to participate in the labor market upon arrival. Once they obtain the ten year working history, their reservation wages have been raised regarding the higher expected personal wealth. This again aligns with the observations from previous sections where the employment profile of the new

elderly immigrants spikes at the ten-year duration point and plummets right after they achieve the eligibility to receive Social Security benefits. Also worth noticing that adding more controls to the Duration Model will only affect the marginal effects on female household heads significantly, for male household heads the difference is infinitesimal.

1.7.4 Educational Attainments Groups Comparisons

In order to control for the shifts in the structure of educational attainments of different arrival cohorts, in the next five tables we estimate the Duration Model with five educational groups separately: high school dropouts(Table 1.17), high school graduates(Table 1.18), some college(Table 1.19), college graduates(Table 1.20), and masters and above(Table 1.21). By comparing the first column of each table we find that although each group earns different levels of education, they pursue the similar decreasing trend in entry level labor force participation through the sequential arrivals. We only observe a slight rebound of around 3 percentage points for college graduates and masters for the recent arrivals. All the entry level labor force participation for the recent two arrivals(1990s and 2000s) are significantly negative comparing to the natives. However when comparing horizontally across different education levels, we observe that the lower the education attainments, the less decrease in the entry level labor force participation rates for recent arrivals. To be specifically, the high school dropouts of the post 2000 arrivals are 23 percentage points less likely to participate in labor force, while the masters of the same arrival cohort are 89 percentage points less likely to work. The base group is always the corresponding educational attainment group of the natives.

In the lower panel of these five tables we present the growth rate of labor force participation for all the five educational groups individually. Similar as the estimation results by gender and by immigrant status, the earlier arrivals experience higher entry level labor force participation rate and faster decline in the same rate as they stay longer in U.S.. However the most interesting findings are the behaviors of the advanced degree earners(college graduates and masters/Ph.D.s/M.D.s etc.) among the recent arrivals. We observe significant positive growth rate in labor force participation for these higher educated household heads, which are around 3 percentage points more likely to participate in the labor force as they assimilate in the host country. This may mean a more complicated labor market for these well educated people among the recent arrivals: comparing to earlier arrivals they are less likely to start working upon arrival, however as they stay longer in the U.S., they may have better networking and information about their specialized academic field thus they tend to be more active in the labor market as they gradually assimilate into the host country.

1.7.5 Source Countries Comparisons

Last but not least the country of origin for recent immigrants has shifted greatly since the elimination of country quota in 1980. The origin countries that sending the most immigrants have shifted from the traditional European countries to the developing countries like China, India and Mexico. This shift brings new inflows with completely different combination of educational attainments, cultural background and private wealth, which in turns determines the labor force participation and their economic assimilation experience as they stay longer in the U.S.. Thus in the last verification of the Duration Model, we analyze immigrants from four unique counties(Mexico, Cuba, China and Philippines) separately using the data from all four decades. These four countries each

has a specific reason to be selected as an important source country to study. Mexico has been sending the largest number of immigrants(more than one third of the total immigrants each year) to U.S. for the past thirty years. Most immigrant policies have been aiming at dealing with the large flocks of Mexican immigrants. In the meantime the labor market experience and economic assimilation of Mexicans is also of interest considering the size of this ethnic group and its unique migration behaviors due to low migration costs and well developed networks in U.S.. Cubans, on the other hand, although they are from the same continent as Mexicans, they are most likely to be treated as refugees upon arrival and provided with public assistance or subsidies. They are also more likely to be well-educated and wealthier especially for the earlier arrivals who entered after the revolution in 1965. And the other two Asian countries are China and Philippines. The composition of Chinese immigrants has switched from the originally low skilled prime age workers to a bi-modal combination of either higher educated young workers or elderly self-financed grandparents. Their economic assimilation must also vary in align with the shifts in the demographic and socio-economic characteristics of the recent arrivals. The Philippines has been another major source of immigrants in recent years. With a much higher migration cost than the Mexicans, the Filipinos might have stronger incentives to quickly assimilate than the comparable Mexican immigrants. Furthermore due to the cultural difference in male and female labor force participation, we estimate the Duration Model for male and female household heads from these four countries separately. In all estimations the controlled group is the same comparable natives, thus we can also compare the marginal effects across the four countries.

As shown in Tables 1.22 and 1.23, the most striking fact is that the difference in the entry level labor force participation between Mexican male and female household heads in recent arrivals. In Table 1.23, we observe that Mexican females from all the six arrival cohorts we selected have a significant negative entry level labor force participation, which means comparing to the female natives all the female Mexican immigrants work less upon arrival no matter when they arrive at this country. For the Mexican males, there is the opposite story, as shown in Table 1.22 the entry level labor force participation for Mexican male household heads are significant positive for the earliest prior 1960 arrivals but negative for the next four arrivals before it rebounds back to a positive significant 30 percentage points for the *Post* 2000 arrivals. Further investigation regarding the growth rate of labor force participation associated with duration of stay in U.S. reveals that the recent Mexican female immigrants not only have a lower labor force participation rate upon arrival, but also a significant negative growth rate as they stay longer in the U.S.. After controlled for educational attainment, family structure, spouse employment status and disability, 37 percentage points of the decrease in labor force participation can be explained for the Mexican females, however the residual of the decrease in the entry level participation rate is still around 52 percentage points and the duration effect captured in the last row of Table 1.23 is still statistically significant negative for the 1990*s* arrival. This finding provides clues for future study regarding the labor force participation and welfare program participation of Mexicans. With higher fertility rates for Mexican women than females from other ethnics, they might need to spend more time on housework and more likely to be detached from their regular jobs. Even if they accumulate the required 40 quarters, they might have too many gap years in their 35 years of working history which leads to a lower calculated Average Indexed Monthly Earning(AIME) and negligible Social Security income, which means that they might still be eligible to claim other public assistance and become a burden to the overall welfare system.

The Cubans reported in Table 1.24 and 1.25 present a smoother duration effect as they stay

longer in the U.S., especially the female Cuban immigrants. In the lower panel of Table 1.25 we observe that the marginal effect of an additional year spent in U.S. for a particular arrival cohort, the female Cubans are always around 10 percentage points less likely to participate in the labor force comparing to the female natives. And this difference in growth rate of labor force participation is not affected by which arrival cohort they belong to. This smooth transition into the host country's labor market makes sense considering the public assistance package the Cubans receive upon arrival. Comparing to their neighbors from Mexico, the Cubans are generally wealthier and more educated, and they are provided with amble support from the U.S. government and local communities as asymlees. Thus they do not have to start working for the forty quarters immediately upon arrival but can pursue a lower entry participation at the beginning and a smoother growth in labor force participation as they stay longer in the U.S..

For the two Asian origin countries in Tables 1.26, 1.27, 1.28 and 1.29, the trends of Chinese immigrants are more aligned with the behavior of higher educated immigrants estimated in Table 1.21 while the Filipinos behave more like the household heads with less educational attainments shown in Table 1.17. The gender difference among the Chinese immigrants also attains special attention: the entry level labor force participation of Chinese males among the first two arrivals(prior 1960 and $1960--1969$ arrivals) is positive and statistically and numerically significant. And recent immigrants who entered after 1980 tend to work less upon arrival and this decrease in labor force participation peaked for the *Post* 2000 arrivals at a significant negative 110 percentage points. The females from China are also very active in labor force if they arrived before 1980. After 1980 the newly entered female immigrants cut back their labor force participation at a speed slightly lower than the males in the same era. The duration effect for both male and female Chinese immigrants are significant negative and the magnitude becomes smaller across the sequential arrivals, thus we observe the similar pattern as the higher educated immigrants analyzed separately in Table 1.21: a lower entry participation rate plus a smoother growth rate as they stay longer in the U.S.. In contrast we do not observe the plummet in labor force participation for the Filipinos, neither male nor female. Among the recent arrivals who entered after 1980s, a smooth reduction in the entry level participation is presented however the magnitude of the drop is rather small, around negative 30 percentage points for the males and a even smaller effect of negative 12 percentage points on the females, comparing to the Chinese case. Furthermore the duration effects reported in the lower panel of Table 1.28 and 1.29 also reveal that the Filipinos maintain a relatively steady labor force participation as they stay longer in the host country and this trend has not changed much during the past 40 years.

To test the sensitivity of the estimations in each table from Table 1.22 to Table 1.29 we also carry out several compositional experiments and add more controls on observable demographic and socio-economic characteristics. The results for all four source countries are listed in columns (2) to (4) in each corresponding table. The controls[8] added include the immigrant's language ability, which is treated as a proxy to measure the convenience of transferring human capital gained from source country to the host country. This is one main possible factor to impact the speed of immigrants' assimilation process. With a better language ability, new arrivals could obtain more information regarding the labor market and might find a good match for his/her first job in the U.S.

[8]The full set of controls in (2) include the region of residence, time to commute to work; in (3) all controls from (2) are included and add the ownership of residence, estimated value of residence, educational attainment, and language ability; in (4) all controls from (3) are included and add the log income of spouse, married with spouse presented, number of children under age 5, and number of family members in household, and disability that hinders working.

sooner. With more family members in household and especially more young children under age 5, the immigrant household heads of all four source countries are more likely to participate in labor force. Having a disability that hinders working significantly reduce the probability of participating in the labor force and in future research regarding welfare program participation this could mean more payments from all the public assistance programs. Having the support from an employed spouse increases the total family income and raises the reservation wage of the household head when he/she is making labor supply choices, thus we observe significant negative marginal effect associated with spouse's employment status and market wage.[9] Overall the entry level labor force participation and the growth rate in participation for each arrival cohort in the extended model remain consistent with previous benchmark model.

1.8 Conclusions and Policy Implications

This paper uses data extracts from the 1980–2000 decennial U.S. Census and 2010 American Community Survey to examine the difference in the labor market participation profiles of elderly immigrants and natives. Two empirical findings have been documented over the past four decades: first, immigrants who entered in their late 50s tend to work more than the native counterparts in the first ten years upon arrival, while those immigrants of the same age who entered in their prime ages pursue a similar labor market participation rate as the natives, and this is the case up to the 1980s arrival; second, there exists a break in the labor market participation profile around late 1980s, where the post 1990 arrivals no longer express the motivated ten-year working ethnics of their predecessors.

The importance of embedding birth cohorts in arrival cohorts, which is rarely done, is apparent in these results since the young and old immigrants from each arrival cohort behave differently. Using the *double-cohort* method we manage to identify that there are cohort effects not only in the rate of labor market assimilation, with elderly newcomers work harder approaching retirement ages than their fellows who entered as young workers, but there are also cohort effects in the entry labor market participation, with more recent arrival cohorts having less incentive to contribute to the pay-as-you-go system. The analysis reported in this paper also conducted multiple sensitivity and robustness tests to verify that the break in the rate of labor market participation remains under different sample selection rules. And the decline in the labor market participation was *not* due to (1) the changing geographic settlement of recent immigrants in the United States; (2) the period effects of the 2008 financial market melt-down; (3) the changing in the "quality" of the post 1990 arrival cohorts.

The empirical analysis in this paper shows that at least more than one third of the decline in labor force participation rate of the recent elderly newcomers can be explained jointly with the potential eligibility to Social Security benefits and the variation in private asset levels. In particular, the more recent elderly immigrant cohorts are less likely to participate in the labor force and accumulate the forty quarters required by the Social Security system. Comparing to their predecessors, they posses a better status in private asset level defined by the ownership of residence, thus their higher reservation wages drive them away from the older age labor market.

Further comparisons using an innovative Duration Model manage to show that the differences

[9] Estimation results of all the controls are available upon requests.

in the entry level labor force participation and the growth rate of labor force participation of each arrival cohort is consistent with the pattern we found using the "Double-Cohort" method. The elderly immigrants who arrived before 1980 present a higher labor force participation upon arrival but immediately reduce their labor supply once they reached the forty quarter working requirement, while the recent elderly entrants seem less likely to participate in the labor force at entry and also obtain a smoother employment profile as they stay longer in the U.S.. The estimations pass sensitivity and robustness testings with various sample selections by immigrant status, gender and educational attainment. Immigrants from four major Latin American and Asian source countries are analyzed against the native counterparts, where recent Chinese immigrants are less likely to start working upon arrival and pursue a smoother growth rate in participation as their duration of stay increases, the Mexicans and Filipinos have a relatively steady labor force participation rate across the past four decades, and the Cubans who receive public assistance as asymlees upon arrival are always less likely to participate in the labor force during their stay in the U.S..

The finding in this paper may have important implications for assessing the trends of recent immigrant cohorts and especially the immigration experience for the elderly newcomers. For future research, it would be of great interest to analyze the net contribution (or net loss) to the Social Security system of these discouraged elderly newcomers and verify the possible connection with other welfare programs.

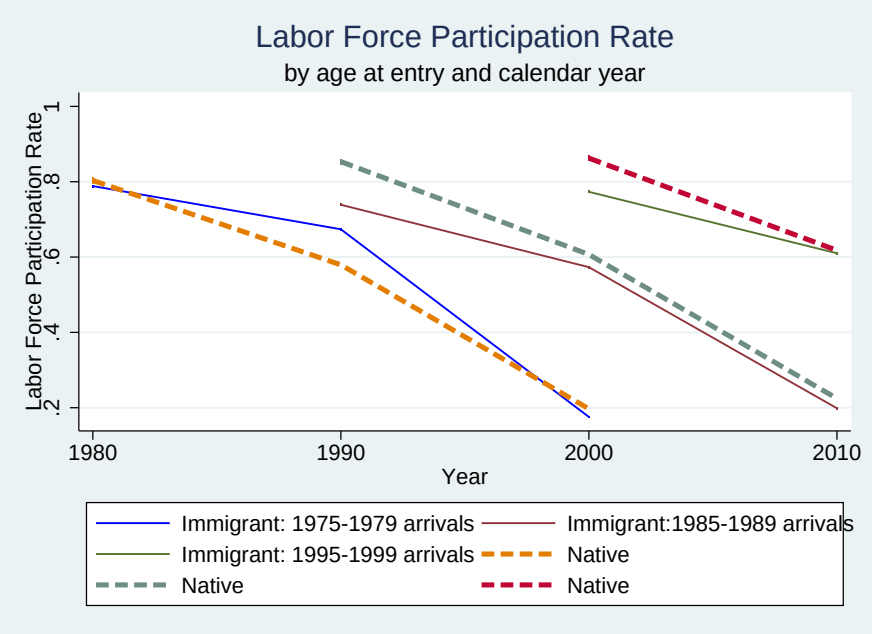

Figure 1.1: Labor Force Participation Rate of Older Entrants by Calendar Year at Entry

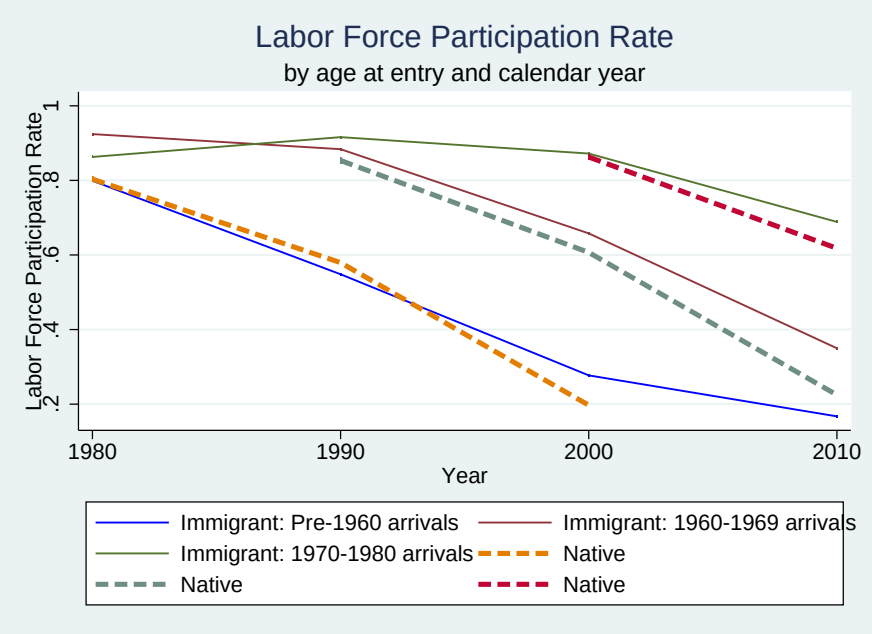

Figure 1.2: Labor Force Participation Rate of Younger Entrants by Calendar Year at Entry

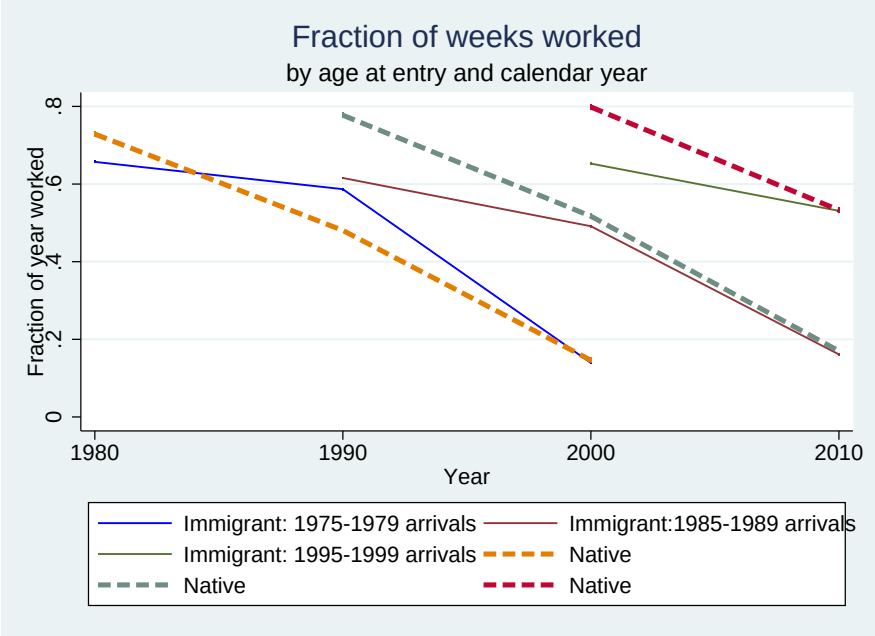

Figure 1.3: Fraction of Weeks Worked of Older Entrants by Calendar Year at Entry

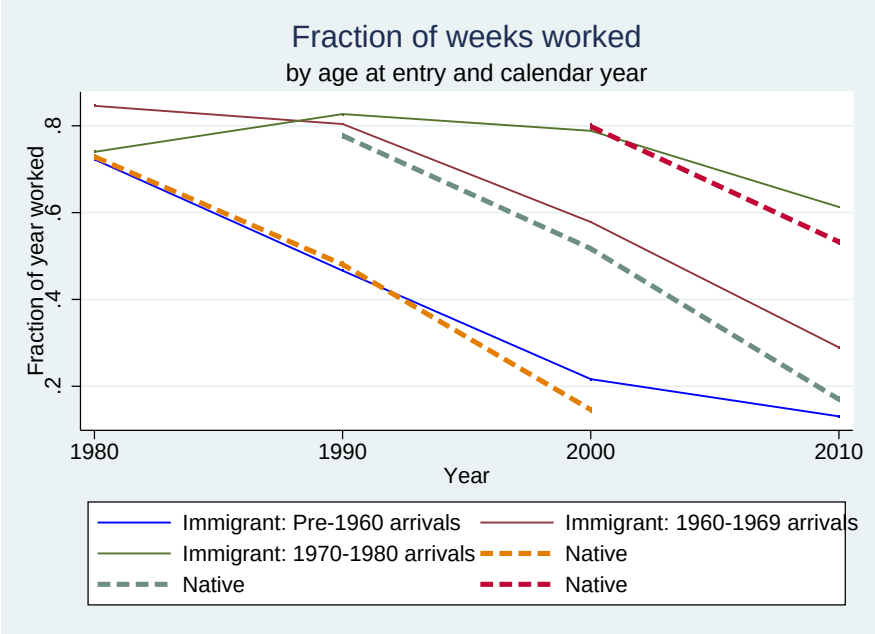

Figure 1.4: Fraction of Weeks Worked of Younger Entrants by Calendar Year at Entry

