Essays in Legalization, Migration, and Diaspora

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Abstract

This dissertation discusses factors contributing to the global diaspora as well as the implications of current U.S. immigration policy.

Chapter 1 presents a global survey of Chinese immigrants, and the events and policies that contributed to their current diaspora. Chinese migration is extremely varied, ranging from students to low-skilled guest workers. Historically, Chinese settlements in foreign countries were discouraged by anti-Chinese immigration policies and business restrictions. Contemporary migration has flowed primarily to English speaking countries such as Australia, Canada, and the United States. There are also large flows of Chinese migrants to regions of the world that were not historically popular destinations. Using recent national census data from 26 countries, characteristics of the Chinese-born can be compared globally.

In the United States, foreigners with Green Cards have legal advantages in the labor market compared to temporary or undocumented foreigners. Chapter 2 examines the spatial heterogeneity between the proportion of working foreigners with Green Cards and their aggregate earnings across occupation, country of origin, state, and year of entry. A significant positive relationship is found, and several sensitivity tests are performed. I find the earnings elasticity with respect to the proportion of foreign workers who are Green Card holders is 0.015, and the elasticity is even larger for newly arriving immigrants and for those in lower skilled occupations. While previous

estimates of the impacts from legalization are mostly limited to IRCA immigrants, these results show that legalization has benefits for the broader foreign population.

In Chapter 3, I find a higher proportion of U.S. residency under Permanent status is significantly and positively related to current earnings as a Permanent Resident. Evaluated at the mean, the elasticity of earnings with respect to the speed to immigration is 0.16. This evidence suggests a fast path to immigration is beneficial to earnings, while a slow path can result in economic scarring that persists even after a foreigner becomes a Permanent Resident. Identification is achieved from assumptions on the second moment conditions.

INDEX WORDS: legalization, U.S. immigration policy, diaspora, Dissertations, Theses (academic)

Dedication

This dissertation is dedicated to all my friends, mom, dad, co-workers, and classmates, who have encouraged me through this journey.

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Chapter 1

A Global Survey of Contemporary Chinese Immigration: Diaspora and Policy

1.1 Introduction

This paper analyzes current global Chinese diaspora and the policies and events that have shaped these distributions and patterns. Historically, Chinese immigrants have faced numerous challenges when emigrating to other countries. Discriminatory immigration policies set by host countries limited Chinese migration and settlement, often as a reaction to control large waves of coolies or imported laborers. Contemporary migration of the Chinese is comprised of more educated and wealthy immigrants but worker programs organized by Chinese businesses[1] still exist and are introducing Chinese migrants to regions of the world that were not historically popular destinations. As the world modernizes and it becomes easier for migrants to share information with relations in their homelands, diaspora has an increasing importance in the global economy.

As the volume of Chinese immigrants throughout the world steadily increases, researchers have become more interested in studying their migration patterns and economic contributions to the local communities. In the 1990s, two national conferences were held in the United States and Hong Kong to study Chinese immigrants. A result of these conferences was the formation of the International Society for the

[1] Many of these businesses are state-owned

Study of the Chinese Overseas which still exists today and publishes academic research regarding Chinese migrants around the world (Skeldon 1995). Immigrant networks no longer only provide social connections, they also provide important commercial links. The importance of migrant links to business creation has increased interest in understanding the dispersion of immigrants, especially among the Chinese, whose migrant population outside of China is larger than the entire population of France (Economist 2011).

This paper utilizes recent census data from 26[2]. countries collected between 1999 and 2008 to compare the current status of Chinese immigrants at the global level. While survey papers can be found discussing aggregate levels of Chinese populations' overseas (Poston & Yu 1990; Poston, Mao, & Yu 1994; Li & Li 2011), the literature lacks an extensive examination of the Chinese immigrant population using micro-level national census data. The use of micro data allows for comparisons of individual characteristics such as literacy rates, education levels, citizenship, and employment. The wide variation across these characteristics is interesting and reflective of historical migration trends, business relations between countries, current social climates, and contemporary location preferences.

The coverage of host countries in this paper is limited to countries where national census data is available and where the data allows for identification of the Chinese-born[3] population. The differences in characteristics across countries are interesting. For instance in Spain, only 6 percent 25 to 45 year olds who were born in China are college educated, compared to 54 percent in the United States[4].

[2]National census data is available for 26 countries, but 27 countries are discussed in total. Australian census data is not publicly available but immigration patterns in this country are also discussed since it is a primary destination for Chinese immigrants

[3]The Chinese-born includes individuals born in mainland China, Taiwan, Hong Kong, and Macau.

[4]Unweighted tabulations using national censes data sets.

The characteristics of Chinese immigrants are extremely varied, ranging from the poorest to the richest and from the highly-educated to the low-skilled. Depending on a migrant's characteristics, there are differences in emigration opportunities out of China and choice of destination country. Wealthy and educated Chinese tend to immigrate to the United States, Canada, Australia, and other OECD countries. Chinese migrants who are temporary guest workers for Chinese companies will have less influence over their final destination country and are often young, uneducated, poor, and male. Labor migrants are also often sent to regions of the world where there is not a large or settled Chinese population.

Roughly 75 percent of Overseas Chinese[5] live in other Asian countries such as Thailand, Malaysia, Indonesia, and Singapore (OCAC 2010)[6]. This large concentration is mainly a consequence of historical immigration and the Chinese is a large ethnic group in these South Asian countries. Malaysia and the Philippines have the highest concentration of overseas Chinese. However, the Chinese populations are growing the fastest in large English-speaking countries (Skeldon 1996). Outside of Asian countries, the United States is home to the most people of Chinese ancestry followed by Canada, Peru, and Australia (Li & Li 2011). In 2007, this distribution included 670,000 living in Australia, 1.17 million in Peru, 1.3 million in Canada, and 3.8 million in the United States (OCAC 2007). In the contemporary period, English-speaking countries are the most popular destinations and entry is competitive. Zhuang (1997) cites

> "Of the choice of destinations - North America is the favourite, followed by Australia and West Europe, then South-east Asia..."

[5]The Overseas Chinese are defined to be those of Chinese birth and ancestry. However, in the national census data set, only individuals of Chinese birth are studied.

[6]Overseas Chinese population statistics are collected by ROC foreign representative offices and staff of Overseas Compatriot Affairs Commission. In 2010, the worldwide population of overseas Chinese was estimated to be 39.6 million and 29.8 million were located in Asia.

In the United States, Ong (2004) writes

> "...the perception is that the U.S. embassy is raising the bar for skilled immigrants from China, creating a fierce competition among Chinese urban elites to enter the United States either by making business investments, using family connections, applying to college, or contracting bogus marriages with American citizens."

In the migration literature, a common research question is in regards to the assimilation and selection of immigrants. Studies on assimilation (the rate at which immigrants reach parity to natives) are extremely vast and this question has been asked in regards to many immigrant groups and in many countries (See Kerr & Kerr 2011 for examples from the U.S.). While this paper will not aim to directly measure assimilation of Chinese immigrants, there are interesting differences in their education, occupations, and unemployment rates. An individual's decision to migrate to a new country is influenced by a variety of conditions including political, economic, geographic, and personal. The characteristics of Chinese immigrants vary greatly across the globe and reflect differences in preferences and opportunities to immigrate.

Differences in immigration policies can influence the type of migrants in a country[7] and immigration policy varies by country. Canada and Australia practice a point-based immigration system, while the United States uses a preference based system. The United States admits about 1 million new immigrants per year and most of these are family based. On the other hand Canada and Australia use immigration to supplement low population replacement rates and to bolster their economies. In 2010, net overseas migration[8] accounted for half of Australia's population growth (DIMC

[7]Strict immigration policies may also lead to illegal immigration but this type of immigration will not be discussed in this paper.

[8]Net overseas migration (NOM) is the net gain or loss of population through the arrival and departure of migrants.

2010), and thirty percent of the Australian population in 2006 was foreign-born (ABS 2008).

Historically, immigration policies have allowed large numbers of low-skilled Chinese laborers to work on plantations or in mines. In the present day, popular destination countries have more lenient immigration policies towards business owners, investors, or those with desirable skills such as nursing or engineering. These recent policies have attracted many high-skilled Chinese overseas and can explain why the English-speaking countries are such popular destination countries today.

McKeown (2001) would argue that national-level immigration policies are not the primary explanations for the variation in the success of Chinese populations across countries. He would include local economic opportunities and survival strategies to the set of variables that are key determinants to successful assimilation. Survival strategies are important differentiators since historically, many Chinese migrated as laborers and were exploited or treated as slaves. In some regions, the Chinese were able to transition to a civilian lifestyle but in other countries they faced steady discrimination and opposition to their presence. For the Chinese, a key to integration and population growth lies in the ease of racial accommodation and social acceptance (Wong 1978, Li & Li 2011, Kent 2003). Importantly, the size of ethnic enclaves and immigrant networks may only be a proxy for other necessary conditions: social acceptances, multi-cultural acceptance, and policies to encourage ethnic assimilation.

Other attributes of the host country such as the distance from origin country, common language, unemployment rates, and GDP can also affect the probability of a migrant selecting it as a destination country (Beine et al 2009). For Chinese immigrants, the proximity of a host country to mainland China can explain much of the large variation in occupations of Chinese migrants globally. Unsurprisingly, Chinese immigrants in the Philippines and Malaysia are the least educated and also have the

highest proportion of agricultural Chinese workers. Beine et al (2009) compare the migratory patterns of immigrants from 195 countries to 30 OECD countries from 1990 to 2000, and find that a large current diaspora predicts larger future diaspora. Sociologists would categorize Beine et al (2009) into the global perspective camp and critics of this perspective argue that local perspectives are often more complex, and global migratory flows are largely influenced by factors at the local level. Beine et al (2009) and the results of many migration models are most accurate for short-run explanations of migration decisions. Their results are not completely descriptive of long-run Chinese immigration since Chinese immigration is declining in certain countries where there are the largest ethnic Chinese populations. There are many examples of declining Chinese populations in Asian countries while there is booming population growth in some new and surprising places without a large settled Chinese community such as the African continent. Wang (1998) notes this paradox, "countries with the largest concentration of Chinese settlers are the countries which accept the fewest new migrants". Long-run views of immigration need to be explained by more complex local factors. Moreover, Chinese populations in certain countries are a result of a "one-shot" event where an event led to the movement of a group of Chinese but no further migration followed.

This paper presents an examination of the Chinese in the contemporary world. Their distributions by characteristics offer clues to why different types of Chinese immigrants are found in different countries. From broad trends to unique occurrences, the overseas Chinese population opens businesses, becomes involved in the local economy, and sends large sums of money back home to China[9]. Understanding the factors that attract Chinese immigrants is useful for policy makers as well for

[9]The World Bank (data.worldbank.org) estimated that Chinese overseas workers sent $48 billion (USD) back to China in 2009. In this paper, remittances are not the discussed due to lack of information in census data sets.

countries interested in managing immigrant populations or wishing to attract more immigrants.

1.1.1 Stages of Chinese Immigration

Whereas Ming dynasty sailors travelled the world as early as the 14th century, large scale Chinese migration trends began in the 19th century. Sociologists have categorized Chinese migration into four major patterns: *Huagong* (Chinese coolies), *Huaqiao* (Chinese sojourner), *Huayi* (people of Chinese descent), and *Huashang* (businessmen) (Poston & Yu 1990, Wang 1991).

The *Huagong* period lasted between the 19th century and 1920s. Hundreds of thousands of Chinese migrants spread across the world through the coolie trade (indentured servants or slavery) and merchant migration. Large waves of laborers led to the development of thriving China towns and communities that continued to attract more Chinese immigrants. For example, the largest Chinatown in South America is in Peru, which was also a primary destination for Chinese laborers at the turn of the 19th century.

Differences in host country immigration policies affected the ease of legal residency settlement in both Western and Asian countries. In Europe, immigration policies are often strict as a result of ethnocentrism (Klein 1997). As recently as the 1990's, the German government has said "the Federal Republic of Germany is not, nor shall it become, a country of immigrants" (Martin 1994). Of the 26 census data sets used in this paper, the Chinese-born naturalization rate is the lowest in the European countries.

Discriminatory immigration policies in many countries historically targeted the Chinese population and discouraged settlement. Table 1.2 through Table 1.6 summarizes a variety of immigration and political policies that directly affected the Chinese

across a number of selected countries. For example, Australia, Canada, Mexico, the Philippines, and the United States once enforced immigrant policies that specifically targeted the Chinese and limited their rights to immigrate and settle permanently. All of these policies have since been discontinued, some as late as the middle of the 20th century. Changes in immigration policies in Australia, Canada, and the United States mirrored each other in timing and policy; all three countries experienced increases in Chinese immigration after their policies were reformed in the mid-20th century (Table 1.6). These three countries are currently considered to be the most popular destination countries for Chinese immigrants.

Nationalistic policies in Malaysia and Indonesia restricted the Chinese social and economic status by limiting rights to business ownership and giving preferential treatment to natives (Table 1.5). While there has been reform in these two countries, a nationalistic atmosphere is still present, which deters the Chinese to immigrate to these two countries and increases the level of difficulty for integration and economic success.

1.1.2 Contemporary Events

In the 21st century, it is no longer common to find discriminatory policies that specifically restrict Chinese migration. In the contemporary era, two patterns of Chinese migration emerged: *Huaqiao* and *Huayi* (Wang 1991). The first pattern, *Huaqiao* (Chinese overseas), refers to migration of those who are primarily professional and well-educated until the 1950s. After the 1950s, a new pattern of *Huayi* (people of Chinese descent) developed where the Chinese from one foreign country moved to another foreign country. An example of this is Chinese Cubans migrating to the United States following the Cuban revolution in 1959. For centuries, the Chinese have been moti-

vated to travel the world for business reasons. Migration in the contemporary world is still dominated by *Huashang* (businessmen), migrants who move for business reasons.

In recent periods after the Second World War, Li and Li (2011) observe that growth of the Chinese population is primarily affected by the social climate in the host countries. Countries popular with Chinese immigrants share the common characteristic of being racially and socially tolerant countries or have lenient immigration policies. Chinese immigration is healthy in countries with socially hospitable policies or whose governments have good economic relations with China. Even though the Chinese in Cambodia suffered discrimination during the Vietnam War, in the last decade the Chinese have been investing heavily in the Cambodian economy; bringing business and more Chinese to the country. It has been estimated that in 90 percent of foreign investment into Cambodia are from Chinese owned companies in Southeast Asia (Pan 1999).

On the other hand, countries with small or aging Chinese populations can be characterized as holding nationalistic policies such as requiring natives to hold the majority stake in businesses or practice laws that directly limit the freedoms of the ethnic Chinese in their countries. For example, the Chinese populations in Malaysia and Cuba are aging, and the social and political climates of these countries have also not been favorable. Many Chinese left Cuba after the Cuban Revolution in 1959 when properties, land, and businesses were confiscated by the newly formed government. In Malaysia, the Enactment of 1913 restricted Chinese ownership of land, and the New Economic Policy of 1970 required native Malaysians to own a certain portion of all businesses. Native Malaysians were also given discounts in purchasing property, IPOs, preferential selection in colleges, and other amenities.

Contemporary immigration has seen an increase in the number of high-skilled Chinese immigrants although low skilled migration is still common as well. High-

skilled Chinese immigrants primarily choose English-speaking destination countries. In Canada and Australia, admittance is based on a points system where points are allotted for education and work experience, and they receive more economic immigrants. In the U.S., tens of thousands of Chinese, primarily students and their families, were granted amnesty after the Tiananmen incident of 1989. Opportunities for low-skilled migrants to other countries are still plentiful. Seamstresses, construction workers, miners have followed their respective Chinese companies to different countries or have been recruited by foreign companies when there is a labor shortage. It is not necessarily more difficult for low-skilled Chinese to enter popular countries such as the United States, Canada, and Australia. The United States immigration policy emphasizes family preferencing.

Aside from host country considerations, there are at least several major political events that occurred in the last half of the 20th century that directly affected migration opportunities for the Chinese (Table 1.1). In 1949, the Communists defeated the Nationalists and won leadership of the new republic of China. After the defeat, many Nationalists left mainland China and relocated to Taiwan but some also emigrated abroad. In South America, the Overseas Chinese are primarily Taiwanese as opposed to mainland Chinese. After the People's Republic of China was founded in 1949, China was closed to the rest of the world. Migration of the civilian population was virtually nonexistent and foreigners were also restricted from entering China.

Then in the early 1970s, China began to normalize relations with the international community. China officially joined the United Nations General Assembly and its councils in 1971. U.S. President Richard Nixon made his historic visit to China in 1972, which reestablished relations between the two countries. In the late 1970s, China improved relations with many other countries, reinstating a period of "Open-Door Policy". Diplomatic relations with other countries is essential for the feasibility of

legal immigration. In 1975 President Marcos of the Philippines also visited Chairman Mao, and shortly after, instituted a policy to ease naturalization of the Chinese in the Philippines.

The open door policy was critical to modern Chinese immigration. Not only did the open door policy allow Chinese civilians to leave the country, but the policy also allowed foreigners to enter. The establishment of foreign relationships inside China also promoted Chinese business partnerships in foreign countries, the creation of Chinese businesses abroad, and the movement of Chinese workers into other countries. The Chinese leaving China after the Open Door policy come from many backgrounds both high- and low-skilled: settler migrants, student migrants, contract labor, and illegal migration (Skeldon 1996).

Chinese students in the 1980s were primarily sponsored by the Chinese government, and students in the 1990s mostly attended graduate school. In later years, students were younger and pursued undergraduate educations abroad (Biao 1993). An event that affected the status of Chinese students abroad was the Tiananmen Square protests in the summer of 1989. During this incident, protestors comprising mainly of intellectuals and students called for an end to Communist rule. It is believed that at least hundreds were killed in this protest although estimates vary substantially by the source. The international community condemned the event and many countries implemented humanitarian relief that granted long-term residency options to Chinese students already abroad. Depending on the country, students were allowed extended stays or even given permanent residency. After the Tiananmen incident, the Chinese government initiated policies to attract students to return to China.

Another international event primarily affected the migration of people born in Hong-Kong. In 1984, China and the United Kingdom signed the Sino-British Joint Declaration which stated that Hong Kong would be returned to China on July 1, 1997.

Many residents of Hong Kong emigrated in anticipation of the handover. There was large uncertainty over possible changes to daily life from new communist governance. A major concern was that large numbers of skilled people emigrating would negatively affect the Hong Kong economy (Skeldon 1990). A study by Price Waterhouse in 1989 estimated the impact of out migration would reduce Hong Kong's economic growth by 45 percent before 1997 (PWMC 1989).

In the United States, Canada, and Australia, the volume of immigrants from Hong Kong peaked in the years leading up to the handover. The majority of Hong Kong immigrants chose to immigrate to Canada in the years immediately preceding the handover. The largest increase occurred in Canada, which created a business class for immigration that allowed Hong-Kong businessmen to easily immigrate to Canada. A large number also began immigrating to Australia before 1991, after which, selection criteria became stricter. The total number of Hong Kong emigrating out of Hong Kong peaked in the years leading up to the 1997 handover and then dropped remarkably afterwards.

In 1997, the Asian Financial Crisis also occurred. Bad economic times made immigration too expensive for some or might have encouraged Chinese businessmen to immigrate and look for better business opportunities elsewhere. The net effect of the financial crisis on immigration is not as clear as the others.

In 1999, the transfer of Macau from Portuguese governance to Chinese sovereignty led some to anticipate another emigration wave of Chinese immigrants. However, the response by the Chinese was much smaller and few left Macau for Portugal. The lack of migration may reflect location preferences.

As the Chinese economy continues to grow, it can be argued that the Chinese are finding good reasons to stay home. Even though economic conditions may be improving, just as many people are immigrating to the United States, Australia,

and Canada. The number of newly arrived Chinese to Australia has steadily risen as Australia continues to increase its immigration quotas. The number of total new Chinese permanent residents are also increasing in Australia and the United States but declined in Canada.

The remaining chapters are organized as follows. Section 1.2 describes Chinese migration trends across regions of the world. Section 1.3 compares the characteristics of the Chinese-born populations across 26 countries using micro-data. Finally, Section 1.4 concludes.

1.2 Population By Region

This section discusses the pattern of Chinese immigration across selected countries in the world. The average characteristics of the Chinese-born in each continent can be quite different. These differences reflect the different opportunities and attractions that are offered to Chinese immigrants.

Attitudes in host countries regarding immigration and the Chinese ethnicity are an important factor in affecting the development and growth of the Chinese population (Li & Li 2011). Native attitudes and immigration policies directly influence the climate that affects people's incentives to migrate, settle, or leave to a different country. (For a summary of events and policies affecting Chinese migration, see Table 1.2-Table 1.6).

Most people of Chinese ethnicity who do not live in China reside in other Asian countries such as Malaysia, Vietnam, and Philippines; this is mostly a consequence of historical migration. However, newly migrating Chinese is also spreading to new frontiers.

1.2.1 Africa

Evidence of Chinese presence on the African continent exists from as early as the 14th century. In South Africa, large populations of Chinese had immigrated as early as 1904, where 63,695 worked in the Witwatersrand gold mines however they were mostly repatriated by 1910 (Harris 2007). The remaining Chinese disappeared from public records and did not reappear until the mid-1990s, and in larger numbers. Even though less than 1 percent of the total Overseas Chinese are located in Africa, their numbers are growing at a fast rate. The OCAC (2010) estimates the Overseas Chinese population in Africa to be 236,000 in 2010, which is nearly double the estimate in 1996. Today, Africa is a new frontier for Chinese immigrants.

Immigrants to Africa are often older since younger Chinese prefer to migrate to more desirable locations such as Australia, Canada, and the United States. It is estimated that there are at least 750,000[10] Chinese workers in Africa, most arriving recently in the last decade (French & Polgreen 2007). Chinese firms working on construction projects in Africa handle projects worth billions of dollars across numerous African countries. Africa is currently a popular destination for Chinese companies and their workers. Chinese companies are lured by large scale infrastructure projects in Africa and have even pulled out of projects in Asia to take part in these new opportunities[11]. Through state-owned enterprises, the Chinese government is a large sender of Chinese immigrants to Africa, with 1,609 agencies running government projects in Africa, and over 800 Chinese companies operating in Africa (Politzer 2008). In 2006, Chinese President Hu Jingtao pledged to invest over US$4 billion in infrastructure

[10] This number is much higher than the estimated population by OCAC because temporary workers are not generally counted as the permanent population.

[11] The number of projects Chinese construction companies in South Asia has reduced from 1999 to 2005 (Chi-Chu 2006). Chinese firms are not the only ones flocking to Africa and compete with Japanese firms who also see the growth potential (Uesaka 2009).

projects in Nigeria. Other examples of investments include US$10 billion of investments into Egypt in 2010 (China Daily 2007), and US$7 billion was invested to build a highway in Algeria (O'Neill & Gough 2006). Trade between Africa and China has also grown to over US$55 billion in 2006 and is expected to reach US$100 billion in 2010 (Hurt 2009).

While Chinese companies have brought many Chinese workers to the region, they also employ hundreds of thousands of local Africans. Despite this, tension between the two groups is common. Employees have complained about low wages, being paid half of minimum wages, and dangerous working conditions (York 2009; BBC 2006). In South Africa, workers and unions are unhappy about the large Chinese workforce (Africa News 2010a). In Kenya there have been violent labor protests (Africa News 2010b) some of which have been fatal (Tian 2007).

Despite the large investments and job creation by Chinese run companies, the results of Chinese migration have been bittersweet. Although Chinese involvement in building Africa has been a cheap source of development, it clashes with the self-sustainability interests of the Africans. African firms are concerned that there is no skills transfer because Chinese firms bring in their own labor the majority of the time and then leave when a project is completed. There are also not many opportunities for local inexperienced African firms to compete against large Chinese state-owned enterprises.

In spite of the numerous tensions, there are some signs that Africa is beginning to be forced to adjust to the large influx of Chinese immigrants. In South Africa 2008, the Chinese were legally classified as "blacks" to be allowed to take advantage of affirmative action benefits described in the Broad-Based Black Economic Empowerment Act and the Employment Equity Act. Before Apartheid ended in South Africa, the Chinese also suffered from discrimination, the high emigration rate of 60 percent of

Chinese students between 1964-1984 illustrates the implications from high levels of hostility (Pan 1999).

1.2.2 Asia

In studies examining the South Asian Chinese population, Chinese communities are often seen as extensions or transplants from mainland China. There has been a long history of Chinese migration to other neighboring South Asian countries and as a result large proportions of the populations in these countries are at least partly ethnic Chinese. The close proximity of these countries to mainland China has made it an easy destination for migrants during times of political upheaval and famine. Globally, it is estimated that approximately three-quarters of the ethnic Chinese population is located in other Asian countries (OCAC 2010). Yet, Asia is the only continent where the Overseas Chinese population is stagnating, and even declining if population estimates from 2010 are compared to historic estimates from the 1990s.

The popularity of Asian countries for new Chinese immigrants is mixed. For example, newly arriving Chinese immigrants are less common in Malaysia and Thailand while steady in the Philippines and Cambodia. In these four Asian countries, the success of Chinese immigrants is related to the degree of ethnic melting of the Chinese with locals.

Both Thailand and Malaysia have a very high proportion of ethnic Chinese as a percentage of the total population. In 2010, it was estimated that 24.6 percent of the total Malaysian population were ethnic Chinese (DOSM 2011). There is also a large number of Chinese-born agricultural workers, which is not present in other regions in the world. However, the Chinese-born population in Malaysia and Thailand is aging while the Chinese-born population in the Philippines and Cambodia is much younger. Besides this age difference, the populations in each country are both similarly

illiterate and a very small proportion has a college education. So why is the Chinese born population in these two countries differ by their age?

One reason relates to Li and Li's (2011) observation that a host country's racial and social climate is related to the growth in the Chinese population. Malaysia is not a popular destination for Chinese migrants because of the nationalistic policies in place. The Chinese are under represented in politics which is a function of race-based policies that give preference to the indigenous people of Malysia[12]. In 1957, Malaysia gained its independence from Britain and at the time, the ethnic Chinese accounted for half of the population. Since then, there have been violent clashes between ethnic Malays and ethnic Chinese. The largest incident occurred on May 13, 1969 when race riots killed over 800 people. After this clash, Malaysia passed the New Economic Policy which aimed to decrease the socioeconomic disparity between the ethnic Chinese minority and ethnic Malays majority. This policy lasted until 1990 and gave ethnic Malays many benefits such as discounts in purchasing IPOs, housing, and preferential admittance to college. Other government policies to develop a more homogenous and united population also were seen as discriminatory. Some resulting actions of these policies included tight government control of ethnic Chinese schools. In 1997, during the Asian Financial Crisis, there were clashes between the ethnic Malays and the ethnic Chinese. Another Asian country where the Chinese are not growing is Thailand. Bun and Kiong (2003) conclude that the Chinese in Thailand have not assimilated. They argue that the lack of success can be partly be explained by the ethnic separation between Chinese and Thais.

The social climate in Malaysia is rather different than the one in the Philippines where Chinese men and women were encouraged to intermarry and as a result the

[12]The indigenous people of Malaysia are called Bumiputera, which means "Son of the earth".

Philippines has one of the highest rates of intermarriage between Chinese and natives in South Asia. In Malaysia, ethnic Chinese are still viewed as distinct from ethnic Malay, and mixed race marriages are much less common than in the Philippines.