Table 1.1: Description of the Sample: Census 1980-2000 and American Community Survey 2010

	1980		1990		2000		2010	
	N	I	N	I	N	I	N	I
	b / SE	b / SE	b / SE	b / SE	b / SE	b / SE	b / SE	b / SE
English Speaking	.993	.765	.995	.737	.995	.706	.997	.718
	(.081)	(.424)	(.072)	(.441)	(.069)	(.455)	(.056)	(.450)
Male	.364	.429	.368	.461	.409	.481	.432	.469
	(.481)	(.495)	(.482)	(.498)	(.492)	(.500)	(.495)	(.499)
Married	.618	.684	.596	.636	.576	.634	.556	.658
	(.486)	(.465)	(.491)	(.481)	(.494)	(.482)	(.497)	(.474)
Hispanic	.040	.317	.041	.426	.054	.471	.068	.445
	(.195)	(.465)	(.198)	(.494)	(.225)	(.499)	(.251)	(.497)
Number of own children under age 5 in household	.201	.242	.205	.236	.172	.231	.136	.200
	(.510)	(.562)	(.516)	(.553)	(.477)	(.544)	(.433)	(.502)
Number of own family members in household	3.108	3.434	2.971	3.687	2.835	3.640	2.736	3.408
	(1.681)	(1.956)	(1.565)	(2.179)	(1.545)	(2.151)	(1.527)	(1.913)
No. of Obs	1118974	494059	1230959	800901	1384430	1265955	1594646	1457127

Standard errors are reported in parentheses.
N: Native; *I*: Immigrant

Table 1.2: Summary Statistics by Education Attainment and Age Groups

	1980		1990		2000		2010	
	N	I	N	I	N	I	N	I
Age								
18-25	24.991	16.909	18.401	17.569	15.671	15.138	14.521	10.549
26-35	24.668	24.303	27.476	27.564	21.022	26.352	16.859	21.522
36-45	15.977	19.235	21.110	22.169	24.776	24.557	18.038	24.656
46-55	12.405	15.083	13.308	14.675	18.757	16.779	22.189	20.627
56-65	11.848	11.682	10.459	10.818	11.726	10.408	17.816	14.048
66-75	10.111	12.788	9.246	7.204	8.048	6.766	10.578	8.597
Education Attainment								
<High-school	29.821	43.154	21.729	40.426	16.370	38.581	10.054	28.847
High school grad	35.210	23.869	33.060	20.485	31.161	19.885	28.998	21.971
Some college	20.827	17.361	26.965	20.268	29.943	19.648	32.258	20.378
College grad	8.087	7.063	12.433	11.208	15.029	12.949	18.469	16.878
Master and above	6.054	8.553	5.813	7.612	7.497	8.938	10.221	11.926
No. of Obs	1118974	494059	1230959	800901	1384430	1265955	1594646	1457127

N: Native; *I*: Immigrant

Table 1.3: Summary Statistics by Labor Force Participation and Weeks Worked: *All*

	1980		1990		2000		2010	
	N	I	N	I	N	I	N	I
Age 18–75								
Currently employed	.688	.644	.747	.707	.767	.716	.724	.729
	(.463)	(.479)	(.435)	(.455)	(.423)	(.451)	(.447)	(.444)
Weeks worked last year	29.142	27.603	32.626	30.578	34.684	31.659	32.373	32.975
	(23.006)	(23.379)	(22.438)	(22.849)	(22.080)	(22.775)	(22.823)	(22.619)
No. of Obs	1118974	494059	1230959	800901	1384430	1265955	1594646	1457127
Age 60–75								
Currently employed	.293	.283	.297	.353	.335	.343	.400	.392
	(.455)	(.450)	(.457)	(.478)	(.472)	(.475)	(.490)	(.488)
Weeks worked last year	11.911	11.732	11.658	14.722	13.964	14.738	17.207	17.368
	(20.388)	(20.308)	(20.117)	(21.848)	(21.586)	(22.018)	(22.949)	(23.134)
No. of Obs	192970	93974	191417	108177	197821	159689	321846	237822

Standard errors are reported in parentheses.
N: Native; *I*: Immigrant

Table 1.4: Summary Statistics by Labor Market Status and Weeks Worked: *Male* v.s. *Female*

	1980		1990		2000		2010	
	N	I	N	I	N	I	N	I
Male Only								
Age 18–75								
Currently employed	.838	.799	.875	.833	.861	.834	.789	.847
	(.368)	(.401)	(.330)	(.373)	(.346)	(.372)	(.408)	(.360)
Weeks worked last year	37.279	35.758	39.632	37.052	40.086	37.807	35.481	39.102
	(20.240)	(21.143)	(19.082)	(20.281)	(19.310)	(20.100)	(21.580)	(19.502)
No. of Obs	407007	211880	453307	369344	566406	608817	688108	683629
Age 60–75								
Currently employed	.404	.418	.421	.504	.483	.474	.474	.499
	(.491)	(.493)	(.494)	(.500)	(.500)	(.499)	(.499)	(.500)
Weeks worked last year	16.313	17.493	16.815	21.456	20.705	20.650	20.418	22.286
	(22.321)	(22.771)	(22.478)	(23.681)	(23.755)	(23.741)	(23.692)	(24.111)
No. of Obs	60797	35659	35228	39247	47359	62471	104405	97836
Female Only								
Age 18–75								
Currently employed	.602	.527	.672	.599	.701	.607	.674	.625
	(.490)	(.499)	(.469)	(.490)	(.458)	(.489)	(.469)	(.484)
Weeks worked last year	24.491	21.480	28.542	25.038	30.944	25.962	30.014	27.560
	(23.198)	(23.106)	(23.225)	(23.458)	(23.081)	(23.611)	(23.449)	(23.773)
No. of Obs	711967	282179	777652	431557	818024	657138	906538	773498
Age 60–75								
Currently employed	.242	.200	.268	.267	.289	.259	.365	.318
	(.429)	(.400)	(.443)	(.442)	(.453)	(.438)	(.481)	(.466)
Weeks worked last year	9.887	8.210	10.495	10.887	11.842	10.939	15.665	13.931
	(19.097)	(17.743)	(19.357)	(19.730)	(20.400)	(19.932)	(22.422)	(21.777)
No. of Obs	132173	58315	156189	68930	150462	97218	217441	139986

Standard errors are reported in parentheses. *N*: Native; *I*: Immigrant

Table 1.5: Cross section Labor Supply: 1980-2010

	(1)	(2)	(3)	(4)
	1980	1990	2000	2010
	b / SE	b / SE	b / SE	b / SE
Age	.073***	.094***	.106***	.122***
	(.000)	(.001)	(.000)	(.000)
Age Squared	-.001***	-.001***	-.001***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration in U.S.	.062***	.056***	.036***	.032***
	(.001)	(.001)	(.000)	(.000)
Duration in U.S. squared/100	-.149***	-.107***	-.052***	-.049***
	(.002)	(.001)	(.001)	(.001)
Immigrant Inidicator	-.544***	-.696***	-.631***	-.368***
	(.004)	(.004)	(.004)	(.005)
College Grad	.321***	.453***	.442***	.435***
	(.003)	(.003)	(.003)	(.003)
Master and above	.620***	.781***	.737***	.756***
	(.006)	(.007)	(.005)	(.004)
Male	.777***	.603***	.507***	.383***
	(.003)	(.003)	(.003)	(.002)
Constant	-.591***	-.882***	-1.105***	-1.674***
	(.010)	(.011)	(.010)	(.010)
No. of Obs	1613033	2031701	2649655	3051773
Log(likelihood)	-6.045e+07	-6.119e+07	-7.242e+07	-9.491e+07

Standard errors are reported in parentheses.
The dependent variable gives the current employment status of a person.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.6: Cross section Labor Supply of Controlled Immigrant Arrival Cohorts: 1980-2010

	1980	1990	2000	2010
Age	.198***	.210***	.222***	.217***
	(.000)	(.000)	(.000)	(.000)
Age Squared	-.002***	-.003***	-.003***	-.003***
	(.000)	(.000)	(.000)	(.000)
Pre 1950 Arrivals	.121***	.153***	.169***	.285***
	(.007)	(.010)	(.013)	(.016)
1950-1959 Arrivals	-.032***	-.173***	-.104***	.042***
	(.005)	(.006)	(.007)	(.009)
1960-1964 Arrivals	.063***	-.092***	-.142***	-.022***
	(.006)	(.007)	(.008)	(.008)
1965-1969 Arrivals	-.025***	-.031***	-.164***	-.066***
	(.005)	(.006)	(.006)	(.007)
1970-1974 Arrivals	-.040***	.014**	-.150***	-.062***
	(.004)	(.005)	(.006)	(.006)
1975-1979 Arrivals	-.284***	-.111***	-.082***	-.009*
	(.004)	(.004)	(.005)	(.006)
o.1980-1984 Arrivals	.000	-.149***	-.084***	.017***
	(.)	(.004)	(.004)	(.005)
o.1985-1989 Arrivals	.000	-.376***	-.179***	.062***
	(.)	(.004)	(.004)	(.005)
o.1990-1994 Arrivals	.000	.000	-.223***	.026***
	(.)	(.)	(.003)	(.004)
o.1995-1999 Arrivals	.000	.000	-.292***	-.016***
	(.)	(.)	(.003)	(.004)
o.Post 2000 Arrivals	.000	.000	.000	-.093***
	(.)	(.)	(.)	(.003)
Constant	-2.974***	-3.103***	-3.337***	-3.424***
	(.004)	(.005)	(.005)	(.005)
No. of Obs	2440365	2943025	3673316	4039660
Log(likelihood)	-8.620e+07	-8.494e+07	-9.596e+07	-1.157e+08

Table 1.7: Probit Estimates of Labor Market Participation for Natives and Double-cohort Identified Immigrants

	(1) Everyone β / SE	(2) Head β / SE	(3) Male β / SE	(4) Female β / SE
Effect of being an Immigrant (α_{6l})				
Prior 1960 arrivals	.154***	.310***	.390***	.115***
	(.010)	(.015)	(.020)	(.022)
1960 – 1969 arrivals	.077***	.319***	.426***	.096***
	(.012)	(.018)	(.025)	(.028)
1970 – 1979 arrivals	-.043***	-.045	-.131***	-.024
	(.015)	(.029)	(.044)	(.043)
1980 – 1989 arrivals	-.043***	-.018	-.092***	-.157***
	(.011)	(.022)	(.033)	(.035)
1990 – 1999 arrivals	-.136***	-.163***	-.461***	-.180***
	(.008)	(.015)	(.020)	(.029)
Birth Cohort Effect α_{5k}				
Age 40 – 44 in 1980	-.037***	-.139***	-.212***	-.122***
	(.006)	(.012)	(.018)	(.017)
Age 50 – 54 in 1980	-.396***	-.583***	-.707***	-.345***
	(.006)	(.012)	(.019)	(.016)
Period Effect (α_{4k})				
Year = 1990	.250***	-.040***	-.245***	.204***
	(.006)	(.011)	(.017)	(.015)
Year = 2000	.081***	-.345***	-.639***	-.015
	(.006)	(.010)	(.016)	(.014)
Year = 2010	-.568***	-1.137***	-1.480***	-.710***
	(.005)	(.009)	(.015)	(.013)
Observations	1736546	865617	489460	376157
log(likelihood)	-9.52e+05	-3.91e+05	-1.83e+05	-1.96e+05
chi2	4.20e+05	3.08e+05	1.46e+05	1.28e+05

Standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.8: Aging and Duration Effects

	(1) Everyone β / SE	(2) Head β / SE	(3) Male β / SE	(4) Female β / SE
Aging Effect (α_{7kj})				
$40-44$ in $1980*1990$	-.285***	-.207***	-.146***	-.196***
	(.009)	(.016)	(.025)	(.023)
$40-44$ in $1980*2000$	-.732***	-.682***	-.640***	-.660***
	(.009)	(.015)	(.022)	(.022)
$40-44$ in $1980*2010$	-1.012***	-.917***	-.824***	-.941***
	(.009)	(.014)	(.022)	(.020)
$50-54$ in $1980*1990$	-.693***	-.613***	-.505***	-.715***
	(.009)	(.016)	(.026)	(.022)
$50-54$ in $1980*2000$	-1.429***	-1.361***	-1.144***	-1.532***
	(.010)	(.016)	(.026)	(.021)
$50-54$ in $1980*2010$	-1.424***	-1.276***	-.928***	-1.532***
	(.012)	(.017)	(.031)	(.022)
Duration Effect (α_{8lj})				
$1970-1979$ arrivals$*1990$	.056***	.156***	.482***	-.100**
	(.013)	(.022)	(.030)	(.039)
$1970-1979$ arrivals$*2000$	.099***	.259***	.606***	.080**
	(.012)	(.021)	(.028)	(.037)
$1970-1979$ arrivals$*2010$	.241***	.383***	.738***	.251***
	(.012)	(.020)	(.026)	(.034)
$1980-1989$ arrivals$*1990$	-.476***	-.616***	-.731***	-.661***
	(.014)	(.022)	(.029)	(.036)
$1980-1989$ arrivals$*2000$	-.211***	-.265***	-.303***	-.262***
	(.014)	(.021)	(.029)	(.034)
$1990-1999$ arrivals$*2000$	-.365***	-.379***	-.413***	-.430***
	(.016)	(.026)	(.035)	(.041)

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.9: Additional Duration Effects

	(1) Everyone β / SE	(2) Head β / SE	(3) Male β / SE	(4) Female β / SE
Additional Duration Effect of Older cohorts (α_{9klj})				
$1970-1979$ arrivals $*$ $40-44$ in $1980*1990$	.064***	.036	-.033	.044
	(.022)	(.038)	(.050)	(.067)
$1970-1979$ arrivals $*$ $40-44$ in $1980*2000$	.061***	.020	-.037	-.004
	(.021)	(.035)	(.045)	(.063)
$1970-1979$ arrivals $*$ $40-44$ in $1980*2010$	-.264***	-.364***	-.466***	-.368***
	(.023)	(.036)	(.046)	(.063)
$1970-1979$ arrivals $*$ $50-54$ in $1980*1990$	.133***	.112***	-.113**	.256***
	(.026)	(.043)	(.056)	(.073)
$1970-1979$ arrivals $*$ $50-54$ in $1980*2000$	-.180***	-.278***	-.572***	-.109
	(.029)	(.043)	(.057)	(.075)
$1970-1979$ arrivals $*$ $50-54$ in $1980*2010$	-.497***	-.615***	-.990***	-.424***
	(.046)	(.062)	(.082)	(.103)
$1980-1989$ arrivals $*$ $40-44$ in $1980*1990$	.281***	.412***	.448***	.385***
	(.026)	(.039)	(.051)	(.066)
$1980-1989$ arrivals $*$ $40-44$ in $1980*2000$	.329***	.496***	.565***	.423***
	(.026)	(.038)	(.049)	(.062)
$1980-1989$ arrivals $*$ $40-44$ in $1980*2010$	.620***	.889***	1.069***	.760***
	(.049)	(.070)	(.091)	(.119)
$1980-1989$ arrivals $*$ $50-54$ in $1980*2000$	.416***	.521***	.596***	.456***
	(.051)	(.071)	(.093)	(.120)
$1990-1999$ arrivals $*$ $40-44$ in $1980*2000$	.219***	.339***	.360***	.335***
	(.028)	(.044)	(.057)	(.075)
$1990-1999$ arrivals $*$ $50-54$ in $1980*2000$	.336***	.360***	.467***	.334**
	(.052)	(.079)	(.103)	(.134)

Standard errors in parentheses
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table 1.10: Total Duration Effects by Migration and Birth Cohorts

	(1) Everyone β / SE	(2) Head β / SE	(3) Male β / SE	(4) Female β / SE
$50-54$ *in 1980*				
Prior 1960 arrivals $*$ $50-54$ in 1980 $*1990$	-.007	-.095***	-.068***	-.086***
	(.005)	(.007)	(.009)	(.011)
$1970-1979$ arrivals $*$ $50-54$ in 1980 $*1990$	.189***	.268***	.369***	.156***
	(.013)	(.021)	(.026)	(.034)
$40-44$ *in 1980*				
$1960-1969$ arrivals $*$ $40-44$ in 1980 $*2000$	.026***	.010	.102***	-.005
	(.006)	(.010)	(.013)	(.017)
$1980-1989$ arrivals $*$ $40-44$ in 1980 $*2000$	.118***	.231***	.262***	.161***
	(.012)	(.017)	(.020)	(.028)
$30-34$ *in 1980*				
$1970-1979$ arrivals $*$ $30-34$ in 1980 $*2010$	.099***	.259***	.606***	.080**
	(.012)	(.021)	(.028)	(.037)
$1990-1999$ arrivals $*$ $30-34$ in 1980 $*2010$	-.365***	-.379***	-.413***	-.430***
	(.016)	(.026)	(.035)	(.041)
Observations	1736546	865617	489460	376157
log(likelihood)	-9.52e+05	-3.91e+05	-1.83e+05	-1.96e+05
chi2	4.20e+05	3.08e+05	1.46e+05	1.28e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.11: Sensitivity and Robustness Testings of Total Duration Effects by Migration and Birth Cohorts

	(1)	(2)	(3)	(4)	(5)	(6)
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
$50-54$ *in 1980*						
Prior 1960 arrivals $*$ $50-54$ in 1980 $*1990$	-.007	-.004	.011**	.011**	.009**	.006
	(.005)	(.005)	(.005)	(.005)	(.004)	(.004)
$1970-1979$ arrivals $*$ $50-54$ in 1980 $*1990$	.189***	.193***	.217***	.218***	.218***	.217***
	(.013)	(.013)	(.014)	(.014)	(.014)	(.014)
$40-44$ *in 1980*						
$1960-1969$ arrivals $*$ $40-44$ in 1980 $*2000$	.026***	.029***	.054***	.053***	.043***	.043***
	(.006)	(.006)	(.006)	(.006)	(.006)	(.006)
$1980-1989$ arrivals $*$ $40-44$ in 1980 $*2000$	.118***	.114***	.131***	.130***	.144***	.143***
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
$30-34$ *in 1980*						
$1970-1979$ arrivals $*$ $30-34$ in 1980 $*2010$	.099***	.246***	.310***	.311***	.296***	.299***
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
$1990-1999$ arrivals $*$ $30-34$ in 1980 $*2010$	-.365***	-.367***	-.385***	-.385***	-.380***	-.384***
	(.016)	(.016)	(.016)	(.016)	(.016)	(.016)
Controls for:						
State of residence	No	Yes	Yes	Yes	Yes	Yes
Educational attainment	No	No	Yes	Yes	Yes	Yes
Married	No	No	No	No	Yes	Yes
Family Size	No	No	No	No	Yes	Yes
Number of Kids under 5	No	No	No	No	Yes	Yes
Hispanic	No	No	No	No	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.12: Determinants of the Different Duration Effects among Birth and Arrival Cohorts

	(1) β / SE	(2) β / SE	(3) β / SE	(4) β / SE	(5) β / SE	(6) β / SE
$50-54$ *in 1980*						
Prior 1960 arrivals $*$ $50-54$ in 1980 $*1990$	-.007	.002	.024***	.018***	-.002	-.001
	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)
$1970-1979$ arrivals $*$ $50-54$ in 1980 $*1990$	.189***	.127***	.155***	.143***	.114***	.116***
	(.013)	(.014)	(.014)	(.014)	(.014)	(.014)
$40-44$ *in 1980*						
$1960-1969$ arrivals $*$ $40-44$ in 1980 $*2000$	.026***	-.010	.021***	.008	-.018***	-.017***
	(.006)	(.007)	(.007)	(.007)	(.007)	(.007)
$1980-1989$ arrivals $*$ $40-44$ in 1980 $*2000$	.118***	-.052**	.088***	-.052**	-.037	-.028
	(.012)	(.024)	(.013)	(.024)	(.024)	(.025)
$30-34$ *in 1980*						
$1970-1979$ arrivals $*$ $30-34$ in 1980 $*2010$	.099***	.120***	.129***	.155***	.090***	.091***
	(.012)	(.012)	(.012)	(.013)	(.013)	(.013)
$1990-1999$ arrivals $*$ $30-34$ in 1980 $*2010$	-.365***	-.263***	-.288***	-.268***	-.248***	-.250***
	(.016)	(.016)	(.016)	(.016)	(.016)	(.016)
Determinants added:						
Potential Eligibility	No	Yes	No	Yes	Yes	Yes
Private Asset	No	No	Yes	Yes	Yes	Yes
Other Controls	No	No	No	Yes	No	No
New Duration Indicator	No	No	No	No	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.13: Aging, Period and Cohort Effects Using Duration Model

	(1)	(2)	(3)	(4)
Age	.104***	.098***	.106***	.101***
	(.000)	(.000)	(.000)	(.000)
Age squared	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.087***	.107***	.108***	.124***
	(.003)	(.003)	(.003)	(.003)
<1960	.302***	.267***	.244***	.297***
	(.022)	(.022)	(.023)	(.023)
1960 – 1969	.074***	.095***	.071***	.143***
	(.014)	(.014)	(.014)	(.014)
1970 – 1979	-.264***	-.263***	-.278***	-.220***
	(.005)	(.005)	(.005)	(.005)
1980 – 1989	-.563***	-.567***	-.588***	-.538***
	(.005)	(.005)	(.005)	(.005)
1990 – 1999	-.746***	-.759***	-.783***	-.760***
	(.006)	(.006)	(.006)	(.006)
Post 2000	-.799***	-.839***	-.859***	-.866***
	(.007)	(.007)	(.007)	(.007)
<1960*duration	-.102***	-.118***	-.119***	-.136***
	(.003)	(.003)	(.003)	(.003)
1960 – 1969*duration	-.089***	-.108***	-.108***	-.126***
	(.003)	(.003)	(.003)	(.003)
1970 – 1979*duration	-.065***	-.078***	-.079***	-.093***
	(.003)	(.003)	(.003)	(.003)
1980 – 1989*duration	-.045***	-.053***	-.054***	-.062***
	(.003)	(.003)	(.003)	(.003)
1990 – 1999*duration	-.020***	-.025***	-.025***	-.026***
	(.003)	(.003)	(.003)	(.003)
Observations	7288054	7288054	7288054	7288054
log(likelihood)	-3.64e+06	-3.54e+06	-3.51e+06	-3.44e+06
chi2	1.30e+06	1.50e+06	1.56e+06	1.71e+06

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.14: Aging, Period and Cohort Effects Using Duration Model - Immigrant Only

	(1)	(2)	(3)	(4)
Age	.121***	.115***	.123***	.121***
	(.000)	(.000)	(.000)	(.000)
Age squared	-.002***	-.002***	-.002***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration	-.016***	-.013***	-.013***	-.017***
	(.001)	(.001)	(.001)	(.001)
1960 – 1969	-.249***	-.209***	-.207***	-.180***
	(.025)	(.025)	(.026)	(.026)
1970 – 1979	-.450***	-.436***	-.425***	-.400***
	(.024)	(.024)	(.024)	(.024)
1980 – 1989	-.687***	-.680***	-.667***	-.649***
	(.026)	(.027)	(.027)	(.027)
1990 – 1999	-.746***	-.749***	-.730***	-.732***
	(.028)	(.028)	(.028)	(.028)
Post 2000	-.873***	-.887***	-.869***	-.883***
	(.028)	(.029)	(.029)	(.029)
1960 – 1969*duration	.023***	.020***	.021***	.020***
	(.002)	(.002)	(.002)	(.002)
1970 – 1979*duration	.043***	.046***	.047***	.048***
	(.001)	(.001)	(.001)	(.001)
1980 – 1989*duration	.064***	.071***	.072***	.077***
	(.001)	(.001)	(.001)	(.002)
1990 – 1999*duration	.074***	.084***	.087***	.098***
	(.002)	(.002)	(.002)	(.002)
Post 2000*duration	.102***	.116***	.119***	.135***
	(.003)	(.003)	(.003)	(.003)
Observations	3080225	3080225	3080225	3080225
log(likelihood)	-1.62e+06	-1.58e+06	-1.56e+06	-1.54e+06
chi2	4.25e+05	5.01e+05	5.37e+05	5.76e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.15: Aging, Period and Cohort Effects Using Duration Model - Male Only

	(1)	(2)	(3)	(4)
Age	.120***	.116***	.104***	.109***
	(.000)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.002***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration	.118***	.140***	.134***	.126***
	(.005)	(.005)	(.005)	(.005)
<1960	.619***	.530***	.510***	.537***
	(.044)	(.045)	(.045)	(.045)
1960 – 1969	.148***	.140***	.118***	.003
	(.028)	(.028)	(.028)	(.029)
1970 – 1979	-.500***	-.545***	-.518***	-.613***
	(.008)	(.008)	(.009)	(.009)
1980 – 1989	-.678***	-.725***	-.675***	-.737***
	(.009)	(.009)	(.009)	(.010)
1990 – 1999	-.668***	-.703***	-.652***	-.642***
	(.011)	(.011)	(.011)	(.012)
Post 2000	-.585***	-.636***	-.592***	-.610***
	(.012)	(.012)	(.012)	(.012)
<1960*duration	-.151***	-.166***	-.155***	-.152***
	(.006)	(.006)	(.006)	(.006)
1960 – 1969*duration	-.121***	-.139***	-.130***	-.121***
	(.005)	(.006)	(.006)	(.006)
1970 – 1979*duration	-.069***	-.081***	-.076***	-.066***
	(.005)	(.005)	(.005)	(.005)
1980 – 1989*duration	-.049***	-.056***	-.053***	-.041***
	(.005)	(.005)	(.005)	(.005)
1990 – 1999*duration	-.011*	-.016***	-.015***	-.010*
	(.006)	(.006)	(.006)	(.006)
Observations	2917109	2917109	2917109	2917109
log(likelihood)	-8.92e+05	-8.68e+05	-8.57e+05	-8.24e+05
chi2	5.92e+05	6.40e+05	6.62e+05	7.28e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.16: Aging, Period and Cohort Effects Using Duration Model - Female Only

	(1)	(2)	(3)	(4)
Age	.103***	.097***	.104***	.089***
	(.000)	(.000)	(.000)	(.000)
Age squared	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.099***	.118***	.114***	.146***
	(.004)	(.004)	(.004)	(.004)
<1960	-.009	-.017	-.051*	.016
	(.027)	(.027)	(.027)	(.028)
1960 – 1969	-.076***	-.028	-.069***	.033*
	(.017)	(.017)	(.017)	(.017)
1970 – 1979	-.391***	-.349***	-.360***	-.261***
	(.006)	(.006)	(.006)	(.006)
1980 – 1989	-.736***	-.700***	-.710***	-.631***
	(.007)	(.007)	(.007)	(.007)
1990 – 1999	-.959***	-.931***	-.936***	-.938***
	(.008)	(.008)	(.008)	(.008)
Post 2000	-1.012***	-1.015***	-1.021***	-1.063***
	(.009)	(.009)	(.009)	(.010)
<1960*duration	-.104***	-.119***	-.117***	-.151***
	(.004)	(.004)	(.004)	(.004)
1960 – 1969*duration	-.101***	-.118***	-.114***	-.149***
	(.004)	(.004)	(.004)	(.004)
1970 – 1979*duration	-.081***	-.094***	-.091***	-.122***
	(.004)	(.004)	(.004)	(.004)
1980 – 1989*duration	-.060***	-.068***	-.064***	-.088***
	(.004)	(.004)	(.004)	(.004)
1990 – 1999*duration	-.033***	-.036***	-.033***	-.041***
	(.004)	(.004)	(.004)	(.004)
Observations	4370945	4370945	4370945	4370945
log(likelihood)	-2.49e+06	-2.42e+06	-2.38e+06	-2.31e+06
chi2	7.51e+05	9.00e+05	9.72e+05	1.12e+06

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.17: Aging, Period and Cohort Effects Using Duration Model - High School Dropouts

	(1)	(2)	(3)	(4)
Age	.098***	.104***	.104***	.098***
	(.000)	(.000)	(.000)	(.001)
Age squared	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.081***	.091***	.088***	.102***
	(.007)	(.007)	(.007)	(.007)
<1960	.548***	.472***	.486***	.529***
	(.039)	(.040)	(.040)	(.041)
1960 – 1969	.208***	.181***	.165***	.270***
	(.022)	(.023)	(.023)	(.023)
1970 – 1979	-.030***	-.099***	-.102***	.010
	(.007)	(.008)	(.008)	(.008)
1980 – 1989	-.256***	-.347***	-.347***	-.233***
	(.009)	(.009)	(.009)	(.010)
1990 – 1999	-.231***	-.275***	-.273***	-.136***
	(.011)	(.012)	(.012)	(.012)
Post 2000	-.233***	-.210***	-.196***	-.121***
	(.018)	(.018)	(.018)	(.019)
<1960*duration	-.104***	-.115***	-.114***	-.129***
	(.007)	(.007)	(.007)	(.007)
1960 – 1969*duration	-.082***	-.096***	-.092***	-.108***
	(.007)	(.007)	(.007)	(.007)
1970 – 1979*duration	-.059***	-.071***	-.068***	-.081***
	(.007)	(.007)	(.007)	(.007)
1980 – 1989*duration	-.040***	-.048***	-.044***	-.052***
	(.007)	(.007)	(.007)	(.007)
1990 – 1999*duration	-.041***	-.044***	-.040***	-.048***
	(.007)	(.007)	(.007)	(.007)
Observations	1751134	1751134	1751134	1751134
log(likelihood)	-1.03e+06	-9.37e+05	-9.34e+05	-9.13e+05
chi2	3.35e+05	5.14e+05	5.20e+05	5.62e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.18: Aging, Period and Cohort Effects Using Duration Model - High School Graduates

	(1)	(2)	(3)	(4)
Age	.095***	.100***	.102***	.092***
	(.000)	(.000)	(.000)	(.001)
Age squared	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.106***	.116***	.113***	.134***
	(.007)	(.007)	(.007)	(.007)
<1960	.003	-.047	-.057	-.016
	(.041)	(.042)	(.042)	(.042)
1960 – 1969	-.017	-.062**	-.095***	-.028
	(.028)	(.028)	(.028)	(.029)
1970 – 1979	-.246***	-.325***	-.337***	-.275***
	(.010)	(.010)	(.010)	(.011)
1980 – 1989	-.564***	-.673***	-.680***	-.608***
	(.011)	(.012)	(.012)	(.012)
1990 – 1999	-.712***	-.785***	-.788***	-.706***
	(.014)	(.015)	(.015)	(.015)
Post 2000	-.730***	-.738***	-.740***	-.707***
	(.017)	(.018)	(.018)	(.018)
<1960*duration	-.106***	-.117***	-.116***	-.137***
	(.007)	(.007)	(.007)	(.007)
1960 – 1969*duration	-.103***	-.115***	-.112***	-.134***
	(.007)	(.007)	(.007)	(.007)
1970 – 1979*duration	-.085***	-.095***	-.092***	-.109***
	(.007)	(.007)	(.007)	(.007)
1980 – 1989*duration	-.058***	-.064***	-.061***	-.072***
	(.007)	(.007)	(.007)	(.007)
1990 – 1999*duration	-.033***	-.037***	-.035***	-.043***
	(.007)	(.008)	(.008)	(.008)
Observations	1954430	1954430	1954430	1954430
log(likelihood)	-1.03e+06	-9.68e+05	-9.62e+05	-9.37e+05
chi2	3.47e+05	4.67e+05	4.79e+05	5.27e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.19: Aging, Period and Cohort Effects Using Duration Model - Some college

	(1)	(2)	(3)	(4)
Age	.095***	.099***	.105***	.105***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.001***	-.001***	-.001***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration	.125***	.138***	.136***	.151***
	(.007)	(.007)	(.007)	(.007)
$<$1960	.144***	.084	.082	.162***
	(.051)	(.053)	(.053)	(.053)
1960 – 1969	-.038	-.075**	-.098***	-.073**
	(.033)	(.033)	(.033)	(.034)
1970 – 1979	-.518***	-.654***	-.651***	-.639***
	(.010)	(.011)	(.011)	(.011)
1980 – 1989	-.735***	-.861***	-.863***	-.817***
	(.011)	(.012)	(.012)	(.012)
1990 – 1999	-1.007***	-1.093***	-1.098***	-1.074***
	(.015)	(.015)	(.015)	(.016)
Post 2000	-1.009***	-1.064***	-1.076***	-1.080***
	(.017)	(.017)	(.017)	(.018)
$<$1960	-.133***	-.145***	-.145***	-.163***
	(.007)	(.008)	(.008)	(.008)
1960 – 1969	-.122***	-.135***	-.133***	-.149***
	(.007)	(.007)	(.007)	(.008)
1970 – 1979	-.082***	-.088***	-.088***	-.097***
	(.007)	(.007)	(.007)	(.007)
1980 – 1989	-.064***	-.070***	-.070***	-.077***
	(.007)	(.007)	(.007)	(.007)
1990 – 1999	-.021***	-.027***	-.026***	-.027***
	(.008)	(.008)	(.008)	(.008)
Observations	1749530	1749530	1749530	1749530
log(likelihood)	-7.90e+05	-7.56e+05	-7.49e+05	-7.27e+05
chi2	2.46e+05	3.15e+05	3.29e+05	3.73e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.20: Aging, Period and Cohort Effects Using Duration Model - College Graduates

	(1)	(2)	(3)	(4)
Age	.097***	.101***	.117***	.121***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.001***	-.001***	-.002***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration	.083***	.099***	.097***	.116***
	(.005)	(.006)	(.006)	(.006)
<1960	.233***	.065	.080	.191**
	(.079)	(.082)	(.082)	(.084)
1960 – 1969	.142***	.062	.017	.073
	(.049)	(.051)	(.051)	(.051)
1970 – 1979	-.397***	-.531***	-.533***	-.448***
	(.015)	(.016)	(.016)	(.016)
1980 – 1989	-.834***	-.976***	-.985***	-.951***
	(.013)	(.014)	(.014)	(.014)
1990 – 1999	-1.086***	-1.212***	-1.227***	-1.229***
	(.014)	(.015)	(.015)	(.015)
Post 2000	-1.054***	-1.118***	-1.135***	-1.151***
	(.013)	(.013)	(.013)	(.014)
<1960*duration	-.092***	-.104***	-.106***	-.128***
	(.007)	(.007)	(.007)	(.007)
1960 – 1969*duration	-.088***	-.103***	-.100***	-.120***
	(.006)	(.007)	(.007)	(.007)
1970 – 1979*duration	-.045***	-.056***	-.056***	-.077***
	(.006)	(.006)	(.006)	(.006)
1980 – 1989*duration	-.007	-.015**	-.016***	-.027***
	(.006)	(.006)	(.006)	(.006)
1990 – 1999*duration	.026***	.023***	.024***	.022***
	(.006)	(.007)	(.007)	(.007)
Observations	1093799	1093799	1093799	1093799
log(likelihood)	-4.37e+05	-4.08e+05	-3.99e+05	-3.87e+05
chi2	1.37e+05	1.96e+05	2.14e+05	2.37e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.21: Aging, Period and Cohort Effects Using Duration Model - Masters and above

	(1)	(2)	(3)	(4)
Age	.147***	.151***	.158***	.160***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.002***	-.002***
	(.000)	(.000)	(.000)	(.000)
Duration	.067***	.075***	.075***	.081***
	(.007)	(.007)	(.007)	(.007)
<1960	.183**	.009	.008	.069
	(.085)	(.087)	(.088)	(.088)
1960 – 1969	-.178***	-.260***	-.291***	-.215***
	(.051)	(.053)	(.053)	(.054)
1970 – 1979	-.560***	-.735***	-.718***	-.666***
	(.015)	(.016)	(.016)	(.016)
1980 – 1989	-.844***	-1.064***	-1.053***	-1.006***
	(.017)	(.018)	(.018)	(.018)
1990 – 1999	-.978***	-1.152***	-1.156***	-1.134***
	(.018)	(.019)	(.019)	(.019)
Post 2000	-.894***	-1.009***	-1.012***	-1.010***
	(.015)	(.016)	(.016)	(.017)
<1960*duration	-.074***	-.079***	-.080***	-.087***
	(.008)	(.008)	(.008)	(.008)
1960 – 1969*duration	-.049***	-.060***	-.058***	-.067***
	(.008)	(.008)	(.008)	(.008)
1970 – 1979*duration	-.021***	-.026***	-.028***	-.033***
	(.007)	(.007)	(.007)	(.007)
1980 – 1989*duration	.006	.007	.006	.005
	(.007)	(.007)	(.007)	(.007)
1990 – 1999*duration	.031***	.035***	.036***	.041***
	(.008)	(.008)	(.008)	(.008)
Observations	739161	739161	739161	739161
log(likelihood)	-2.48e+05	-2.34e+05	-2.31e+05	-2.26e+05
chi2	98171.042	1.26e+05	1.33e+05	1.42e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.22: Aging, Period and Cohort Effects Using Duration Model - Mexican Male