The difference in the climate or racial acceptance and the intermarriage of Chinese may account for why there is an increasing number of newly arriving Chinese to the Philippines. Additionally, citizenship in the Philippines is also more easily obtainable for Chinese immigrants. In 1975, after a meeting between President Marcos of the Philippines and Chairman Mao of China, an agreement was achieved that eased the receipt of Filipino citizenship for the Chinese. The Chinese-born in the Philippines are much younger than those in Malaysia, and the country is a much more popular destination for Chinese immigrants. In 2010, the Filipino Bureau of Immigration measured that the number of immigrants from China had doubled from 2009 to 2010 (GMA 2011). In 2011, Chinese aliens in the Philippines accounted for a third of all aliens (BOIP 2011).

In Cambodia, the Chinese population is also growing and can be related to good economic relations between China and Cambodia. In recent years, China has become one of the largest investors into Cambodia, with over three thousand Chinese firms in Cambodia and over a billion US dollars in investments (RFA 2008). In the 2000 Cambodian census, the literacy and college graduation rates of the Chinese-born are higher than for other foreigners in Cambodia (Table 1.13 and Table 1.14).

Chinese immigration in the Asian countries discussed above is characterized by large flows over long periods of time. The Chinese presence in Nepal is a result of quite different circumstances. The Chinese population in Nepal is an interesting story and is an example of a "one-shot" migration where one event is the principle reason for the Chinese diaspora and the Chinese community there did not attract large waves of additional Chinese migrants. A small mainland Chinese population is largely a

result of illegal migration of monks from Tibet. However, there is a large population of Chinese residing in Nepal who were born in Hong Kong. Why are there Hong Kongers in Nepal? In the 1970s, the Gurkha brigade led by the British military entered Hong Kong. In 1991, there were 7,400 members of the Gurkha brigade in Hong Kong (Collett 1994). When Hong Kong was handed back to China, this brigade disbanded. Although many chose to stay in Hong Kong, the Nepalis there faced discrimination. The Hong Kong population in the 2001 Nepali census is also very young which implies that the bulk of the foreign born population is comprised of those who were born in Hong-Kong to parents of the Gurkha brigade. In the census, over 60 percent are under 25 years of age. This is an illustration of how young populations of Chinese will not lead to a larger diaspora.

1.2.3 Latin American and the Caribbean

I now turn to the Latin America, a region where Chinese diaspora is also explained by historical events. In the late 19th century, suspension of the African slave trade in South America led to a shortage of labor on plantations and in mines. Hundreds of thousands of Chinese workers were shipped to Mexico, Peru, and Cuba to fill labor shortages (Hu-Dehart 1989, Turner 1974). The Chinese laborer trade was officially ended in 1874 after many accounts of abuses. Once slavery ended, the reactions of governments ranged from exclusion to acceptance. These differences in attitudes were the roots of long-term trends in Chinese populations across South America.

When the coolie trade ended in 1874 and labor contracts of the Chinese in Peru eventually expired, the Chinese workers transitioned to free wage labor. They were treated similarly to other Peruvian workers. Without exclusion restrictions or nationalistic laws that confiscated their assets, the Chinese assimilated well in Peru. The Barrio Chino (Chinatown) in Lima, Peru is the largest China town in South America.

The Chinese slave trade to Peru was the highest during the late 19th century, when over a hundred thousand Chinese men were sent to work on plantations in Peru (Stewart 1951). They mostly arrived from Guangdong or Macau. Many of these laborers remained in Peru after their contracts expired and their settlements grew into the Barrio Chino. By population, the number of people with Chinese ancestry today in Peru also outnumbers that in any other South American country: 1.3 million (OCAC 2010). Chinese restaurants in Peru are also known as "chifas" which closely resemble the Chinese term "chi-fan" which means "eat food". Peru has proved to be a welcoming host country where the Chinese are thriving.

The transition of the Chinese communities after the abolishment of the coolie trade was not smooth in all South American countries. Large Chinese populations did not always find roots or created established communities that attracted more Chinese immigrants. For instance, about the same number of coolies (125,000) landed in Cuba as in Peru to work on sugar plantations (Hu-Dehart 1989, Triana & Herrera 2009). During World War I, another wave of 150,000 Chinese laborers arrived in Cuba to aid in food production (Corbitt 1942). However, in the late 20th century, the population of Chinese in Cuba has declined and Cuba has not experienced additional waves of Chinese immigrants. When Fidel Castro came into power, many Chinese left Cuba for the United States or other Latin American countries. From 1953 to 1970, the Chinese population in Cuba dropped from 11,834 to 5,892 (Rodriguez 1997). The flexibility of the Chinese populations shows that they are an adaptable group and are always looking for the newest and best opportunities and environments. They will readily move if conditions are not favorable.

The Chinese in Mexico also faced persecution and discrimination which lowered their population. The Chinese in Mexico worked primarily on railroads, a grueling task that many locals did not wish to perform. However in the late 19th century,

anti-Chinese sentiment resulted in mass deportations back to China, forced them to illegally enter the U.S., or shoved the Chinese into ghettos (Romero 2010). A comparison of Mexico, Peru, and Cuba clearly illustrated how social climate and racial acceptance is a crucial factor for the success of long-term immigrant settlement.

In some South American countries, ethnic Taiwanese immigrants are almost as common as those from mainland China. This is a result of Nationalists leaving China after the Communist victory in 1949. In Brazil, the population of Taiwanese outnumbers mainland Chinese immigrants in Sao Paulo. The handover of Macau from Portuguese government to China in 1999 also led to large migrations to Brazil. The preference of Sao Paulo as a Brazilian destination may be related to historical migration in the 1810's where Chinese migrated to work in the tea plantations (Chang-Rodriguez 1958).

In Chile and Argentina, the concentration of Taiwanese immigrants is only slightly less than those from mainland China. In Argentina, one wave arrived from Taiwan in the 1980s and a second wave arrived from mainland China's Fujian region in the 1990s.

National census data is available for a number of South American countries where the population of Chinese-born is not significant; these countries include Bolivia, Chile, Colombia, and Venezuela. In these countries, regional roots from China are strong. For example, the small population of Venezuelan Chinese originally arrived from Dulian and called their town New Dulian (Lopez 2007).

Predictions about the future of Chinese migration to South America are that growth will be moderate. Kent (2003) comments that large migrations to the continent are unlikely with the exception to Brazil. Some researchers speculate the smaller countries in South America will also be used as staging areas for illegal migration

into the United States and Canada since direct immigration into these two countries are usually only feasible for the wealthy or connected (Lausent-Herrera 1994).

1.2.4 Europe

The ethnic Chinese population in Europe is not growing as fast as in the Americas or Oceania. In 2010, approximately 3 percent of the Overseas Chinese were located in Europe (OCAC 2010). France, the United Kingdom, and Holland are the top three European destination countries. In 2007, 57 percent of the European ethnic Chinese population resided in these three countries (Li & Li 2011). In smaller European countries, the Chinese population is more homogeneous and immigrants tend to be from the same region in China. In Europe, many Chinese have roots from Zhejian province and this is a consequence of chain migration stemming from a Chinese laborer population that arrived in Europe during World War I (Skeldon 1996). Available census data allows us to examine the Chinese in mostly small European countries (Ireland, Greece, Spain, Portugal, and Romania) since census data for larger countries are not available. The study of Chinese in these smaller European countries is still interesting since the Chinese population is growing in many smaller countries that can be considered to be new frontiers. It will be interesting to see if these new lands become popular destinations.

In Spain, the Chinese community in 2003 ranked the 4th largest foreign community among non-EU communities (Nieto 2003). Since the 2003 estimate, the Chinese population has grown substantially. Many Chinese in Spain are also from the southern Zhejiang province in China. Since the Chinese population primarily holds laborer occupations and very few arrive to attend graduate school, the average level of education of the Chinese born is low. Micro data from the 2001 census data also reveal that only 6 percent of Chinese born 25 to 45 year olds hold a college education.

In Greece, the Chinese population in 2007 was estimated to be 30,000 and mostly residing in metropolitan areas (Enet-b 2007). Due to the nature of the type of Chinese immigrants in Greece, (large presence of Chinese company sponsored workers), labor disputes experienced in Athens is similar to those in found in Africa. Results from a 2007 Labor Force Survey showed fifty eight percent of the Chinese arriving in Greece have a job waiting (Enet-a 2007). Chinese shipyard workers are often paid half of what Greeks are paid in Greek run shipping companies. Chinese companies have recently taken full control of Piraeus port near Athens, the sixth largest shipping port in Greece. This port is an important strategic gateway to import Chinese products into the European markets (Lim 2008).

The population of Chinese in Portugal during the 1980s and 1990s numbered only in the thousands (Teixeira 1998). Portugal at the time was a relatively poor country and did not offer many opportunities for entrepreneurs. In recent years a number of Chinese restaurants started by Chinese from Macau have opened primarily in Lisbon (Fonseca 2001). Since then, the population of Asians has grown 730 percent in Portugal over the last 20 years (Oliveira 2003). They are highly active in the population and are more likely to be self-employed than other foreigners. Their entrepreneurial activities are concentrated in business with ethnic roots such as selling Chinese wares or opening Chinese restaurants. Tabulations using the 2001 Portuguese census data set show the Chinese-born are about three times more likely to be self-employed than other foreigners (Table 1.11 and Table 1.12). The Chinese in Portugal have also received preferential immigration treatment since the Portuguese governed Macau before sovereignty was transferred to the Chinese government. In this country, there is a high proportion of Chinese born who hold Portuguese citizenship due to the special provision allowing for citizenship when Macau was handed over to China.

While Ireland is not a primary destination country, its simpler immigration procedures has attracted an increasing number of students in recent years (Wang & King-O'Riain 2006). About 25 percent of 25-45 year old Chinese-born in the Ireland 2002 census had a college degree. Since Ireland is only a recent immigrant country, many students and second generation Chinese still do not feel fully assimilated there (Yau 2007, Wang & King-O'Riain 2008).

Romania hosts a small group of Chinese that only began immigrating there as recently as the 1980s. In recent years, Romania has experienced a shortage of skilled labor and has imported workers. These worker programs have faced the same obstacles and complaints as in almost every other country. In 2007, hundreds of textile workers demanded better pay (Clej 2007). Among the other Chinese living in Romania, many are self-employed and were first attracted to the country in the 1980s. However, self-employment in Romania itself is high and experienced a boom in the 1990s as the economy experienced industrial decline.

1.2.5 Australia

The discussion of the Chinese in Australia is the first in the discussion of the Chinese in the three large English-speaking countries (United States, Canada, and Australia). It is the only country discussed here where national census data is not available but the popularity as a destination country warrants attention.

Results of the 2006 Australian Census showed 669,896 Australians declared Chinese ancestry and 259,095 were born in China, almost 83,000 born in Hong Kong, 29,000 in Taiwan, and about 2,300 in Macau. In the last 25 years, the number of Chinese-born in Australia has increased over ten-fold from 28,500 in 1982 to 281,009 in 2007. The Chinese make up the largest foreign population in Australia aside from groups from other European countries.

The economic activities of ethnic Chinese in Australia vary. The variety can be expected when taking into account the wide range of backgrounds and differences in situations that led them to Australia. Along with new Chinese from the Far East arriving for work and school, Chinese related to the refugee wave immigrate through family reunification. Vietnamese-born Chinese have a lower participation rate in skilled work compared to native Australians. The rate is higher for Chinese-born in other Asian countries. Though the Taiwanese are often well educated and affluent, they have higher unemployment rates than the Mainland Chinese and Hong Kong immigrants (Ip 2001).

Historically, the Chinese population in Australia remained very low until the 1980s when immigration policies became more equal. The country historically had a very restrictive immigration policy referred to as the White Australia Policy, which limited Japanese and Chinese immigration from 1901 to 1973. In 1901, the Immigration and Restriction Act 1901 was passed and the population of Chinese immigrants dropped. In the early 20th century, after the enforcement of the Immigration and Restriction Act of 1901, the population of Chinese declined to less than 10,000 in 1947. Before the full repeal of the Immigration and Restriction Act in 1973, restrictions were relaxed on several occasions. Non-Europeans were allowed to settle, become citizens, sponsor Asian spouses for citizenship, and conditions for immigration were relaxed. The number of Chinese in Australia increased very slowly into the 1970s.

In 1973, the White Australian Policy ended for good and the country began welcoming large numbers of immigrants. Shortly afterwards, the first sizeable wave of ethnic Chinese immigrations arrived as refugees following the 1975 fall of Saigon during the Vietnam War. In 1975, the Racial Discrimination Act prohibited race to be considered as a factor for immigration. In 1979, Australia began to use a points system that put high value on English language abilities and occupation skills. In

1981, the Business Migration Program (BMP) was created. Though by 1991, this program was scrapped as the program was poorly managed, investment, skill, and English language abilities were never verified under the BMP. The Business Skills Program replaced the Business Migration Program in 1991. One-third of all BMP settlers were from Hong Kong and about 15 percent were from Taiwan (Ip 2001). The Business Skills program set stricter standards and is regarded as a success however due its stricter standards compared to Canada, the program is much smaller and there is doubt that there is the supply to fill the program (Birell 2000).

Following the Tiananmen Square incident in China in 1989, Chinese citizens who were normally resident in China but legal temporary residents in Australia were permitted to remain until July 1990. This was later extended to June 1994 (DIMA 2001). Applications for refugee status totaled 16,248 in the 1991 fiscal year with 77 percent of applicants being nationals of the People's Republic of China (DIMC 2008). The surge in the Chinese population in the late 1980s can also be related to the arrival of many Chinese students right before the Tiananmen incident. Just as the Australian government was promoting study abroad programs such as ELICOS (English Language Intensive Courses for Overseas Students), the Tiananmen Square incident occurred in Beijing. The Tiananmen incident led the Australian government to grant extended stays and permanent residency to all Chinese students that were in Australia at the time. These students then applied to have family members join them in Australia. Thus, the population of Chinese in Australia grew tremendously from 45,000 in 1988 to 121,145 in 1996 (ADI 1993, ABS 2008). In the 1990s, most Chinese settlers arriving in Australia were eligible under family reunification. For example, of the 17,264 Chinese-born immigrants newly arriving in 1995-96, 11,940 (70 percent) were considered under Family Migration. In the United States, family preferences are also the primary channel for immigration. In the early 1990s, immigration of

mainland Chinese-born remained around 3,000 annually. After 1995, the number of new arrivals began to increase. The number of mainland Chinese arriving in Australia jumped to 11,247 in 1995-96. The large increase in the 1996 fiscal year is possibly explained by Chinese students seeking refugee after the Tiananmen incident or Hong Kong migrants who were born in China. Thus, immigration accounts for a large part of Australia's population growth. In 2007, the stock of Chinese students in Australia was about 60,000 students or 20 percent of the foreign student population (Table 1.7).

Between 1990 and 2000, immigrants from mainland China nearly doubled whereas immigrants from Hong Kong, Macau, and Taiwan shrank. This is true for the combined number of new immigrants and landed immigrants counted together or only new immigrants. The number of new arrivals from Hong Kong increased measurably in the years preceding Hong Kong's handover to China in 1997. In 1990, their numbers peaked at 13,541 new arrivals. After the hand-over, the flow of Hong Kong born immigrants declined and remained at about 1,000 annually. The net inflow of Chinese immigrants is still increasing. The steady increase of the total number of new immigrants thereafter is due to quota increases during Prime Minister Howard's administration beginning in 1996.

Compared to the United States, Australia receives a much lower number of Chinese immigrants. As recently as 2007, it still received less than 13,000 new immigrants from China (ADI 2007). This is less than the number the United States was receiving in the 1960s. However, when you consider the population of Australia, this number is proportionally very large. Australia's current population is only about 20 million, about 7 percent the size of the United States. Immigration accounts for a large portion of population growth in Australia. In the 2008 fiscal year, 158,630 immigration quotas were granted in total, an amount nearly one-tenth the population of Australia (ADIC 2012). United States is often regarded as a melting pot of cultures due to its long

history of immigration. But in fact Australia and Canada both have a higher percent of foreign-born population than the United States.

1.2.6 Canada

Similar to Australia and the United States, Canada held discriminatory immigration policies towards the Chinese in the last century. The Chinese Immigration Act of 1885 required a head tax to be paid by Chinese immigrants entering Canada. This was later repealed in 1923 by the Chinese Immigration Act of 1923. However, this new version is also referred to the Chinese Exclusion Act because this law banned almost all types of Chinese immigration to Canada. After the repeal of the Chinese Exclusion Act in 1947, many Chinese immigrated to Canada for family reunification in the 1950s to 1960s.

In the late 1960's, Canada became more liberal and the government shifted from "race-based" immigration policy to a universal point system. In 1967, Canada's immigration policy was amended to include selection of economic immigrants. In 1976, the Immigration Act was passed that created 4 new classes of entry: refugees, families, assisted relatives, and independent immigrant. In 1978, Canada added an "entrepreneur" category to the Business Immigration Program. Canada's expansion of the Business Immigration Program in the mid-1980s benefited entrepreneurs from Hong Kong seeking to emigrate before Hong Kong's handover to PRC in 1997. In 1985, the category "investor" was added and aided the immigration of many more Hong Kong natives. The beneficiaries of these economic classes were often well to-do Hong Kong immigrants and because of their wealth, they were dubbed "yacht people" (Skeldon 1990).

Canada is a large receiver of immigrants. Canada's Annual Immigration Plan for 2007 set a target of 265,000 new immigrants to be chosen between Economic,

Family, and Protected Person classes. Similar to Australia, Canadian immigration is not based on quotas but targets and is altered annually based on economic, social, and population considerations and also uses the point system to select immigrants. This is in contrast to U.S. immigration policy which uses quotas. Economic immigrants comprise a large share of total permanent residents. According to the Annual Report to Parliament on Immigration, in 2007 the Economic Class comprised 55 percent of total new permanent residents. The Economic Class includes skilled workers, business immigrants, provincial/territorial nominees, and live-in care givers. Skilled workers constituted 75 percent of immigrants in the Economic Class. Individuals applying for this class through the Business Immigration Program are expected to spend C$400,000 towards an investment or to run a business in Canada. In recent years, Chinese immigrants have been the largest source of Economic Immigrants to Canada.

The Chinese have a large presence in Canada. In 2007, China was the largest source of new permanent residents, a total of 27,014 being admitted, or 11.4 percent of total new permanent residents. By Canadian definitions[13], an immigrant is a person who seeks landing, which is lawful permission to come into Canada to establish permanent residence (Immigration Act of 1976).

Patterns of Chinese immigration to Canada are similar to patterns seen in Australia. In both countries, the number of Hong Kong permanent residents peak in the early 1990s, and the number of Chinese mainland immigrants increases dramatically in number.

The number of permanent immigrants in Canada who were born in China increased four-fold between 1987 and 1996. Many residents chose to leave Hong Kong

[13]Canadian data on immigration from 1966-1996 is published in Immigration Statistics. Statistics from 1998 to 2007 is taken from the 2007 Facts and Figures.

before 1997 in anticipation of possible unrest from the new Chinese governance. Between 1992 and 1996, there were more new permanent residents born in Hong Kong than from mainland China. Many Hong Kong immigrants chose to immigrate to Canada and Australia than to the United States. This may have been due to personal preference but is more likely that it was easier to obtain a visa to these countries through their more open Business and Economic channels. In fact, the expansion of Canada's immigration policy in 1985 to include classes for entrepreneurs and businessmen was not arbitrarily timed. This adjustment was made in anticipation of Hong Kong's handover to China in 1997. Canada's immigration is primarily through the Economic Class, whereas in the United States most immigrants are admitted through the Family Channel. Since most visas to the United States are given to relatives, the remaining left for other channels are few and competitive to obtain. Many Hong Kong immigrants to Canada moved back after the handover resulted in little change to daily life. The Chinese government treated Hong Kong differently from counties in the mainland under the One Country, Two Systems ideology.

Compared to the United States and Australia, Canada admits the fewest number of foreign students. In 2007, Canada admitted 64,636 students from all countries, which is less than the number of Chinese students admitted into the United States in the same year (Table 1.7). As a proportion of total foreign-students, the number of Chinese admitted is similar to the proportions in Australia and the United States. The events occurring in Tiananmen Square in 1989 created a climate where Chinese students in Canada were granted a status of landed immigrant, or permanent residency.

To sum, Canada has attempted to maximize economic and social well-being by accepting immigrants of high skill but remains behind in admitting students. This strategy may not be the most ideal when considering immigrant assimilation. Assim-

ilation of the immigrant work force may be faster if foreign students are allowed to study in the host country and then start working. Immigrants who enter a country to start a new job immediately are unaccustomed to the culture of their new host country, more time is spent in adjustment, and this may slow their assimilation. Whereas students can spend their time in school getting used to the cultures of the host country. The assimilation of Chinese immigrants has been observed as frustrating and underachieving by some researchers (Tian 2000; Yu 2002; Wang & Lo 2005).

Statistics Canada profiled the Chinese community and highlighted that "27 percent of children of Chinese origin live in families with incomes below the low-income cut-offs", "8.4 percent of Chinese labour force participants were unemployed in 2001", and "the average income of Canadians of Chinese origin was $5,000 lower than the national average of $30,000 in 2000. " (Lindsay 2001). In 1999, Chinese immigrants from the Economic class earned an average annual total income of $20,453 while immigrants from the family class earned on $13,825 (Wang & Lo 2005). Assimilation for all foreigners in Canada is comparably slower than for those living in the U.S. Women from both Hong Kong and China are found to be deskilled in Canada (Man 2004). Among Chinese women, there is a high level of unemployment.

1.2.7 The United States

Lastly, this section describes the Chinese in the United States. Outside of Asia, the U.S. is host to the largest number of ethnic Chinese. The Chinese have been arriving to the U.S. in consistently large numbers for centuries and is still a popular destination.

In the United States, the years 1849-1882 was a period of free immigration. From 1882 to 1965, the United States was in a period of exclusion that limited the freedoms of those who wanted to immigrate. Chinese laborers, unwelcome by white laborers at the time were called "coolies". Opposition to the Chinese rose to the extent that

in 1882 the Chinese Exclusion Act[14] was passed to prohibit immigration of Chinese laborers. The Immigration Act of 1924 prohibited Chinese women from immigrating and skewed the proportion of Chinese men to women. Towards the end of this period, Chinese immigrants were viewed more favorably and immigration laws reflected this change. In 1943, the Chinese Exclusion law was repealed. In 1943, the Immigration Act of 1924 was modified so wives were allowed to come into the United States. And the 1945 War Bride Act also facilitated the immigration of Chinese women. These changes occurred during World War II, when China allied with the United States against Japan. The changes in immigration laws favored Chinese immigrants while a majority of Japanese-Americans were sent to camps.

Since 1965, the United States has been in a period of diverse immigration. The Immigration and Nationality Act of 1965, coming into effect in 1969, granted an equal annual quota of 20,000 per country. Amendments to the act preferred aliens with skills and talents, though most of these quotas were set aside for family reunifications.

In 1972, Richard Nixon visited China. Shortly afterwards in 1979 with the normalization of US China relations, new immigrants and college students began entering the United States. In 1983, United States-China Consular Convention was signed which allowed travel for family reunification and those declaring joint citizenship in China and the United States.

Soon after, immigration law was again reformed under the Immigration and Reform and Control Act (IRCA) of 1986. This act had an impact on all immigrants. It prohibited employment to illegal immigrants. In 1989, the Tiananmen Massacre occurred in Beijing. The United States government responded with the Chinese Student Protection Act of October 9, 1992, despite displeasure from the Chinese government who preferred the Act to be repealed (Himler 1993). This law provided

[14]This Act is not the same as the Chinese Exclusion Act of 1923 passed in Canada.

for adjustment to permanent resident status (as employment-based immigrants) to nationals of the People's Republic of China who were in the United States after June 4, 1989 and before April 11, 1990. This adjustment made it infinitely easier for Chinese students to become residents of the United States. Other foreign students who wanted to remain in the country would have to endure a lengthy process of securing employment sponsorship and wait years to obtain a green card. There is also evidence that between 1990 and 200, Chinese immigrants on average saw employment gains (Orrenius et al 2011). The Immigration Act of 1990 also increased the allowed number of legal immigrants each year into the United States from 500,000 to 700,000.

Immigrants, as defined by U.S. immigration law, are persons lawfully admitted for permanent residency in the United States. Other terms used in INS reports to refer to immigrants include: aliens who are granted legal permanent residence; aliens admitted for legal permanent residence; immigrants admitted; and admissions[15].

The United States has admitted more Chinese permanent residents than either Canada or Australia over the last century. Also unlike Canada and Australia, the number of Hong Kong immigrants did not peak prior to the handover in 1997. Another difference is that the number of new Chinese immigrants arriving in the U.S. has always outnumbered the immigrants from Taiwan or Hong Kong. After immigration liberalization through the Immigration and Nationality Act of 1965, Chinese immigrants arrived in two distinct groups. One new group was skilled, educated, and

[15] Aliens wishing to become legal immigrants follow one of two paths depending on their residence at the time of application. Aliens living abroad apply for an immigrant visa at a consular office of the Department of State. Once issued a visa, they may enter the United States and become legal immigrants when they pass through the port of entry. Aliens already living in the United States, including certain undocumented immigrants, temporary workers, foreign students, and refugees, file an application for adjustment of status (to legal permanent residence) with INS. At the time they apply for adjustment of status, they may also apply for work permits. Adjustment of status applicants are granted legal permanent residence at the time their applications are approved. (INS1997 Yearbook).

wealthy. This group did not necessarily have ties to other Chinese already residing in the United States. They arrived for work, business, and educational opportunities. Many former leaders also arrived as refugees after the fall of the Nationalist Party to the Communist Party. The second group consisted of relatives of early immigrants and arrived via family reunifications. The class of Chinese immigrants arriving in the last half century is very bi-polar. On one end, there are highly skilled and educated immigrants. On the other end, there are relatives of early immigrants that were historically employed in low skill occupations.

Chinese students have always been welcome in the United States, even when the Chinese Exclusion Act of 1882 was in effect; students were allowed to enter the United States to study when Chinese laborers were not allowed entry. The difference is that in the past Chinese students did not prefer to stay in the United States. Today many Chinese students choose to stay, find employment, and become permanent residents. Finn (2003) calculates a 90 percent stay rate among Chinese PhD students in 2003. In the last two decades, foreign Chinese students have comprised about 10 percent of all foreign students studying in the United States. In numbers, the U.S. admits about twice as many new Chinese students than Australia and nine times as many as Canada.

The injection of this new wave of educated and selective Chinese may have positively affected the average assimilation of the Chinese population in the U.S. In the 1970 Census, Chinese median family income was $1,000 higher than the average in the United States. In 1999, the Chinese median family income was about $10,000 above that of the average the American family's ($60,058 vs. $50,046). Assimilation for the Chinese in Canada is just the opposite. The average income of Canadians of Chinese origin was $5,000 lower than the national average of $30,000 in 2000 (Lindsay 2001). For 1999, Wang and Lo (2005) calculated the average total Chinese income

was under $15,000 or half the amount of the general population. These differences in assimilation can be due to the composition of immigrants and the primary channels of their entry. The root cause of the differences in assimilation between Chinese across host countries is a topic for a later paper.

1.2.8 World Wide Summary

The Chinese-born immigrant population exhibits large variation in their characteristics across countries. Chinese from a range of socioeconomic backgrounds and work experience all have emigration opportunities out of China. Poor migrants can leave to work for Chinese companies in foreign countries, and wealthier Chinese can start businesses in Western countries that offer entrepreneurial immigration channels or send their children to study abroad.