	(1)	(2)	(3)	(4)
Age	.102***	.100***	.085***	.091***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.073***	.105***	.097***	.098***
	(.021)	(.021)	(.021)	(.021)
<1960	.524***	.648***	.684***	.607***
	(.120)	(.121)	(.122)	(.126)
1960 – 1969	-.155**	.011	.036	-.136**
	(.066)	(.066)	(.067)	(.069)
1970 – 1979	-.221***	.031	.076***	-.053**
	(.020)	(.020)	(.020)	(.022)
1980 – 1989	-.290***	-.035	.037	-.061**
	(.025)	(.025)	(.025)	(.027)
1990 – 1999	-.586***	-.280***	-.219***	-.068**
	(.026)	(.026)	(.026)	(.028)
Post 2000	-.017	.247***	.323***	.281***
	(.054)	(.055)	(.055)	(.056)
<1960*duration	-.103***	-.130***	-.119***	-.118***
	(.022)	(.022)	(.022)	(.022)
1960 – 1969*duration	-.064***	-.089***	-.079***	-.072***
	(.021)	(.021)	(.022)	(.022)
1970 – 1979*duration	-.059***	-.085***	-.079***	-.069***
	(.021)	(.021)	(.021)	(.021)
1980 – 1989*duration	-.058***	-.082***	-.081***	-.057***
	(.021)	(.021)	(.021)	(.021)
1990 – 1999*duration	.016	-.009	-.008	-.013
	(.022)	(.022)	(.022)	(.022)
Observations	1649898	1649898	1649898	1649898
log(likelihood)	-4.67e+05	-4.50e+05	-4.41e+05	-4.19e+05
chi2	3.49e+05	3.82e+05	4.01e+05	4.46e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.23: Aging, Period and Cohort Effects Using Duration Model - Mexican Female

	(1)	(2)	(3)	(4)
Age	.107***	.102***	.107***	.101***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.021	.054***	.056***	.092***
	(.017)	(.017)	(.017)	(.017)
<1960	-.450***	-.316**	-.342**	-.189
	(.151)	(.155)	(.155)	(.159)
1960 – 1969	-.578***	-.301***	-.304***	-.079
	(.090)	(.091)	(.092)	(.094)
1970 – 1979	-.477***	-.114***	-.106***	.070**
	(.033)	(.034)	(.034)	(.036)
1980 – 1989	-.771***	-.400***	-.380***	-.154***
	(.034)	(.034)	(.034)	(.036)
1990 – 1999	-.747***	-.368***	-.328***	-.141***
	(.034)	(.034)	(.034)	(.036)
Post 2000	-.897***	-.570***	-.592***	-.520***
	(.049)	(.050)	(.050)	(.051)
<1960*duration	-.018	-.043**	-.043**	-.083***
	(.019)	(.019)	(.019)	(.019)
1960 – 1969*duration	-.011	-.039**	-.040**	-.082***
	(.018)	(.018)	(.018)	(.019)
1970 – 1979*duration	-.016	-.045**	-.047***	-.081***
	(.017)	(.017)	(.017)	(.018)
1980 – 1989*duration	-.001	-.028	-.030*	-.064***
	(.017)	(.018)	(.018)	(.018)
1990 – 1999*duration	-.033*	-.053***	-.060***	-.090***
	(.018)	(.018)	(.018)	(.019)
Observations	1185676	1185676	1185676	1185676
log(likelihood)	-5.98e+05	-5.69e+05	-5.66e+05	-5.40e+05
chi2	2.84e+05	3.42e+05	3.48e+05	4.00e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.24: Aging, Period and Cohort Effects Using Duration Model - Cuban Male

	(1)	(2)	(3)	(4)
Age	.100***	.097***	.081***	.090***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.228***	.216***	.216***	.219***
	(.041)	(.041)	(.042)	(.042)
<1960	.512*	.355	.355	.462
	(.272)	(.277)	(.277)	(.285)
1960 – 1969	.357***	.310***	.228***	.210**
	(.081)	(.081)	(.082)	(.085)
1970 – 1979	-.435***	-.416***	-.435***	-.485***
	(.053)	(.054)	(.054)	(.057)
1980 – 1989	-.268***	-.120	-.109	-.162**
	(.072)	(.073)	(.074)	(.077)
1990 – 1999	-.618***	-.488***	-.517***	-.423***
	(.082)	(.084)	(.085)	(.087)
Post 2000	-.482***	-.329***	-.319***	-.350***
	(.100)	(.100)	(.102)	(.103)
<1960*duration	-.246***	-.224***	-.222***	-.233***
	(.044)	(.044)	(.045)	(.045)
1960 – 1969*duration	-.228***	-.212***	-.207***	-.211***
	(.041)	(.042)	(.042)	(.043)
1970 – 1979*duration	-.165***	-.142***	-.142***	-.142***
	(.041)	(.042)	(.042)	(.043)
1980 – 1989*duration	-.201***	-.184***	-.182***	-.179***
	(.042)	(.043)	(.043)	(.043)
1990 – 1999*duration	-.090**	-.078*	-.071	-.075
	(.045)	(.046)	(.046)	(.047)
Observations	1400144	1400144	1400144	1400144
log(likelihood)	-4.06e+05	-3.89e+05	-3.79e+05	-3.56e+05
chi2	3.21e+05	3.55e+05	3.75e+05	4.21e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.25: Aging, Period and Cohort Effects Using Duration Model - Cuban Female

	(1)	(2)	(3)	(4)
Age	.106***	.100***	.103***	.100***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.108**	.097**	.099**	.136***
	(.043)	(.044)	(.044)	(.045)
<1960	.002	.012	-.030	-.006
	(.314)	(.321)	(.323)	(.329)
1960 – 1969	-.164	-.141	-.152	.019
	(.100)	(.103)	(.104)	(.108)
1970 – 1979	-.491***	-.421***	-.423***	-.292***
	(.085)	(.088)	(.088)	(.092)
1980 – 1989	-.453***	-.218**	-.213*	-.062
	(.107)	(.110)	(.110)	(.114)
1990 – 1999	-.620***	-.461***	-.458***	-.413***
	(.118)	(.122)	(.122)	(.124)
Post 2000	-.503***	-.351***	-.384***	-.364***
	(.110)	(.112)	(.112)	(.114)
<1960*duration	-.106**	-.089*	-.089*	-.126***
	(.046)	(.047)	(.048)	(.048)
1960 – 1969*duration	-.097**	-.083*	-.084*	-.128***
	(.044)	(.045)	(.045)	(.046)
1970 – 1979*duration	-.078*	-.060	-.062	-.102**
	(.044)	(.045)	(.045)	(.046)
1980 – 1989*duration	-.103**	-.092**	-.094**	-.135***
	(.045)	(.046)	(.046)	(.047)
1990 – 1999*duration	-.029	-.025	-.029	-.050
	(.050)	(.051)	(.051)	(.052)
Observations	1087904	1087904	1087904	1087904
log(likelihood)	-5.38e+05	-5.09e+05	-5.06e+05	-4.80e+05
chi2	2.77e+05	3.33e+05	3.39e+05	3.91e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.26: Aging, Period and Cohort Effects Using Duration Model - Chinese Male

	(1)	(2)	(3)	(4)
Age	.103***	.101***	.084***	.093***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.171***	.205***	.180***	.169***
	(.021)	(.021)	(.022)	(.022)
<1960	1.294***	1.186***	1.213***	1.170***
	(.327)	(.342)	(.344)	(.350)
1960 – 1969	.378**	.389**	.284	.188
	(.169)	(.175)	(.176)	(.178)
1970 – 1979	-.286***	-.342***	-.379***	-.490***
	(.046)	(.046)	(.047)	(.048)
1980 – 1989	-.602***	-.684***	-.720***	-.777***
	(.043)	(.044)	(.044)	(.045)
1990 – 1999	-.906***	-1.158***	-1.116***	-1.133***
	(.057)	(.058)	(.058)	(.059)
Post 2000	-1.108***	-1.215***	-1.158***	-1.147***
	(.043)	(.043)	(.043)	(.044)
<1960*duration	-.225***	-.256***	-.234***	-.224***
	(.027)	(.028)	(.028)	(.028)
1960 – 1969*duration	-.174***	-.209***	-.184***	-.173***
	(.024)	(.025)	(.025)	(.025)
1970 – 1979*duration	-.120***	-.143***	-.124***	-.110***
	(.022)	(.022)	(.022)	(.022)
1980 – 1989*duration	-.084***	-.107***	-.091***	-.076***
	(.022)	(.023)	(.023)	(.023)
1990 – 1999*duration	-.016	-.011	-.006	.009
	(.025)	(.025)	(.025)	(.026)
Observations	1399215	1399215	1399215	1399215
log(likelihood)	-4.04e+05	-3.87e+05	-3.77e+05	-3.55e+05
chi2	3.21e+05	3.55e+05	3.74e+05	4.19e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.27: Aging, Period and Cohort Effects Using Duration Model - Chinese Female

	(1)	(2)	(3)	(4)
Age	.106***	.100***	.104***	.101***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.164***	.200***	.208***	.238***
	(.023)	(.024)	(.024)	(.024)
<1960	.481	.342	.318	.261
	(.428)	(.439)	(.440)	(.445)
1960 – 1969	.365	.427	.424	.527*
	(.252)	(.263)	(.264)	(.269)
1970 – 1979	.214**	.324***	.326***	.306***
	(.097)	(.100)	(.101)	(.102)
1980 – 1989	-.430***	-.444***	-.443***	-.444***
	(.078)	(.080)	(.080)	(.082)
1990 – 1999	-.708***	-.955***	-.952***	-1.141***
	(.075)	(.077)	(.077)	(.077)
Post 2000	-.810***	-.927***	-.967***	-1.140***
	(.049)	(.049)	(.049)	(.050)
<1960*duration	-.188***	-.218***	-.224***	-.251***
	(.032)	(.032)	(.032)	(.033)
1960 – 1969*duration	-.174***	-.207***	-.215***	-.253***
	(.030)	(.031)	(.031)	(.031)
1970 – 1979*duration	-.188***	-.222***	-.228***	-.255***
	(.025)	(.026)	(.026)	(.026)
1980 – 1989*duration	-.115***	-.150***	-.156***	-.182***
	(.026)	(.026)	(.026)	(.026)
1990 – 1999*duration	-.051*	-.049*	-.057**	-.050*
	(.028)	(.029)	(.029)	(.029)
Observations	1084283	1084283	1084283	1084283
log(likelihood)	-5.35e+05	-5.07e+05	-5.04e+05	-4.78e+05
chi2	2.75e+05	3.31e+05	3.36e+05	3.87e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.28: Aging, Period and Cohort Effects Using Duration Model - Filipino Male

	(1)	(2)	(3)	(4)
Age	.100***	.098***	.082***	.090***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.002***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.085*	.078	.036	.020
	(.051)	(.051)	(.051)	(.052)
<1960	1.172**	.922	1.146**	.949*
	(.510)	(.571)	(.566)	(.568)
1960 – 1969	.316*	.234	.133	-.054
	(.172)	(.176)	(.177)	(.179)
1970 – 1979	.251***	.065	.017	-.086
	(.057)	(.058)	(.059)	(.059)
1980 – 1989	-.064	-.260***	-.312***	-.388***
	(.063)	(.064)	(.065)	(.065)
1990 – 1999	-.459***	-.630***	-.658***	-.535***
	(.097)	(.098)	(.099)	(.101)
Post 2000	-.368***	-.471***	-.466***	-.448***
	(.126)	(.128)	(.128)	(.129)
<1960*duration	-.135**	-.106*	-.075	-.053
	(.057)	(.059)	(.058)	(.059)
1960 – 1969*duration	-.082	-.083	-.040	-.014
	(.052)	(.053)	(.053)	(.054)
1970 – 1979*duration	-.068	-.058	-.021	.007
	(.051)	(.052)	(.052)	(.052)
1980 – 1989*duration	-.039	-.020	.018	.054
	(.051)	(.052)	(.052)	(.053)
1990 – 1999*duration	.039	.062	.094*	.108*
	(.054)	(.055)	(.055)	(.056)
Observations	1398596	1398596	1398596	1398596
log(likelihood)	-4.02e+05	-3.85e+05	-3.75e+05	-3.53e+05
chi2	3.17e+05	3.51e+05	3.70e+05	4.15e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.29: Aging, Period and Cohort Effects Using Duration Model - Filipino Female

	(1)	(2)	(3)	(4)
Age	.106***	.100***	.103***	.100***
	(.001)	(.001)	(.001)	(.001)
Age squared	-.002***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)
Duration	.147***	.145***	.151***	.181***
	(.040)	(.040)	(.040)	(.041)
<1960	.356	.204	.172	.160
	(.441)	(.452)	(.453)	(.462)
1960 – 1969	.877***	.569**	.526**	.493**
	(.230)	(.243)	(.244)	(.249)
1970 – 1979	.289***	.065	.059	.077
	(.062)	(.065)	(.065)	(.067)
1980 – 1989	.165**	-.067	-.075	-.061
	(.068)	(.071)	(.071)	(.072)
1990 – 1999	-.294***	-.481***	-.493***	-.411***
	(.108)	(.111)	(.111)	(.114)
Post 2000	-.102	-.233**	-.258**	-.285***
	(.100)	(.101)	(.102)	(.102)
<1960*duration	-.153***	-.146***	-.150***	-.177***
	(.045)	(.046)	(.046)	(.047)
1960 – 1969*duration	-.165***	-.156***	-.159***	-.182***
	(.043)	(.044)	(.044)	(.044)
1970 – 1979*duration	-.130***	-.118***	-.125***	-.149***
	(.040)	(.041)	(.041)	(.041)
1980 – 1989*duration	-.115***	-.099**	-.106**	-.118***
	(.041)	(.041)	(.041)	(.042)
1990 – 1999*duration	-.069	-.051	-.056	-.077*
	(.044)	(.045)	(.045)	(.046)
Observations	1095938	1095938	1095938	1095938
log(likelihood)	-5.37e+05	-5.09e+05	-5.06e+05	-4.81e+05
chi2	2.78e+05	3.35e+05	3.40e+05	3.91e+05

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Chapter 2

Assimilation and Welfare Programs Participation of Asian and Hispanic Immigrants

2.1 Introduction

This paper studies recent immigrant assimilation in terms of welfare, or public assistance, participation utilizing an innovative Age, Period and Cohort method. The canonical Age, Period and Cohort method has been generalized to allow for cohort differences in both the level and the growth rate of immigrant economic assimilation.

As discussed in previous chapters, the composition of immigrant labor force in U.S. has been fluctuating dramatically, from 1980 to 2010, the share of persons aged 50–74 has shifted from 8.9% to around 14.5%. The source countries with the major inflows of immigrants have also shifted from predominantly European countries to non-European origins. Since the 1980's, more than 85% of the immigrants admitted to the US have come from Asian and Latin American countries with Mexico, Philippines, China, and India consistently sending the most number of immigrants. The variations in the general demographic characteristics of recent immigrants have in-depth impact on the labor market experience of the recent arrival cohorts. After controlling for family structure, educational attainment, language abilities and other socio-demographic features, there are still cohort effects not only in the rate of labor market assimilation, with elderly newcomers work harder approaching retirement ages than their fellows who entered as young workers, but also cohort effects in the entry labor market participation, with recent arrivals contributing less to the pay-as-you-go system.

The next interesting question we tend to verify is whether the lower labor force participation of the recent elderly arrivals will bring extra burden to the social welfare programs. It is also of the interest for policy makers to understand how well the welfare programs are promoting self sufficiency among the targeted groups and whether new immigration legislation is necessary to deal with the new trends of immigrant influx.

The empirical analysis uses the 2000 U.S. Census and the 2010 American Community Survey extracted from the Integrated Public Use Microdata Series (IPUMS). By adding the interaction between duration of stay and specific arrival cohort indicator, we generalize the traditional Age, Pe-

riod and Cohort method to allow for the cohort difference not only in the entry level but also in the growth rate in economic assimilation. Estimations are carried out on female and male household heads separately. The welfare participation in Social Security, Supplemental Security Income(SSI) and The Aid to Families with Dependent Children Program (AFDC)/Temporary Assistance for Needy Families(TANF) programs are analyzed exclusively. Four major source countries of recent arrivals studied are Mexico, Cuba, China and Philippine.

The major findings of this study are: first, consistent with previous studies, once observable characteristics are controlled for, many groups of immigrants have a comparable or lower propensity to participate in welfare programs than natives with one exception of the elderly female Mexican household heads migrated before 1980s.

Second, the Cuban immigrants exceed other source countries in terms of the pace to assimilate out of welfare programs. The longer a Cuban headed household stays in the U.S., the less likely for the whole household to participate in any type of social assistance programs. This trend is statistically significant for both male and female Cuban household heads.

Third, The Aid to Families with Dependent Children Program (AFDC)/Temporary Assistance for Needy Families (TANF) works better than Supplemental Security Income (SSI) program in terms of promoting self sufficiency. Immigrants from all four source countries are more likely to assimilate out of AFDC/TANF programs than out of SSI(with an exception of the Mexican female heads migrated before 1980).

The rest of this paper proceeds in the following way. Section two introduces the alternative approaches of modeling welfare participation of immigrants in the previous literature. Section three presents the data characteristics and the variables determining the dynamics of immigrants' welfare participation decisions. Section four describes the theoretical specifications of welfare participation and generalized the Age, Period, Cohort regression model. Section five compares the difference in welfare participation of major Hispanic and Asian immigrants. Section six concludes with policy implications.

2.2 Literature Review

2.2.1 Background of Social Welfare Programs in U.S.

The overall fiscal impact of immigrants on a host country's Social Welfare System has been of particular interest in light of recent shifts of the composition of immigrant population and their labor force participation choices. Young immigrants in their working ages are supposed to bring immediate amends to the current pay-as-you-go system, by adding large inflows of working force to the labor market however with a different demographic and socio-economic background in contrast to the natives, their net contribution to the overall Social Security System remains undetermined. In the meantime, the aging immigrant population could also withdraw more from the welfare system as they are approaching their retirement ages. To even worsen the situation with an aging immigrant population, the share of elderly immigrants in recent arrivals has increased two folds through the past four decades, from 1980 to 2010, the share of inflows of immigrant aged 50–74 has shifted from 8.9% to around 14.5%. The source countries with the major inflows of immigrants have also shifted from predominantly European countries to non-European origins. Since the 1980's, more than 85% of the immigrants admitted to the US have come from Asian and Latin American

countries with Mexico, Philippines, China, and India consistently sending the most number of immigrants. The variations in the general demographic characteristics of recent immigrants have an in-depth impact on the labor market experience of the recent arrival cohorts. After controlling for family structure, educational attainment, language abilities and other socio-demographic features, there are still cohort effects not only in the rate of labor market assimilation, with elderly newcomers work harder approaching retirement ages than their fellows who entered as young workers, but also cohort effects in the entry labor market participation, with recent arrivals contributing less to the pay-as-you-go system. These recent elderly who chose to participate less in the labor market might lack the forty quarters working requirement to claim Social Security when they reach their retirement, thus become a potential burden to the general public assistance programs.

In the past, issues of welfare program participation of immigrants have been addressed specially through welfare law effects and domestic policy changes. In 1996, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) passed in Congress. This legislation is considered to be the third major change in U.S. immigration policy in the twentieth century, after the introduction of national-origin quotas in the 1920s and their elimination in 1965. The denial of access to Supplemental Security Income and food stamps of most legal immigrants until they become citizens was supposed to assure that aliens will be self-reliant, and to remove the incentive for illegal immigration provided by the availability of public benefits. Previous studies tend to analyze the direct impact of this legislation on immigrants' labor market behaviors. In Kaushal (2008), they examined the impact of Supplement Security Insurance program (SSI) on the labor supply of elderly immigrants. They found that denial of SSI was associated with a 5 percentage point (15 percent) increase in the employment of non-citizen elderly men and a 5.6 percentage point (11 percent) decrease in their retirement rate. And the newly arrivals are most likely to be affected by the stricter policy in immigrant eligibility for SSI. However the overall fiscal impact of this forced labor force participation remained undetermined and the economic assimilation of elderly arrivals could be tampered due to lack of initial public assistance.

Although some early studies examined how various factors influence the labor market experience of immigrants, most of them focused on the labor force participation decision or the transition of wage earnings; only a few papers tried to fathom the extent to which their labor market experience varies across various countries of origin; and how their decision to work, wages, and welfare participation compares to the native-born. Immigrants from different countries not only arrive with distinct levels of human capital, skills and abilities, but also have different political and cultural backgrounds that affect the rate at which they advance in the U.S. economy. Hence, it would be helpful to incorporate groupings by country of origin/birth in order to explain wage differentials across regions and ethnicities. Since a significant proportion of recent immigrants are of Asian and Hispanic origins, it would be interesting to study the labor market performance and welfare participation of immigrants from these countries of origin and compare their behavior to the natives.

2.2.2 Modeling Welfare Participation

Extensive research has been conducted on both the "cost" and "benefit" sides of immigration for the past few decades. The study of the "benefit" side of these new Americans focuses on analyzing the direct labor market performance including the evolution of wage earnings, labor force participation and occupational distribution. Leading examples are some early studies which examined how both earnings and labor force participation adjust over the immigrant's life cycle (see Carliner (1980)),

and the subsequent literature which focuses on the economic assimilation (evolution of wages and earnings) of immigrants (see Chiswick (1978), LaLonde and Topel (1990), Singh and Kposowa (1996)). And among those limited studies on immigrant labor supply, most of them discussed the female labor supply decision (see Duleep and Sanders (1993), Chiswick and Miller (2008), Bredtmann and Otten (2013)). On the "cost" side substantive studies try to analyze the indirect impact of immigrants on native earnings and the potential crowd-out effect on job opportunities.

The immigrant participation in welfare system is the most controversial among the potential costs of immigration. Previous studies have argued that immigrants who arrived after the elimination of the country origin quota use the welfare system more intensively than earlier arrivals. In addition, Borjas and Trejo (1991) finds that the probability of receiving public assistance is positively correlated with the length of stay in U.S., i.e., the longer an immigrant has been in U.S., the more likely he/she is to receive welfare. The main reason for the increasing expenditure of the welfare system was, according to the authors, the changing national origin mix of the immigrant flow due to the shift in the immigration legislation. However the data used in their analysis were extracts from the 1970 and 1980 Censuses, which observed the immediate inflows of immigrants from non-European countries after the immigration reform in 1965, lacks the ability to track the long term effect of the policy variation. The length of duration of stay in U.S. was used to solely identify the assimilation for a certain arrival cohort. As we have already discussed in previous chapters, the age at entry of immigrants can affect their future labor market experience thus assigning the same growth rate of economics assimilation to an arrival cohort could underestimate the assimilation for the young entrants and overestimate it for the old entrants.

Borjas and Hilton (1995) argued that although the probability of receiving welfare is smaller for immigrants comparing to native counterparts, once they are enrolled in the welfare programs they tend to stay longer and collect benefits from more types of programs. The ethnic enclaves also worked as the network for immigrants to share information regarding welfare programs. This also indicated different cohort effect among different arrivals. And the preference of location would affect the ability of an immigrant to advance financially during his or her stay in the U.S.. This paper led the discussion regarding the immigrants' economic assimilation in terms of networking in welfare participation, however their analysis took place right before the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) passed in Congress in 1996, which completely removed the eligibility of non-citizens to access to various welfare programs. A new measurement of how the information networking works should be adopted to analyze the variation in welfare program participation due to the policy variation. The data used in this study was Survey of Income and Program Participation which only followed each household for a 32-month period, thus the discussion cannot provide full analysis of the long term dynamics of immigrants' economic assimilation, especially the possible shift in labor market performance during the first ten-year of their stay.

Examples from other countries also argued that immigrants use welfare to a greater extent than natives and the differences cannot be explained by observable characteristics. Using the 1990–1996 unique Swedish panel data set, Longitudinal Individual Data (LINDA), Hansen and Lofstrom (2003) compared the assimilation rates of refugees and non-refugees to the native counterparts. They found that although refugees assimilate out-of welfare at a faster rate than economic immigrants, neither group can match the lower welfare participation rate of natives as they stay longer in U.S.. The composition and unobserved characteristics of arrival cohorts largely determined the probability of entry and length of spells in welfare system for immigrants. This study

also proved that the high unemployment rate amid an economic downturn could nudge more immigrants to rely on the various welfare systems. However as explained in their paper, the authors indicated that due to the extremely generous social assistance programs in Sweden, welfare-prone immigrants are more likely to self select into the observed sample. Cases in other major western developed countries like U.S. and Canada always lead to contradicting conclusions where immigrants with various demographic and economic characteristics constantly have a smaller chance to be participating in the welfare systems. The discussion is also weak in terms of the ability to generate to other countries with a more complicated refugee and non-refugee immigrant composition. In their study, the following countries are all defined by the Swedish Immigration Board as refugee countries: Ethiopia, Afghanistan, Bulgaria, Bangladesh, Bosnia, Chile, Sri Lanka, Cuba, Iraq, Iran, India, Yugoslavia, China, Croatia, Lebanon, Moldavia, Peru, Pakistan, Poland, Russia, Soviet union, Romania Somalia, Syria, Togo, Turkey, Ukraine, Uganda and Vietnam. But in the case for United States, the two major source countries of recent immigrants are China and India, which are not defined as refugee countries and the "quality" of individuals from these two countries have shifted from the previous lower-educated to the current bi-modal distribution shown in previous chapters: recent inflows are more likely to be either high-school drop-outs or advanced degree earners. Thus to further the discussion using U.S. Census data, we need different categorizations of refugee countries and better controls over the observed characteristics of immigrants. Last but not least, the sampling procedures in their study constrained the age range to be between 15 and 65 years old only, which omitted the largest potential expenditure of the social assistance programs on the elderly, blind or disabled. According to the analysis of labor market participation of the elderly immigrants in previous chapters, these old age arrivals' need the most attention in how they finance their retirement by either relying on the Social Security System or other public assistance programs. In our empirical analysis in next section, we will redesign a better sampling procedure and include the retirees and near-retirement individuals from both foreign countries and U.S..

2.3 Data and Variables

2.3.1 Characteristics of The Dataset

For the empirical analysis I will use the Census 2000, the one-year 2010 American Community Survey(ACS) as well as the five-year 2012 American Community Survey. Data for natives in year 2000 are extracted from the 1 percent sample of Census 2000. Since the American Community Survey is sampled to represent 1 percent of the overall population, for year 2010 the one-year ACS is used for natives. In order to construct a comparable pool of immigrants, the 5 percent sample of Census 2000 is used for immigrants in 2000. Furthermore the five-year ACS of 2012 is used to extract information for immigrants. It contains all households and persons from the 1% ACS samples for 2008, 2009, 2010, 2011 and 2012 identifiable by year. The reason for the selection of five-year ACS of 2012 instead of 2010 is that the five-year 2010 does not list the Supplemental Security Income (SSI) payments to elderly (age 65+), blind, or disabled persons with low incomes and other public assistance like Temporary Assistance for Needy Families and General Assistance (GA) separately. With the separately recorded receipts of different social assistance programs, we can analyze the welfare participation of each program in details. Before 2000 the Census included

all welfare payments in one variable, now in all American Community Survey data the payments of SSI has been listed alone. In previous studies due to the lack of detailed data, labor economists can only argue with a general logic that elderly and disabled are more likely to enroll in SSI while single moms have a higher probability to be entitled to AFDC/TANF and other assistance program for needy families.

All data were downloaded from the Integrated Public Use Microdata Series (IPUMS) website. To make sure the consistency of data I follow the same sampling procedure from previous chapters. In each cross-section the sample consists of individuals aged 18–75 as of the time of the survey, who are not living in group quarters and had never served in the military. In addition, the immigrant is defined as someone whose birth place was outside U.S. and was not born to parents who were U.S. citizens.

The analysis of labor force participation in previous chapters has brought up the attention on the interesting shifts during the past decade. Recent elderly arrivals lack the interest in working after they arrived in U.S., thus they might not be able to attain the forty quarters required to access the Social Security benefits when they retire. This leaves them with fewer possible options to finance their retirement and they might rely on the safety net—SSI and General Assistance once they are naturalized or at least meet the 5 year residence requirement of related programs. In other words, the lower labor market participation rate of these recent old immigrants might add more burden to the overall social assistance programs during the final stages of their lives.

By using two stacked cross-sections from years 2000 and 2010 we will be able to identify the cohort and assimilation/duration effects. Since the elimination of origin-quota in immigration laws in 1965, the source countries with the major inflows of immigrants have shifted from predominantly European countries to non-European origins. Since the 1980's, more than 85% of the immigrants admitted to the US have come from Asian and Latin American countries with Mexico, Philippines, China, and India consistently sending the most number of immigrants. The variations in the general demographic characteristics of recent immigrants have an in-depth impact on the labor market experience of the recent arrival cohorts. Thus in the empirical analysis of our study we will focus on the welfare participation behaviors of immigrants from both Hispanic and Asian origins and especially the countries like Mexico, Cuba, China and Philippines. Each arrival cohort can be identified with both the year at entry and the age at entry. Pooling two cross-sections of the immigrants from different entry and birth cohorts with comparable native counterparts will allow us to track the progress of economic assimilation and welfare dependence of immigrants and compare with the native counterparts at each particular age and predict future expenditures of welfare system.

I report summary statistics, by welfare participation status, country origins, and Census years, on the key characteristics analyzed in the paper in Table 2.1 and Table 2.2. Only household heads and their spouses are included in the summary statistics reported here. An individual is defined as receiving welfare benefit("B" in Table 2.1 and 2.2) if he or she has received cash payments from either Social Security System(Social Security pensions, survivors benefits, or permanent disability insurance, as well as U.S. government Railroad Retirement insurance payments), Supplemental Security Income, and various public assistance programs commonly referred to as "welfare"(including Aid to Families with Dependent Children (AFDC); and General Assistance (GA). (This does not include separate payments for hospital or other medical care.)) during the past 12 months. Assistance from private charities was not included in the American Community Survey data. "NB" stands for "not receiving" welfare payments in Tables 2.1 and 2.2. Comparing to na-

tives, immigrants constantly have lower proficiency in speaking English. However from the year 2000 to 2010, the proportion of English-speaking households increased slightly for both the natives and immigrants except for the Mexicans who are enrolled in welfare programs. This seems to be contradicting to Borjas (2013) who observes a continuingly declining English-speaking ability in recent arrival cohorts, but actually the statistics here is align with Borjas's conclusion if we take into account of the extremely high proportion of Mexican immigrants among the total entrants. The Philippines pertain the highest English speaking ability among the four origin countries that we study, but the proportion of households speaking English well at home is still approximately 3 percentage points lower than the native counterparts. Among those who are claiming welfare benefits, the lack of language ability might explain partially the reason for them to be enrolled in those public assistance programs. The difference in English speaking proportion between the welfare recipients and the non-recipients persists at around 10 percentage points.

Male are less likely to be receiving welfare benefits, which is logically reasonable since single moms are most likely to be provided with Aid to Families with Dependent Children (AFDC) and other public assistance. Also since we include all the population aged between 18 and 75 years old, the longevity of female determines that we have more female individuals in the advanced age groups who are more likely to be claiming the assistance for elderly, disabled and low income persons. The unbalanced pattern seems especially obvious for Philippine immigrants, where the ratio of male beneficiaries to female beneficiaries is almost 3:7. And due to this huge gender difference in selection of welfare programs and the probability of receiving welfare benefits, in the empirical analysis we will divide the estimations into male and female household heads separately.

As stated in previous chapters, over the past few decades the immigrants seem to get married at younger ages and have a lower divorce rate. By 2010 the difference in the proportion of being married and with a spouse presented between the native and immigrant population increased steadily from 6 to above 10 percentage points. When compared horizontally across benefit recipients and non-recipients, married and with a spouse presented individuals are less likely to enroll in welfare assistance programs. It makes sense that with the salary and income from the spouse, the financial condition of a household should ameliorate thus the household is less likely to be entitled to the means-tested programs. It also indicates that the labor market performance of the spouse/partner can impact the household head's decision regarding his/her own labor force participation and thus the welfare program enrollment. Thus the presence and employment condition of the spouse should be included in the estimation model as one of the control variables in the empirical analysis. Furthermore different countries and cultures have various traditions with respect to the female labor supply(see Duleep and Sanders (1993), Lee et al. (2013), and Bredtmann and Otten (2013)), it is worth comparing the induced welfare participation of married immigrants due to cultural norms across different origins and against the native counterparts.

And it has been shown that immigrant families tend to have a larger family size and raise more children in their households. However within these past four decades we also see a clearly descending trend in the number of children and number of family members for the immigrant population. When decomposed into benefit claimers and non-claimers, immigrants still have a larger family size and more young children in each household, but a larger number of kids in the family does not mean a higher welfare participation. As shown in the Tables 2.1 and 2.2, the average number of young kids under 5 years old in non-beneficiary families is much higher than those who are claiming benefits. This phenomenon consistently exists among all the immigrants from every origin country we analyze. The overall size of a family also shows an opposite direction to receiv-

ing benefits, that is, the more family members in the households the more self-financed the family will be and the less likely for them to rely on the welfare system. It will be interesting to further break down the participation by different types of welfare programs. In the empirical part we will conduct the analysis of program participation separately(Social Security Income, Supplemental Security Income, Aid to Families with Dependent Children (AFDC) and General Public Assistance etc.) thus better evaluate the scheme of each program and check whether they are correctly targeting the specific group of people they are designed for.

More descriptive statistics are reported in Tables 2.3 and 2.4 where welfare recipients among natives and immigrants from the four Hispanic and Asian origins are compared across different educational attainment and age categories. The age profiles of the beneficiaries("B") and non-beneficiaries("NB") highlight three important phenomena: first, the advanced ages are the most costly group of the welfare system. In the year 2000, more than fifty percent of the the benefits claimers are the elderly groups aged between 66 and 75 years old(In the sample selection part we constrained the population to be between 18 and 75 years old) for all natives and immigrants from all three origins of Cuba, China and Philippine. The only exception is the Mexicans. The largest beneficiary age groups among the Mexican immigrants are in their prime ages between 26 and 45 years old. Since the benefit recipients("B") are defined as a combined indicator for all program participation, we need to further identify which type of welfare program are most likely to attract the young Mexicans and whether the Mexican arrivals contain a special composition of welfare prone individuals in contrast to the immigrants from other source countries. This finding also indicates that the previous study by Borjas and Hilton (1996) might lack the power in explaining the overall costs on the Social Security System and Welfare Programs incurred by elderly immigrants since the authors only concern the age groups up to 65 years old, which omits the potentially most costly generation.

Second, the speedily aging population of both natives and immigrants brings extra burden to the welfare systems. In the year of 2010, even the Mexican immigrants have shifted to cumulate at the ageist group(66–75) in terms of benefit claiming. The proportion of beneficiaries of the elderly has increased from the around 27 percent up to above 45 percent. Evidence from previous chapters has shown that if we look at the overall immigrant population, more than 6 percentage points of the whole immigrant population has been shifting from the younger ages (18–45) to older ages (60–75). Thus the spiking of elderly welfare participants is a combination of the aging of previous entry cohorts and the admission of more new elderly immigrants.

Last but not least, education tends to promise a better financed family life to both natives and immigrants. The lower educated individuals constantly participate more in the welfare programs with the high-school drop outs are observed up to five times more likely than high-school graduates to receive any type of public assistance. For advanced degree earners the likelihood to end up in a welfare safety net is less than ten percent. It is also interesting to notice the shift of benefit recipients compositions from 2000 to 2010: the higher educated individuals seem to increase their welfare participation during this past decade. Possible explanations could be that the 2008 economic downturns impact different occupations differently, where the job market shrinks the mostly for the advanced degree earners during the financial crisis thus put more college graduates or professional degree earners on the unemployment insurance or other social assistance programs while the jobs that require lower educational attainment continue their way of hiring. Further as introduced in previous chapters, since 1980 immigrants tend to increase their educational investments, this is especially true for the Asian immigrants. They beat the natives in the bi-modal educational

attainment levels. In other words, we can retrieve a larger percentage of immigrants either obtain extremely low level of education as high school drop-outs or individuals with Ph.D., M.D., and J.D.. By comparing the compositions of welfare recipients to the break-down of educational attainment of overall population, it again proves that higher educated individuals are more financially successful than lower educated individuals.

2.3.2 Facts in Welfare Participation of Natives and Immigrants

The welfare program participation of natives and immigrants are reported in Table 2.5 and 2.6 by country of origin and calendar year of entry. The left panel of the two tables lists the program participation in year 2000 and to the right lies the comparable statistics for observations from 2010. The two representative Hispanic countries are Mexico and Cuba listed in the upper part of Table 2.6. China and Philippine are selected as the representative Asian origins, which are reported in the lower part of Table 2.6.

The program participation is reported separately for Social Security Income, Supplemental Security Income and Aid to Families with Dependent Children (AFDC)/Temporary Assistance for Needy Families (TANF)[1]. In previous studies(see Borjas and Trejo (1993) and Borjas and Hilton (1996)) due to the limited availability of data, the recipience of SSI and AFDC etc. is not recorded separately. The authors could only observe a combined estimation for the overall welfare participation. Now with the detailed personal income information from Census 2000 and American Community Survey 2010, we can describe the welfare participation of both natives and immigrants for each needy-group-targeted social assistance program specifically.

Consistent with previous findings, the Asian immigrant households generally use welfare with the same probability or at a significantly lower probability than natives in both 2000 and 2010 regardless of when they immigrated. However the case of Hispanic immigrants is much more complicated: first, Mexican immigrants posses a significant higher participation rate in AFDC in the year of 2000. This participation rate declines to around .4 percentage points lower than the natives' in 2010. The similar situation also exists among the Cuban immigrants regardless of their arrival date; second, the participation of the SSI program among the Mexicans who arrived after 1980 is significantly lower than the native counterparts while the Cubans seem to be indulged with abundance of support from the SSI program. The divergence in the enrollment of SSI program for immigrants from the two Hispanic countries could largely be explained with the enforcement of The Personal Responsibility and Work Opportunities Act of 1996, which literally denies the access for all non-citizen immigrants to the SSI program. Since Cubans are always admitted as a "Cuban or Haitian entrant" under Section 501(e) of the Refugee Education Assistance Act of 1980 or in a status that is to be treated as a "Cuban/Haitian entrant" for SSI purposes, they are waived from the PRWOA 1996 legislation thus continue receiving the generous welfare payments from the SSI program. It will be interesting to track how the Cubans would progress differently from their Mexican "neighbours" with receiving this kick-start package upon arrival.