The future of Chinese migration into most areas of the world is predicted to be quite substantial. The Chinese continue to increase in many countries. There are also new frontiers where the Chinese are expected to increase their population such as in Africa, where Chinese immigration will mainly be dominated by poorer and less educated Chinese. It will be interesting to follow exactly where in the world new migration flows may begin to favor. The United States, Australia, and Canada will remain popular destinations for Chinese with wealth and education. Finally, declines in the Chinese population are also occurring in countries where opportunities are limited whether it be from political unrest or simply from challenges due to discrimination. The constant movement and reach of the Chinese show that they are a flexible immigrant group who are willing to travel to wherever opportunities exist.

1.3 Comparing Chinese Immigrants in 26 Countries using Census Data

This section presents statistics from twenty-six[16] national census data sets on different characteristics of the Chinese-born including age, citizenship, occupation, education, and employment. Each census data set was produced by that country's government. There are differences in variable availability and construction. Variables such as age and gender are available across all data sets. While other variables such as occupation and citizenship are not consistently available or identically categorized. Sampling designs also vary by survey. For example, surveys vary from a 1 percent sample of the population (Thailand 2000) to a 11.35 percent sampling (Nepal 2001).

The sample size of the Chinese-born[17] in each census data set is listed in Table 1.8 as well as the estimated ethnic Chinese population in those countries. While the samples in the Census data sets are restricted to only the Chinese-born, the population estimates across countries are almost all estimates of the ethnic Chinese include individuals not necessarily born in China. Therefore, a large estimated Chinese population does not always coincide with a large sample of Chinese-born in the corresponding census data set. This is especially true in Asian countries such as Malaysia and the Philippines with a long history of Chinese migration. The largest samples of Chinese-

[16]IPUMS-International data repository: Argentina 2001, 10 percent Census; Bolivia 2001, 10 percent Census; Brazil 2000, 6 percent Census; Canada 2001, 2.7 percent Census; Cambodia 2008, 10 percent Census; Chile 2002, 10 percent Census; Colombia 2005, 10 percent Census; Costa Rica 2000, 10 percent Census; Cuba 2002, 10 percent Census; Greece 2001, 10 percent Census; Ireland 2002, 10 percent Census; Kyrgyz Republic 1999, 10 percent Census; Malawi 2008, 10 percent Census; Malaysia 2000, 2 percent Census; Mexico 2000, 10.6 percent Census; Mongolia 2000, 10 percent Census; Nepal 2001, 11.35 percent Census; Peru 2007, 10 percent Census; Philippines 2000, 10 percent Census; Portugal 2001, 5 percent Census; Romania 2002, 10 percent Census; South Africa 2001, 10 percent Census; Spain 2001, 5 percent Census; Thailand 2000, 1 percent Census; United States 2000, 5 percent Census; Venezuela 2001, 10 percent Census.

[17]In some surveys, Hong Kong and Taiwan births cannot be separated from mainland Chinese births. In the tabulations, the Chinese-born include mainland China, Hong Kong, Macau, and Taiwan.

born are obtained from census data sets in the U.S., Canada, Philippines, and Spain. While the largest estimated ethnic Chinese populations among our countries of study are found in Thailand, Malaysia, and the United States.

1.3.1 Age Distribution

The first statistics examined are the age distributions of the unweighted Chinese-born residents in 26 countries for recent years (Table 1.9). An aging population is reflective of the low preference new migrants have for that country or a high-rate of out-migration. It is useful to benchmark age distributions by observing the age distribution in the U.S., which has a large Chinese-born population as well as being a preferred destination for new migrants. The U.S. is host to the largest Chinese immigrant population outside of Asia. About 16 percent of Chinese-born in the U.S. are youths under 25, 44 percent are between 25 to 45 years old, and the remaining are elderly.

More than 70% of Chinese-born are over age 45 in Cuba, Malaysia, the Kyrgyz Republic, and Thailand. It is no coincidence that these countries also hosted discriminatory immigration policies, and the Chinese experienced low economic success in these countries as well. Ninety-two percent of the Chinese-born Malaysian sample is over 45 years of age. Malaysia has a long history of Chinese immigrants and the ethnic Chinese comprise about a quarter of the population; however the number of newly arriving Chinese is declining. Peng (2001) examines the proportion of ethnic Chinese born outside of Malaysia over time and found 80 percent of ethnic Chinese were born outside of Malaysia in 1920 and the proportion decreased to roughly 3 percent in 1990. The Chinese-born population is also aging in neighboring Thailand. Bun and Kiong (1993) concluded that the Chinese in Thailand are not fully assimilated and this result is partly due to ethnic divides. The trend of declining new immigration

to Asian countries has been noted by Wang (1998), who describes it as a paradox that countries with the largest Chinese populations are the ones who are receiving the fewest new Chinese. In Cuba, the Chinese migration pattern has also been dominated by outmigration, and 88 percent of the sample (although very small) is over 45 years of age. Many Chinese emigrated out of Cuba during the Cuban revolution. The population declined from 20-30,000 in the 1950s to 5-6,000 in the 1990s (Kent 2003).

Conversely, in some countries the Chinese-born population is predominantly young, such as in Ireland, Malawi, Nepal, and the Philippines. In all four countries, over half of the Chinese-born sample is under 25 years of age. The Philippines, unlike its neighbor Malaysia, did not pass any discriminatory policies aimed directly at the Chinese ethnic group. During the Marcos administration, naturalization for the Chinese in the Philippines was eased after a meeting between President Marcos of the Philippines and Chairman Mao of China. Additionally, interracial marriage is encouraged in the Philippines. Healthy political relations across countries are an important determinant to stimulate flows of immigration. Cambodia also has a young Chinese population, which can be credited with the improving economic relations between China and Cambodia and the increase in the number of Chinese businesses. As for Ireland and Malawi, these countries are new destinations for the Chinese and it is unlikely to have an older settled Chinese population.

1.3.2 Citizenship

Table 1.10 lists the proportion of Chinese-born and non-Chinese foreigners holding citizenship of the host country. Certain contemporary events have eased the attainment of citizenship for the Chinese in certain countries. On the other hand, strict immigration policies have limited the acquisition of citizenship, which occurs primarily in European countries.

In some countries, over half of the 25 to 45 year old Chinese-born sample holds citizenship of the host country; these countries include Canada, Nepal, Kyrgyz Republic, and South Africa. But these countries also have high rates of naturalization for even the non-Chinese foreigners so this does not necessarily mean the Chinese received preferential immigration treatment.

The lowest naturalization rates among the Chinese-born immigrants are found in European countries. For example, the rate of naturalized Chinese who are prime working age is 0 percent in Greece, 14 percent in Ireland, 5 percent in Spain, and 16 percent in Romania. Additionally, these rates are much lower than for the non-Chinese foreign-born. For instance, in Spain, 31.5 percent of non-Chinese foreigners hold Spanish citizenship compared to 5 percent of Chinese-born immigrants. European immigration laws are generally stricter as is consistent with low levels of naturalization. Many European countries prefer to pass citizenship based on jus sanguinis (right of blood) where citizenship is granted based on race or blood lineage. This is in contrast to citizenship laws in the United States where citizenship is granted to anyone who is born on U.S. soil, jus soli (right of soil), or to those who complete naturalization requirements. An exception to low naturalization rates in Europe is in Portugal. Citizenship was generously granted to the Chinese when Macau was returned to China in 1999. But Portugal has high naturalization rates in general; the percent of 25 to 45 years olds holding citizenship is even higher for non-Chinese immigrants. For example, 64 percent of non-Chinese foreigners in Portugal hold Portuguese citizenship versus 38.5 percent of the Chinese foreign-born.

Naturalization of the Chinese-born in Asian countries is much more common. In the Kyrgyz Republic, 96 percent of the Chinese sample holds Kyrgyz citizenship, as well as 98 percent in Nepal. The high citizenship rate in Nepal may not a result of a

favorable immigration policy, but because of return migration of Nepalese from Hong Kong after HK was handed back to China in 1999.

Unfortunately citizenship information is not available in a number of Asian countries where there are the largest populations of ethnic Chinese.

1.3.3 Employment

In Table 1.11, employment statistics are tabulated for the Chinese-born sample that is between 25 and 45 years of age. Table 1.12 tabulates employment statistics for the non-Chinese foreign-born sample as a point of comparison.

There is large variation in the labor force participation and the self-employment rates across countries. In certain countries, the proportion of the prime working age population is high relative to the entire sample. This reflects recent migration that is primarily driven to fill labor shortages or a high incidence of Chinese companies in host countries that hire Chinese workers. In Greece and Romania, 63 and 71 percent of the Chinese-born samples fall in the prime working age range. Additionally, Greece has many Chinese workers in Chinese companies and Romania has many contracted Chinese workers to fill the labor shortages in the garment industry (Lim 2008, Clej 2007).

Chinese immigrants in South America consistently have the highest rates of self-employment. This can be a result of an informal labor market structure or the lack of high-skilled immigration to South America. It can also be a consequence of historical large shipments of Chinese workers to South America in the late 19th century. With the exception of Cuba and Colombia, at least one-third of the Chinese prime working age samples in South America are self-employed. Compared to the non-Chinese foreign-born sample in the South American census data sets, the Chinese have high rates of self-employment so their employment status is unique. For

example, 39.6 percent of Chinese workers are self-employed in Argentina compared to 13.8 percent of the non-Chinese foreign-born. The Chinese also have higher self-employment rates in Bolivia, Brazil, Chile, Costa Rica, Peru, and Venezuela. Only in Colombia and Mexico do the Chinese have lower self-employment rates than the remaining foreign-born population.

The prevalence of self-employment in Europe varies by country. In Portugal, there is higher rate of self-employment which reflects entrepreneurial migration. The Chinese in Portugal are also primarily involved in businesses that reflect their culture such as opening Chinese restaurants and selling Chinese goods (Oliveira 2003). The self-employment rate among the Chinese is also about three times higher than among non-Chinese foreigners. The rate of self-employment in Spain is about half the rate as in Portugal, Within Spain, the Chinese self-employment rate at 18.6 is over double the rate of other foreigners (8.7 percent), which is reflective of the main enterprise being in catering and restaurants which tend to be family owned (Nieto 2003). An explanation is that these medium-sized enterprises only hire a few permanent workers and many temporary workers who may not be in the family.

There is low labor force participation among the Chinese in Asia. The percent of those employed including those not in the labor force is only 53 percent in Malaysia and 58 percent in Nepal.

Among the Chinese-born, unemployment rates are high in the 1999 Kyrgyz Republic and 2001 Spanish data sets, but comparable to the unemployment rates of other foreigners. For example in Spain, the unemployment rate of prime-aged workers 25 to 45 years of age is about 15 percent for foreigners who are Chinese or not. Organized labor programs and the presence of local networks in the smaller European countries contribute to the low unemployment rate.

1.3.4 Education and Literacy

The Chinese-born population in North America is the most educated and is also significantly more educated than the other foreigners in the U.S. or Canada (Table 1.13 and Table 1.14). The United States and Canada are also the only two countries among the 26 selected countries where high-skill occupations are commonly held by the Chinese-born. Unsurprisingly, the United States and Canada also have a high percentage of the 25 to 45 year old cohort enrolled in school, 22 and 18 percent respectively. In this age range, if an individual is enrolled in school, it is likely to be in graduate school. The Philippines also has a high proportion of Chinese enrolled in school but a very low proportion is college educated. South Africa, Thailand, Greece, and Mexico have high proportions of college-educated Chinese. In South Africa and Greece, much of the college-educated are likely transplants from China since Chinese run companies sponsoring Chinese workers are common in these two countries, and the Chinese presence in this two countries are relatively a recent phenomenon. For the most part, the prime working age Chinese samples are more educated than other foreigners; the exceptions are Bolivia, Cuba, Kyrgyz Republic, Peru, Portugal, and Romania[18].

Out of the 26 selected countries, the three countries with the lowest Chinese literacy rates are in Asia. Twelve percent of Chinese 25-45 year old population in Malaysia and Thailand are illiterate, as well as 23 percent in Nepal. Thailand, Malaysia, and Nepal are both easily accessible by land. However, they are much more literate than other foreigners in these three countries. The Chinese in Cambodia are relatively more literate and this is likely due to the entrepreneurial nature of

[18] In Cuba, and Kyrgyz Republic, the Chinese populations are aging. In Bolivia, and Cuba, the sample of 25 to 45 year old Chinese is small.

Chinese immigration to Cambodia, and many are expected to be educated to conduct business.

The Chinese in certain South American countries are less educated, with the lowest percentage of college graduates in Chile and Venezuela. Compared to other foreign-born immigrants, the prime working aged Chinese (25-45) is much more literate in comparison in other South Asian countries.

1.3.5 Occupations

The examination of occupations across 26 countries for the Chinese-born sample yields interesting trends. Occupations are classified differently across surveys and occupation categories in each survey are available at different levels of aggregation. To make comparisons, in each country, only the most common occupations are identified for the Chinese-born (Table 1.15). There are some clear regional differences in which occupations are the most common for the Chinese-born samples. In South America and the smaller European countries, the Chinese are commonly employed in sales occupations, cooks, or are small business owners. Secondly, Asian countries are the only countries where a large share of the Chinese-born works in agricultural occupations. The United States and Canada are the only countries where a significant proportion of the Chinese-born work in high-skill occupations.

In South America, the frequency of the Chinese working in small businesses is related their occupations historically. After 1874, when the coolie trade was abolished in South America, many Chinese workers transitioned to other agriculture occupations or set up stores and restaurants. The primary occupations across the South American countries are quite similar, mostly in small business ownership and restaurant occupations.

In the Kyrgyz Republic, Nepal, and the Philippines, agricultural and field crop occupations are among the most common occupations of the Chinese-born survey respondents. It makes sense that the close proximity of these countries to mainland China would lead to the migration of low-skilled workers.

In the next paragraphs, a more comprehensive comparison of occupations in the U.S. and Canada is discussed. A deeper discussion is necessary since these two countries have larger samples of Chinese-born respondents and are also currently primary destination countries. Popular occupations for the Chinese-born are similar in the U.S. and Canada.

Compared to other countries, the U.S. and Canada are the only countries where high-skilled occupations are common among the Chinese-born. Additionally, the Chinese-born are employed in these occupations at higher rates than natives. In both the U.S. and Canada, the Chinese-born are much more concentrated in occupations in natural and applied sciences than natives. In the United States, less than 3 percent of native-born working 18-65 year olds held an occupation in this group, compared to over 12 percent of the Chinese-born in the 2000 U.S. Census. The differential between native Canadians and Chinese-born in this occupation category is even larger, 5 percent of native Canadians work in this area compared to 16 percent of Chinese-born. There are some differences in certain occupations. In the United States, a higher percentage of natives are in clerical occupations than Chinese natives. Between the Chinese in the U.S. and Canada, Chinese-Canadians are more likely to be in other management occupations, 11 percent in Canada compared to 6 percent in the United States.

Occupations are available at a much more disaggregated level in the United States. Los Angeles, New York City, and San Francisco metropolitan areas are where the most Chinese are employed. Some occupations have remained popular occupations and

employ a sizeable number of Chinese across three decades of U.S. decennial censuses (1980-2000) such as cooks and textile operators. Other occupations have recently become common among the Chinese such as computer programmer and scientist. The most popular occupations for Chinese-born immigrants are quite bi-polar. The two most common occupations in 2000 were computer programmers and cooks.

In recent years, the proportion of Chinese cooks has declined. This is an example of a changing skill composition in the population of working Chinese immigrations in the United States. In the past the Chinese-born community has been one comprised of mostly low-skilled laborers. Today, more and more are employed in high skill occupations. For example, among the 49 metropolitan areas that surveyed a Chinese-American computer programmer in the 2000 U.S. Census, in all 49 cities this occupation was among the top 4 occupations held by a Chinese.[19]

In new waves of Chinese immigrants to the U.S., the choice of occupations is shifting towards more high-skilled employment. In seven metropolitan areas in 1990, 10 percent of employed new Chinese immigrants were employed as Computer programmers, and at least 10 percent were employed as cooks in 25 MSAs. In 2000 the popularity of occupations have began to shift. By 2000, 28 MSAs employed at least 10 percent of all new Chinese immigrants as Computer programmers compared to 14 MSAs employing at least 10 percent as Cooks.

In the 2001 Canadian Census, there are 25 occupation groups and in the 1991 Canadian Census there are only 16 groups. Recent Hong Kong immigrants from the 1991 census are very likely to be employed in business occupations. This is directly associated with the large number of immigrants arriving before Hong Kong's handover to China and also Canada's open Economic immigrant class, The number of Hong

[19]Ranking of occupations was assigned by the author. The number of Chinese employed in occupation i and city j was divided by the number of Chinese employed in city j.

Kong immigrants outnumbers Chinese in the high-skill occupations such as occupations in medicine and health, natural sciences. Hong Kong immigrants also earn more than the average Chinese immigrant in these occupation groups. On the other hand, recent immigrants from China and Taiwan in 1991 were primarily employed in service occupations.

By 2001, the flow of Hong Kong immigrants had declined. The occupation choices of new Hong Kong immigrants were more similar to the choices of immigrants from China and Taiwan. Management occupations were primary occupations for both Hong Kong born and Chinese-born. However occupations in natural sciences, which was more populated by Hong Kong immigrants in 1991, were now employing a large number of Chinese immigrants. Hong Kong immigrants still earned on average more than the Chinese across most occupation groups. Though there is some evidence of relative wage improvement by the Chinese. In the sample, the Chinese earned more on average than the Hong Kong immigrant in Senior Management occupations, and teachers and professors.

Micro-level data from the United States and Canada showed some differences in the population of Chinese and Hong Kong immigrants across the two countries. In the U.S., roughly one-third of the Chinese-born are students compared to one-sixth in Canada. Chinese-Canadians are more likely to be in business which is affected by the large migration of Hong Kong immigrants in the 1990s. The high-skilled Chinese workers in the U.S. on average earn more than U.S. natives, while low-skilled Chinese-born workers earn less. In Canada, less can be said about the differences across occupations due to heavy aggregation in the data.

1.4 Conclusion

This paper finds supporting evidence that in countries were opportunities are open and the social political climate is welcoming, the Chinese population has increased dramatically across low and high skill populations. In other countries where Chinese immigrants have met resistance, expulsion, and unstable conditions (Mexico, Malaysia, Cuba), the Chinese-born population is aging since there are only very small number of new arrivals. Kent (2003) also notes political independence, revolutionary movements, and nationalistic governments played a role in the decline in Chinese communities in Guyana, Trinidad and Tobago, Suriname, Jamaica and Cuba. Li and Li (2011) also argue that the distributions of Chinese immigrant populations are largely based on the relative ease of assimilation and less drive by the factors from China. The variation in allowance of immigration governed by host countries laws and competition to emigrate ruled by desirability may lead to measurable variation in the characteristics of immigrant populations in host countries.

Appendix 1: Tables

Table 1.1. Contemporary Events in China Affecting Migration

China
1949: Communists defeat Nationalists, the People's Republic of China is founded
1971: China joins the United Nations
1970s: China re-establishes diplomatic relationships with the international community
1989: Tiananmen Square Incident
1997: Asian Financial Crisis, Hong Kong is returnd to China
1999: Macau is returned to China

Table 1.2. Events & Policies Affecting Chinese Migration, Selected Africa Countries

South Africa
1904: Act no 37 of 1904, "Chinese Exclusion Act"
1994: South Africa ends Apartheid and initiates many democratic changes.
2008: The Chinese become legally classified as "blacks" and can benefit from affirmative action laws.

Table 1.3. Events & Policies Affecting Chinese Migration, Selected European Countries

Spain
1985: the lax immigration policy, Law on Foreigners, is replaced by a stricter immigration policy, "Organic Law on Rights and Liberties of Foreigners in Spain and their Social Integration".

Portugal
1999: the handover of Macau to China allowed for Chinese residents of Macau to become Portuguese citizens.

Table 1.4. Events & Policies Affecting Chinese Migration, Selected South American Countries

Argentina	1949: Communists defeat the Nationalists in China and groups of Nationalists flee to South America.
Brazil	1949: Communists defeat the Nationalists in China and groups of Nationalists flee to South America.
Cuba	1874: Chinese coolie trade ends 1917: World War I increases demand for sugar and products from Cuba, more laborers are admitted. 1959: Cuban Revolution. As a result many businesses, properties, and land were confiscated by the newly formed government.
Mexico	1874: Chinese coolie trade ends 1882: U.S. Exclusion Laws increase Chinese migration into Mexico. 1910-1917: Mexican Revolution 1930s: Exclusion laws, expelled Chinese, Chinese businesses were nationalized
Peru	1810: African slave trade to Peru ends. 1849: Chinese workers begin arriving 1854: slavery is abolished 1874: Chinese coolie trade ends 1879-1883: War of the Pacific. As Peruvians fought with Chileans, this create opportunities for newly freed Chinese coolies to set up businesses.

Table 1.5. Events & Policies Affecting Chinese Migration, Selected South Asian Countries

Cambodia
1953: Cambodia becomes independent and initiates cordial relations with China.
1970-1978: A difficult period for the Chinese during Khmer Rouge rule.
1990: Relations between Beijing and Phnom Penh were normalized

Malaysia
1840: Many Chinese relocated to Malaysia to escape the Opium War. Many worked as indenture servants in British-run mines and plantations.
1913: Enactment of 1913 restricted access to agricultural land for the Chinese.
1970: New Economic Policy (1970-1990) gave preferential treatment to indigenous Malays (Bumiputra)

Nepal
Gurkha brigade led by British military enter Hong Kong. After Hong Kong's handover, they were allowed to stay or many returned to Nepal.

Philippines
1882: Chinese Exclusion Act in the United States also affected the Philippines since it was a colony at the time.
1935: After Philippines became sovereign, citizenship law excluded Chinese
1954: Retail Trade Nationalization Law: nationalized many businesses owned by Chinese.
1975: Letter of Instruction 270: mass naturalization by presidential decree.
1975: Letter of Instruction 292: Authorized Chinese nationals applying for citizenship to change their names

Table 1.6. Events & Policies Related to Chinese Migration, English-Speaking Countries

Australia
1901: Immigration and Restriction Act 1901. Non-Europeans were allowed to settle, become citizens, sponsor Asian spouses for citizenship, and conditions for immigration were relaxed.
1973: Full repeal of the Immigration and Restriction Act in 1973
1975: the Racial Discrimination Act prohibited race to be considered as a factor for immigration
1979: Australia began to use a points system that put high value on English language abilities and occupation skills.
1981: the Business Migration Program (BMP) was created.
1991: The Business Skills Program replaced the Business Migration Program in 1991.
Canada
1885: The Chinese Immigration Act of 1885 required a head tax to be paid by Chinese immigrants entering Canada.
1923: Chinese Immigration Act of 1923. Repealed the Chinese Immigration Act of 1885. However, this new version is also referred to the Chinese Exclusion Act because this law banned almost all types of Chinese immigration to Canada.
1947: Chinese Immigration Act of 1923
1967: Canada's immigration policy was amended to include selection of economic immigrants.
1976: Immigration Act
1978: Canada added an "entrepreneur" category to the Business Immigration Program.
1986: In January 1986, the category "investor" was added.
1992: Policy number OM-IS-339: humanitarian program allowing Chinese students to remain in Canada following the Tiananmen incident in 1989.
2002: Immigration and Refugee Protection Act replaces the 1976 Immigration Act.
The United States
1882: The Chinese Exclusion Act was passed to prohibit immigration of Chinese laborers.
1924: The Immigration Act of 1924 prohibited Chinese women from immigrating and skewed the proportion of Chinese men to women.
1943: In 1943, the Chinese Exclusion law was repealed.
1943: The Immigration Act of 1924 was modified so wives were allowed to come into the United States.
1945: The 1945 War Bride Act also facilitated the immigration of Chinese women.
1952: The McCarran-Walter Act of 1952
1965: The Immigration and Nationality Act of 1965, coming into effect in 1969, granted an equal annual quota of 20,000 per country.
1983: In 1983, United States -China Consular Convention was signed which allowed travel for family reunification and those declaring joint citizenship in China and the United States.
1986: Immigration and Reform and Control Act (IRCA) of 1986.
1992" Chinese Student Protection Act of 1992. This law provided for adjustment to permanent resident status to nationals of the People's Republic of China who were in the United States after June 4, 1989 and before April 11, 1990.
1990: The Immigration Act of 1990 also increased the allowed number of legal immigrants each year into the United States from 500,000 to 700,000. Immigration Act of 1990, Section 124. Transition For Employees Of Certain United States Businesses Operating In Hong Kong. (Visa category HK1 for primary businessman, Visa Category HK2, HK3 for spouse and children).

Table 1.7. Chinese Student Inflows and Stock

Year	China, PRC	HK	Macau	Taiwan	All countries
Inflow By Last Residence, Canada					
2000	6,520	1,533			63,066
2001	11,126	1,519			73,559
2002	11,429	1,401			68,683
2003	9,825	1,229			61,186
2004	7,016	1,110			56,467
2005	7,016	950			57,890
2006	8,545	831			62,300
2007	9,648	754			64,636
Stock by Country of Birth, Canada					
2000	11,059	6,403		5,988	114,093
2001	20,417	6,381		5,872	136,716
2002	29,811	6,355		5,934	150,552
2003	36,615	5,974		5,390	159,727
2004	39,296	5,671		5,288	164,855
2005	39,598	5,172		4,962	167,188
2006	39,845	4,765		4,907	170,194
2007	41,082	4,484		4,747	176,116
Stock by Country of Birth, Australia					
2008	70,106	12,246		4,876	317,897
Inflow by Citizenship, to the United States					
2000	68,628	7,087			659,081
2002	68,722	7,193			646,016
2006	49,095				693,805
2007	67,303				787,756
2008	90,290				859,169

Notes: In the same host country, counts by Country of Birth, Citizenship, or Last Residency are likely different but discrepancies should be marginal. For example, a German citizen born in Switzerland and has lived in China for 10 years is counted as German by Citizenship, Swiss by Country of Birth, and China by Last Residency. There should not be many cases like this.

Sources: Australia: Australia Government, Department of Immigration and Citizenship, Student Visa Statistics (http://www.immi.gov.au/media/statistics/study/). Canada: Canada, Facts and Figures 2007, Immigrant Overview, Permanent and Temporary Residents. U.S: Immigrant Statistical Yearbooks, various years.

Table 1.8. Chinese Sample Size and Population

Survey	Sample of Chinese-Born	Estimated Ethnic Chinese Population[1]
Argentina 2001	734	60,000
Bolivia 2001	92	3,000
Brazil 2000	721	151,649
Canada 2001	15773	1,029,395[2]
Cambodia 2000	338	355,000
Chile 2002	240	5,000
Colombia 2005	96	7,000
Costa Rica 2000	369	63,000
Cuba 2002	25	6,000
Greece 2001	41	30,000
Ireland 2002	765	5,000
Kyrgyz Republic 1999	1108	N/A
Malaysia 2000	1128	6,324,000
Mexico 2000	231	15,000
Mongolia 2000	132	4,000
Nepal 2001	710	20,348
Peru 2007	622	1,300,000
Philippines 2000	5951	1,170,000
Portugal 2001	257	N/A
Romania 2002	215	2,000[3]
South Africa 2001	894	300,000
Spain 2001	1324	42,500[4]
Thailand 2000	610	7,123,000
United States 2000	71234	3,300,000
Venezuela 2001	1009	3,000

Notes:
[1] Chile, Colombia, Costa Rica, Cuba, Greece, Ireland, Nepal: Chinese population by country, University Libraries, Ohio University. Retrieved from http://www.NationMaster.com/graph/peo_chi_pop-people-chinese-population
Brazil, Peru, the United States: 2005 Chinese ethnicity estimate from:
(http://www.ocac.gov.tw/english/public/public.asp?selno=1163&no=1163&level=B).
Cambodia, Malaysia, Philippines, Thailand: 2007 estimate of Chinese born and Chinese ethnicity (Li and Li 2011).
Bolivia, Mexico, and Venezuela: 2000 estimates from Kent 2003.
[2] Canadian Social Trends, Spring 2005, (11-008-XIE), "Chinese Canadians: Enriching the cultural mosaic", 2001 population
[3] 2002 Census: http://www.adevarul.ro/actualitate/Chinezii-Romania-est-european-civilizatiei-asiatice_0_59995071.html
[4] Nieto (2003), estimated 2002 population.