With the two stacked cross-sections from Census 2000 and ACS 2010, we can also compare the welfare participation of the synthetic arrival cohort during the past decade. The results suggest

[1]The new welfare reform law (The Personal Responsibility and Work Opportunities Act of 1996) eliminates the AFDC cash assistance program and replaces it with a block grant program called Temporary Assistance for Needy Families (TANF) (Section 103 of the new law).

that enrolle of AFDC/TANF programs consistently assimilate "out" of the welfare program, where a constantly declining participation rate is observed for all arrival cohorts regardless of their origins from 2000 to 2010. On the other hand, the SSI program seems to be the stepping stone for most arrivals to smoothly finance themselves through the first ten years before they finally become eligible to receive Social Security benefits. For instance, the Mexicans who arrived prior to 1960 seem to decrease their participation in SSI by 2 percentage points when they gradually reached the retirement requirement in 2010, while the probability for those entered during 1980s and 1990s to claim SSI benefits increases by almost 1 percent.

2.4 Theoretical and Empirical Considerations of Welfare Participation

2.4.1 Theoretical Modeling of Welfare Participation

The theoretical model of welfare participation can be introduced as a classical utility maximization decision of a household about whether to collect public assistance or not. Suppose the household head makes decision for the whole household. He or she has the option of working, retiring and collecting welfare benefits if the household qualifies for the means-tested programs. The head maximizes utility, which depends positively on consumption (C), leisure (L) subject to a budget constraint. The budget constraint depends on the total hours worked (H), the wage of the head (W), other non-wage income (V), and the reservation wage (W^*). As discussed in the descriptive data analysis, the presence of a spouse and the income of the spouse can also affect the decision maker's choice. To simplify the model specification, we will assume that all the other types of incomes are included in (V).

The head can claim public assistance only if the household satisfies the family income/resources and working requirement of each specific welfare program. The head can claim Social Security Old Age benefits if he or she reaches the retirement age requirement and chooses to retire and satisfies the working history requirement. If the reservation wage of the head is lower than the market wage, he or she will choose to participate in the labor market. If the reservation wage is higher than the market wage, the head will drop out of the labor market. In this case, if the household qualifies for the welfare benefits, the total income is composed of non-wage income and welfare program payments (Y). Explicitly, the head faces a similar problem specified as follows:

$$u = u(C, L) \tag{2.1}$$

subject to

$$P * C = \begin{cases} W * H + V & \text{if } W > W^*, \\ Y + V & \text{if } W < W^* \text{ and the household qualifies} \\ \text{for welfare benefits/public assistance,} & \\ V & \text{if } W < W^* \text{ and the household ineligible} \\ \text{to welfare benefits/public assistance.} & \end{cases}$$

where total time available for the head to allocate is

$$T = L + H \tag{2.2}$$

Similarly as the forty-quarter working requirement could promote the labor force participation of elderly new immigrants, the potential access to public assistance could also affect the labor market participation of the decision maker and the economic assimilation of him or her if the head is defined as an immigrant. Suppose that the non-wage income V contains all the possible welfare transfers received by the household. A higher non-wage income V might introduce either positive incentive or negative incentive to the labor force participation decisions for the household head.

The possible "negative" force: there exists the common moral hazard problem for all the "welfare" type programs. With the financial support from the social assistance, an enrollee might obtain a higher reservation wage W^* and lack the incentive to participate in the labor market. To deal with such moral hazard issue and to promote self-sufficiency, The Family Support Act of 1988 established a Job Opportunities and Basic Skills Training (JOBS) program and revamped the requirements for state-operated welfare-to-work programs. All states have JOBS programs in place. The program provides training, work experience, and education opportunities for AFDC recipients. Unless otherwise exempt, AFDC recipients are required to participate in JOBS as a condition of eligibility.

The possible "positive" force: with a higher V, the rational household now face a higher budget constraint, where he or she can choose to invest more in human capital such as professional training and higher education. For instance, the Cuban immigrants are always admitted as refugees and provided with welfare packages to kick start their stay in U.S..[2] Comparing to those immigrants with similar demographic and economic backgrounds, the Cubans might be able to assimilate faster upon their arrival with an abundance of financial aids in the form of both cash payments and extra facilitating programs.

Overall, the classical labor-leisure decision model can be used to explain the trade-offs made by the household heads facing the budget and time constraints. The basic set-up of this theoretical model guides us to answer the following questions in the empirical part: "Is a specific welfare program promoting self sufficiency for the targeted groups? Do economic immigrants and refugees assimilate out of or into welfare programs?"

2.4.2 Empirical Modeling of Welfare Participation

The discussion of the labor force participation of recent elderly immigrants using the $double-cohort$ method in previous chapters has shown the importance of allowing for different duration effects for different birth and migration cohorts. In the descriptive data part we also observe different economic assimilation rates across various arrival cohorts and origin countries. In order to capture the inherent instability in the potential economic assimilation rate in terms of welfare participation, we need to generalize the traditional Age, Period and Cohort model to allow for cohort differences in both the entry level and the growth rate economic assimilation of immigrants. The simplest solution would be to add interactions between the variables measuring the calendar year of arrival and the variable measuring the number of years since migration. The generalized welfare participation estimation can be specified as:

[2] A Cuban or Haitian entrant under Section 501(e) of the Refugee Education Assistance Act of 1980 or in a status that is to be treated as a Cuban/Haitian entrant for SSI purposes.

$$P_i = \alpha_0 + \alpha_1 X_i + \beta YSM_i + \gamma IMMIG_i + \theta(YSM_i * IMMIG_i) + \phi YEAR_i + \varepsilon_i \quad (2.3)$$

where P_i stands for the welfare participation of the decision maker, which we assume to be the household head who is making all the labor market decisions for the whole household with respect to all available family income and resources. It is a typical Probit model where P_i equals to 1 if the head receives transfer payments from a specific welfare program and 0 otherwise. X_i includes the generalized demographic and socio-economic characteristics, which contains the proxies we need to control for the factors affecting the decision maker's reservation wage, for welfare eligibility and a measure for non-wage/non-transfer income, as well as the log of spouse's market wage[3]. YSM_i represents the years-since-migration for immigrant household head, which would be treated as a continuous variable and is zero for natives. $IMMIG_i$ is defined in the same way as before: with natives as the base group (*IMMIG* has value 0 for natives), the immigrants are labeled as "1" for arrival cohort prior to 1960, "2" for 1960–1969 arrivals, "3" for 1970–1979 arrivals, "4" for 1980–1989 arrivals and "5" for 1990–1999 arrivals. Natives and each of the migration cohorts appear at least twice in the pooled cross-sections of Census 2000 and American Community Survey 2010.

By adding the interaction of the variables measuring the calendar year of arrival ($IMMIG_i$) with the variable measuring the number of years since migration (YSM_i) in our empirical model, θ will capture the difference in growth rates of economic assimilation for each immigrant as he or she stays longer and progresses financially within U.S.. The coefficient γ would still measure the trend in the entry level of each arrival cohort, while the coefficient θ would be positive or negative depending on whether more recent arrivals have a larger or smaller rate of economic assimilation in terms of welfare participation. It is worth emphasizing that due to the perfect collinearities between the "calendar year of entry", "duration of stay", "age" and "observed Census year" discussed in previous chapters, we need the restriction that the period effects are assumed to be the same for immigrants and natives. However the newly added interaction between length of stay and date of entry does not require additional restriction to identify both the level and growth cohort effects in immigrant welfare participation.

$YEAR_i$ indicates the survey year of the observed respondent. Since we have pooled Census 2000 and American Community Survey 2010 together, the $YEAR_i$ is a dummy variable with a value of "0" for the base year 2000 and a value of "1" for year 2010. The coefficient ϕ captures the period effect of being in the year 2010 in contrast to year 2000. In conducting the empirical analysis, I expand the interactive framework suggested by equation 2.3. In particular, I estimate a regression model that allows each arrival cohort to experience different period effect in the year 2010, which requires the two assumptions stated in the $Double-Cohort$ method in previous chapters.

$$Age = Period - Birth\ Cohort \quad (2.4)$$

$$Duration = Period - Migration\ Cohort \quad (2.5)$$

[3] X_i includes the age of the head, squared age, educational attainment, whether the household speaks English well at home, the number of young children under 5 years old in the household, the total number of family members in the household, the region where the household resides(nine regions on the continental U.S.), whether the head has a disability that hinders working, whether the head is married and with the spouse present, whether the spouse is employed and the market wage of the spouse.

With the generalized APC model, I can identify the different assimilation rates of each specific arrival cohort and also compare the growth rates in welfare participation across different birth and migration cohorts in contrast to the native counterparts.

2.5 Empirical Results

2.5.1 General Empirical Estimations

The empirical estimations are carried out for female-headed and male-headed households separately. Equation 2.3 is used to analyze the level and growth rate in welfare assimilation of different arrival cohort from the four major Hispanic and Asian countries respectively. In each Probit regression, the probability of participation in Social Security, Supplemental Security Income and AFDC/TANF programs is estimated given the generalized demographic and socio-economic characteristics of each household head and the cohort indicators for different arrivals.

The coefficients on the five dichotomous entry cohort variables in Tables 2.7, 2.8, 2.9 and 2.10 align with the findings we summarized with the raw data, that *ceteris paribus*, immigrant households generally use welfare with the same probability or at a significantly lower probability than natives in 2010 regardless of the year they immigrated. There is one notable exception. A household whose female head migrated during the 1970s from Mexico is significantly more likely to participate in AFDC program than a comparable native household. The detailed comparisons across source countries will be given in next section. There also exists significant cohort difference in terms of fixed effect in entry level welfare participation, with the most recent arrival cohort(1990–1999) significantly less likely to participate in all three welfare programs analyzed.

The overall duration effect captured in the β coefficients is consistent with previous studies that immigrants are generally more likely to claim welfare benefits the longer they stay in U.S. except for the Cuban immigrants. This finding is indicating that the current welfare programs might rather attract more welfare prone enrollee than promote self-sufficiency in terms of the positive "assimilate-in" pull associated with the years-since-migration variable.

Adding the interaction between the years-since-migration and each arrival cohort indicator allows us to specify a different growth rate θ in economic assimilation for a specific migration cohort. By comparing the θs vertically in each welfare program participation across the five migration cohorts we find that recent arrivals tend to have significant negative growth rate in the "assimilate-out" of program participation. Put differently, arrivals arrived later than 1980 are more likely to rely on social assistance programs once they obtain the residence requirement to access these benefits.

Overall the model shows that male-headed household is more likely to claim Social Security benefits while female-headed household is more likely to be enrolled in AFDC/TANF welfare program. This is intuitively reasonable given the labor force participation of female and male immigrants analyzed in previous chapters. Male household head tends to work more in the U.S. labor market upon arrival thus are more likely to accumulate the 40 quarters of work necessary to qualify for Social Security. Also due to a relatively larger number of dependent children in the household, female immigrants are more AFDC/TANF-prone comparing to the native female heads.

2.5.2 Source Countries Analysis

Previous studies like Borjas and Trejo (1991) have emphasized the significant difference in welfare participation of immigrants from different origins. Although part of these variations can be controlled over observable characteristics such as educational attainment, family structure and private asset level, variations also occurs due to cultural differences, different reasons for migration concerning the political and economic conditions in both the source and host country, various costs of migration, and different networking of immigrants from the same origins in a particular location of preference. Thus in the empirical estimations we compare the welfare participation of each source country in contrast to the natives separately. Four major source countries attain the attention of this study: Mexico, Cuba, China and Philippines.

Each of the four countries stands out uniquely for its economic assimilation in terms of welfare participation. More than one third of the influx of new immigrants are from Mexico every year since the elimination of origin-quota in immigration legislation. With the relatively low migration costs and well established networks, Mexicans are in a unique situation as immigrants. Their economic assimilation is complicated with series of return migration back and forth, transitions to legal immigrant status and condensed occupational distribution. As another important Hispanic immigrant source, the Cubans are perfect for analyzing the economic assimilation of refugees in terms of the welfare package granted upon arrival in U.S.. They are also more likely to be provided with other public assistance such as energy assistance or subsidies during their financial progress in U.S.. And for the two Asian origins, the composition of Chinese immigrants has switched from the originally low skilled prime age workers to a bi-modal combination of either higher educated young workers or elderly self-financed grandparents. Their economic assimilation must also vary in align with the shifts in the demographic and socio-economic characteristics of the recent arrivals. The Philippines has been another major source of immigrants in recent years. With a much higher migration cost than the Mexicans, the Philippines might have stronger incentives to quickly assimilate than the comparable Mexican immigrants.

As shown in Tables 2.7, besides the general results illustrated in previous section, the most striking fact is that the elderly female-headed households of the cohort that migrated from Mexico before 1980s are either significantly more likely to rely on AFDC program or obtain a numerically sizeable participation rate in SSI in 2010, which has been more than 30 years since their arrival in U.S.. These immigrants theoretically have spent enough time in the U.S. to accumulate the 40 quarters of working requirement to claim for Social Security. Since the requirement for Medicare coverage largely parallel those for Social Security, immigrants with 40 quarters of work in covered employment should rarely need Supplemental Security Income or AFDC/TANF. The results suggest that elderly Mexican female heads are not receiving enough from Social Security to lift them above the family income threshold to qualify for Supplemental Security Income. Possible explanations would be due to the higher fertility rates for Mexican women, they might need to spend more time on housework and more likely to be detached from their regular jobs. Even if they accumulate the required 40 quarters, they might have too many gap years in their 35 years of working history which leads to a lower calculated Average Indexed Monthly Earning(AIME) and negligible Social Security income.

The Cubans reported in Table 2.8 are the only exception among the four source countries analyzed in terms of the duration effect on welfare participation. The longer a Cuban headed household stays in U.S., the less likely for the whole household to participate in any type of welfare

programs. This trend is statistically significant for both male and female Cuban household heads. It is also worth noticing that the interaction between duration of stay and each specific arrival cohort indicator shows constantly a significant declining trend in the SSI program participation and a significant positive growth in the Social Security benefit payments. In other words, Cubans household heads tend to "assimilate-out" of the initial SSI assistance program initiated for refugees and "assimilate-in" to the pay-as-you-go Social Security system. This also proves that the initial welfare package issued to asylees promotes self-sufficiency in their future financial advancement in U.S. and encourages labor market participation of both male and female household heads.

For the two Asian origin countries in Table 2.9 and 2.10, in terms of the arrival cohort specific growth rate in welfare participation, the Chinese behave more alike the Cubans, while the Philippines are more align with their Mexican counterparts. Chinese household heads are observed to "switch" from the social welfare safety net-SSI program to the Social Security program as they stay longer in the U.S.. However their assimilation rates cannot catch up with their Cuban counterparts'. The Female Filipinos tend to rely more on the AFDC/TANF programs than other welfare assistance even if they have stayed several decades in U.S.. And due to the significantly unbalanced male to female ratio presented in the raw data, Philippines are more of "AFDC-prone" households than natives and other three source countries.

To test the sensitivity of the estimations we carry out several compositional experiments and add more controls on observable demographic and socio-economic characteristics. The results for all four source countries are listed in Tables 2.11, 2.12, 2.13, and 2.14. The controls[4] added include the immigrant's language ability, which is treated as a proxy to measure the convenience of transferring human capital gained from source country to the host country. A better English speaking household is more likely to participate in the labor force thus quickly assimilate out of the social safety net like SSI and AFDC/TANF programs and assimilate into more self-sufficiency program like Social Security system. Thus we observe significant positive growth rate in the Social Security recipience and significant negative growth rate in the SSI/AFDC participation. With more family members in household and especially more young children under age 5, the immigrant households of all four source countries are more likely to rely on AFDC/TANF programs than native counterparts. Having a disability that hinders working means generous welfare payments from all the three programs for all male and female household heads migrated from all four origins. Having the support from an employed spouse helps to lift the immigrant headed household out of the welfare programs targeting needy families, however it also cuts back the participation in the Social Security system. Overall the aging, period and cohort effects in the extended model remain consistent with previous benchmark model.

2.6 Conclusions and Policy Implications

In order to find out whether the current welfare system in U.S. is promoting self sufficiency for its targeted needy groups, a generalized Age, Period, and Cohort model has been estimated using two pooled cross-sections from Census 2000 and ACS 2010. By allowing the interaction of duration since migration with each arrival cohort, we are able to track down not only the entry level

[4]The full set of controls include the region of residence, time to commute to work, ownership of residence, estimated value of residence, educational attainment, log income of spouse, married with spouse presented, number of children under age 5, and number of family members in household.

difference in welfare participation for each specific migration cohort but also to capture different growth rates in economics assimilation of each arrival. In the empirical estimations we compare the welfare participation of each source country in contrast to the natives separately. Four major source countries have been exclusively studied: Mexico, Cuba, China and Philippines.

There are several important findings to highlight in this study: first, consistent with previous studies, once observable characteristics are controlled for, many groups of immigrants have a comparable or lower chance to participate in welfare programs than natives. There is one notable exception. The elderly female-headed households of the cohort that migrated from Mexico before 1980s are either significantly more likely to rely on AFDC program or obtain a numerically sizeable participation rate in SSI in 2010. Possible explanations would be due to the higher fertility rates for Mexican women, they might need to spend more time on housework and more likely to be detached from their regular jobs. Even if they accumulate the required 40 quarters, they might have too many gap years in their 35 years of working history which leads to a lower calculated Average Indexed Monthly Earning(AIME) and negligible Social Security income.

Second, the Cuban immigrants stand out in the pace of economic assimilation comparing to other source countries. The longer a Cuban headed household stays in the U.S., the less likely for the whole household to participate in any type of welfare programs. This trend is statistically significant for both male and female Cuban household heads. Cubans household heads also tend to "assimilate-out" of the initial SSI assistance program initiated for refugees and "assimilate-in" to the pay-as-you-go Social Security system. This also proves that the initial welfare package issued to asylees promotes self–sufficiency in their future financial advancement in U.S. and encourages labor market participation of both male and female household heads. What does this say about the immigration legislation? The Title IV of the PRWORA 1996 allows states to deny immigrants' access to SSI/TANF altogether, regardless of duration of residence, until their naturalization. This act seems to save the initial welfare payments to the needy immigrant families upon their arrival, however as those immigrants obtain eligibility to access the welfare programs, they tend to rely longer on the benefits and lack the motivation to become self sufficient in the long run. If instead being offered with initial welfare packages as newly arrivals, the immigrants might gain faster financial progress during their stay in U.S.. It will be interesting to compare the dollar value of this initial welfare package with the overall welfare consumption incurred in the long term.