Source: Various national census data sets, provided by Integrated Public Use Micro data Series-International (IPUMS-I).

Table 1.9. Sample Size and Age Distribution of the Chinese-Born Sample

			Age Distribution		
Survey	Sample Size	Average Age	Age 0-24	Age 25-45	Age 46+
Argentina 2001	734	36.1	26.7%	43.3%	30.0%
Bolivia 2001	92	37.6	19.6%	48.9%	31.5%
Brazil 2000	721	43.7	15.3%	40.4%	44.4%
Cambodia 2000	338	39.0	10.4%	68.3%	21.3%
Canada 2001	15773	42.2	19.0%	39.6%	41.4%
Chile 2002	240	36.3	20.8%	50.8%	28.3%
Colombia 2005	96	44.2	7.3%	44.8%	47.9%
Costa Rica 2000	369	38.6	23.8%	42.8%	33.3%
Cuba 2002	25	62.5	8.0%	4.0%	88.0%
Greece 2001	41	33.8	22.0%	63.4%	14.6%
Ireland 2002	765	27.6	57.3%	34.9%	7.8%
Kyrgyz Republic 1999	1108	52.5	1.4%	27.6%	70.9%
Malawi 2008	83	22.3	63.9%	25.3%	10.8%
Malaysia 2000	1128	69.0	3.1%	5.9%	91.0%
Mexico 2000	231	37.0	17.3%	59.7%	22.9%
Mongolia 2000	132	51.1	11.4%	29.5%	59.1%
Nepal 2001	710	22.6	64.1%	25.4%	10.6%
Peru 2007	311	42.5	13.2%	47.6%	39.2%
Philippines 2000	5951	28.2	50.5%	29.1%	20.4%
Portugal 2001	257	34.1	34.2%	40.5%	25.3%
Romania 2002	215	34.1	16.7%	71.6%	11.6%
South Africa 2001	894	38.3	32.1%	35.2%	32.7%
Spain 2001	1324	31.6	30.4%	54.5%	15.2%
Thailand 2000	610	64.5	5.7%	11.6%	82.6%
United States 2000	71234	42.1	16.4%	43.9%	39.7%
Venezuela 2001	1009	38.4	20.0%	49.4%	30.6%

Source: IPUMS-I, author's tabulations

Table 1.10. Citizenship Rates, 25-45 Year Olds

	Chinese-born		Non-Chinese Foreign-born	
Survey	Sample Size	Citizenship	Sample Size	Citizenship
Argentina 2001	318		47,016	
Bolivia 2001	45		3,059	
Brazil 2000	291		6,356	
Cambodia 2000	231		3,269	
Canada 2001	6,241	64.0%	67,700	75.6%
Chile 2002	122		19,948	
Colombia 2005	43		2,117	
Costa Rica 2000	158		12,165	
Cuba 2002	1		319	
Greece 2001	26	0.0%	48,285	38.7%
Ireland 2002	267	13.9%	25,613	43.8%
Kyrgyz Republic 1999	306	90.8%	11,459	88.2%
Malawi 2008	21	47.6%	8,263	76.3%
Malaysia 2000	67		15,252	
Mexico 2000	138		17,166	
Mongolia 2000	39	7.7%	271	11.1%
Nepal 2001	180	97.2%	32,119	85.1%
Peru 2007	148		2,235	
Philippines 2000	1,731		105,988	
Portugal 2001	104	38.5%	17,042	67.8%
Romania 2002	154	15.6%	2,257	63.8%
South Africa 2001	315	61.0%	36,255	54.9%
Spain 2001	721	5.0%	54,943	31.5%
Thailand 2000	71	31.0%	1,344	46.7%
United States 2000	31,238	47.4%	651,244	38.0%
Venezuela 2001	498		49,743	

Source: IPUMS-International data sets.

Table 1.11. Employment Statistics of Chinese-born Sample, 25 – 45 Year Olds

Survey	Sample Size	Employment Rate	Unemployment Rate	Self-Employed
Argentina 2001	318	72.3%	8.70%	39.6%
Bolivia 2001	45	84.4%	0.00%	57.8%
Brazil 2000	291	78.0%	3.80%	48.8%
Cambodia 2000	231	92.6%	2.30%	10.0%
Canada 2001	6,241	69.5%	8.50%	12.6%
Chile 2002	122	74.6%	1.10%	42.6%
Colombia 2005	43	86.0%	0.00%	20.9%
Costa Rica 2000	158	63.9%	1.00%	38.6%
Cuba 2002	1			
Greece 2001	26	65.4%	5.60%	26.9%
Ireland 2002	267	56.9%	8.40%	10.9%
Kyrgyz Republic 1999	306	72.9%		21.9%
Malawi 2008	21	65.0%	7.10%	19.0%
Malaysia 2000	67	53.7%	0.00%	13.4%
Mexico 2000	138	90.6%	0.80%	12.3%
Mongolia 2000	39	87.2%	0.00%	35.9%
Nepal 2001	180	57.8%	2.80%	34.4%
Peru 2007	148	84.5%	0.00%	45.3%
Philippines 2000	1,731			14.5%
Portugal 2001	104	82.7%	5.50%	37.5%
Romania 2002	154	94.2%	0.00%	45.5%
South Africa 2001	315	65.4%	8.80%	26.3%
Spain 2001	721	70.8%	15.40%	18.6%
Thailand 2000	71			11.3%
United States 2000	31,238	72.8%	3.40%	8.4%
Venezuela 2001	498	79.7%	0.30%	39.0%

Source: IPUMS-International data sets.

Table 1.12. Employment Statistics of Non-Chinese Foreign-born Sample, 25 – 45 Year Olds

Country, Year	Sample Size	Employment Rate	Unemployment Rate	Self-Employed
Argentina 2001	47,016	55.8%	26.40%	13.8%
Bolivia 2001	3,059	61.7%	3.00%	31.9%
Brazil 2000	6,356	74.0%	7.60%	32.7%
Cambodia 2008	3,269	83.8%	1.80%	33.4%
Canada 2001	67,700	74.9%	9.20%	10.1%
Chile 2002	19,948	79.4%	4.80%	16.5%
Colombia 2005	2,117	64.5%	3.70%	21.4%
Costa Rica 2000	12,165	67.4%	4.40%	12.4%
Cuba 2002	319	64.6%	2.40%	0.0%
Greece 2001	48,285	70.8%	9.60%	9.3%
Ireland 2002	25,613	70.4%	11.00%	7.8%
Kyrgyz Republic 1999	11,459	68.4%	19.50%	11.1%
Malawi 2008	8,263	71.2%	15.30%	42.5%
Malaysia 2000	15,252	82.6%	1.20%	12.1%
Mexico 2000	17,166	62.6%	1.00%	18.0%
Mongolia 2000	271	82.7%	4.70%	7.0%
Nepal 2001	32,119	50.9%	1.00%	33.7%
Peru 2007	2,235	57.6%	3.10%	17.4%
Philippines 2000	105,988			13.5%
Portugal 2001	17,042	82.7%	6.70%	11.4%
Romania 2002	2,257	69.7%	4.80%	22.1%
South Africa 2001	36,255	67.5%	21.90%	11.8%
Spain 2001	54,943	65.0%	15.80%	8.7%
Thailand 2000	1,344			20.2%
United States 2000	651,244	66.5%	6.20%	8.8%
Venezuela 2001	49,743	68.9%	4.60%	24.6%

Source: IPUMS-International data sets.

Table 1.13. Schooling and Literacy Statistics for Chinese-born, 25-45 Year Olds

Country, Year	Sample Size	Enrolled in School	Literacy Rate	College Educated
Argentina 2001	318	9.7%		18.9%
Bolivia 2001	45	0.0%	93.3%	22.2%
Brazil 2000	291	4.8%	96.2%	
Cambodia 2000	231	0.9%	96.1%	13.9%
Canada 2001	6,241	21.7%		53.4%
Chile 2002	122	0.0%	98.4%	9.0%
Colombia 2005	43	0.0%	95.3%	20.9%
Costa Rica 2000	158	10.8%	96.2%	13.9%
Cuba 2002	1	0.0%		0.0%
Greece 2001	26	0.0%	92.3%	34.6%
Ireland 2002	267	0.0%	0.0%	24.6%
Kyrgyz Republic 1999	306	0.3%	99.7%	9.8%
Malawi 2008	21	0.0%	90.5%	10.0%
Malaysia 2000	67	4.5%	88.1%	21.5%
Mexico 2000	138	3.6%	100.0%	43.3%
Mongolia 2000	39	0.0%	100.0%	25.6%
Nepal 2001	180	1.1%	76.7%	11.2%
Peru 2007	148	15.5%	100.0%	19.6%
Philippines 2000	1,731	21.4%	94.6%	11.7%
Portugal 2001	104	7.7%	99.0%	17.3%
Romania 2002	154	0.6%	100.0%	22.1%
South Africa 2001	315	9.2%		29.5%
Spain 2001	721	5.5%	96.3%	6.0%
Thailand 2000	71	1.4%	88.7%	45.1%
United States 2000	31,238	17.9%		60.8%
Venezuela 2001	498	1.6%	93.4%	0.4%

Source: IPUMS-International data sets.

Table 1.14. Schooling and Literacy Statistics for Non-Chinese Foreign-born, 25-45 Year Olds

Country, Year	Sample Size	Enrolled in School	Literacy Rate	College Educated
Argentina 2001	47,016	5.3%		6.4%
Bolivia 2001	3,059	2.6%	97.4%	24.0%
Brazil 2000	6,356	7.4%	98.2%	
Cambodia 2008	3,269	1.7%	78.6%	7.4%
Canada 2001	67,700	13.4%		33.9%
Chile 2002	19,948	0.0%	96.7%	10.7%
Colombia 2005	2,117	9.6%	95.6%	38.1%
Costa Rica 2000	12,165	6.8%	92.5%	9.9%
Cuba 2002	319	0.0%		42.9%
Greece 2001	48,285	0.0%	97.8%	19.3%
Ireland 2002	25,613	0.0%		35.2%
Kyrgyz Republic 1999	11,459	1.7%	99.8%	16.5%
Malawi 2008	8,263	0.3%	75.4%	2.9%
Malaysia 2000	15,252	1.0%	63.6%	5.7%
Mexico 2000	17,166	4.8%	89.3%	22.9%
Mongolia 2000	271	1.5%	100.0%	41.3%
Nepal 2001	32,119	2.6%	47.8%	5.6%
Peru 2007	2,235	14.2%	100.0%	50.9%
Philippines 2000	105,988	23.5%	92.7%	8.4%
Portugal 2001	17,042	8.0%	98.4%	23.1%
Romania 2002	2,257	6.0%	99.2%	39.7%
South Africa 2001	36,255	4.9%		10.3%
Spain 2001	54,943	8.2%	96.9%	11.5%
Thailand 2000	1,344	0.8%	61.6%	13.5%
United States 2000	651,244	9.9%		23.7%
Venezuela 2001	49,743	4.2%	95.2%	0.3%

Source: IPUMS-International data sets.

Table 1.15. Most commonly held occupation(s) for the Chinese-born

Survey	Most Commonly Cited Occupation(s)
Argentina 2001	Director of small and micro businesses (1-5 employees), Salesman and workers in direct commerce (traditional and telephone promotion)
Bolivia 2001	Service personnel in hotels, restaurants, and similar
Brazil 2000	Managers of production and operations Sales persons and demonstrators in stores or markets
Canada 2001	Occupations in natural and applied sciences
Cambodia 2008	Garment and related trades occupations
Chile 2002	Managers of small businesses (having 1 or 2 directors)
Colombia 2005	N/A
Costa Rica 2000	Food preparation occupations, Sales occupations
Cuba 2002	N/A
Greece 2001	N/A
Ireland 2002	Chefs and cooks, Sales at gas stations
Kyrgyz Republic 1999	Shops and sales occupations Field crop and vegetable growers
Malaysia 2000	General managers Shop and sales workers and demonstrators
Mexico 2000	Garment workers Administrative services workers
Mongolia 2000	N/A
Nepal 2001	Agriculture workers
Peru 2007	Cooks
Philippines 2000	Field crop farmers, market stall vendors, and domestic help and cleaners
Portugal 2001	Housekeeping and restaurant service workers
Romania 2002	Managers of small enterprises in wholesale and retail. Shop, stall, or market sales person
South Africa 2001[1]	Services, managers
Spain 2001	Workers in restaurants, domestic employees and other cleaning occupations, commercial store clerk
Thailand 2000	General managers, shop salespersons and demonstrators
United States 2000	Accountant and auditors, computer and software engineers, post-secondary teachers
Venezuela 2001	Managers of businesses, wholesale and retail merchants.

Source: Author's tabulations. Various national census data sets, IPUMS-International data set.

[1] Occupation is aggregated at the 1-digit ISCO level.

Chapter 2

Legal Status and the Aggregate Earnings of Foreigners

2.1 Introduction

Legal Permanent Residency is an important status for foreigners and is associated with many legal benefits in the labor market. Holding a Green Card allows a foreigner to reside permanently in the United States, increases the number of jobs they are legally eligible to work in, and improves bargaining power since they are not tied to one employer (Calavita 1992; Papademetriou et al 2009; Wishnie 2008; Griffith 2009). Non-Permanent foreigners can work in the U.S. but they do so under strict or illegal circumstances.[1]

The literature regarding the benefits of legalization is inconclusive since most of the research is based on a specific cohort of undocumented foreigners who were granted amnesty by the Immigration Reform and Control Act of 1986. Extrapolating these results onto the general foreign population can be troublesome since they are a non-random sample. Moreover, there is little research on legalization during a more recent period. The impact of legalization for the general population of foreigners is not well understood and findings have been mixed. The mixture of results in the literature motivates a more fundamental question of whether or not groups of foreigners with

[1]Non-permanent foreigners include illegal and legal temporary foreigners. Not all legal temporary foreigners have the right to work in the United States. Only a portion of temporary visas allow foreigners to work. These visa classes are: H, J, L, O, P, Q, R, or T. Students holding F visas can also work in a limited capacity through Optional Practical Training.

high concentrations of Green Card holdings earn more than groups with lower levels of Green Card holdings, conditional on observable characteristics. I examine the relationship between aggregate earnings and the proportion of working foreigners[2] who are Green Card holders. I find a significant positive relationship.

The estimated population of undocumented and temporary foreigners in the United States exceeds the estimated population of Green Card holders.[3] Non-permanent foreigners work in informal capacities or under restrictive contracts that can negatively affect their earnings. For example, undocumented workers are less likely to respond to changes in wage offers. Hotchkiss and Qusipe-Agnoli (2009) find that undocumented workers are 40 percent less sensitive than documented workers to employer wage adjustments. Undocumented workers are unlikely to maximize wages by searching for jobs; and purposely limit their mobility to reduce apprehension and deportation. Temporary workers are committed to contracts with specific employers and cannot easily switch positions. Researchers have found H1-B temporary foreign workers in the IT sector earn less than market wages (Smith 1999; Hagan & McCollom 1999; Miano 2005). Lowell and Avato (2007) analyze the National Survey of College Graduates and find that temporary foreigners earn less than natives, but they catch up after they receive Permanent Residency.[4] They also find evidence that

[2]The foreign population I reference excludes naturalized foreigners.

[3]There is an estimated 10-12 million undocumented aliens in the U.S. in (Passel et al 2006). The estimated nonimmigrant population in 2004 is estimated to be 3.8 million (Greico 2006). In 2003, the lawful permanent resident population was estimated to be 11.4 million in total (Rytina 2006).

[4]The study is limited to college graduates employed in science and engineering occupations.

portability[5] matters; H-1B foreigners who do not change employers earn 10.6 percent less than H-1B foreigners who do manage to change employers.

These differences suggest there can be a positive association between the aggregate earnings of foreigners and the proportion of those who are Green Card holders.[6] An advantage of assessing earnings by legal status is that it also allows for an interpretation of the mechanism behind earnings determination that is useful towards suggesting policy responses.

The question addressed in this paper complements the immigrant assimilation literature. Studies on the determinants of immigrant earnings have focused on a broad spectrum of variables including the immigrant's country of origin, language ability, education, and transferability of skills.[7] Yet there has been little attention to the role of legal status. Not accounting for legal status can also lead to mistaken interpretations. Examination of impacts across some dimensions such as years spent in a host country does not aid direct policy conclusions or suggest a direct mechanism whereby earnings improve. For example, some branches of the immigration literature has found an immigrant's location of birth to be predictive of earnings, but there is no clear policy implication from this finding (Massey 1981, 1995; Schoeni 1998). This trend may be partly explained by legal status since immigrants from Latin America are found to have lower earnings growth but also have high levels of illegal immigration. Lubotsky (2007) finds that low-earning foreigners emigrate out of the U.S. However,

[5]For temporary workers holding work visas, mobility is synonymous to portability, which is defined as the freedom to carry one's worker visa to another employer. This is a different context for portability than in other research where portability is used in the context of foreign human capital or skills (Friedberg 2000, Akresh 2008).

[6]Notice that the population of foreigners I reference excludes naturalized foreigners, or those who obtained U.S. citizenship. Naturalized foreigners are also excluded from this study since there is some evidence of additional positive economic returns from naturalization (Bratsberg et al 2002).

[7]See Kerr & Kerr (2011) for a review of selected immigration literature.

it is not clear if these leavers are foreigners who could not legally remain in the United States.

Researchers recognize that the foreign population is a mix of illegal and legal foreigners but must dismiss the ramifications since legal status cannot be identified in the data. This paper contributes to the literature by examining the significance of Green Cards or Legal Permanent Residency (LPR) on the earnings of foreigners using administrative Green Card data from the U.S. Department of Homeland Security.

The empirical method to assess the effect of legal status on aggregate wages is to examine the spatial heterogeneity of these two variables across occupations (o), foreign countries of birth (c), U.S. states (s), and year of entry into the U.S. (y). Data at an aggregate level is created by combining Green Card information from the U.S. Department of Homeland Security's Legal Permanent Resident and Census data sets. For example, one unit of observation may be Mexican laborers in California arriving in the U.S. in 1995, while another observation is Indian Engineers in Washington state arriving in the U.S. in 1996. The main hypothesis is that across occupation, country of birth, state, and year of entry, a larger proportion of foreign workers with Green Cards is significantly associated with higher aggregate earnings after conditioning on observable characteristics.

The proportion of working foreigners who hold Green Cards is the primary variable of interest and its distributions poses endogeneity concerns. It is possible that more workers hold Green Cards in high growth areas where immigrants fill supply shortages. Another possibility is that high-skill immigrants are awarded with Green Cards. However, in the data, the proportion of legalized working foreigners can also be minimally related to earnings due to the high concentration of family immigrants who are less favorably selected (Chiswick 1999). Moreover, the majority of Green Cards are issued in low-skill and not high-skill occupations. While these concerns are valid,

U.S. immigration policy provides sources of exogenous variation in the manner and timeliness Green Cards are issued across U.S. states, country of origin, and occupations. First, Green Card allocation is at the national level and there is no state-level quota. There is, however, limitations on the number of Green Cards issued per country and immigration class. Lastly, processing of applications within immigration classes is based on the filing date alone and there is no sorting of immigrants by ability, talent, education, or demand by employers.

While I am confident of the exogeneity of my variable of interest, I also create a valid instrumental variable to verify exogeneity. The use of time-lagged immigrant distributions is a common choice to instrument for current measurements of immigrant stock (Altonji & Card 1991). The principle assumption for identification is that lagged distributions of the immigrant population are not correlated to contemporaneous wages and relies on characteristics of the U.S. immigration system being primarily family-based. However, this identification strategy is debatable since there may be correlated unobservables explaining both current and lagged immigrant distributions.

In this paper, the identification strategy to isolate the effect of Green Card issuances on earnings follows the strategy proposed by Orrenius and Zavodny (2007). The proportion of foreigners with Green Cards who are newly arriving spouses to U.S. citizens is used to instrument for the proportion of foreigners holding Green Cards. The principle assumption for identification is that Green Card holders who are newly arriving spouses are tied-movers whose migration decision is independent of local economic characteristics. This strategy is supported by research finding family ties reducing location sorting.

The empirical evidence points to a significant positive relationship between legal Permanent Residency status and earnings. Earnings elasticity with respect to the proportion of foreign workers who are Green Card holders is 0.015, and the elasticity

is 0.022 for newly arriving immigrants after 1994. This effect is much larger than estimates in other legalization studies. Cobb-Clark et al (1995) assess the impact of the proportion of legalized immigrants on aggregate manufacturing wages at the metropolitan level. They find the earnings elasticity with respect to the proportion of legalized population is 0.002. However there are some caveats to their results since their measurement utilizes average metropolitan wages, therefore changes in earnings cannot be isolated to occur within the legalized population. This paper aims to measure the impact of Green Card holdings on foreigner's own earnings.

The remaining chapter is organized as follows. Section 2.2 reviews the literature on legalization. Section 2.3 describes the U.S. DHS LPR data set and discusses the estimation of the proportion of working foreigners who hold Green Cards. Section 2.4 discusses the identification strategy and estimation results. Lastly, Section 2.5 concludes.

2.2 Literature

Tracking the legal status[8] of foreigners is difficult for researchers since legal status is not reported in U.S. population data sets.[9] The term "immigrants" legally only refers to those who are Legal Permanent Residents. However, in the economics literature, the term "immigrant" is frequently used loosely and research on immigrants is often research on the general foreign-born population, which includes foreign students, undocumented, and temporary foreigners. While researchers are aware that the

[8]Foreigners that are not U.S. citizens can be undocumented/illegal, temporary, or Permanent.

[9]The U.S. decennial census, Current Population Surveys, American Community Surveys, and the SIPP only informs if an immigrant is a U.S. citizen and even then it is not revealed in what year they were naturalized.

foreign population is a mix of illegal and legal foreigners, they usually dismiss this actuality when data does not allow legal status to be identified.

A large volume of work is dedicated to understanding the assimilation patterns and earnings determinants of immigrants in the United States, without recognition to legal status. The literature on earnings assimilation of immigrants in the United States is rooted in Chiswick's (1978) seminal research comparing immigrant wages to native wages using the 1970 U.S. census cross-sectional data. Results from the U.S. revealed that immigrant earnings improved rapidly and reached parity with native wages about 15 years after arrival into the United States, or wages improved about 2 percentage points per year. Chiswick's influential work has been followed by decades of repeat studies and debate.[10] Lubotsky (2007) noted that low-earning foreigners often emigrate out of the United States, and earnings assimilation estimates are much lower when accounting for this. However, it is unclear if these are foreigners who did not receive Permanent Residency and legally could not remain in the U.S. Temporary workers have to leave the country if they cannot find permanent employer sponsorship or other channels to permanency; they usually earn less than permanent foreigners as well.[11] The migration patterns of illegal immigrants, who are expected to have the lowest earnings, are even more speculative due to the lack of reliable data. Moreover, focusing on years to assimilation lacks clear policy implications or an understanding of the mechanism towards the rate of assimilation. Legal status directly alters a foreigner's legal options to work and can characterize a mechanism to assimilation as changes in the legal access to the labor market.

[10]Borjas 1985; Akresh 2006a; Duleep & Dowhan 2002; Duleep & Regets 1996, 1997a, 1997b, 2002; Yuengert 1994; LaLonde & Topel 1991, 1992.

[11]Many temporary foreigners resist and remain in the United States. The Pew Hispanic Center (2006) estimates 4-5 million illegals were previously temporary foreigners who remained in the U.S. after their visa expired.

A second area where legal status can provide insights is the literature of immigrant cohort quality. Researchers find new cohorts of U.S. immigrants are of lower "quality" than older cohorts (LaLonde & Topel 1991; Borjas 1995; Lubotsky 2007). However, new immigrants also have lower rates of legalization than older cohorts.[12] As another example, Card (2001) notes that in the 1990s the population of Mexicans in the U.S. became much more disperse. He attributes the increased mobility to market supply and demand and industry composition changes; however a simpler reason may be that over a million Mexicans were granted amnesty by the Immigration Reform and Control Act of 1986 (IRCA) and most received their Green Cards in 1990 and 1991. Legalized immigrants are more mobile than non-legal immigrants since they are no longer at risk of deportation or apprehension. These examples draw attention to gaps in the literature giving insufficient attention to the role of legal status.

Studies examining the impact of legalization on earnings and other socioeconomic factors have found the relationship to be positive in certain cases where the sample of immigrants are not purely random. Two examples of non-random legalization studies based are the Immigration and Intergenerational Mobility in Metropolitan Los Angeles (IIMMLA) project based in Los Angeles and studies of IRCA immigrants. First, the legal status of foreign-born parents has been found to affect the educational and earnings outcomes of their children. These findings are primarily a result of research from the IIMMLA project that surveyed families in the Los Angeles metropolitan area in 2004 (Bean et al 2006; Rumbaut 2008).

The majority of remaining research on legalization relies on data covering immigrants that were legalized by IRCA. In 1986, the Immigration Reform and Control

[12]This assessment is based on author's tabulation of the rates of change of foreign-born population and LPR issuances. For example, from 1970 to 2000, the foreign-born population increased by a factor of 3.2, the number of Green Cards issued increased by a factor of 2.2.

Act (IRCA) granted legal Permanent Residency status to over a million illegal Mexicans and 2.9 million illegal immigrants in total. Borjas and Tienda (1993) use files from the Legalization Application Processing System[13] and find legalized foreigners earn up to 30 percent more than undocumented workers from the same regional origin. Other authors have found much smaller impacts to earnings from legalization. Using the Legalized Population Survey (LPS)[14], Rivera-Batiz (1999) finds Mexican workers legalized by IRCA earned 15 percent more for men and 21 percent more for women, and changes in characteristics explained less than half of the increase in wages. Cobb-Clark et al (1995) find the earnings elasticity with respect to the proportion of legalized population to be 0.002 in the manufacturing sector.[15] Using NLSY and LPS panel data sets, immigrant men were found to have 6 percent higher wages after legalization (Cobb-Clark & Kossoudji 2002). Using the same two data sets, Amuedo-Dorantes and Bansak (2011) find that newly legalized immigrants have higher wage growth than similar natives. Hanson (2006) comments that studies that find modest wage gains may be due to negative selection bias since the IRCA may have benefitted those that were least likely to become Permanent Residents without assistance or amnesty. Some papers have found that IRCA and employer sanctioned hiring of newly legalized workers did not lead to higher wages (Phillips & Massey 1999).

[13]LAPS holds data on undocumented foreigners who applied for amnesty as granted by the Immigration Reform and Control Act of 1986. Undocumented foreigners may qualify for amnesty by qualifying for Special Agricultural Worker status (SAW) or qualify for the Legally Authorized Workers (LAW) program. Borjas and Tienda (1993) analyze only the LAW group since it is cleaner data. The approval rate for the LAW program was 94.5 percent (INS 1990). The Legalized Population Survey (LPS) is a survey of 6.193 randomly selected illegal immigrants who applied for legalization through IRCA.

[14]The Legalized Population Survey (LPS) is a survey of 6.193 randomly selected illegal immigrants who applied for legalization through IRCA.

[15]Earnings are aggregate earnings not restricted to the legalized population. Earnings improvements cannot be isolated to the legalized population.

There is also evidence that temporary workers are not paid a fair market wage and also earn less than legal workers (Smith 1999; Hagan & McCollum 1999; Miano 2005; Lowell & Avato 2007). Mobility across employers is restricted for temporary workers but can benefit earnings. Lowell and Avato (2007) find evidence that portability[16] matters; H-1B foreigners who do not change employers earn 10.6 percent less than H-1B foreigners who do manage to change employers. However, the temporary working population is also much smaller relative to the illegal foreign-born population.

The examples from the literature listed above focus on very specific groups of legalized immigrants (ie. IRCA immigrants and immigrants in Los Angeles). Relying on these results to infer economic impacts from legalization for the general population can be troublesome since they are a non-random sample. Lofstrom et al (2010) studied the effect of legalization using the New Immigrant Survey and only found significant returns from legalization among high-skilled individuals.[17] Pan (2010) and Barcellos (2010) make assumptions to identify IRCA immigrants using the U.S. Census, American Community Survey, and Current Population Survey. They do not find significant positive effects from legalization.

The literature suggests that while a positive effect from legalization has been found for IRCA immigrants, effects are diluted when expanding analysis to the entire foreign population. The mixed results motivate the study of a more fundamental question; namely are the aggregate wages for non-naturalized foreigners increasing in the proportion of workers who are Green Card holders. This is the main hypothesis

[16] For temporary workers holding work visas, mobility is synonymous to portability, which is defined as the freedom to carry one's worker visa to another employer. This is a different context for portability than in other research where portability is used in the context of foreign human capital or skills (Friedberg 2000, Akresh 2008).

[17] The New Immigrant Survey is a stratified sample of the U.S. Department of Homeland Security's Legal Permanent Resident (U.S. DHS LPR) data set and can be considered to be a representative sample of the Permanent Resident population.

tested in this paper. Note that this is an empirical departure from most of the literature listed above that aimed to measure the impact of legalization as a treatment effect. Secondly, this paper contributes to the literature by studying a representative group of immigrants, and showing that legalization has wide reaching benefits for foreigners of all types. I obtain accurate measures of Green Card issuances from the full U.S. Department of Homeland Security's Legal Permanent Resident data set, an administrative data set which is virtually unused in academic research.

2.3 Legal Permanent Resident Data

The U.S. Department of Homeland Security's Legal Permanent Resident (U.S. DHS LPR) data set is an administrative population level data set of Green Card holders. The data set includes records of virtually all foreigners who became legal Permanent Residents between 1972 and 2000, but excludes IRCA immigrants. Variables include age, sex, marital status, immigrant visa category, non-immigrant visa[18] (visa held when the foreigner had temporary status), initial date of arrival in the U.S., date of admittance as a Permanent Resident, intended occupation, and intended location of residence.[19] Information of this detail about an individual's immigration history is unique to the DHS LPR data set. However, there are some limitations to the data; earnings and education information is not included.

Immigrants who obtained Green Cards through IRCA[20] are not included in the U.S. DHS LPR data set. The exclusion of this large group of Green Card holders

[18] The variables of non-immigrant status and specific immigration visa have a much higher missing value rate and are completely missing for 1999 and 2000. (See Batalova 2006 for explanation).

[19] Geographical information on metropolitan area and zip code are also available but have more missing values so location is defined at the state level.

[20] The Immigration Reform and Control Act of 1986 legalized over 2.9 million undocumented foreigners, most were admitted as Permanent Residents in 1990 and 1991.

leads to differences in the number of admitted immigrants reported in the annual Yearbook of Immigration Statistics (U.S. DHS 2004) and tabulations from the DHS LPR data set (Table 2.1). The differences between these two data sources are the highest in 1990 and 1991, when most of IRCA legalizations were admitted. In 1990, the Yearbook reported a total of 1.1 million new immigrants while the DHS LPR data set includes records of only 584,029 immigrants. IRCA legalizations accounted for 57 percent of all Green Card issuances in 1990 and 62 percent in 1991 (Rytina 2002). After accounting for IRCA immigrants, DHS LPR and Yearbook statistics are more closely aligned. Batalova (2006) also notes that there are larger inconsistencies in the data collected in 1999 and 2000. Remaining small differences in the reported number of immigrants between the DHS LPR data set and the Yearbook of Immigration Statistics may be due to the differences in aggregation. Statistics in the Yearbook are totaled by fiscal year[21] and statistics from the LPR data set are totaled by calendar year.

2.3.1 Sample Construction

While the DHS LPR data set provides population level data on Green Card holders, it lacks economic variables. In this paper, the LPR data set is matched to U.S. Census data to incorporate education and earnings data. Matching occurs by variables that are available in both the LPR and the Census data sets. In addition, the samples of foreigners in the LPR and U.S. Census are restricted by selected characteristics to allow the two samples being merged to be as identical as possible. The samples are matched by year of arrival and age at arrival since this information is discernible in both the LPR and Census data. Note that the sample is not defined by the year or

[21] Federal fiscal years are October 1st to September 31st.

age a Green Card is received since this is not observable information in the Census data.

The sample of immigrants is restricted to working foreigners who arrived in the U.S. between 1986 and 1998 while between 25 and 45 years of age.[22] Selecting a mature cohort of immigrants helps reduce assimilation effects from growing up in the United States or acquiring a U.S. based education. Recall the LPR data set excludes immigrants legalized by IRCA. If there are IRCA immigrants interviewed in the U.S. Census, then the coverage of Census and DHS LPR data sets would be inconsistent. The earliest year of entry is set at 1986 to eliminate IRCA immigrants from the selection.[23] The year of entry is capped at 1998 due to the spike of inaccurate data in 1999 and 2000 (Batalova 2006).[24]

In recent years, about 1 million immigrants are admitted per year. Table 2.2 summarizes annual U.S. immigrant quota levels by different classes of immigration. Quota levels refer to the number of Green Cards issued and has little to do with the annual number of new immigrants entering the United States. In fact half of all immigrants were already living in the U.S. when they acquired their Green Card; this type of Green Card recipient is called an adjustor. The majority of immigrants arrive in the U.S. through family ties and the quota levels for these classes are also the highest. The Family class is capped at 226,000 per year. Additionally, there is

[22]In the DHS LPR, I count all immigrants citing an intended occupation, however the data set does not ask if the immigrant is currently working. In the U.S. Census data set, I include all employed foreigners.

[23]Two types of undocumented foreigners were eligible to be legalized under IRCA. Foreigners in the Legal Authorized Workers (LAW) group had to be residing in the U.S. continuously since 1982, and foreigners applying in the Seasonal Agricultural Worker (SAW) group were required to have been employed as a seasonal agricultural worker for at least 90 days prior to May 1986. Selecting the year of arrival into the U.S. for samples to be after 1986 guarantees no IRCA foreigners are included in this study.

[24]In fiscal year 2000, the number of Green Cards counted in the DHS LPR data set after adjusting for IRCA immigrants is 28 percent lower than the total number reported in the Yearbook of Immigration Statistics (Table 2.1).

no annual limit to the number of immediate relatives of U.S. citizens and Permanent Residents. The exact number of new immigrants per year will depend on the efficiency of application processing.

In addition to quotas by class, annual quotas by country are set to prevent any one country from monopolizing the total immigration flow. Each country has an annual limit of 6 percent of the annual worldwide immigration flow. New immigration legislation is sometimes passed to admit special groups of immigrants and their numbers do not count towards a country's annual limit. Special groups of immigrants are usually admitted for humanitarian reasons.

Table 2.3 lists the number of Green Cards totaled from the LPR data set that fit the sample definition. Non-working foreigners are excluded from the count. Two-thirds of the sample arrived in the Family and Immediate Relative classes which is consistent with the distribution for the total immigrant population. The number of new immigrants arriving after 1990 increases since these cohorts arrived after the passage of the Immigration Act of 1990 that increased the annual number of immigrants admitted each year. The Act also set guidelines on the number of immigrants admitted through the various classes. Notice as well that the number of Diversity class immigrants increases substantially after 1991 since this class was expanded under the Immigration Act of 1991.

2.3.2 The Proportion of Working Foreigners with Green Cards

Now I focus on the variable of interest, the proportion of working foreigners with Green Cards. This section will discuss the variable's construction. First, I discuss how this variable is useful in our empirical strategy.

The empirical strategy compares the variation in Green Card issuances and earnings across occupation (o), country of origin (c), U.S. state (s), and the year of entry

(y). Occupation groups are restricted to groupings defined by the DHS LPR data set. Regional areas are set at the state-level rather than the metropolitan area; this is also due to DHS LPR data construction.

To motivate the rationale for this spatial comparison, consider the following example. Suppose using the 2000 U.S. Census data set, we estimate a working population of 1,000 Russians (c) who arrived when they were between 25 and 45 years of age. They also reside in New York (s), work in Administrative occupations (o), and arrive in the U.S. in 1995 (y). Using the U.S. DHS LPR data set, we find that there are 750 individuals with identical characteristics who received Green Cards from 1995 to 1998. The proportion of foreigners with Green Cards in this *ocsy* group is relatively high (75 percent). We may hypothesis that the average earnings for this group is higher compared to other groups with lower proportions of Green Card workers, after conditioning on a comprehensive set of observable characteristics.

In (2.1), I denote the aggregate earnings for foreigners with identical characteristics by occupation, country of birth, U.S. state of residence, year of entry (*ocsy*). The variable Λ_{ocsy} is the proportion of workers who hold a Green Card. Green Card holders earn an average wage $w_{G,ocsy}$ and non-immigrants earn an average wage of $w_{NG,ocsy}$.

$$\overline{w}_{ocsy} = \Lambda_{ocsy} w_{G,ocsy} + (1 - \Lambda_{ocsy}) w_{NG,ocsy} \tag{2.1}$$

Within the same cluster, Green Card holders are expected to earn more than non-immigrants. In Section 2.2, I listed studies that found evidence to support this notion. For workers sharing the same characteristics along these four dimensions; immigrants with a Green Card will face fewer frictions in the labor market, allowing increased bargaining power, mobility, and job search that can increase their reservation wages and potential earnings. A larger proportion of workers who are Permanent Residents is hypothesized to be positively associated with aggregate earnings since there are

many legal employment benefits associated with being a Permanent Resident. Aggregate wages are expected to be increasing in Λ_{ocsy}. Notice that this hypothesis is based on the proportion of Green Card holders and not the total level of Green Card holders. Estimation results will also confirm that levels of Green Card issuances do not significantly predict aggregate earnings. An insignificant result using levels is also important to refute arguments of effects being driven by other channels such as networks.

The statistic of interest in this paper is the proportion of working foreigners who hold Green Cards (2.2).

$$\Lambda_{ocsy} = \frac{\text{Green Cards}_{ocsy}}{\text{Working Population}^{2000}_{ocsy}} \tag{2.2}$$

The $\text{Green Cards}_{ocsy}$ variable is calculated using the DHS LPR data set. The number of Green Cards is totaled by occupation group, country of birth, U.S. state, and year of entry ($ocsy$). I restrict the sample to foreigners who arrived in the U.S between 25 and 45 years of age, between the years 1986 and 1998, and who declared an occupation. I do not use the age at time of Green Card attainment since this is not discernible in the U.S. Census data. Notice that while we can tabulate the total number of Green Cards, we will lose information on what year the Green Card was issued. Green Cards issued to individuals entering the U.S. in year 1990 can occur between 1990 and 1998. The loss of information is not ideal since prolonged durations holding Green Cards may amplify its benefits. However, whether or not there is a significant time dimension element from holding a Green Card is unclear. In later portions of the paper, I will also restrict the sample to recent immigrants arriving after 1995 to reduce the spread of possible years a Green Card was issued.

The $\text{Working Population}^{2000}_{ocsy}$ variable is calculated using the 2000 U.S. census data. The population is also estimated by occupation group, country of birth, U.S. state, and year of entry ($ocsy$). Sampling weights are used to achieve population estimates. I

restrict the census sample to foreigners who arrived in the U.S between 25 and 45 years of age, between the years 1986 and 1998, and are employed. Naturalized foreigners are removed from the population since there is evidence of additional returns from naturalization (Bratsberg et al 2002; Fougère & Safi 2008).

This construction of the proportion of legalized foreigners has some recognized limitations, and measures will be taken to address them. Imperfect data is a common barrier to studying the foreign-born population by legal status. First, there is the possibility that some Green Card holders adjusted to U.S. citizenship by 2000. Their Green Card is counted in the original *ocsy* cell, but they are excluded from the working population estimate. Naturalization inflates the estimate of the proportion of working foreigners with Green Cards.

To check sensitivity from naturalization, I calculate Λ_{ocsy} with and without naturalized foreigners; and this yields almost no difference in the estimated proportion of Green Card holders.[25] However, there is still some skepticism. Rytina (2006) estimates 8.4 out of 23.1 million LPRs who obtained their Green Cards between 1973 and 2004, naturalized by 2004. This is approximately one in three, but it is unclear if naturalized foreigners are primarily found in older cohorts. Most immigrants must hold Permanent Residency for at least five years before applying for citizenship, so this volume may be largely associated with older cohorts of immigrants. I will restrict analysis to only new foreigners to minimize changes to the foreign population due to naturalization.[26]

[25]For example, for immigrants from the United Kingdom; 50.9 percent have Green Cards when excluding naturalized foreigners compared to 50.5 percent including naturalized foreigners.

[26]Newly arriving spouses of U.S. citizens are allowed to apply for citizenship three years after arrival, however I choose not to limit the analysis to 1997 but 1995.

Second, there is the possibility that after a Green Card is received, the new immigrant moves to a different state or switch occupations. If immigrants switch locations or occupations, it is much more likely it is for better opportunities rather than worse opportunities. If immigrants moved to an economically attractive state or occupation, the estimated Green Cards in the attractive location would be undercounted and the population will be over counted. In clusters that Green Card holders leave, the Green Card count would be overestimated. Therefore, proportions are larger in less attractive clusters and changes in location or occupation should not lead to a positive bias or positively exaggerate the hypothesis.

One sensitivity check is to restrict the sample to recent immigrants who arrived after 1995 to minimize the possibility of internal migration. Earnings elasticities are found to be more positive among the sample of newly arriving immigrants. These results are consistent with the possibility of outmigration leading to an underestimate of the earnings elasticity. However, the exact cause cannot be confirmed to be caused by location or occupation changes. I also estimate earnings elasticities by country of birth and year of entry groups, dimensions that are static. I still find a positive relationship between aggregate earnings and the proportion of the legalized working population.

For the baseline analysis, I restrict the data to occupation-country-state-year groups with at least 10 individual observations in the U.S. Census. This reduces the number of Green Cards that are matched to the U.S. Census data. For foreigners arriving in the U.S. between 1986 and 1998 and between 25 and 45 years of age, a total of 834,624 Green Card holders fit these requirements in the U.S. DHS LPR data set. From the 2000 U.S. Census data, I estimate the corresponding working population to be 1,953,876 (Table 2.4). This translates to 43 percent of foreign workers being Green Card holders, which is comparable to other estimates of the foreign population

by legal status. In 2005, there was an estimated 10-12 million undocumented aliens in the U.S. (Passel et al 2006). The estimated nonimmigrant population in 2004 is estimated to be 3.8 million (Greico 2006). In 2003, the lawful permanent resident population was estimated to be 11.4 million (Rytina 2006). Estimates of the foreign population by legal status also conclude that less than half of the non-naturalized foreign population holds Green Cards.

Table 2.5 tabulates the proportion of working foreigners with Green Cards by occupation, along with the corresponding Green Card and population estimates. Occupation groups are restricted to those defined by the DHS LPR data set. About half of Green Card applicants did not report an intended occupation or were not working, and they are excluded from the tabulations.[27] A large non-working population even among 25 to 45 years olds is expected since family-based immigration comprises two-thirds of the total immigration flow. The table is sorted by the estimated working population.

By occupation, the largest number of Green Cards is issued to individuals working in operator, fabricator, laborer, and service occupations. These are considered to be low and medium skilled occupation groups. Other health assessment and treating occupations and nurses have the highest proportion of working foreigners with Green Cards. This is consistent with U.S. immigration policy aimed to attracted nurses due to the domestic shortage. Nurses are especially in high demand now as baby boomers are aging. Notice that the fewest number of Green Cards were issued to public sector related jobs that do not readily hire foreigners; these include occupations such as lawyers and judges, librarians, and urban planners. These occupations also have the lowest proportion of workers who have Green Cards. Many public sector

[27]The non-working group includes DHS occupation categories labeled Unemployed or Retired, Students and/or Children under 16, Homemakers, or Occupation Not Reported.

occupations require locally based certification, citizenship, or residency requirements that immigrants are not likely to have fulfilled as a non-immigrant.

It is also interesting that high-skill technical occupations in engineering, mathematics and computers, or natural sciences do not have the highest estimated proportions of legalized workers. The U.S. employs many skilled foreign workers, however primarily under temporary work visas, and there has been public concern about skill retention. Some researchers have shown anecdotal evidence that high-skilled foreigners are leaving the U.S. and inducing a reverse brain drain (Wadhwa 2007, 2009; Wadhwa et al 2011).

There are no comprehensive records from which exact emigration rates can be calculated. It is even more difficult to estimate rates for foreigners who have not been entered into Social Security or tax records. There has been some effort to support the skilled non-immigrant population as shown by proposals such as the STAPLE Act (Stopping Trained in America PhDs from Leaving the Economy), which would award a Green Card to foreigners completing a PhD in Science, Technology, Engineering, or Mathematics. Unfortunately, this legislation failed to pass. Examining the proportion of Green Cards issued to recent immigrants after 1995 yields even lower estimates; only 17.4 percent of foreign workers in math and computer occupations hold Green Cards.

The proportion of working foreigners holding Green Cards also varies by country (Table 2.6). Only countries with at least 10,000 Green Card issuances from 1986 to 1998 are listed in the table for brevity. U.S. immigration policy generates some of this variation by limiting the number of immigrants from one country to 6 percent of the total annual flow. This is done to restrict any country from dominating the new immigrant population. The number of Green Cards issued to the sample is consistent with aggregate immigration data; countries with the most Green Card recipients

are Mexico, Philippines, India, and China. Notice that Mexico and India are large immigrant sending countries with low proportions of Green Card holdings; implying these countries have large illegal or temporary populations. Many Mexicans reside in the U.S. undocumented while many Indians hold temporary working visas. Over 100 percent of individuals born in Hong Kong have a Green Card. This is clearly an error and may be due to differences in country of birth reporting as Hong Kong or China. Hong Kong transferred sovereignty to China in 1997.

Lastly, there is also variation in the number of Green Cards issued across U.S. states (Table 2.7). California has the highest volume of Green Card issuances. For immigrants fitting our sample criteria, 312,689 Green Card holders resided in California, while the corresponding population of working foreigners numbered 591,047. The state of New York is second highest in volume. New York and California also have the highest proportion of legalized foreigners however the relationship between the number of Green Cards issued and the proportion of working foreigners with Green Cards is not linear. Several states also have an incredibly low immigrant population. Between 1986 and 1998, less than fifty immigrants fitting our criteria intended to reside in Mississippi, Montana, Wyoming, North Dakota, South Dakota, or West Virginia.

2.4 Estimation

This section discusses the empirical strategy and results. First, the main estimation is outlined. Second, I discuss the exogeneity of our variable of interest, the proportion of foreign workers who hold Green Cards. At first, it may seem reasonable that immigration trends are characterized by unobservable factors. However, U.S. immigration policy does provide many exogenous sources of variation through country and

immigration class quotas and processing time. Green Card applications are also processed in order of receipt and within immigration classes, applications are not favored if there is an immediate demand from the employer-side or if the immigrant is high ability. Third, I discuss OLS results and perform a set of sensitivity checks.

2.4.1 Earnings Estimation

A variety of characteristics are significant in predicting immigrant earnings. These variables are included in the earnings regression specification as availability allows (2.3). An immigrant's country of origin is a common explanatory variable, and it has been found that immigrant earnings assimilate at different rates depending on which region of the world they are from (Massey 1981; Schoeni 1998; Blau et al 2008). Recent interpretations of the differences in earnings assimilation across cohorts have focused on skills, education levels, and portability. Skills transferability has been found to have a significant impact on earnings. The source of education, whether it is obtained in the host country or the immigrant's origin country, has been found to explain much of the native-immigrant wage gap (Friedberg 2000; Akresh 2006b). Language skills and improvement in language ability has also been found to significantly positively impact wage growth (Dustmann & van Soest 2002; Kossoudji 1988; McManus et al 1983; Tainer 1988; Cortes 2004; Chiswick & Miller 1995).

The regression specification is shown in (2.3). To simplify the notation, the unit of observation, clusters at the *ocsy* level, is denoted simply as k.

$$ln(\overline{w})_k = \beta_o + \beta_\Lambda \Lambda_k + \beta_X \overline{X}_k + \gamma_Y YR_k + \gamma_o \theta_o + \gamma_c \theta_c + \gamma_s \theta_s + \epsilon_k \qquad (2.3)$$

The observed variables are w, G_k, X_k, and YR_k. The variable $ln(\overline{w})_k$ is the log of average hourly wages in a cluster k. The variable of interest is Λ_k is the proportion of working foreigners with Green Cards. The vector $\overline{X}_k$ contains average characteristics

including the age and years of in the U.S., and the shares of men and married individuals, share of foreigners who speak English at least very well, or who are high school or college graduates years in the United States. High school graduates are those who graduated from high school but do not have a four-year college degree. The data set includes foreigners regardless of their frequency of work since occupations reported in the DHS LPR data set do not necessarily imply full-time or regular employment. Therefore, I also include average usual hours and average weeks worked. Seasonal occupations like farms and fisheries may have fewer weeks worked but higher hours.

Occupation group, country, and U.S. state of residence dummy variables are also included. State controls will control for the variation in regional wage structures. Occupation dummy variables will control for certain high-skill occupations paying a higher average wage. Country of birth indicators will also control for wage differences from certain countries being predominantly sending refugee or economic immigrants. Cortes (2004) finds that refugee immigrants have lower initial earnings than economic immigrants. Indicators for year of entry are not included but we include a continuous variable of years in the U.S (YR_k). The variable, ϵ_k, is an idiosyncratic error term. Correlation in the error terms can lead to understatements of the standard error. The errors are clustered by occupation group, country of birth, U.S. state, and year of entry into the U.S.

Summary statistics for the aggregated data set are shown in Table 2.9. The data set is created for clusters ($k = ocsy$) with at least 10 individual observations in the 2000 U.S. Census data set. While this may seem restrictive, the average cluster is created from 26 observations, and a total of 25,544 individuals are used to create the aggregated data set with 998 k-clusters. After using U.S. Census sampling weights to achieve population estimates, the population of working foreigners in each cluster is estimated to range from 135 to 7,080 foreigners. The number of Green Cards issued

to each cluster ranges from zero to 4,771. The average cluster has a composition that is 57 percent male, 39 years old, 55 percent high school graduates, 23 percent college graduates, and 77 percent married.

Table 2.10 lists the distribution of clusters for the main regression with 998 clusters. Most clusters are in low-skilled occupations, large immigrant sending countries, and large states. The distribution of clusters is reflective of the population of immigrants. For example, the largest working population and number of Green Card issuances are in the Laborer and Service occupations (Table 2.5), and this occupation group is also represented by a high number of clusters (Table 2.10).

2.4.2 Verifying Exogeneity of Λ_{ocsy}

The principle explanatory variable of interest is the proportion of working foreigners with Green Cards (Λ_{ocsy}), which is computed by occupation (o), country of birth (c), U.S. state (s), and year of arrival in the U.S. (y). Section 2.3 showed that there is a good deal of variation in this variable across the four dimensions. One concern is that proportions across *ocsy* clusters are endogenous or are a function of wages. It is possible that the number of Green Card issuances is correlated to economic sectors that are growing faster if high ability immigrants seek out these sectors. For example, very talented foreign computer scientists will be employed in Seattle or Silicon Valley. From another perspective, high growth economic areas may require more workers for jobs that cannot be filled by natives and more foreign workers are sponsored by employers. Another type of concern is that certain immigrant populations being significantly skilled or undocumented are related to unobserved skills.

While these concerns are valid, U.S. immigration policy also creates a good deal of exogenous variation in the distribution of Green Cards. The U.S. practices a preference-based immigration policy and family immigrants comprise two-thirds of

new immigrants every year. To put this in perspective, Canada puts much more weight on attracting skilled immigrants, and economic immigrants outnumber family immigrants two to one. The Canadian points-based immigration system awards 25 points for holding a Master's or PhD degree, and at least 67 points must be scored to be considered for immigration. Points are also awarded for language proficiency, age, experience, and adaptability. The United States immigration system does not directly award for any of these characteristics.[28] Moreover, recall the data shows that the number of Green Cards is highest for low-skilled occupations and not high-skilled occupations. Also recall the proportion of workers with Green Cards is not the highest in high-skilled occupations. Lastly, Green Card applications are processed on a first-come first-served basis, and within immigration classes, immigrants are not sorted by their characteristics or moved to the front of the line if they have very high abilities.

I argue for the exogeneity of our variable of interest. However, I will also verify this by constructing a valid instrumental variable and testing for exogeneity via the Durbin-Wu-Hausman test.

As an identification strategy, time-lagged immigrant stocks have been used in the literature to instrument for current immigrant stock (Altonji & Card 1991). The primary assumption for validity and identification is that the distribution of immigrants in the past is correlated to the stock in the present due to the strong influence of family-based immigration, and the past distribution is uncorrelated to current economic conditions.

This paper does not utilize time-lagged instrumental variables, but creates an instrument using the U.S. DHS LPR data set. A valid instrument is one that is predictive of the number of Green Card issuances, and is also not correlated to unob-

[28] There is preferencing in the Employment Class but at very general levels by occupation and not by experience, ability, age, or language proficiency.

servable explanatory variables of immigrant wages. Orrenius and Zavodny (2007) suggest using the number of newly arriving Green Card holders who are spouses to a U.S. citizen to instrument for the number of Green Card holders. The validity of this instrument hinges on the assumption that newly arriving spouses are "tied-movers" whose migration decisions are independent of economic considerations. Since spouses are newly arriving from abroad, the economic characteristics of the location of the U.S. citizen spouse are unlikely related to migration decisions. Like other immigrants, immigration applications from new spouses are not processed by ability or talent.

Notice that only newly arriving spouses are used as an instrument; adjusting spouses are excluded. Excluding spouses who are already residing in the U.S. and adjusted to Permanent Residency status removes cases where a foreigner first selected their location, married a U.S. Citizen, and then received a Green Card. In this example, a spouse who adjusted to Permanent Residency would not fit the assumption of "tied-movers" that is required for the validity of the instrument.