Last but not least, The Aid to Families with Dependent Children Program (AFDC)
Temporary Assistance for Needy Families (TANF) works better than Supplemental Security Income (SSI) program in terms of promoting self sufficiency. Immigrants from all four source countries are more likely to assimilate out of AFDC/TANF programs than out of SSI(with an exception of the Mexican female heads migrated before 1980). It is partly due to the design of the programs: AFDC/TANF is more of temporary support in either cash form or other public assistance, while SSI seems to be more generous for allowing needy groups to stay in the program until they can transit to claim Social Security benefits. In order to improve the welfare programs efficiency, the policy makers could try implementing a similar working requirement or job training program[5] for SSI recipients.

[5]The Family Support Act of 1988 established a Job Opportunities and Basic Skills Training (JOBS) program and revamped the requirements for state-operated welfare-to-work programs. All states have JOBS programs in place. The program provides training, work experience, and education opportunities for AFDC recipients. Unless otherwise exempt, AFDC recipients are required to participate in JOBS as a condition of eligibility. The goal of JOBS is to promote self-sufficiency.

Table 2.1: Description of the Sample: Census 2000

	Native		Mexico		Cuba		China		Philippines	
	NB	B	NB	B	NB	B	NB	B	NB	B
English Speaking	.996	.994	.502	.424	.669	.454	.657	.419	.963	.876
	(.061)	(.076)	(.500)	(.494)	(.470)	(.498)	(.475)	(.493)	(.190)	(.330)
Male	.410	.240	.520	.409	.483	.441	.473	.467	.359	.335
	(.492)	(.427)	(.500)	(.492)	(.500)	(.497)	(.499)	(.499)	(.480)	(.472)
Married	.735	.565	.843	.665	.772	.648	.881	.774	.833	.713
	(.441)	(.496)	(.363)	(.472)	(.419)	(.478)	(.324)	(.418)	(.373)	(.453)
Number of own children under age 5 in household	.229	.064	.496	.297	.175	.027	.227	.029	.237	.065
	(.539)	(.317)	(.727)	(.636)	(.457)	(.194)	(.504)	(.206)	(.527)	(.299)
Number of own family members in household	2.877	2.147	4.504	4.007	3.129	2.319	3.254	2.590	3.602	3.204
	(1.428)	(1.209)	(2.049)	(2.196)	(1.444)	(1.269)	(1.525)	(1.463)	(1.710)	(1.961)
No. of Obs	924329	175161	214404	20006	19758	6324	24764	3203	35294	3124

Standard errors are reported in parentheses.

Table 2.2: Description of the Sample: American Community Survey 2010

	Native		Mexico		Cuba		China		Philippines	
	NB	B	NB	B	NB	B	NB	B	NB	B
English Speaking	.998	.997	.547	.418	.780	.541	.715	.495	.970	.933
	(.050)	(.056)	(.498)	(.493)	(.414)	(.498)	(.452)	(.500)	(.171)	(.250)
Male	.427	.325	.510	.419	.487	.434	.469	.460	.356	.360
	(.495)	(.468)	(.500)	(.493)	(.500)	(.496)	(.499)	(.498)	(.479)	(.480)
Married	.718	.605	.815	.675	.743	.634	.872	.797	.820	.760
	(.450)	(.489)	(.388)	(.468)	(.437)	(.482)	(.335)	(.402)	(.384)	(.427)
Number of own children under age 5 in household	.192	.036	.280	.091	.108	.008	.172	.012	.143	.014
	(.506)	(.240)	(.567)	(.365)	(.368)	(.113)	(.451)	(.121)	(.419)	(.138)
Number of own family members in household	2.772	2.063	4.239	3.237	2.989	2.159	3.309	2.382	3.440	2.745
	(1.420)	(1.093)	(1.858)	(1.942)	(1.411)	(1.136)	(1.451)	(1.275)	(1.664)	(1.638)
No. of Obs	981869	261506	200393	26326	15424	6832	25859	5121	36014	7405

Standard errors are reported in parentheses.

Table 2.3: Summary Statistics by Education Attainment and Age Groups - 2000

	Native		Mexico		Cuba		China		Philippines	
	NB	B	NB	B	NB	B	NB	B	NB	B
Age										
18-25	7.447	2.241	11.701	4.224	2.434	.285	3.037	.250	3.120	1.376
26-35	23.620	5.487	37.319	18.479	16.854	2.419	24.491	2.872	21.060	4.738
36-45	31.334	7.764	29.610	18.379	31.233	4.443	30.944	4.277	32.473	7.714
46-55	24.282	7.996	15.159	12.646	25.251	5.503	24.968	5.370	27.721	9.507
56-65	11.957	23.928	5.582	18.734	19.708	22.739	13.100	22.011	13.954	23.624
66-75	1.360	52.585	.628	27.537	4.520	64.611	3.461	65.220	1.672	53.041
Education Attainment										
<High-school	10.797	31.785	69.137	81.700	31.081	56.847	23.227	48.923	8.058	26.536
High school grad	29.685	36.814	16.297	10.052	21.687	16.682	13.471	14.268	12.433	16.037
Some college	31.560	20.566	10.269	6.343	24.572	12.840	13.079	11.489	27.126	21.159
College grad	18.321	6.636	2.627	1.065	12.243	6.072	19.278	13.331	43.036	26.088
Master and above	9.637	4.200	1.670	.840	10.416	7.559	30.944	11.989	9.347	10.179

Table 2.4: Summary Statistics by Education Attainment and Age Groups - 2010

	Native		Mexico		Cuba		China		Philippines	
	NB	B	NB	B	NB	B	NB	B	NB	B
Age										
18-25	5.587	1.097	2.597	.726	1.076	.059	1.334	.059	1.158	.095
26-35	18.987	3.418	20.038	5.204	6.879	.454	9.679	.547	10.224	1.161
36-45	23.928	4.854	37.157	9.709	22.121	1.888	32.279	2.714	26.495	2.296
46-55	30.043	8.740	27.380	11.031	38.939	5.079	33.400	5.097	34.770	4.173
56-65	20.107	25.812	11.901	27.748	27.289	19.350	21.312	21.949	25.265	24.456
66-75	1.348	56.080	.928	45.582	3.696	73.170	1.995	69.635	2.088	67.819
Education Attainment										
<High-school	5.667	17.735	58.209	74.231	15.469	39.681	17.642	35.013	4.545	11.681
High school grad	25.195	36.319	22.111	13.735	26.796	24.224	14.591	15.837	12.131	12.113
Some college	32.841	27.191	13.699	9.094	28.307	20.155	12.564	13.943	29.097	21.756
College grad	22.960	10.703	4.230	1.979	17.226	9.558	19.220	17.614	44.452	42.431
Master and above	13.337	8.051	1.753	.961	12.202	6.382	35.984	17.594	9.774	12.019

Table 2.5: Welfare Participation of Natives: 2000 - 2010

	2000 b / SE	2010 b / SE
Natives		
AFDC	.019	.015
	(.135)	(.121)
SSI	.020	.025
	(.141)	(.156)
SS	.131	.182
	(.338)	(.385)
No. of Obs	1099490	1243375

Standard errors are reported in parentheses.

Table 2.6: Welfare Participation of Immigrants by Origin Country and Arrival Cohort: 2000 - 2010

	2000			2010		
Arrival Cohort	Pre-1960	1960 - 1979	1980-1999	Pre-1960	1960 - 1979	1980-1999
Mexico						
AFDC	.026	.034	.032	.012	.014	.019
	(.159)	(.180)	(.175)	(.108)	(.116)	(.137)
SSI	.074	.025	.008	.058	.037	.011
	(.261)	(.157)	(.090)	(.234)	(.190)	(.103)
SS	.412	.068	.017	.579	.199	.032
	(.492)	(.252)	(.128)	(.494)	(.399)	(.177)
No. of Obs	8435	71925	154050	5389	60555	160775
Cuba						
AFDC	.022	.020	.039	.005	.007	.014
	(.146)	(.140)	(.193)	(.070)	(.083)	(.116)
SSI	.051	.036	.042	.031	.026	.055
	(.221)	(.186)	(.200)	(.173)	(.158)	(.228)
SS	.518	.258	.075	.528	.345	.184
	(.500)	(.438)	(.264)	(.499)	(.476)	(.387)
No. of Obs	1847	13547	10688	1002	11111	10143
China						
AFDC	.004	.014	.015	.003	.008	.014
	(.061)	(.116)	(.121)	(.053)	(.089)	(.116)
SSI	.015	.024	.016	.013	.018	.020
	(.121)	(.152)	(.124)	(.113)	(.133)	(.141)
SS	.510	.194	.033	.609	.382	.081
	(.500)	(.396)	(.179)	(.488)	(.486)	(.272)
No. of Obs	1344	6060	20563	703	5584	24693
Philippines						
AFDC	.010	.008	.011	.005	.006	.008
	(.100)	(.090)	(.105)	(.068)	(.077)	(.087)
SSI	.016	.011	.013	.023	.010	.010
	(.127)	(.103)	(.113)	(.150)	(.098)	(.097)
SS	.372	.092	.034	.470	.314	.074
	(.484)	(.289)	(.180)	(.499)	(.464)	(.261)
No. of Obs	1091	14141	23186	655	14396	28368

Standard errors are reported in parentheses.

Table 2.7: Social Welfare Programs Enrollment of Mexican Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
Age	-.216***	.010***	.000	-.174***	.041***	-.018***
	(.001)	(.002)	(.002)	(.001)	(.001)	(.001)
Duration in U.S.	.054***	-.003	.042***	.048**	-.020	.097***
	(.013)	(.015)	(.011)	(.019)	(.021)	(.011)
<1960	1.485	.159	1.810	1.058	-3.529**	-1.087
	(1.226)	(1.445)	(2.159)	(1.345)	(1.465)	(1.952)
1960-1069	-1.205	-3.064***	.497	-.697	.949	.198
	(.845)	(1.071)	(1.438)	(1.170)	(1.171)	(1.369)
1970-1979	.773**	-.494	-.434	-.182	.481	.923**
	(.356)	(.411)	(.449)	(.517)	(.522)	(.429)
1980-1989	-.084	.030	-.139	-.646**	-.573**	.108
	(.158)	(.182)	(.158)	(.256)	(.268)	(.151)
1990-1999	-.552***	-.231***	-.068	-.481***	-.266***	-.294***
	(.064)	(.073)	(.055)	(.099)	(.102)	(.056)
<1960*duration	-.109**	.006	-.102	-.084	.157***	-.048
	(.049)	(.058)	(.084)	(.053)	(.058)	(.074)
1960-1969*duration	-.007	.167***	-.051	-.023	-.025	-.080
	(.044)	(.056)	(.076)	(.060)	(.061)	(.071)
1970-1979*duration	-.111***	.031	.007	-.040	-.022	-.121***
	(.027)	(.031)	(.034)	(.038)	(.040)	(.031)
1980-1989*duration	-.045**	-.018	-.009	.011	.052	-.063***
	(.021)	(.024)	(.020)	(.031)	(.033)	(.019)
Observations	961595	961595	961595	761850	761850	761850
log(likelihood)	-1.60e+05	-8.39e+04	-6.04e+04	-1.86e+05	-1.28e+05	-1.23e+05
chi2	3.34e+05	6833.733	778.647	3.81e+05	7730.734	13405.302

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8: Social Welfare Programs Enrollment of Cuban Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
Age	-.218***	.016***	-.004*	-.176***	.045***	-.022***
	(.001)	(.002)	(.002)	(.001)	(.001)	(.001)
Duration in U.S.	-.131***	.054	-.170***	-.080	.074	-.083**
	(.035)	(.037)	(.030)	(.049)	(.048)	(.037)
<1960	.319	-5.297	-6.275	-3.384	-4.248	-8.381
	(3.149)	(4.286)	(9.629)	(2.811)	(3.332)	(9.138)
1960-1969	.357	3.661**	-2.208	1.123	2.368	1.563
	(1.203)	(1.768)	(2.512)	(1.342)	(1.536)	(2.056)
1970-1979	-1.066	1.744	.883	-.887	-2.261	3.259*
	(1.112)	(1.237)	(1.684)	(1.511)	(1.566)	(1.794)
1980-1989	-1.710***	.887*	.447	-2.402***	.753	.551
	(.515)	(.482)	(.600)	(.653)	(.524)	(.630)
1990-1999	.067	-.237	1.155***	-.061	-.366	.684***
	(.158)	(.180)	(.110)	(.240)	(.245)	(.158)
<1960*duration	.116	.159	.446	.202*	.084	.447
	(.128)	(.174)	(.404)	(.117)	(.136)	(.382)
1960-1969*duration	.116*	-.223**	.302**	.017	-.166*	.041
	(.070)	(.098)	(.134)	(.082)	(.090)	(.113)
1970-1979*duration	.171**	-.133	.160	.110	.094	-.124
	(.081)	(.092)	(.123)	(.107)	(.110)	(.130)
1980-1989*duration	.232***	-.138**	.150**	.243***	-.116*	.071
	(.059)	(.059)	(.066)	(.077)	(.069)	(.076)
Observations	789696	789696	789696	688254	688254	688254
log(likelihood)	-1.42e+05	-7.34e+04	-4.80e+04	-1.74e+05	-1.20e+05	-1.04e+05
chi2	2.98e+05	4463.172	566.023	3.57e+05	5539.115	8942.073

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.9: Social Welfare Programs Enrollment of Chinese Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
Age	-.220***	.014***	-.005**	-.176***	.045***	-.021***
	(.001)	(.002)	(.002)	(.001)	(.001)	(.001)
Duration in U.S.	-.080**	.101**	.088***	.024	.137***	.137***
	(.034)	(.040)	(.031)	(.066)	(.047)	(.043)
<1960	-2.650	-3.178	-244.142	1.854	.248	-15.029
	(2.666)	(6.032)	(209.878)	(3.404)	(5.366)	(17.298)
1960-1969	-1.084	6.306	6.972	-1.647	11.724**	.874
	(2.153)	(4.071)	(6.060)	(3.202)	(5.672)	(12.564)
1970-1979	-3.148***	-.701	-1.715	-3.921**	3.447*	-.673
	(1.061)	(1.583)	(1.879)	(1.713)	(1.897)	(2.157)
1980-1989	-3.083***	.092	-.269	-.620	-.554	-1.800**
	(.468)	(.434)	(.480)	(.680)	(.585)	(.702)
1990-1999	-.486***	-.726***	-.352**	-1.135***	-.906***	-1.155***
	(.168)	(.214)	(.157)	(.359)	(.254)	(.213)
<1960*duration	.181*	-.018	10.441	-.102	-.179	.387
	(.107)	(.224)	(9.033)	(.144)	(.200)	(.643)
1960-1969*duration	.123	-.444**	-.385	.050	-.735***	-.204
	(.113)	(.215)	(.321)	(.171)	(.285)	(.627)
1970-1979*duration	.255***	-.036	.045	.186	-.328**	-.091
	(.077)	(.115)	(.132)	(.129)	(.136)	(.153)
1980-1989*duration	.287***	-.114*	-.041	-.066	-.077	.023
	(.057)	(.060)	(.059)	(.094)	(.075)	(.082)
Observations	793909	793909	793909	687017	687017	687017
log(likelihood)	-1.40e+05	-7.23e+04	-4.79e+04	-1.72e+05	-1.18e+05	-1.04e+05
chi2	2.95e+05	4059.629	421.804	3.55e+05	5279.259	8780.864

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.10: Social Welfare Programs Enrollment of Filipino Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
Age	-.221***	.017***	-.001	-.177***	.046***	-.021***
	(.001)	(.002)	(.002)	(.001)	(.001)	(.001)
Duration in U.S.	.094*	.049	-.050	-.031	.159**	.074*
	(.054)	(.050)	(.044)	(.042)	(.068)	(.042)
<1960	1.329	-4.718	14.043	3.702	-11.939	.653
	(4.392)	(6.563)	(12.332)	(2.974)	(13.579)	(10.518)
1960-1969	.134	-1.637	25.790*	-3.225	-8.412**	-4.263
	(2.284)	(4.140)	(14.771)	(2.441)	(4.252)	(4.188)
1970-1979	1.496	3.701**	1.367	2.210**	.725	-.761
	(.942)	(1.472)	(1.669)	(1.016)	(1.369)	(1.426)
1980-1989	-.499	-.418	.048	-.777	-1.104**	-.233
	(.492)	(.552)	(.597)	(.571)	(.556)	(.574)
1990-1999	-1.279***	-.472*	.125	-.217	-1.326***	-.685***
	(.299)	(.263)	(.212)	(.225)	(.402)	(.218)
<1960*duration	-.176	.125	-.465	-.101	.323	-.094
	(.177)	(.257)	(.465)	(.117)	(.547)	(.430)
1960-1969*duration	-.108	-.005	-1.249*	.172	.179	.056
	(.128)	(.218)	(.724)	(.129)	(.221)	(.215)
1970-1979*duration	-.228***	-.315***	-.044	-.146*	-.236**	-.039
	(.081)	(.112)	(.121)	(.077)	(.113)	(.105)
1980-1989*duration	-.099	-.024	.036	.051	-.070	-.110
	(.072)	(.074)	(.075)	(.069)	(.087)	(.071)
Observations	794123	794123	794123	695975	695975	695764
log(likelihood)	-1.40e+05	-7.19e+04	-4.73e+04	-1.74e+05	-1.18e+05	-1.04e+05
chi2	2.96e+05	3935.748	462.504	3.59e+05	5602.388	9159.505

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.11: Extended Model of Social Welfare Programs Enrollment of Mexican Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
<1960	1.956	.824	2.173	.916	-3.364**	-.999
	(1.247)	(1.580)	(2.219)	(1.349)	(1.624)	(2.037)
1960-1969	-1.742**	-3.085**	.380	-.670	1.141	.361
	(.861)	(1.202)	(1.485)	(1.176)	(1.325)	(1.438)
1970-1979	.446	-1.011**	-.872*	-.328	-.092	.173
	(.361)	(.463)	(.463)	(.520)	(.590)	(.457)
1980-1989	-.331**	-.368*	-.547***	-.613**	-1.194***	-.571***
	(.162)	(.203)	(.164)	(.259)	(.298)	(.162)
1990-1999	-.796***	-.873***	-.526***	-.460***	-.905***	-.772***
	(.067)	(.080)	(.060)	(.101)	(.114)	(.063)
<1960*duration	-.135***	-.053	-.129	-.076	.142**	-.041
	(.050)	(.063)	(.086)	(.054)	(.064)	(.078)
1960-1969*duration	.007	.125**	-.066	-.023	-.053	-.089
	(.045)	(.063)	(.079)	(.061)	(.069)	(.075)
1970-1979*duration	-.103***	.018	.007	-.031	-.015	-.084**
	(.027)	(.035)	(.035)	(.039)	(.044)	(.033)
1980-1989*duration	-.044**	-.040	-.012	.008	.061*	-.031
	(.021)	(.026)	(.021)	(.032)	(.037)	(.020)
English Speaking	.058***	-.186***	-.078***	.024	-.100***	-.035**
	(.013)	(.017)	(.016)	(.016)	(.018)	(.014)
Number of own family members in household	-.018***	-.034***	.027***	.018***	-.006**	.102***
	(.002)	(.003)	(.003)	(.002)	(.002)	(.002)
Number of own children under age 5 in household	-.009	-.072***	.135***	-.025***	.026***	.227***
	(.009)	(.012)	(.007)	(.009)	(.010)	(.006)
Work disability	.254***	.324***	.103***	.200***	.363***	.120***
	(.002)	(.003)	(.004)	(.002)	(.003)	(.003)
spousempl	-.165***	-.153***	-.193***	-.399***	-.335***	-.492***
	(.007)	(.012)	(.012)	(.010)	(.016)	(.017)
Observations	961595	961595	961595	761850	761850	761850
log(likelihood)	-1.49e+05	-6.58e+04	-5.59e+04	-1.77e+05	-1.01e+05	-1.05e+05
chi2	3.57e+05	43074.685	9898.823	3.99e+05	62841.908	49060.582