Research has found that family ties can limit migration decisions based on economic considerations, and family migrants less favorably selected. Jaeger (2000) finds that among immigrants entering across various classes of admission, migration by the spouses of U.S. citizens are least affected by economic conditions, and finds a positive relationship between spousal location choice and unemployment rate. Studies find that tied-movers have lower earnings higher unemployment rates compared to economic immigrants with similar characteristics (Chiswick 1978, 1979; Mincer 1978). Chiswick (1999) finds less favorable selection for labor market success for tied moves. Blackburn (2010a, 2010b) examines married couples in the U.S. and Britain and finds that after a couple moves, wives (tied-movers) earn less. Jasso et al (2000) finds that immigrants arriving as family members have the lowest levels of education. However, they do not differentiate between newly arriving and adjusting spouses.

In the U.S. DHS LPR data set, newly arriving spouses can be identified but it is not possible to determine if their U.S. citizen spouses are native-born or naturalized foreigners. A large proportion of U.S. citizens who are natives will assist identification if location choices are affected by ethnic clustering. An understanding of the origins of U.S. citizens who are married to foreigners can be obtained using the U.S. decennial census which includes information on the citizenship status of spouses. In the 2000 census, 16 percent of U.S. citizen spouses to non-naturalized foreigners are native-born, and another 16 percent are naturalized foreigners.[29] Therefore, roughly half of U.S. citizens who are married to a non-naturalized foreigner are natives.[30] This statistic is similar to the composition in the CPS; Orrenius and Zavodny (2007) find 60 percent of U.S. citizen spouses of recent immigrants in the CPS are native born. In the U.S., Green Card holders must wait at least five years to apply for citizenship. If the U.S. citizen spouse is a naturalized foreigner, there is at least a five year difference between when the newly arriving foreign spouse and the naturalized foreigner received Green Cards.

The proposed instrument is the proportion of new spouses relative to the average employed foreign population in 1990 who arrived in the U.S between 25 and 45 years of age (2.4).

$$\Lambda_{ocsy}^{IV} = \frac{\text{New Spouses}_{ocsy}}{\text{Working Population}_{ocs}^{1990}} \tag{2.4}$$

[29] This also implies 64 percent of foreigners are married to other foreigners.

[30] A high proportion of U.S. citizen spouses being native-born rather than a naturalized foreigner aides identification if location choices are driven by unobserved ethnic enclaves. For example, immigrating parents of U.S. citizens are not used to construct the instrument due to this possibility. Parents are also considered to be tied-movers, however they are certainly parents of naturalized foreigners and not natives. Including these individuals may increase the instrument's correlations to unobserved ethnic enclaves.

Notice that the working population is a 10 year lag and cannot be further segregated by year of entry. I also do restrict new spouse counts by age. First stage F-statistics show this proportion is significantly positively correlated to the proportion of working foreigners with Green Cards in 2000 (2.2).

Table 2.8 tabulates the number of Green Cards issued to newly arriving spouses of U.S. citizens. The visa categories used to measure the flow of newly arriving spouses of U.S. citizens are CR1, IR1, IB1, IW1, and CF1. Since the flow of immigrants through the Immediate Relative class is not subject to numerical limits, the number of newly arriving spouses is sizeable even though this is a very specific category. New spouses of U.S. citizens are more likely to be female and are more likely to work in low-skill occupations. Between 1986 and 1998, over 100,000 spouses reported their intended occupation to be in Laborer related occupations, while 66,579 and 40,652 intended to work Service and Administrative occupations respectively. Only 1,210 arrived intending to work as Math or Computer Scientists.

In the first stage regression, including dummy variables for U.S. state, country of origin, and occupation can control for some factors influencing the proportion of workers with Green Cards. State dummy variables control for the clustering of immigrants in large states such as California and New York. State dummies will also control for regions being high growth areas that hire immigrants to fill supply shortages. Occupation dummy variables will control for differences in the number of Green Cards issued across occupations, and preferencing of high-skilled occupations in the Employment class. Country dummy variables will control for some countries having a lower proportion of immigrants due to application backlogs. Annual country quotas limits the volume of immigrants from large countries such as India, China, and Mexico, this creates long backlogs and variation in their entry as an immigrant. Some of these immigrants may sit out their wait in the U.S. as temporary foreigners.

Country dummies will also control for countries comprising of mostly refugee immigrants and the associated higher rates of Green Card issuances. A variable for the number of years in the U.S. also captures the fact that older cohorts of immigrants have more Green Cards than newly arriving ones.

2.5 Results & Discussion

In the results section, I discuss OLS regression results. Results verify the prior that our variable of interest Λ_{ocsy} is exogenous and I focus on OLS results since IV estimates are inconsistent when endogeneity is not present. Next, I conduct sensitivity checks using different cuts of the sample. A summary table of coefficient estimates for β_Λ and earnings elasticities discussed in the following subsections are presented in Table 2.16.

2.5.1 Main Regression

Table 2.11 displays OLS and IV results from estimation (2.3). Columns 1 to 3 show OLS estimates. Each column includes progressively more control variables. In column 1, only Λ_{ocsy} is included in the regression. In the second column, $\overline{X}$ and YR are added to the regression. The third column adds occupation, country of birth, and U.S. state controls. Corresponding IV results are shown alongside in columns 4 to 6. Three statistics are shown below the IV estimates; Durbin-Wu-Hausman (DHW) statistic, Shea's partial R-squared, and the first stage F-statistic. Shea's partial R-squared statistic shows that our instrument is positively correlated with Λ_{ocsy}, and the F-statistic shows our instrument is not weak. However, the DHW statistic is small, especially in columns 5 and 6 with additional control variables. In column 6 where full controls are included, the DHS F-statistic is 1.053 and the p-value is 0.305. The

DHW null hypothesis that Λ_{ocsy} is exogenous cannot be rejected. In this scenario, IV estimates are inefficient, while OLS estimates are efficient. As another check, I regress wages on Λ_{ocsy}, all observable variables, as well as the predicted residual from the first stage regression. The coefficient on the first-stage residuals are insignificant, which is further evidence that unobservable errors in the first and second stage equations are not correlated.

A common assumption is that immigration trends are endogenous. However in the United States, Green Card issuances are subject to country and immigration class quotas, and processing times, which are exogenous factors to unobservable immigrant productivity or employer demand that may influence earnings. Green Card quotas are also at the national level and there is admittance restrictions by U.S. state. Aside from Green Card categories for the extremely gifted and very general preferencing in the Employment Class, the U.S. does not sort Green Card applications by education, age, certification, employment, or language abilities. Countries like Canada and Australia explicitly sort immigrant applications by these characteristics. Furthermore, the number of Green Cards issued to foreigners with extraordinary ability is extremely small relative to the entire pool of admittances. For example, in 2003, only 5,754 Green Cards were issued to aliens in the first employment class which caters to aliens with extraordinary ability, outstanding professors or researchers, and multinational executives or managers. The number of Green Cards issued to aliens with extremely high ability is less than one percent of the total number of Green Cards issued in 2003 (705,827 immigrants were admitted in 2003).

I discuss OLS regression results with a full set of controls shown in column 3. The R-squared is high at 0.849, showing that the model predicts aggregate earnings well. A larger proportion of males, college and high school graduates, and high English ability foreigners predict higher average earnings. Clusters with all male workers earn

24 percent more than all women clusters. Aggregate earnings for groups with high English ability earn 17 percent more than a group with low English abilities. Both a high school and college education are predictive of earnings, but college education has a much larger positive association with earnings. The number of years in the U.S. is also significantly predictive of earnings but to a much smaller degree than education or ability characteristics. Marital status and age do not have predictive power.

Now, turn to the coefficient estimates for the principle variables of interest, the proportion of working foreigners with Green Cards. The coefficient β_Λ is 0.0358 and significant at the 0.04 level with a t-statistic of 2.05. A 0.10 point increase in the proportion of working foreigners who are Green Card holders predicts a 0.35 percent increase in average earnings. Multiplying β_Λ with the average proportion of working foreigners yields an elasticity. The average proportion of working foreigners with a Green Card for this sample is 42.7. Evaluated at the mean, the earnings elasticity with respect to the proportion of working foreigners with Green Cards is 0.015. The earning elasticity calculated including immigrants arriving in the U.S. from 1986 to 1998 is small but significant. While this elasticity may be regarded as small, it is larger than earnings elasiticities found in related studies. Cobb-Clark et al (1995) find the earnings elasticity with respect to the proportion of IRCA legalized population to be 0.0022.[31]

OLS coefficient estimates on these variables are consistent with the hypothesis that a larger concentration of workers who are Green Card holders rather than non-immigrants positively influence average earnings. The mechanism behind this effect is that Permanent Residency legally alters a foreigner's access to the labor market. When more foreigners are privy to these benefits, average earnings conditional on

[31] They focus on manufacturing sector wages for all workers not just the legalized population. Their elasticity cannot be isolated to the legalized population.

other observable characteristics can be expected to be higher. It is important to note that the elasticity with respect to the level of Green Card issuances is insignificant. This is consistent with the hypothesis described in (2.1) and provides evidence that results are not driven by immigrants locating in immigrant-dense locations or popular occupations, which may suggest a different mechanism related to network effects.

Remember some of the data inconsistency issues discussed earlier, the next section will restrict the sample to recent immigrants arriving between 1995 and 1998.

2.5.2 Arrived in U.S. after 1994

Most Green Card applicants can apply for U.S. citizenship after 5 years of Permanent Residency.[32] Since the sample includes foreigners who arrived as early as 1986, some Green Card holders counted in the LPR data set may have naturalized by 2000. This would under count the working population and inflate estimates of the proportion of working foreigners. I compare estimates of Λ_{ocsy} with and without naturalized foreigners and did not find a significant difference. As an additional sensitivity check, I estimate equation (2.3) for only the sample of foreigners who arrived in the U.S. after 1994 to exclude miscounting the foreign population due to naturalization. The proportion of working foreigners with Green Cards is lower for this sample of new immigrants, only 23.4 compared to 42.7 for those arriving since 1986. Half of new immigrants are adjustors who resided in the U.S. acquiring a Green Card. Older cohorts have more opportunities and time to acquire a Green Card.

Results yield a higher and more significant estimate for β_Λ. The coefficient is estimated to be 0.0916, and is significant at the 0.019 level with a t-statistic of 2.34. A 0.1 point increase in the proportion of workers who are legalized predicts a 0.9

[32] Newly arriving spouses to U.S. citizens can apply for citizenship after 3 years, and there are other exceptions to this rule affecting small groups of immigrants.

percent increase in aggregate earnings, a much larger effect than when estimated for a larger cohort of foreigners. The earnings elasticity is also higher at 0.02 compared to 0.014 from the main regression (Table 2.12). The robustness of this result adds assurance that the results are not picking up assimilation effects from being in the U.S. even though regressions are controlling for years the groups are in the U.S.

These higher estimates illustrate that the possibility of unobserved naturalization or changes in occupation and location may have downward biased the impact of Green Card holdings on earnings. Choosing a newer arrival cohort also minimizes the possibility of internal migration or switching occupations. If a Green Card holder leaves a cluster between the time of Green Card attainment and the 2000 Census, then the Green Card estimate for that cluster is higher and the proportion is positively biased. Notice that the population estimate is not affected. This may induce a negative bias in our estimate and understate the earnings elasticity.

While Green Card holdings have a larger impact for this group, years in the U.S., hours and weeks worked are no longer predictive of aggregate earnings.

2.5.3 Treatment of Mexicans

Recall that Mexicans comprised one-third of our clusters in the main regression. Compared to immigrants from other countries, Mexicans can more easily repeat migrate. Mexico is the number one immigrant sending country and there is a tremendous backlog of Green Card applications from Mexico numbering over 1 million. A large number of Mexican foreigners are illegal and it is unclear how this may drive our results. I estimate (2.3) for only the subset of Mexicans and do not find a significant effect of Green Card holdings on their earnings.

When estimating over non-Mexicans arriving in the U.S. between 1986 and 1998, the number of clusters is reduced to 636 and the proportion of working foreigners with

Green Cards has an insignificant effect on aggregate earnings. Results are significant when the sample is restricted to non-Mexicans arriving recently between 1995 and 1998 (Table 2.13). The coefficient of interest is estimated to be 0.089, slightly less than when estimated including Mexico. The statistic is still slightly less significant with a t-statistic of 2.12.

The main conclusion here is that the Mexican sample was not driving results; moreover the impact of Green Card holding on earnings is insignificant for Mexicans. It is reassuring that returns to legalization are broad and not only applicable to Mexicans. This is important since the vast majority of legalization literature have focused on Mexicans and Latin Americans legalized by IRCA.

2.5.4 By occupation skill

Next, I estimate earnings elasticity differentiating by occupation skill groups.[33] I do not find significant elasticities for high-skilled occupations but I do find significance among low and medium occupations. Within low and medium occupations, earnings elasticity is 0.013 for immigrants arriving between 1986 and 1998, and almost double for new immigrants arriving between 1995 and 1998 (Table 2.16).

Table 2.14 shows full estimation results for immigrants arriving between 1995 and 1998. The coefficient estimate for β_Λ is 0.116 and statistically significant with a t-statistic of 3.52. For the group of low and medium skilled workers, education and skills are less predictive of aggregate earnings. High school education and English ability is insignificant and college education is weakly significant in predicting aggregate earnings. It may seem premature to say the role of legal status trumps education and English abilities, but remember legal status is a powerful characteristic that directly

[33]From the list of occupations listed in Table 2.10, EXC, NUR, MSC, and DOC are excluded.

alters the parameters of labor market participation. In this sense, it is feasible that legal status can be just as important as skills in predicting earnings.

The proportion of foreigners with a Green Card also has a larger explanatory power when standing alone. Compare the R-squared for low and medium occupations regressions in column 1 of Table 2.14 and for all occupations in Table 2.12. The R-squared from regressions of only low and medium occupations is 0.01 compared to 0.004 for all occupations.

There appears to be a larger boost from legalization for lower skilled workers. High skill occupations have competitive salaries and are usually found in formal sectors. The acquisition of Green Cards may not substantially increase earnings for high-skilled immigrants who are likely to have previously been legal temporary workers.

2.5.5 By Cluster

The regression outlined in (2.3) is also estimated for data aggregated at the $k' = cy$ level (country of birth, year of entry). I also restrict to recent immigrants arriving after 1995. Recall that there is some concern about unobserved naturalization or changes in location and occupation leading to imprecise results. Restricting our analysis to recently arriving foreigners will alleviate this concern to an extent. As an additional sensitivity check, I restrict clustering to static characteristics: country of birth and year of entry. These results should be viewed as supportive evidence but not primary evidence since the number of observations is small at this level of aggregation (N=87). DHW F-statistics suggest IV estimation is not necessary and yields inconsistent estimates. Effects are larger compared to clusters based on $k = ocsy$ (Table 2.15). The coefficient estimate for β_Λ is 0.134 and statistically significant with a t-statistic of 2.64. Evaluated at the mean ($\Lambda_{k'} = 52.7$), the elasticity of earnings with respect to $\Lambda_{k'}$ is 0.07.

2.5.6 First-Difference Estimation & Results

Lastly, a second data set is constructed to incorporate information from both the 1990 and 2000 Census. This data set is comprised of immigrants who arrived in the U.S. between 1986 and 1990, and this group is denoted as f. In the first-difference regression model specified in (2.5), each unit of observation is the differenced value between 2000 and 1990.

$$\Delta ln(\overline{w})_k^f = c + \beta_\Lambda \Delta \Lambda_k^f + \beta_X \Delta \overline{X}_k^f + \epsilon_k^f \tag{2.5}$$

The dependent variable is the change in log hourly wages from 1990 to 2000 ($\Delta ln(\overline{w})_k^f = (ln(\overline{w})_{2000,k}^f - ln(\overline{w})_{1990,k}^f)$.[34] The vector $\Delta \overline{X}_k^f$ includes the differences of average characteristics identical to those used in (2.3). In the differenced model, the number of years in the U.S. is not included as an explanatory variable since the change is constant for all groups. In this specification, changes in occupational shares are also added to the vector $\Delta \overline{X}_k^f$. There are only two time periods, and there is no need to include a time trend.

To compute $\Delta \Lambda_k^f$, I calculate proportions of Green Card holders in 1990 and 2000, and take the difference (2.6). Note that the working populations in 1990 and 2000 share the same characteristics as the Green Card holders, namely those who arrived between 25 and 45 years of age and between 1986 and 1990.

$$\Delta \Lambda_k^f = \frac{\text{Green Cards 1990-1999}_k^f}{\text{Working Population 2000}_k^f} - \frac{\text{Green Cards 1986-1989}_k^f}{\text{Working Population 1990}_k^f} \tag{2.6}$$

Relevant unobservable variables correlated with Green Card measures will bias estimates of . Immigrants from a cluster k may settle in high wage areas or be drawn to settle in areas with large ethnic networks. First-differencing removes unobserved

[34] Wage in 1990 was adjusted using the BLS CPI inflation index to be in 2000 dollars.

state, occupation, and country specific shocks that are time invariant. Differencing will also remove time-invariant interaction fixed-effects. The variable $\Delta\Lambda_k^f$ is also instrumented using the change in the proportion of new spouse Green Card holders in the foreign population (Λ_k^{IV}). The differenced IV is constructed in a similar manner.

Table 2.17 summarizes OLS and IV regression results from (2.5). The number of clusters is much smaller, at 182 due to the lower number of immigrants in the 1990 Census. The Durbin Wu-Hausman F-statistic, Shea's partial R-square, and first stage F-statistics are reported for IV results in columns 4 to 6. Unlike previous regressions, the DHW F-statistic of 7.48 and p-value of 0.007 in column 6 suggests that IV estimation is appropriate. Examine column 6, IV estimates with a full set controls. The coefficients on high school education, gender, age, and English ability are significantly positive. Individuals who are educated and can speak English well are the most likely to be able to take advantage of a Green Card and the legal employment benefits it provides. The variables for college education and Marriage do not capture any significant effects.

The result of interest is the positive effect of an increase in the proportion of working foreigners with Green Cards on earnings. First difference estimation yields much larger effects than cross-sectional estimations achieved for newer immigrants using only the 2000 cross section. The coefficient estimate on β_Λ is 0.377. A 0.1 point increase in the proportion predicts a 3.7 percent increase in earnings. However, results are weak; the t-statistic is only 1.77.

There are a few of interpretations for this larger impact: 1) benefits from Green Card holdings are persistent and increasing; 2) The quality of immigrants before 1990 was higher; 3) out-migration of low earning foreigners.

There is little research regarding Green Card benefits with respect to the duration of it being held. It is unclear if there are immediate effects that plateau quickly or if

immigrant wages have a persistent growth trajectory for many years after legalization. Most research has found new immigrant cohorts in the U.S. to be of lower "quality" than older cohorts, though at varying degrees (LaLonde & Topel 1991; Borjas 1995). After the Immigration Act of 1990 was passed, it is possible that country composition changes and an increased focus on family reunification changed the underlying skill composition of U.S. immigrants.

Thirdly, it is possible that immigrants arriving pre-1990 who were not able to obtain a Green Card, or unable to find better employment opportunities, left the country. Since I utilize the cross-sectional data sets, the departure of low-earning or poor-performing foreigners will exaggerate earnings improvements over time. Lubotsky (2007) finds foreigners who emigrate out of the U.S. have lower earnings than those who stay. He aslo finds that earnings assimilation is much lower than previous estimates when accounting for emigration. Mulder et al (2000) estimates about 200,000 foreign-born emigrated out of the U.S. annually in the 1990s. However, it is unclear what their legal status was at the time of departure. The United States has not collected out-migration statistics since 1957 and the characteristics of foreign-born leavers are not well classified.

2.6 Conclusion

This paper examined the relationship between the proportion of foreign workers who have a Green Card and their aggregate earnings. It is difficult to accurately study U.S. foreigners across legal categories. The foreign-born population must be estimated, accurate emigration rates are elusive, and legal status is not recorded in population surveys. These factors make policy recommendations and studies of the immigrant population challenging and less precise. Even though I use administrative Green Card

records from the U.S. Department of Homeland Security, there are still some data challenges from the use of survey data from the U.S. Census.

In terms of understanding the determinants of earnings, legal status is attractive since the mechanism behind wage improvement can be clearly characterized as improvements in legal access to the labor market. The empirical estimation found a significant positive relationship between aggregate earnings and the proportion of workers who are Green Card holders. Table 2.16 summarizes the results across different samples. Comparing earnings elasticities, earnings among newly arriving and in low/medium skill occupation have the highest elasticity with respect to the proportion of legalized workers. A significant earnings elasticity found for newly arriving immigrants is particularly important to show that higher wages are not a function of assimilation.

Another important result is that I do not find significant earnings elasticity among high-skilled occupations. The impact of Green Card holdings is extremely significant in low and medium occupations. High skill occupations do not have the highest levels of Green Cards issuances nor do they have the highest proportion of foreign workers with Green Cards. U.S. immigration policy is focused on family reunification, and skilled migrants are a minority. Although there is a large temporary workers program, temporary workers have fewer legal benefits. These results favor renewed interest towards proposals such as the STAPLE Act aiming to apply special legalization attention to skilled foreigners.

The results found in this paper are a contribution to the literature, showing legalization does have broad benefits across a general sample of foreigners. While most studies on legalization focus on IRCA immigrants, I analyze all foreigners except IRCA immigrants since the DHS LPR data set excludes them. I also find that Mexicans were not driving results.

A national level solution to reforming immigration policy has been elusive. Policy makers are exposed to anecdotal cases and individual pleas rather than detailed research on the benefits of legalization, or the consequences from a lack of legalization. The significant positive relationship found in this paper between earnings and the concentration of Green Card holdings is an important result for policy makes to consider.

Appendix 2: Tables

Table 2.1. Comparison of Sample Size from the U.S. DHS LPR Data Set and the Yearbook of Immigration Statistics

	DHS Adjusted LPRs	DHS New LPRs	US DHS Total LPRs	IRCA LPRs	LPR+IRCA	Yearbook Total LPRs
	(1)	(2)	(3)	(4)	(5)	(6)
1989	201,497	382,532	584,029	478,883	1,062,912	1,090,924
1990	237,633	404,825	642,458	880,940	1,523,398	1,536,483
1991	258,564	411,113	669,677	1,134,509	1,804,186	1,827,167
1992	280,588	509,635	790,223	165,089	955,312	973,975
1993	329,907	495,339	825,246	16,702	841,948	904,292
1994	282,452	431,915	714,367	4,083	718,450	804,416
1995	351,005	357,314	708,319	2,898	711,217	720,459
1996	460,223	383,779	844,002	3,037	847,039	915,900
1997	387,863	367,299	755,162	1,300	756,462	798,378
1998	271,905	335,650	607,555	820	608,375	654,451
1999	216,973	390,077	607,050	6	607,056	646,568
2000	367,102	295,732	662,834	271	663,105	849,807

Source: Columns (1)-(3), U.S. DHS LPR data set; Column (4), Rytina 2002; Column (6), U.S. DHS Yearbook of Immigrant Statistics

Table 2.2. Annual Immigrant Numerical Limits, by Immigration Class

	Persons Qualified	Annual Limit
Family Class		**226,000**
First Preference	Unmarried sons and/or daughters (i.e., offspring aged 21 or older) of U.S. citizens	23,400 plus any numbers unused by the fourth preference
Second Preference	Spouses and children of legal Permanent Residents, and unmarried sons and/or daughters of legal Permanent Residents	114,200 plus any numbers not required for the first preference; 23,400 plus any numbers not required by the first and second preferences
Third Preference	Married sons and daughters of U.S. citizens	65,000 plus any numbers not required by the first three classes
Fourth Preference	Siblings of U.S. citizens who are at least 21 years of age	
Employment Class		**140,000**
First Preference	Priority workers (persons with extraordinary ability, outstanding professors and researchers, and certain multinational executives and managers)	28.6% of the employment-based total, plus any visa numbers not required by the fourth and fifth preferences
Second Preference	Members of the professions with advanced degrees and persons of exceptional ability	28.6%, plus any numbers unused by the first preference
Third Preference	Skilled workers, professionals (without advanced degrees), and other (i.e., unskilled) workers	28.6%, plus any numbers unused by the first two preferences; 10,000 limit for unskilled workers
Fourth Preference	Special immigrants (other than returning residents and certain former U.S. Citizens)	7.1%, of which not more than 5,000 numbers may be allocated for certain religious workers
Fifth Preference	Employment creators, i.e., aliens whose investments will create employment for at least 10 U.S. citizens and/or legal Permanent Residents	7.1%, of which not less than 3,000 are reserved for investors in a targeted rural or high-unemployment area
Diversity Class		**50,000**
Immediate Relative Class		**No limit**

Source: U.S. Department of State. "Appendix A. Provisions of the Law and Numerical Limitations on Immigrant Visas" (http://travel.state.gov/pdf/FY2000%20app%20A.pdf)

Table 2.3. Total number of Green Cards issued to immigrants arriving between 25 and 45 years of age, by Class of Immigration

	Other	Diversity	Humanitarian	Family	Employment	Immediate Relative	Total
1986	1652	220	11503	48878	25342	44051	131646
1987	3506	255	12013	52119	29072	41427	138392
1988	2799	395	16173	50571	28568	41432	139938
1989	7517	1048	21011	54313	32053	38495	154437
1990	10014	4565	18016	50784	33882	37641	154902
1991	8541	4429	14474	48097	39468	36540	151549
1992	8494	19528	13168	44262	46450	34231	166133
1993	6438	16911	12478	42322	41572	37457	157178
1994	3699	17178	14514	38402	34397	34840	143030
1995	429	16560	19345	36613	23855	28329	125131
1996	829	14556	3943	37785	16634	26487	100234
1997	242	13596	54	30149	18780	20614	83435
1998	104	11600	0	19121	2317	9826	42968
	54,264	120,841	156,692	553,416	372,390	431,370	1,688,973

Notes: Author's tabulations. The sample includes foreigners entering the U.S. between 25 and 45 years of age and who declared an intended occupation. Green Card holders who were listed as students, unemployed, home makers are excluded from the tabulations.