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.12: Extended Model of Social Welfare Programs Enrollment of Cuban Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
<1960	2.972	-2.301	-2.885	-2.010	-1.753	-7.544
	(3.199)	(4.672)	(8.556)	(2.846)	(3.724)	(9.821)
1960-1969	.359	.744	-4.408*	1.259	.136	.596
	(1.225)	(2.094)	(2.679)	(1.354)	(1.819)	(2.215)
1970-1979	-1.579	1.784	.865	-.766	-2.898	3.393*
	(1.126)	(1.463)	(1.750)	(1.533)	(1.887)	(1.933)
1980-1989	-1.576***	1.624***	.575	-2.256***	.401	.327
	(.524)	(.547)	(.621)	(.658)	(.606)	(.681)
1990-1999	.151	-.616***	.960***	.129	-.692**	.834***
	(.161)	(.210)	(.118)	(.247)	(.286)	(.168)
<1960*duration	.023	.012	.325	.165	-.030	.473
	(.130)	(.189)	(.355)	(.119)	(.152)	(.409)
1960-1969*duration	.116	-.140	.407***	.018	-.099	.121
	(.071)	(.114)	(.141)	(.083)	(.106)	(.121)
1970-1979*duration	.210**	-.195*	.162	.123	.115	-.076
	(.082)	(.107)	(.127)	(.109)	(.130)	(.138)
1980-1989*duration	.235***	-.246***	.140**	.245***	-.128	.127
	(.059)	(.067)	(.067)	(.078)	(.079)	(.082)
English Speaking	.189***	-.184***	-.207***	.066**	-.204***	-.102***
	(.027)	(.033)	(.037)	(.029)	(.031)	(.034)
Number of own family members in household	-.023***	-.037***	.031***	.020***	.006**	.118***
	(.003)	(.004)	(.004)	(.002)	(.003)	(.002)
Number of own children under age 5 in household	-.025**	-.083***	.134***	-.041***	.016	.234***
	(.011)	(.015)	(.009)	(.010)	(.010)	(.007)
Work disability	.275***	.340***	.128***	.211***	.364***	.135***
	(.003)	(.003)	(.004)	(.002)	(.003)	(.003)
spousempl	-.190***	-.169***	-.156***	-.399***	-.334***	-.499***
	(.008)	(.013)	(.014)	(.011)	(.017)	(.019)
Observations	789696	789696	789696	688254	688254	688254
log(likelihood)	-1.30e+05	-5.59e+04	-4.37e+04	-1.65e+05	-9.25e+04	-8.78e+04
chi2	3.22e+05	39606.420	9242.050	3.75e+05	59538.743	41709.351

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.13: Extended Model of Social Welfare Programs Enrollment of Chinese Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
<1960	-.707	-.055	-291.904	3.015	6.366	-14.712
	(2.703)	(6.929)	(225.849)	(3.438)	(5.860)	(19.854)
1960-1969	-2.478	3.506	4.319	-1.795	13.294*	1.304
	(2.213)	(4.855)	(6.412)	(3.258)	(6.983)	(13.520)
1970-1979	-2.725**	-1.035	-2.233	-3.849**	3.453	-.416
	(1.081)	(1.849)	(2.016)	(1.710)	(2.276)	(2.406)
1980-1989	-3.124***	.337	.151	-.441	-.218	-1.200
	(.476)	(.532)	(.513)	(.688)	(.716)	(.774)
1990-1999	-.311*	-.905***	-.318*	-.864**	-1.221***	-1.014***
	(.171)	(.257)	(.170)	(.351)	(.304)	(.242)
<1960*duration	.132	-.148	12.531	-.106	-.448**	.362
	(.108)	(.255)	(9.718)	(.145)	(.221)	(.735)
1960-1969*duration	.213*	-.342	-.249	.101	-.855**	-.219
	(.115)	(.255)	(.340)	(.173)	(.349)	(.678)
1970-1979*duration	.244***	-.045	.070	.221*	-.363**	-.114
	(.079)	(.134)	(.141)	(.128)	(.162)	(.170)
1980-1989*duration	.323***	-.152**	-.074	-.030	-.127	-.020
	(.058)	(.072)	(.063)	(.093)	(.091)	(.091)
English Speaking	.193***	-.191***	-.164***	.164***	-.227***	-.101***
	(.029)	(.037)	(.037)	(.033)	(.035)	(.036)
Number of own family members in household	-.022***	-.037***	.031***	.020***	.006**	.117***
	(.003)	(.004)	(.004)	(.002)	(.003)	(.002)
Number of own children under age 5 in household	-.025**	-.087***	.133***	-.043***	.017	.234***
	(.011)	(.015)	(.009)	(.010)	(.010)	(.007)
Work disability	.276***	.342***	.130***	.212***	.366***	.136***
	(.003)	(.003)	(.004)	(.002)	(.003)	(.003)
spousempl	-.189***	-.176***	-.170***	-.398***	-.339***	-.506***
	(.008)	(.013)	(.014)	(.011)	(.017)	(.019)
Observations	793909	793909	793909	687017	687017	687017
log(likelihood)	-1.29e+05	-5.50e+04	-4.36e+04	-1.64e+05	-9.14e+04	-8.72e+04
chi2	3.19e+05	38773.571	9060.961	3.72e+05	58924.654	41351.728

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.14: Extended Model of Social Welfare Programs Enrollment of Filipino Immigrants 2000-2010

	Male			Female		
	SS	SSI	AFDC	SS	SSI	AFDC
	β / SE	β / SE	β / SE	β / SE	β / SE	β / SE
<1960	6.379	-.131	17.604	4.430	-12.779	-1.239
	(4.441)	(7.462)	(13.012)	(2.985)	(14.902)	(12.804)
1960-1969	.268	-1.270	31.030**	-2.294	-9.350*	-3.111
	(2.297)	(4.798)	(15.568)	(2.466)	(5.180)	(4.559)
1970-1979	1.025	4.929***	1.889	1.842*	.228	-1.783
	(.963)	(1.720)	(1.763)	(1.029)	(1.654)	(1.570)
1980-1989	-.439	-.384	.019	-.760	-.894	.068
	(.499)	(.648)	(.636)	(.576)	(.666)	(.644)
1990-1999	-1.191***	-.459	.215	-.154	-1.331***	-.531**
	(.302)	(.314)	(.225)	(.227)	(.425)	(.238)
<1960*duration	-.354**	-.093	-.610	-.121	.306	-.025
	(.179)	(.292)	(.491)	(.118)	(.593)	(.528)
1960-1969*duration	-.088	-.061	-1.498**	.141	.207	.000
	(.129)	(.249)	(.763)	(.131)	(.264)	(.234)
1970-1979*duration	-.180**	-.438***	-.080	-.114	-.219*	.033
	(.083)	(.129)	(.127)	(.078)	(.131)	(.115)
1980-1989*duration	-.086	-.053	.043	.057	-.083	-.136*
	(.073)	(.087)	(.079)	(.069)	(.098)	(.079)
English Speaking	.126***	-.218***	-.132***	.099***	-.130***	-.007
	(.038)	(.042)	(.049)	(.037)	(.039)	(.042)
Number of own family members in household	-.021***	-.036***	.032***	.020***	.007***	.116***
	(.003)	(.004)	(.004)	(.002)	(.003)	(.002)
Number of own children under age 5 in household	-.028**	-.092***	.134***	-.045***	.016	.235***
	(.011)	(.015)	(.009)	(.010)	(.010)	(.007)
Work disability	.277***	.341***	.131***	.212***	.364***	.137***
	(.003)	(.003)	(.004)	(.002)	(.003)	(.003)
spousempl	-.188***	-.174***	-.159***	-.397***	-.330***	-.495***
	(.008)	(.013)	(.014)	(.011)	(.017)	(.019)
Observations	794123	794123	794123	695975	695975	695764
log(likelihood)	-1.28e+05	-5.46e+04	-4.30e+04	-1.65e+05	-9.15e+04	-8.76e+04
chi2	3.19e+05	38491.009	9052.856	3.76e+05	59149.478	41711.055

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bibliography

Alan J. Auerbach and Philip Oreopoulos. The Fiscal Effects of U.S. Immigration: A Generational-Accounting Perspective. In *Tax Policy and the Economy, Volume 14*, NBER Chapters, pages 123–156. National Bureau of Economic Research, Inc, July 2000. URL http://ideas.repec.org/h/nbr/nberch/10849.html.

Michael Baker and Dwayne Benjamin. The Role of the Family in Immigrants' Labor-Market Activity: An Evaluation of Alternative Explanations. *American Economic Review*, 87(4):705–27, September 1997. URL http://ideas.repec.org/a/aea/aecrev/v87y1997i4p705-27.html.

Francine D. Blau. The use of transfer payments by immigrants. *Industrial and Labor Relations Review*, 37(2):222–239, January 1984. URL http://ideas.repec.org/a/ilr/articl/v37y1984i2p222-239.html.

Francine D. Blau, Lawrence M. Kahn, Albert Yung-Hsu Liu, and Kerry L. Papps. The Transmission of Women's Fertility, Human Capital and Work Orientation Across Immigrant Generations. NBER Working Papers 14388, National Bureau of Economic Research, Inc, October 2008. URL http://ideas.repec.org/p/nbr/nberwo/14388.html.

Francine D Blau, Lawrence M Kahn, and Kerry L Papps. Gender, Source Country Characteristics, and Labor Market Assimilation among Immigrants. *The Review of Economics and Statistics*, 93(1):43–58, February 2011. URL http://ideas.repec.org/a/tpr/restat/v93y2011i1p43-58.html.

Holger Bonin, Bernd Raffelhschen, and Jan Walliser. Can Immigration Alleviate the Demographic Burden? Technical report, 2000.

George J Borjas. Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants. *Journal of Labor Economics*, 3(4):463–89, October 1985. URL http://ideas.repec.org/a/ucp/jlabec/v3y1985i4p463-89.html.

George J. Borjas. The Economics of Immigration. *Journal of Economic Literature*, 32(4):1667–1717, December 1994. URL http://ideas.repec.org/a/aea/jeclit/v32y1994i4p1667-1717.html.

George J Borjas. Assimilation and Changes in Cohort Quality Revisited: What Happened to Immigrant Earnings in the 1980s? *Journal of Labor Economics*, 13(2):201–45, April 1995. URL http://ideas.repec.org/a/ucp/jlabec/v13y1995i2p201-45.html.

George J. Borjas. Welfare Reform, Labor Supply, and Health Insurance in the Immigrant Population. Working Paper 9781, National Bureau of Economic Research, June 2003. URL http://www.nber.org/papers/w9781.

George J. Borjas. The Slowdown in the Economic Assimilation of Immigrants: Aging and Cohort Effects Revisited Again. NBER Working Papers 19116, National Bureau of Economic Research, Inc, June 2013. URL http://ideas.repec.org/p/nbr/nberwo/19116.html.

George J. Borjas and Lynette Hilton. Immigration and the Welfare State: Immigrant Participation in Means-Tested Entitlement Programs. Working Paper 5372, National Bureau of Economic Research, December 1995. URL http://www.nber.org/papers/w5372.

George J Borjas and Lynette Hilton. Immigration and the Welfare State: Immigrant Participation in Means-Tested Entitlement Programs. *The Quarterly Journal of Economics*, 111(2):575–604, May 1996. URL http://ideas.repec.org/a/tpr/qjecon/v111y1996i2p575-604.html.

George J. Borjas and Stephen J. Trejo. Immigrant Participation in the Welfare System. Working Paper 3423, National Bureau of Economic Research, September 1991. URL http://www.nber.org/papers/w3423.

George J. Borjas and Stephen J. Trejo. National origin and immigrant welfare recipiency. *Journal of Public Economics*, 50(3):325–344, March 1993. URL http://ideas.repec.org/a/eee/pubeco/v50y1993i3p325-344.html.

Julia Bredtmann and Sebastian Otten. The Role of Source- and Host-Country Characteristics in Female Immigrant Labor Supply. MPRA Paper 44544, University Library of Munich, Germany, January 2013. URL http://ideas.repec.org/p/pra/mprapa/44544.html.

Geoffrey Carliner. Wages, Earnings and Hours of First, Second, and Third Generation American Males. *Economic Inquiry*, 18(1):87–102, January 1980. URL http://ideas.repec.org/a/oup/ecinqu/v18y1980i1p87-102.html.

Barry R Chiswick. The Effect of Americanization on the Earnings of Foreign-born Men. *Journal of Political Economy*, 86(5):897–921, October 1978. URL http://ideas.repec.org/a/ucp/jpolec/v86y1978i5p897-921.html.

Barry R Chiswick. Is the New Immigration Less Skilled Than the Old? *Journal of Labor Economics*, 4(2):168–92, April 1986. URL http://ideas.repec.org/a/ucp/jlabec/v4y1986i2p168-92.html.

Barry R. Chiswick and Paul W. Miller. The "Negative"; Assimilation of Immigrants: A Special Case. IZA Discussion Papers 3563, Institute for the Study of Labor (IZA), June 2008. URL http://ideas.repec.org/p/iza/izadps/dp3563.html.

M. Dolores Collado, Iigo Iturbe-Ormaetxe, and Guadalupe Valera. Quantifying the Impact of Immigration on the Spanish Welfare State. *International Tax and Public Finance*, 11(3):335–353, 05 2004. URL http://ideas.repec.org/a/kap/itaxpf/v11y2004i3p335-353.html.

Patricia Corts and Jos Tessada. Low-Skilled Immigration and the Labor Supply of Highly Skilled Women. *American Economic Journal: Applied Economics*, 3(3):88–123, 2011. doi: 10.1257/app.3.3.88. URL http://www.aeaweb.org/articles.php?doi=10.1257/app.3.3.88.

Harriet Orcutt Duleep and Seth Sanders. The Decision to Work by Married Immigrant Women. *Industrial and Labor Relations Review*, 46(4):pp. 677–690, 1993. ISSN 00197939. URL http://www.jstor.org/stable/2524311.

Ldia Farr, Libertad Gonzlez Luna, and Francesc Ortega. Immigration, family responsibilities and the labor supply of skilled native women. Economics Working Papers 1161, Department of Economics and Business, Universitat Pompeu Fabra, June 2009. URL http://ideas.repec.org/p/upf/upfgen/1161.html.

Leora Friedberg. The Effect of Old Age Assistance on Retirement. Working Paper 6548, National Bureau of Economic Research, May 1998. URL http://www.nber.org/papers/w6548.

Delia Furtado and Nikolaos Theodoropoulos. Immigrant Networks and the Take-Up of Disability Programs: Evidence from US Census Data. IZA Discussion Papers 6649, Institute for the Study of Labor (IZA), June 2012. URL http://ideas.repec.org/p/iza/izadps/dp6649.html.

Zahide Eylem Gevrek. The Role of Family Structure in Immigrants' Economic Integration, 2010. URL http://hdl.handle.net/10150/195868.

Jorgen Hansen and Magnus Lofstrom. Immigrant Assimilation and Welfare Participation Do Immigrants Assimilate Into or Out of Welfare? *Journal of Human Resources*, 38(1), 2003. URL http://ideas.repec.org/a/uwp/jhriss/v38y2003i1p74-98.html.

Wei-Yin Hu. Elderly Immigrants on Welfare. *Journal of Human Resources*, 33(3):711–741, 1998. URL http://ideas.repec.org/a/uwp/jhriss/v33y1998i3p711-741.html.

Selcuk Eren Hugo Benitez-Silva and Eva Carceles-Poveda. Effects of Legal and Unauthorized Immigration on the U.S. Social Security System. *Industrial and Labor Relations Review*, September 2011. URL http://ssrn.com/abstract=1960756.

Neeraj Kaushal. Elderly Immigrants' Labor Supply Response to Supplemental Security Income. Working Papers, Center for Retirement Research at Boston College wp2008-25, Center for Retirement Research, December 2008. URL http://ideas.repec.org/p/crr/crrwps/wp2008-25.html.

Alexander Kemnitz. Can Immigrant Employment Alleviate the Demographic Burden? The Role of Union Centralization. Technical report, 2005.

Robert J. LaLonde and Robert H. Topel. The Assimilation of Immigrants in the U.S. Labor Markets. Working Paper 3573, National Bureau of Economic Research, December 1990. URL http://www.nber.org/papers/w3573.

Sungkyu Lee, Huiquan Zhou, and Youngmi Kim. Labor force participation among Asian immigrant women: Findings from the 2007 American Community Survey. *International Journal of Social Welfare*, pages n/a–n/a, 2013. ISSN 1468-2397. doi: 10.1111/ijsw.12059. URL http://dx.doi.org/10.1111/ijsw.12059.

Mary Lopez and Fernando Antonio Lozano. The Labor Supply of Immigrants in the United States: The Role of Changing Source Country Characteristics. *American Economic Review*, 99(2):35–40, May 2009. URL http://ideas.repec.org/a/aea/aecrev/v99y2009i2p35-40.html.

Dowell Myers and Seong Woo Lee. Immigrant Trajectories into Homeownership: A Temporal Analysis of Residential Assimilation. *International Migration Review*, 32(3):pp. 593–625, 1998. ISSN 01979183. URL http://www.jstor.org/stable/2547765.

John Pencavel. Changes in Male Work Behavior and Wages. Working Papers 97046, Stanford University, Department of Economics, February 1997. URL http://ideas.repec.org/p/wop/stanec/97046.html.

Vimal Ranchhod. The Effect Of The South African Old Age Pension On Labour Supply Of The Elderly. *South African Journal of Economics*, 74(4):725–744, December 2006. URL http://ideas.repec.org/a/bla/sajeco/v74y2006i4p725-744.html.

Purvi Sevak and Lucie Schmidt. How do Immigrants Fare in Retirement? Working Papers wp169, University of Michigan, Michigan Retirement Research Center, October 2007. URL http://ideas.repec.org/p/mrr/papers/wp169.html.

Gopal K. Singh and Augustine J. Kposowa. Occupation-specific earnings attainment of Asian Indians and whites in the United States: gender and nativity differentials across class strata. *Applied Behavioral Science Review*, 4(2):137 – 175, 1996. ISSN 1068-8595. doi: http://dx.doi.org/10.1016/S1068-8595(96)80022-5. URL http://www.sciencedirect.com/science/article/pii/S1068859596800225.

James P. Vere. Social Security and elderly labor supply: Evidence from the Health and Retirement Study. *Labour Economics*, 18(5):676–686, October 2011. URL http://ideas.repec.org/a/eee/labeco/v18y2011i5p676-686.html.