Source: U.S. DHS LPR data set

Table 2.4. Sample estimates of the Green Card and Working Population

Year of Entry	Number of Green Cards holders	Corresponding Working Population in 2000
1986	63,340	76,452
1987	65,308	70,373
1988	70,119	103,275
1989	75,718	129,974
1990	76,013	155,325
1991	74,089	129,859
1992	81,040	146,575
1993	84,070	148,756
1994	76,713	176,269
1995	61,470	223,795
1996	49,098	200,098
1997	39,941	215,786
1998	17,705	253,791
	834,624	1,953,876

Notes: Author's tabulations. The working population is estimated using the 2000 U.S. Census. The sample is restricted to foreigners entering the U.S. between 25 and 45 years of age and who are employed. The sample includes Green Card figures only for data that could be matched to the U.S. census and where there are at least 10 observations in the U.S. 2000 Census data set. Note that the number of Green Cards issued is listed by year of entry and the year the Green Card was issued may be any time from year=y to 1998.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set

Table 2.5. Green Card statistics by Occupation

		Percent of Working Foreigners with Green Card (%)	Number of Green Card holders	Corresponding Working Foreign Population
SER	Service Occupations	41.0	187,411	456,671
LAB	Operators Fabricators and Laborers	53.3	224,612	421,279
PCR	Precision Production Craft and Repair Occupations	41.3	78,954	191,244
EXC	Executive Administrative and Managerial Occupations	54.3	100,626	185,454
ASP	Administrative Support Occupations including Clerical	46.5	83,051	178,753
SLS	Sales Occupations	27.5	39,158	142,466
FFF	Farming Forestry and Fishing Occupations	31.9	20,665	64,790
TNO	Technologists and Technicians except health	28.3	12,311	43,529
NUR	Nurses	89.5	30,583	34,178
TCO	Teachers except postsecondary	49.8	13,033	26,194
ART	Writers Artists Entertainers and Athletes	41.3	9,370	22,710
ENG	Engineers Surveyors and Mapping Scientists	65.7	12,573	19,123
DOC	Doctors	43.5	6,474	14,874
MCS	Mathematical and Computer Scientists	28.9	3,425	11,870
TCU	Teachers postsecondary	34.2	3,483	10,174
TNH	Health Technologists and Technicians	20.1	1,263	6,298
NSC	Natural Scientists	34.6	1,902	5,504
SWK	Social Recreation and Religious Workers	55.2	2,152	3,902
HLT	Other Health Assessment and Treating Occupations	90.9	3,097	3,408
HLD	Other Health Diagnosing Occupations	48.9	336	687
LAW	Lawyers and Judges	18.1	105	581
SSC	Social Scientists and Urban Planners	15.0	23	153
LIB	Librarians Archivists and Curators	17.0	17	100

Notes: Author's tabulations using the U.S. DHS LPR, 2000 U.S. Census data sets. Number of Green Cards and Estimated Working Foreign population is calculated for individuals entering the U.S. between 25 and 45 years of age, between 1986 and 1998, and who are employed. Table sorted by the working population.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set

Table 2.6. Green Card statistics by Country of Origin

	Percent of Working Foreigners with Green Card (%)	Number of Green Card holders	Corresponding Working Foreign Population
Mexico	31.17	161,122	516,931
Philippines	60.15	90,603	150,626
China	53.95	63,601	117,880
India	38.87	39,813	102,438
Vietnam	58.11	37,718	64,904
Dominican Republic	29.92	17,219	57,545
Korea	32.84	17,793	54,173
Jamaica	85.72	45,799	53,427
El Salvador	73.79	38,980	52,828
United Kingdom, ns	50.96	26,839	52,665
Poland	69.91	34,259	49,006
Canada	45.44	21,934	48,266
Cuba	72.63	31,074	42,783
Colombia	55.28	21,244	38,431
Peru	52.40	14,972	28,571
Guatemala	44.80	12,477	27,848
Ecuador	45.38	10,682	23,541
Taiwan	83.66	15,169	18,131
Hong Kong	100.06	10,846	10,839

Notes: Author's tabulations. The number of Green Cards is totaled from 1986 to 1998. Selected countries are listed where at least 10,000 Green Cards issued between 1986 and 1998. Number of Green Cards and Estimated Working Foreign population is calculated for individuals entering the U.S. between 25 and 45 years of age, between 1986 and 1998, and who are employed. Table sorted by the working population.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set

Table 2.7. Green Card statistics by U.S State

	Percent of Working Foreigners with Green Card (%)	Number of Green Card holders	Corresponding Working Foreign Population
California	52.90	312,689	591,047
New York	56.10	172,945	308,266
Florida	43.65	83,007	190,186
Texas	37.90	71,550	188,807
New Jersey	47.01	52,757	112,235
Illinois	44.86	44,790	99,845
Arizona	19.17	6,795	35,439
Massachusetts	33.84	11,747	34,715
Virginia	38.84	11,063	28,483
Georgia	14.10	3,872	27,456
Washington	29.67	8,049	27,128
Maryland	40.63	8,774	21,595
Pennsylvania	32.39	5,613	17,328
North Carolina	10.11	1,696	16,773
Michigan	33.94	5,680	16,733
Colorado	21.89	3,565	16,284
Connecticut	39.63	5,582	14,087
Nevada	13.49	1,685	12,494
Hawaii	55.05	6,152	11,176
Oregon	20.73	2,046	9,871
Ohio	27.23	2,371	8,708
New Mexico	46.98	2,584	5,500
Minnesota	18.23	967	5,303
Indiana	14.48	756	5,222
Wisconsin	13.35	585	4,383
Utah	11.66	383	3,286
Kansas	28.01	907	3,238
Tennessee	11.32	359	3,172
Oklahoma	20.39	599	2,938
Rhode island	33.33	937	2,811
Missouri	17.56	492	2,802
District of Columbia	62.98	1,434	2,277
Arkansas	9.29	203	2,185
Louisiana	18.08	330	1,825
Idaho	29.27	494	1,688
Nebraska	9.76	161	1,650
Iowa	18.94	279	1,473
Alabama	9.60	93	969
Alaska	12.80	108	844
South Carolina	19.07	144	755

	Percent of Working Foreigners with Green Card (%)	Number of Green Card holders	Corresponding Working Foreign Population
Kentucky	12.23	68	556
New Hampshire	17.00	93	547
Maine	15.57	57	366
Vermont	16.07	58	361
Delaware	15.50	53	342
Mississippi	10.04	27	269
Wyoming	3.81	8	210
Montana	7.27	8	110
South Dakota	2.27	2	88
North Dakota	7.89	6	76
West Virginia	2.50	1	40

Notes: Author's tabulations. The number of Green Cards is totaled from 1986 to 1998. States are sorted by highest level of Green Card issuances. Number of Green Cards and Estimated Working Foreign population is calculated for individuals entering the U.S. between 25 and 45 years of age, between 1986 and 1998, and who are employed. Table sorted by the working population.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set

Table 2.8. Number of Green Card Holders who are Newly Arriving Spouses of U.S. Citizens, by Occupation

		New Spouses (1986 – 1998)
ART	Writers Artists Entertainers and Athletes	9,161
ASP	Administrative Support Occupations including Clerical	40,652
DOC	Doctors	7,211
ENG	Engineers Surveyors and Mapping Scientists	11,524
EXC	Executive Administrative and Managerial Occupations	27,096
FFF	Farming Forestry and Fishing Occupations	15,959
HLD	Other Health Diagnosing Occupations	1,691
HLT	Other Health Assessment and Treating Occupations	4,319
LAB	Operators Fabricators and Laborers	99,258
LAW	Lawyers and Judges	1,604
LIB	Librarians Archivists and Curators	289
MCS	Mathematical and Computer Scientists	1,210
NSC	Natural Scientists	1,657
NUR	Nurses	8,463
PCR	Precision Production Craft and Repair Occupations	38,978
SER	Service Occupations	66,579
SLS	Sales Occupations	19,976
SSC	Social Scientists and Urban Planners	1,282
SWK	Social Recreation and Religious Workers	1,957
TCO	Teachers except postsecondary	13,901
TCU	Teachers postsecondary	3,923
TNH	Health Technologists and Technicians	1,449
TNO	Technologists and Technicians except health	6,715

Notes: Author's tabulations, U.S. DHS LPR data set. All newly arriving spouses of U.S. citizens are included in this count. New Spouse of U.S. citizen visa categories are: CR1, IR1, IB1, IW1, and CF1.

Source: U.S. DHS LPR data set

Table 2.9. Statistics by Cluster (*ocsy*)

Variable	Mean	Std. Dev.	Min	Max
log(hourly wage)	2.32	0.47	1.52	4.37
Male	0.57	0.23		
Age	39.43	3.95	29.34	50.99
High School	0.55	0.31		
College	0.23	0.30		
High English	0.48	0.30		
Married	0.71	0.16		
Yr Enter U.S.	1993.01	3.50	1986	1998
Usual hours worked	41.33	4.11	29.77	68.31
Weeks worked	45.93	3.48	31.24	52
Number of individual observations [(a)]	25.60	29.69	10	266
Population estimate of selected working foreigners [(b)]	773.25	826.05	135	7080
Population estimate of all working foreigners [(c)]	2107.01	3082.91	203	27946
Total Green Cards [(d)]	322.05	511.35	0	4771
New Spouses to U.S. Citizens [(e)]	113.92	337.93	1	3864
N(cluster)	998			
N(countries)	29			
N(U.S. states)	24			
N(occupation groups)	13			

Notes:

(a) The number of foreigners in the U.S. Census data set who are employed and arrived in the U.S. between 25 and 45 years of age, and also arrived in the U.S. between 1986 and 1998.

(b) Population of working foreigners who arrived between 25 and 45 years of age, and arrived in the U.S. between 1986 and 1998. This is the sample count in (a) totaled using population weights provided by the U.S. Census.

(c) The population of all working foreigners aged 25-45, counted using population weights provided by the U.S. Census.

(d) Refers to the number of Green Card holders tabulated using the U.S. DHS LPR data set.

(e) Refers to the number of newly arriving Green Card holders who are spouses to U.S. citizens, tabulated using the U.S. DHS LPR data set.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set.

Table 2.10. Number of Clusters by occupation, country of birth, and U.S. state

Occupation	N (cluster)	Country of Birth	N (cluster)	U.S. State	N (cluster)
LAB	302	Mexico	362	California	366
SER	284	China	88	New York	165
EXC	116	Philippines	77	Florida	114
ASP	69	India	55	Texas	103
SLS	68	Dominican Republic	49	New Jersey	58
FFF	54	El Salvador	39	Illinois	56
PCR	51	Cuba	38	Arizona	41
TNO	30	Vietnam	34	Colorado	16
NUR	14	Poland	31	Washington	13
MCS	7	Colombia	30	Georgia	12
DOC	1	Korea	26	North Carolina	11
TCO	1	Guatemala	22	Nevada	11
TNH	1	Haiti	22	Oregon	7
		Jamaica	21	Massachusetts	5
		Ecuador	15	Virginia	3
		Nicaragua	13	Michigan	3
		United Kingdom, ns	13	Indiana	3
		Canada	11	Hawaii	3
		Taiwan	10	Wisconsin	2
		Other USSR/Russia	8	Tennessee	2
		Japan	8	Utah	1
		Trinidad and Tobago	7	Maryland	1
		Peru	7	Connecticut	1
		Brazil	3	Arkansas	1
		Germany	3		
		Honduras	2		
		Venezuela	2		
		France	1		
		Pakistan	1		

Notes: Cluster distribution for main regression in Table.

Source: U.S. DHS LPR data set, U.S. 2000 Census data set.

Table 2.11. Dependent Variable: $\log(\overline{w}_{2000})$ Immigrants Arriving 1986-1998
(Unit of Observation = $ocsy$)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$G = \Lambda_{ocsy}$	0.0619*	0.0581***	0.0358**	-0.320***	-0.0896	-0.0201
	(0.0334)	(0.0167)	(0.0174)	(0.0932)	(0.0664)	(0.0534)
Male		0.402***	0.328***		0.359***	0.325***
		(0.0445)	(0.0501)		(0.0491)	(0.0488)
Age		-0.00767	-0.00169		-0.00409	-0.00143
		(0.00473)	(0.00450)		(0.00506)	(0.00434)
High School		0.230***	0.114*		0.217***	0.108*
		(0.0495)	(0.0607)		(0.0514)	(0.0589)
College		0.887***	0.543***		0.898***	0.545***
		(0.0609)	(0.0756)		(0.0627)	(0.0729)
High English		0.349***	0.183***		0.367***	0.176***
		(0.0488)	(0.0623)		(0.0507)	(0.0616)
Married		-0.0219	0.00745		-0.0265	0.0132
		(0.0616)	(0.0568)		(0.0628)	(0.0548)
Years in U.S.		0.0168***	0.0146***		0.0184***	0.0159***
		(0.00509)	(0.00448)		(0.00526)	(0.00441)
Usual Hours Worked		0.00492	-0.00707***		0.00523	-0.00724***
		(0.00345)	(0.00247)		(0.00346)	(0.00238)
Weeks Worked		0.00271	-0.00664***		0.00356	-0.00657***
		(0.00291)	(0.00255)		(0.00298)	(0.00247)
Constant	2.416***	1.570***	3.219***	2.576***	1.452***	3.512***
	(0.0221)	(0.244)	(0.262)	(0.0475)	(0.253)	(0.256)
Occupation, Country, State controls			X			X
Observations	998	998	998	998	998	998
R-squared	0.003	0.712	0.849			
Durbin Wu-Hausman F-statistic				22.05	4.705	1.053
p-value				3.03e-06	0.0303	0.305
Shea's Partial R-squared				0.0696	0.0577	0.0941
First stage F-statistic				42.95	38.49	62.25
p-value				9.02e-11	8.05e-10	0

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by occupation, country, state, and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age.

Table 2.12. Dependent Variable: $\log(\overline{w}_{2000})$ Immigrants Arriving 1995-1998
(Unit of Observation = $ocsy$)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$G = \Lambda_{ocsy}$	0.101	0.0643	0.0916**	0.113	-0.0555	0.0241
	(0.0629)	(0.0464)	(0.0384)	(0.0991)	(0.103)	(0.0550)
Male		0.399***	0.314***		0.371***	0.312***
		(0.0744)	(0.0860)		(0.0760)	(0.0779)
Age		-0.00288	-0.00320		0.000265	-0.00303
		(0.00763)	(0.00700)		(0.00799)	(0.00635)
High School		0.159*	0.0359		0.170**	0.0375
		(0.0843)	(0.109)		(0.0844)	(0.101)
College		0.835***	0.318**		0.836***	0.314***
		(0.0942)	(0.133)		(0.0929)	(0.120)
High English		0.406***	0.202**		0.419***	0.192**
		(0.0681)	(0.102)		(0.0698)	(0.0930)
Married		-0.000531	-0.0139		-0.00567	-0.0148
		(0.103)	(0.0953)		(0.104)	(0.0867)
Years in U.S.		-0.0102	0.0145		-0.00437	0.0185
		(0.0152)	(0.0124)		(0.0157)	(0.0115)
Usual Hours Worked		0.00530	-0.00625		0.00470	-0.00676*
		(0.00566)	(0.00388)		(0.00561)	(0.00352)
Weeks Worked		0.0109**	-0.00186		0.0103**	-0.00160
		(0.00505)	(0.00434)		(0.00498)	(0.00395)
Constant	2.471***	1.113***	3.640***	2.468***	1.065***	3.613***
	(0.0330)	(0.395)	(0.491)	(0.0395)	(0.391)	(0.405)
Occupation, Country, State controls			X			X
Observations	436	436	436	436	436	436
R-squared	0.004	0.724	0.882			
Durbin Wu-Hausman F-statistic				0.0175	2.408	2.029
p-value				0.895	0.121	0.155
Shea's Partial R-squared				0.297	0.277	0.334
First stage F-statistic				101.2	81.61	105.6
p-value				0	0	0

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by occupation, country, state, and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age.

Table 2.13. Dependent Variable: $\log(\overline{w}_{2000})$ Immigrants Arriving 1995-1998
(Unit of Observation = *ocsy;* No Mexicans)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$G = \Lambda_{ocsy}$	-0.135*	0.0864*	0.0899**	-0.0872	-0.0301	0.0164
	(0.0775)	(0.0493)	(0.0424)	(0.106)	(0.0989)	(0.0632)
Male		0.505***	0.368***		0.480***	0.365***
		(0.0997)	(0.115)		(0.0994)	(0.101)
Age		-0.00819	-0.00105		-0.00566	-0.000578
		(0.00913)	(0.00838)		(0.00922)	(0.00741)
High School		0.227**	0.166		0.218*	0.180
		(0.113)	(0.147)		(0.114)	(0.132)
College		0.729***	0.279*		0.730***	0.266**
		(0.102)	(0.147)		(0.1000)	(0.129)
High English		0.420***	0.221*		0.433***	0.204*
		(0.0732)	(0.121)		(0.0742)	(0.107)
Married		-0.0219	-0.00860		-0.0205	-0.00760
		(0.121)	(0.102)		(0.120)	(0.0903)
Years in U.S.		-0.0147	0.0105		-0.00658	0.0158
		(0.0201)	(0.0165)		(0.0205)	(0.0152)
Usual Hours Worked		0.00957	-0.00508		0.00882	-0.00573
		(0.00672)	(0.00432)		(0.00664)	(0.00389)
Weeks Worked		0.0126*	0.000356		0.0122*	0.000678
		(0.00689)	(0.00589)		(0.00673)	(0.00522)
Constant	2.690***	0.996**	3.252***	2.674***	0.973**	2.954***
	(0.0489)	(0.496)	(0.620)	(0.0571)	(0.483)	(0.525)
Occupation, Country, State controls			X			X
Observations	286	286	286	286	286	286
R-squared	0.007	0.725	0.896			
Durbin Wu-Hausman F-statistic				0.278	2.290	1.720
p-value				0.598	0.131	0.191
Shea's Partial R-squared				0.307	0.318	0.349
First stage F-statistic				160.1	163.1	140.9
p-value				0	0	0

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by occupation, country, state, and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age.

Table 2.14. Dependent Variable: $\log(\overline{w}_{2000})$ Immigrants Arriving 1995-1998
(Unit of Observation =*ocsy*; Low & Medium Skilled Occupations)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$G = \Lambda_{ocsy}$	0.0966**	0.0350	0.116***	0.133**	0.00813	0.0490
	(0.0404)	(0.0408)	(0.0369)	(0.0558)	(0.0761)	(0.0532)
Male		0.300***	0.352***		0.296***	0.345***
		(0.0623)	(0.0945)		(0.0612)	(0.0843)
Age		-0.00373	0.000629		-0.00324	0.000735
		(0.00755)	(0.00813)		(0.00735)	(0.00733)
High School		0.309***	0.0406		0.313***	0.0418
		(0.0746)	(0.118)		(0.0741)	(0.106)
College		0.213*	0.278*		0.205*	0.280**
		(0.124)	(0.158)		(0.121)	(0.141)
High English		0.279***	0.154		0.282***	0.149
		(0.0633)	(0.112)		(0.0645)	(0.100)
Married		0.0575	0.0272		0.0579	0.0261
		(0.0966)	(0.112)		(0.0951)	(0.101)
Years in U.S.		0.0151	0.00923		0.0165	0.0129
		(0.0132)	(0.0144)		(0.0137)	(0.0130)
Usual Hours Worked		-0.0108**	-0.0128***		-0.0109**	-0.0130***
		(0.00485)	(0.00404)		(0.00477)	(0.00363)
Weeks Worked		0.00410	-0.000254		0.00402	5.58e-05
		(0.00432)	(0.00426)		(0.00425)	(0.00385)
Constant	2.239***	2.069***	3.131***	2.231***	2.063***	3.449***
	(0.0196)	(0.384)	(0.407)	(0.0230)	(0.377)	(0.374)
Occupation, Country, State controls			X			X
Observations	341	341	341	341	341	341
R-squared	0.011	0.356	0.601			
Durbin Wu-Hausman F-statistic				0.433	0.176	2.071
p-value				0.511	0.675	0.151
Shea's Partial R-squared				0.300	0.273	0.361
First stage F-statistic				72.54	50.15	79.63
p-value				0	0	0

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by occupation, country, state, and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age.

Table 2.15. Dependent Variable: $\log(\overline{w}_{2000})$ Immigrants Arriving 1995-1998
(Unit of Observation $=cy$)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$G=\ \Lambda_{ocsy}$	-0.143	0.0486	0.134***	0.299	-0.0151	0.137
	(0.118)	(0.0456)	(0.0507)	(0.300)	(0.179)	(0.0943)
Male		0.496**	0.210		0.489***	0.207
		(0.223)	(0.273)		(0.183)	(0.172)
Age		-0.0116	-0.0244		-0.0125	-0.0246**
		(0.0199)	(0.0159)		(0.0158)	(0.0107)
High School		-0.395**	-0.119		-0.418**	-0.116
		(0.190)	(0.223)		(0.171)	(0.162)
College		0.334	0.339		0.306*	0.347
		(0.205)	(0.333)		(0.172)	(0.284)
High English		0.222	-0.100		0.275	-0.103
		(0.156)	(0.221)		(0.196)	(0.140)
Married		0.529***	0.756***		0.530***	0.757***
		(0.146)	(0.187)		(0.118)	(0.120)
Years in U.S.		-0.00165	0.00339		0.00682	0.00317
		(0.0177)	(0.0173)		(0.0262)	(0.0118)
Usual Hours Worked		0.00285	-0.0113		0.00211	-0.0113**
		(0.0100)	(0.00770)		(0.00820)	(0.00472)
Weeks Worked		-0.00456	-0.00455		-0.00617	-0.00451
		(0.0107)	(0.00787)		(0.0101)	(0.00482)
Constant	2.817***	4.448***	4.872***	2.579***	4.601***	4.875***
	(0.0898)	(0.943)	(0.728)	(0.175)	(0.888)	(0.419)
Occupation, Country, State controls			X			X
Observations	87	87	87	87	87	87
R-squared	0.011	0.974	0.996			
Durbin Wu-Hausman F-statistic				3.477	0.0819	0.000604
p-value				0.0656	0.775	0.980
Shea's Partial R-squared				0.198	0.0588	0.100
First stage F-statistic				22.74	2.460	2.758
p-value				7.49e-06	0.120	0.100

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by country and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age.

Table 2.16. Comparison of elasticity of earnings with respect to Green Card holdings

	N (cluster)	coefficient	s.e.	$\overline{\Lambda}_k$ (mean)	Estimated elasticity
Cluster = occupation, country, U.S. state, year [(a)]					
All (1986-1998)	998	0.0358**	(0.0174)	0.42	0.015
All (1995-1998)	436	0.0916**	(0.0384)	0.23	0.022
No Mexico (1986-1998)	636	0.0252	(0.0194)	0.51	
No Mexico (1995-1998)	286	0.0899**	(0.0424)	0.33	0.029
Low & Medium Occupations (1986-1998)	829	0.0384**	(0.0176)	0.42	0.013
Low & Medium Occupations (1995-1998)	341	0.116***	(0.0369)	0.26	0.029
Cluster = country of birth, year [(b)]					
All (1995-1998)	87	0.134***	(0.0507)	0.52	0.069

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Coefficient is the coefficient estimate on the variable G.

[(a)] The number of observations to create a cluster average is set to 10. Errors are clustered by occupation, country, state, and year of entry.
[(b)] The number of observations to create a cluster average is set to 100. Errors are clustered by country, and year of entry.

Table 2.17. Dependent Variable: $\Delta\log(\overline{w})$, Immigrants Arriving 1986 to 1990
(Unit of Observation = $ocsy$)

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
$\Delta\Lambda_{ocsy}$	0.114	0.0162	-0.0545	0.408*	0.408	0.377*
	(0.119)	(0.136)	(0.130)	(0.227)	(0.259)	(0.220)
ΔMale		0.294***	0.330***		0.290***	0.323***
		(0.0914)	(0.0965)		(0.0935)	(0.0987)
Δage		-0.0150*	-0.0165**		-0.0150*	-0.0160**
		(0.00823)	(0.00776)		(0.00820)	(0.00777)
Δ.HS		0.279**	0.309***		0.254**	0.281**
		(0.113)	(0.112)		(0.111)	(0.109)
ΔCollege		0.114	0.0631		0.0901	0.0432
		(0.120)	(0.117)		(0.118)	(0.113)
ΔHighEng		0.253**	0.330***		0.243**	0.319***
		(0.110)	(0.109)		(0.105)	(0.105)
ΔMarried		0.0825	0.0557		0.0624	0.0295
		(0.136)	(0.134)		(0.139)	(0.135)
ΔUsualHours		-0.00640	-0.00348		-0.00631	-0.00359
		(0.00416)	(0.00412)		(0.00409)	(0.00387)
ΔWeeksWorked		-0.00274	-0.00201		-0.00526	-0.00477
		(0.00383)	(0.00363)		(0.00416)	(0.00381)
	0.0651**	0.266***	0.279***	0.0417	0.243***	0.248***
Constant	(0.0291)	(0.0876)	(0.0854)	(0.0318)	(0.0896)	(0.0867)
ΔOccupation Shares			X			X
Observations	182	182	182	182	182	182
R-squared	0.004	0.228	0.314		0.183	0.262
Durbin Wu-Hausman F-statistic				3.071	4.166	7.486
p-value				0.0821	0.0433	0.00709
Shea's Partial R-squared				0.276	0.255	0.251
First stage F-statistic				17.05	15.38	15.94
p-value				6.51e-05	0.000142	0.000109

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Errors are clustered by occupation, country, state, and year of entry. Sample constructed from foreigners who are employed and arrived in the U.S. between 25 and 45 years of age, and between 1986 and 1990.

Chapter 3

Earnings Disadvantages from a Slow Path to Immigration

3.1 Introduction

For temporary and undocumented foreigners in the United States, acquiring a Green Card is important for full participation in the labor market. Unlike non-permanent foreigners[1], Lawful Permanent Residents[2] (LPR) or Green Card holders are authorized to live and work permanently and without restrictions; this allows for mobility (or portability[3]), eligibility for more jobs, and bargaining power with employers (Papademetriou et al 2009; Wishnie 2008, Griffith 2009). Permanent foreigners may also face fewer stigmas from employers (Becker 1971; Portes & Bach 1985).

This paper aims to identify the economic returns from holding a Green Card; specifically focusing on the speed of becoming a Permanent Resident. Studying the significance of the speed Green Card attainment is parallel to understanding if there are economic disadvantages caused by a slow path to immigration. Since non-permanent legal status comes with labor market disadvantages and legal limitations, a slow path

[1]Non-permanent foreigners refer to temporary and undocumented foreigners. Naturalized foreigners are not considered in this study.

[2]Holding a Green Card is synonymous with having lawful/legal Permanent Residency status. Green Card holders are also referred to as immigrants. These terms will be used interchangeably.

[3]For temporary workers holding work visas, mobility is akin to portability, which is defined as the freedom to carry one's worker visa to another employer. This is a different context for portability than in other literature where portability is used in the context of foreign human capital or skills (Friedberg 2000, Akresh 2008).

to immigration may cause wage scarring. The main purpose of this paper is to determine if there is wage scarring from a slow path to immigration, and I do find significant negative impacts from slow immigration.

There is a gap in the literature on the economic significance of the speed to immigration. The legalization literature is limited to estimating the economic impact of legalization itself. The majority of this literature examines immigrants granted amnesty by the Immigration Reform and Control Act of 1986, and find earnings gains that are attributed to legalization. To identify these economic returns, research has relied on the use of panel data, and there is no discussion of an appropriate exclusion restriction for cross-sectional analysis. While Green Card holders are expected to earn more than non-permanent foreigners, it is not obvious if the speed to immigration is also important for earnings. It is possible that foreigners who are well-connected and extremely talented obtain Green Cards quickly and also earn higher wages. Differences could be due to observed characteristics or unobserved selection characterizing the speed to immigration.

In this paper, the explanatory variable of interest is the proportion of U.S. residency a foreigner has held a Green Card. Defined in this way the variable captures the time sensitivity of immigration. The explanatory variable is treated as an endogenous variable since the same unobservable factors that can influence Green Card attainment can also drive wage determination. For example, U.S. based relationships and ability can aid Green Card attainment as well as predict higher earnings. Immigrant networks have been found to predict higher wages among newly arriving immigrants (Patel & Vella 2007) and may also increase the likelihood of obtaining LPR status through family channels. Immigration classes reserved for "persons of exceptional ability" will reduce queuing for high ability foreigners, and they are also likely to earn high wages (e.g. Employment Class 1st Preference).

In this paper, the impact of the speed of immigration is estimated using a cross-sectional data set and following a strategy that allows for identification in linear triangular models when there is no exclusion restriction. Identification is achieved from assumptions on the conditional second moments of the error terms (Klein & Vella 2010). Error terms are interpreted to be U.S. familiarity in skills and networks, unobservables that contribute to the speed of immigration as well as earnings. The principle assumption for identification is that U.S. familiarity has constant returns after conditioning on observables.

Among new Green Card holders in the 2003 New Immigrant Survey (NIS), the speed to immigration is found to be significantly positively related to current earnings.[4] On average, the sample of immigrants has spent half of their U.S. residency holding a Green Card. Evaluated at the mean, the elasticity of earnings with respect to the speed of immigration is 0.16. A 0.10 increase in the proportion predicts a 3 percent increase in earnings. The NIS is a sample of "new" immigrants who obtained their Green Cards within the last two years, and this may be a contributing factor to the small but significant estimate.

The results provide evidence that legal permanent status is not only an important asset but a slow path to immigration can leave long-term negative effects even after a foreigner becomes a Permanent Resident. The implications of this result are important: prolonged residency in a nonimmigrant or undocumented status can scar wages, even after a foreigner becomes a Green Card holder. The causes of scarring can be explained by the lack of portability or bargaining power when a foreigner held a non-permanent status. Restrictions to labor market participation can result in an uncompetitive employment history and limited experience, which can depress current wages as a Permanent Resident. For example, immigrants are often found to experi-

[4]The non-immigrant sample is obtained from the American Community Survey 2003.

ence occupational downgrading when they first arrive in a host country but upgrade as time passes (Akresh 2008; Chiswick et al 2005). Non-permanent foreigners could face difficulty in this area of upward mobility since their access to the labor market is restricted. While there is not existing literature on the possible scarring from a slow path to immigration, wage scarring has been found from unemployment, job displacement, or part-time work (Arulampalam 2001; Ruhm 1991; Fouarge & Muffels 2009).

From a policy perspective, these results emphasize the importance of legalization reform. Comprehensive immigration reform is a political issue that has reached little consensus for over a decade.[5] Since September 11, 2001, immigration reform on policies affecting legalization or Green Card issuances, treatment of undocumented foreigners, and annual immigration quotas have been overshadowed by national security priorities related to immigration. The Department of Homeland Security was created, and the Patriot Act and border security legislation was passed. Only in 2003, did immigration policy return to reforming policy on legalization. The Bush administration supported increased temporary worker programs but did not want these programs to lead to Permanent Residency.[6] In 2009, under the Obama administration, health care legislation and the recession derailed immigration reform again.

Current comprehensive immigration reform proposals include granting legal Permanent Residency to a larger number of temporary foreigners and to special groups of undocumented aliens. Table 3.1 lists examples of such legislations. Despite the lack of consensus among politicians to pass reforms, many politicians support granting legal

[5]Proposed legislation aimed to grant full legal status to foreigners have not been passed into law (Table 3.1).

[6]During the Bush Administration, The Comprehensive Immigration Reform Acts of 2006 and 2007 both proposed to legalize a large portion of illegal immigrants. The 2006 Act also proposed to broaden the temporary worker program, while the 2007 Act additionally proposed a path to citizenship for illegal immigrants.

permanent status to undocumented aliens, especially for those who arrived illegally as young children (Lee 2006; Shah 2007). The Development, Relief and Education for Alien Minors (DREAM) Act proposes to legalize those who arrived in the U.S. illegally younger than 16 years of age. This legislation was initially introduced in 2001 and has faced resistance ever since. Stopping Trained in America PhDs from Leaving the Economy (STAPLE) Act was first introduced in 2009 but was never passed. This bill proposed granting Permanent Residency to foreign students upon completion of a PhD program in science, technology, engineering, or mathematics. Failure to pass the STAPLE Act is unfortunate for talented foreigners as well as the economy since the U.S. loses American trained talent. Since these types of individuals have the desire to remain in the U.S., they may achieve their residency goals but at a slower speed.

I also find some evidence of negative correlation between the error terms in the earnings and speed to immigration equations; unobservables characterizing faster speeds to immigration are also associated with lower earnings. The U.S. immigration system gives preference to family immigrants, which comprises two-thirds of new immigrants every year. In terms of the speed to immigration, it appears that U.S. familiarity based on family ties is rewarded more than U.S. familiarity based on U.S. specific skills or abilities. U.S. immigration policy does not preference immigrants by age, skills, languages, or occupations, as is the case with point-based systems in Canada and Australia. Immigration to the U.S. is primarily family-based, unlike in Canada where the majority of immigrants are economic-based. Negative selection indicates that the speed to immigration for talented foreigners may be slow and a policy to retain skilled immigrants in the U.S. is necessary. While the U.S. does admit a large number of highly-skilled temporary workers, only 20 to 50 percent adjusted to Permanent Residency each year in the 1990s (Lowell 2000). Moreover, researchers have observed anecdotal evidence that a large number of skilled workers

have left the U.S. to return to their home countries (Wadhwa 2007, 2009; Wadhwa et al 2011). Legislation such as the STAPLE Act would be an important addition to the U.S. immigration system to compete with point-based immigration systems in other countries.

The next section reviews the literature and statistics on the foreign population by legal status. While there is no direct literature on the speed of legalization, there is a literature on the economic benefits of legalization itself. Section 3.3 illustrates the sources of wage benefits from holding a Green Card using a simple Nash bargaining wage model. Legal Permanent Residency directly increases the set of jobs an immigrant is legally eligible to work in. The increase in job opportunities and bargaining power directly affects the wage potential of immigrants. The estimation strategy to identify the economic returns from the speed to immigration is outlined in section 3.4. Section 3.5 summarizes the data, and section 3.6 discusses estimation results. Finally, section 3.7 concludes.

3.2 Background

The legal difference between Permanent and non-permanent foreigners is often ignored in research on immigrant assimilation or earnings determination. The primary reason for this is the lack of data. However, there are large differences in the legal right to work across legal statuses, which makes it an extremely important characteristic. Moreover, legal status is a very relevant topic since there are just as many Permanent as non-permanent foreigners residing in the United States.

3.2.1 Literature

Compared to the size of the immigration assimilation literature, there is relatively little work on measuring the economic returns from acquiring Permanent Residency. There are gaps in this literature in terms of measuring the effect of legalization for a random sample of immigrants, and virtually no work on estimating effects with a focus on the speed to immigration.[7]

Although non-permanent foreigners can work in the U.S., they do so in an informal or restricted environment that can negatively affect their earnings. Evidence has been found that temporary and undocumented workers earn less than Green Card holders and also face labor market disadvantages. Prolonged durations under a legal status with labor market disadvantages may lead to negative work histories that impact economic outcomes even after a foreigner obtains a Green Card.

Temporary foreigners lack portability, which prevents open job search and movement across employers. Portability is a key advantage Green Card holders have over non-permanent foreigners (Papademetriou et al 2009; Wishnie 2008; Griffith 2009).[8] Lowell and Avato (2007) find evidence that portability matters; H-1B foreigners who do not change employers earn 10.6 percent less than H-1B foreigners who do manage to change employers.

Temporary foreign workers are sometimes referred to as 'probationary Americans', since these foreigners are often awarded a Green Card if their employer is pleased with their performance. This is a common practice but goes against what a "temporary worker program" is by definition. Park (2007) points out that many H-1B workers were

[7] The main constraint to this line of research is that data sets do not ask individuals what legal status they hold or the date they were legalized.

[8] Not all legal temporary foreigners have the right to work in the United States. There are many types of temporary visas and only a portion of these visas allow foreigners to work. These visa classes are: H, J, L, O, P, Q, R, or T. Students holding F visas can also work in a limited capacity through Optional Practical Training).

previously U.S. graduate students and have children who are U.S. citizens. Despite this, these workers can be at risk of being deported if they cannot find an employer to sponsor them for a Green Card.

There is some evidence that temporary H-1B workers are paid less than the fair market wage. Smith (1999) and Hagan and McCollom (1999) interviewed IT firms in California and Texas and found that foreigner wages were lower than the Labor Condition Application (LCA) prevailing wage.[9] Miano (2005) finds prevailing wages for computer programmers listed by employers were 85 percent of the median rate listed by the Bureau of Labor Statistics' Occupational Employment Statistics.[10] Lowell and Avato (2007) find that temporary foreigners earn less than natives, but they catch up after they receive Permanent Residency.[11]

Undocumented foreigners face even more employment restrictions since they are not legally allowed to work in a formal capacity. They are unlikely to search for jobs since searching increases the likelihood of exposing their illegal status and deportation, thus they are even more tied to their employers and vulnerable to unfair labor practices. Undocumented workers may have lower reservation wages and face employer exploitation (Bailey 1985; Portes & Bach 1985). Using data from the Mexican Migration Project, Durand et al (1999) finds illegals legalized by IRCA were more geographically disperse than migrants who were still illegal. Undocumented foreigners are also less likely to respond to changes in wage offers; Hotchkiss and Qusipe-Agnoli (2009) find that undocumented workers are 40 percent less sensitive than documented workers to employer wage adjustments.

[9]The Labor Condition Application (LCA) prevailing wage is the market wage rate that is denoted by the employer in applications to hire H1-B temporary foreigners.

[10]These statistics are listed by occupation and by state.

[11]The study is limited to college graduates employed in science and engineering occupations.

Among Green Card holders, there is some debate about the extent of economic benefits from obtaining Permanent legal status. There is mixed evidence of positive impacts from legalization on earnings for immigrants legalized by the Immigration Reform and Control Act of 1986 (IRCA). The majority of this research relies on the Legalized Population Survey panel data set and there is no discussion of exclusion restrictions. This is also a non-random sample of IRCA immigrants who were primarily Mexican, and extrapolating the effects of legalization of IRCA immigrants for recent waves of foreigners would be erroneous.

IRCA granted legal Permanent Residency status to over a million Mexican illegal immigrants and 2.9 million illegal immigrants in total. Borjas and Tienda (1993) report one of the highest estimates of the economic returns from IRCA legalization; legalized foreigners were found to earn up to 30 percent more than undocumented workers from the same regional origin. Other authors have found much smaller earnings elasticity from legalization. Rivera-Batiz (1999) finds that Mexican workers legalized by IRCA earned 15 percent more for men and 21 percent more for women, and changes in characteristics explained less than half of the increase in wages. Comparing individuals from the NLSY and Legalized Population Surveys panel data sets, immigrant men were found to have 6 percent higher wages after legalization (Cobb-Clark & Kossoudji 2002). Hanson (2006) comments that studies finding modest wage gains may be due to negative selection bias since the policy may have benefitted those that were least likely to become Permanent Residents without assistance or amnesty. Some papers have found that IRCA and employer sanctioned hiring of newly legalized workers did not lead to higher wages (Phillips & Massey 1999). Since IRCA also increased fines associated with hiring illegal immigrants, employers may have treated this sanction as a tax and lowered wages or hired fewer workers. More recently, Lozano

and Sorenson (2011) use differencing econometric techniques and also find higher wages among legalized immigrants compared to undocumented workers.

The legal status of foreign-born parents has also been found to affect the outcomes of their children. These findings are obtained from data collected by Immigration and Intergenerational Mobility in Metropolitan Los Angeles (IIMMLA) project. This project surveyed families in the Los Angeles metropolitan area in 2004. Children whose fathers illegally entered the U.S. but were later legalized fare better economically than children whose fathers remained illegal (Bean et al 2006). Rumbaut (2008) finds that parental legal status has a strong positive effect on children's years of education.[12]

While there is no directly relatable literature discussing scarring effects from a slow path to immigration; the literature has found wage scarring from unemployment, job displacement, and unemployment (Arulampalam 2001; Ruhm 1991; Fouarge & Muffels 2009). This paper contributes to the literature by assessing the impact of the speed to immigration, and whether or not a longer path to immigration scar wages, even after a foreigner becomes a Permanent Resident.

3.2.2 Foreign Population Statistics by Legal Status

This section reviews population estimates of non-permanent and permanent foreigners in the U.S, as well as discussing the possible transitions from one legal status to another.[13] Foreigners can legally arrive in the U.S. under a temporary status or as

[12] This study uses data from the IIMMLA and the Children of Immigrants Longitudinal Study (CILS-III) conducted in California.

[13] The focus in this paper is on the benefits of holding a Green Card and ignores naturalized foreigners. Moreover from a policy perspective, understanding the benefits of LPR status is more relevant since these policies are frequently debated. There is no debate on whether to issue U.S. citizenship directly to non-permanent foreigners.

a lawful permanent resident (Figure 3.1). The acquisition of legal status is not one-directional, temporary immigrants can become illegal if they do not leave the country after their visas expire. The transition from temporary to illegal status is common; the Pew Hispanic Center (2006) estimated that there were 11.5 to 12 million undocumented migrants in 2006, and at least 45 percent were temporary foreigners who overstayed their temporary visas.[14] Illegal or undocumented foreigners can also become Permanent Residents directly from special legislation, such as IRCA passed in 1986 or as proposed by the DREAM ACT. Jasso et al (2008) estimate that 32 percent of foreigners granted Permanent Residency in 1996 previously held illegal status at one point.

The U.S. Census Bureau estimates the total foreign-born population in 2000 to be roughly 31 million, 40.3 percent (12.5 million) of which were naturalized U.S. citizens (Malone et al 2003). A very small portion of the remaining 18.6 million was U.S. citizens born abroad and the remaining held illegal, temporary, or permanent immigration status. Surveys conducted by the U.S. Census Bureau do not inquire about the legal status of foreigners who are not citizens. Annual flow statistics for nonimmigrants and the number of Green Card issuances are captured by the U.S. DHS, however the population of Permanent Residents must be estimated. The undocumented population must also be estimated since there are no official records of this group.

In the U.S., the temporary population is the smallest while the undocumented and permanent populations are much larger (3.8, 11.2, and 11.4 million respectively).

First, the population estimates of undocumented foreigners are summarized. Undocumented or illegal aliens are underrepresented in the decennial census data

[14]The enforcement of visa expiration dates is receiving attention as a national security measure, especially since 5 of the 19 hijackers in 9/11 attacks overstayed their temporary visas (GAO 2011).

though in the population they are estimated to be quite large in number. It is estimated that there are 10-12 million undocumented aliens in the U.S. in 2004 using Current Population Surveys (Passel et al 2006).

Second, to estimate the population of temporary foreigners, Grieco (2006) uses the Nonimmigrant Information System that contains information from DHS Form I-94 which is completed when a nonimmigrant enters or exits the country.[15] The nonimmigrant population in 2004 is estimated to be 3.8 million which includes 600,000 students or exchange visitors, 700,000 temporary workers[16], 68,000 diplomats and other representatives, and 71,000 expected long-term residents. Other researchers estimate the temporary population to be 1.15 million using the 2000 U.S. decennial census (Passel et al 2010). Lowell (2001) estimates half of H-1B visa holders successfully adjust to Permanent Residency after six years in the United States.

Lastly, the stock of Permanent Residents in any given year also must be estimated since DHS only captures flow statistics and population census does not inquire about legal status. In 2003, the lawful permanent resident population was estimated to be 11.4 million in total, 7.8 million that were eligible to naturalize[17] and 3.6 million not eligible to naturalize (Rytina 2006). In the same fiscal year, the flow of Permanent

[15]There are two types of nonimmigrants that do not have to fill out the I-94 form when crossing the U.S. border: Canadians who travel to the U.S. for visits and Mexicans who hold a nonresident alien Border Crossing Card. In 2004, 30.8 million nonimmigrants entered the country for the first time, and among those who departed in the same year, 99 percent had stayed for less than one year (Grieco 2006). Since the nonimmigrant population is mobile, includes short-term visitors, and those who may repeatedly enter and exit the country, the stock of nonimmigrants must be estimated while taking into account the duration of time spent in the U.S.

[16]The classes of temporary visas under which an immigrant can work are the H, J, L, O, P, Q, R, or T.

[17]Foreigners must complete a 5-year residency requirement holding LPR status before applying to naturalize.

Residents was 705,827, which included roughly half adjustors and half newly arriving immigrants (U.S. DHS 2003).[18]

3.3 Conceptual Framework

The labor market disadvantages for non-permanent foreigners can be illustrated in a standard Nash bargaining search model with two types of workers (permanent and non-permanent/non-immigrant) and two types of employers. The benefits from holding a Green Card can be explained by several features; Green Card holders have higher bargaining power, a larger set of the jobs that they are legally eligible to work in, and face less prejudice from employers. A standard Nash bargaining model is used with amendments to illustrate these features.

In the bargaining model, legal differences yields higher equilibrium wages for Green Card holders compared to non-immigrants. Bargaining power and mobility are closely related to the concept of "portability", which is the ability to use a worker visa across employers.[19] The intensity of job search and mobility has been linked to higher wages (Keith & McWilliams 1999). In the legalization literature, non-permanent workers have been found to have low geographical dispersion, which illustrates their inabilities to move freely in the labor market (Calavita 1992; Durand et al 1999). Classical job search models have shown that the higher bargaining power an employee has, the higher their equilibrium wages (Mortensen & Pissarides 1999).

[18] In the 2003 fiscal year, 462,435 foreigners were also naturalized, which would reduce the population of Permanent Residents by the same amount since a requirement to apply to become a U.S. citizen is to reside in the U.S. continuously for 3-5 years while holding a Green Card.

[19] In Europe, the newly adopted Blue Card provides foreigners with the option to work for different employers under the same guest worker visa. Unlike temporary workers in the U.S., European temporary workers have more portability. In the future, a comparison of temporary workers in Europe and the U.S. will be an interesting study to determine whether portability is a key factor to migrant assimilation.

Another consideration is that employers may be prejudiced against hiring workers with non-permanent legal status (Becker 1971; Portes & Bach 1985; Bailey 1985). Employers may have a disutility from hiring non-permanent workers due to penalties by law, or uncertainty of how long they can legally stay in the U.S. Moreover, non-permanent foreigners who want to become Permanent Residents require employer sponsorship which is financially costly to the employer, since employers pay application and legal fees. Prejudice in hiring certain types of workers, such as employer prejudice in hiring men over women have been modeled by competitive search models, and this paper lends certain features from these models (Flabbi 2010).

3.3.1 Workers

In this model, the equilibrium wages from bargaining will be compared for two types of workers: Permanent and non-permanent foreigners which are denoted by $j = (P, T)$. There are also two types of firms denoted by $i = (A, B)$. Firms of type A are impartial between hiring Permanent or non-permanent foreigners of the same qualifications, while firms of type B have a distaste of hiring non-permanent foreigners due to their legal status or simply because of legal restrictions to hiring.[20] Non-Permanent workers may be undocumented so legally they should not be hired, or there may be uncertainty regarding the legality of immigration papers. Employers may not want to hire legal temporary foreigners since they are not allowed to remain in the country indefinitely. They may also request employer sponsorship for a Green Card which is financially costly to the firm. Sponsoring a temporary foreigner for a Green Card in through the Employment Class can cost as much as $10,000 per application.

[20] This is much more likely to be the case in low-skill occupations, where an employer may have the option of hiring an undocumented foreigner or a Permanent Resident. In high-skill occupations, an employer is likely to have to choose between a temporary foreigner or a Permanent Resident.

The lifetime value of employment of a worker of type j and working for an employer of type i at wage w_{ji} is $W_j(w_{ji})$. Assuming if a job is accepted, the worker stays employed in it but faces an exogenous job destruction rate δ_j. By the nature of their legal status, non-permanent foreigners will have a higher rate of destruction ($\delta_T > \delta_P$). Temporary workers are likely brought into the U.S. to assist with a temporary project when there is a labor shortage, while undocumented workers often work piecemeal daily or seasonal projects. Lowell (2000) found only 20 to 50 percent of temporary foreigners transitioned to Permanent Status in the 1990s.

The value of employment for worker j is defined in equation (3.1) where β is the common discount rate. The value is equal to present wages plus the expected value from the unemployment state (U_j) which is weighted by the probability of the unemployment state (δ_j). These values are discounted by the rates β and δ_j.

$$W_j(w_{ji}) = \frac{w_{ji} + \delta_j U_j}{\beta + \delta_j} \tag{3.1}$$

If the worker is not employed, then his value of unemployment is denoted as U_j. The flow value of unemployment for a worker of type j is described equation (3.2). The three terms in equation (3.2) represent the payoffs from three events when the worker is in unemployment. The first term is the payoff from disutility of working, denoted as b, and the second and third terms are the values from search activity when meeting a non-prejudiced or prejudiced employer.

$$\beta U_j = b + \lambda(\phi_j) \left[p \int \max\left(W(w_{jA} - U), 0\right) dF(w) \right. \\ \left. + (1-p) \int \max\left(W(w_{jB} - U, 0)\right) dF(w) \right] \tag{3.2}$$

The variables v_j and u_j denote the number of vacancies open to a worker of type j and the number of unemployed persons of type j. The number of vacancies

non-permanent foreigners are legally eligible for is less than the number of vacancies available to Permanent Residents, $v_T < v_P$, since all jobs available to non-immigrants are technically available to Permanent Residents but not vice versa.

The function $\lambda(\phi_j)$ is the job arrival rate which is a function of the ratio of vacancies available to unemployed workers of type ($\phi_j = \frac{v_j}{n_j}$). The function is strictly increasing in v/n. The job arrival rate for Permanent Residents is higher than for non-permanent foreigners ($\lambda_P > \lambda_T$) if the vacancy ratio for Permanent foreigners is higher than the vacancy ratio for non-permanent foreigners. Permanent foreigners will be more likely to move out of unemployment and into employment.

3.3.2 Firms

The discounted profit of the firm of type i and employing a worker of type j is $J_{ji}(x_j, w_{ji})$, and is a function of a worker's productivity x_{ji} and wages w_{ji}. If the firm is not producing, then the value of non-production is V_i. In this simplified model, the value of non-production is zero since firms make no payments and earn no revenues if a match is not made. Some firms of type B will have a disutility or distaste to hiring foreign workers in a non-permanent status. Temporary workers cannot work without the approval of the DHS. Even if they receive a temporary work visa, they are only legally allowed to stay in the U.S. for a limited amount of time. Moreover they may be financially costly to the employer because temporary workers may request Green Card sponsorship. It is conventional that employers pay Green Card application fees on behalf of the worker. It is even illegal for firms to request employees to pay their own application fees. Firms can also incur legal penalties from hiring an illegal immigrant, so firms may only hire them if they are "cheap enough".

In a stylized setting, the flow value of a producing firm is characterized in equation (3.3). In this setting, profits of a firm of type i from hiring a worker of type j is the

productivity of that worker (x) less the wages paid (w) and a disutility factor if a temporary legal status worker ($j = T$) is matched with a prejudiced employer ($i = B$). This distaste is denoted by a stylized parameter $D_{(j=T,i=B)}$ which is present only if a worker of type T is meets firm of type B. Employment with a worker can also destruct at an exogenous rate δ_j.

$$\beta J_{ji} = x_{ji} - D_{(j=T,i=B)} - w_{ji} - \delta_j(J_{ji}) \tag{3.3}$$

The flow value of a firm in non-production is characterized in equation (3.4) where c is expenditure on recruiting, and $\eta(\phi_j) = \frac{\lambda(\phi_j)}{v_j}$ is the application arrival rate for workers of type j. The application arrival rate is the rate at which vacancies meet applicants. Firms will have a positive number of vacancies because there is a cost to recruitment (c).

$$\beta V_{ji} = -c + \eta(\phi_j)(J_{ji} - V_{ji}) \tag{3.4}$$

3.3.3 Equilibrium Wages

When a worker and an employer meet, their types are fully revealed and there is no asymmetry in revealed information. The legal status of workers is fully revealed since proof of Permanent Residency in the form of a Green Card is required by employers. In the case of employers hiring immigrants, employers' preferences may also be clearly revealed by the distribution of foreign workers by legal type present in the firm. The wage solution of a Nash bargaining problem is negotiated by a worker and firm pair, and maximizes the product of the worker's and firm's surpluses (3.5).

$$w_{ji} \in argmax_{w_{ji}} \left[W_j(w_{ji}) - U_j\right]^{\theta(j)} \times \left[J_{ji} - V_{ji}\right]^{(1-\theta(j))} \tag{3.5}$$

The parameter $\theta(j) \in (0,1)$ is the bargaining power of a worker of type j. In the U.S. labor market, foreigners who are Permanent Residents have more bargaining power than temporary status foreigners, $\theta(P) > \theta(T)$. Applying equations (3.1), (3.2), (3.3), and (3.4), the maximization problem in equation (3.5) can be equivalently re-expressed as in equation (3.6).

$$w_{ji} \in \max \left[\frac{w - \beta U_{ji}}{\beta + \delta_j}\right]^{\theta(j)} \times \left[\frac{x_{ji} - D_{(j=T,i=B)} - w - (\beta + \delta_j)V_{ji}}{\beta + \delta_j}\right]^{(1-\theta(j))} \tag{3.6}$$

In market equilibrium, a portion of the surplus $(W + J - U - V)$ is given to the worker that is proportional to their bargaining power.

$$(W - U) = \theta(W + J - U - V) \tag{3.7}$$

Substituting from equations (3.1), (3.3), and (3.7) yields the implied wage equation (3.8).

$$w = \beta U + \theta(x - D_{j=T,i=B} - \beta U - (\beta + \delta)V) \tag{3.8}$$

Equations (3.2), (3.4), (3.8) along with condition that a firm's value from having unfilled vacancies is 0 $(V = 0)$ imply

$$c = \frac{(1-\theta)(\beta U - b)}{\phi\theta} \tag{3.9}$$

Substituting equation (3.8) for βU in equation (3.9) gives the equilibrium wage equation. The equilibrium wages of Permanent and non-permanent foreigners working for a firm of type i has a solution characterized in equation (3.10). In this formula, wages are equal to the value of unemployment plus an additional term that can be magnified or dampened depending on the level of the worker's bargaining power, which varies by legal status.

$$w_{ji} = (1 - \theta(j))\, b + \theta(j) \left[x_j + c\left(\frac{v_j}{n}\right) - D_{(j=T, i=B)} \right] \tag{3.10}$$

In this model, it is clearly shown that wages are higher in instances when a worker has higher bargaining power, as is the case with Green Card holders. The features of enjoying a higher number of vacancies, as experienced by Green Card holders also increases wages due to the relatively higher market tightness (v/n); firms pay higher wages for workers when supply is relatively more scarce. The distaste or disutility of hiring non-permanent workers will depress wages of non-permanent workers because some employers will be prejudiced against hiring those who cannot stay long-term or will be financially costly for Green Card sponsor, this stylized condition is shown in the indicator D. These mechanisms predict higher wages for Permanent Residents than non-permanent foreigners.[21]

If an individual's bargaining power is reduced the longer they hold a non-permanent legal status, then the time sensitivity of acquiring Permanent legal status becomes significant as well in determining wages. As an example, consider two foreigners who received their Green Cards in the last year. One individual arrived in the U.S. 2 years ago and a second individual arrived 10 years ago. It is possible that delays in receipt of a Green Card caused the second individual to be ineligible for promising employment opportunities and restricted work experience. Prolonged durations with negative histories may weaken bargaining power with future employers or be interpreted as a bad signal.

[21] This Nash bargaining model is not calibrated since unemployment duration data is not available in the 2003 New Immigrant Survey (NIS).

3.4 Estimation Strategy

While the literature has found positive economic returns from legalization, it is less obvious if the speed to immigration can also significantly impact earnings. Isolating the impact of the speed to immigration is not direct since it is not obvious if observed outcomes are due to legal status itself or due to an unobserved selection process characterizing the speed to immigration. It is possible that well-connected and talented foreigners obtain Green Cards quickly and simultaneously earn higher wages.

In the endogenous treatment model, log hourly wages, W, are a function of exogenous regressors (X_i^W), and the endogenous variable is the proportion of U.S. residency spent as a Permanent Resident or holding a Green Card (P_i) (3.11). The first-stage regression is the Permanent Residency equation, and is estimated over all foreigners, permanent and non-permanent (3.12). The second stage is the wage equation, which is estimated only for the sub-sample of Green Card holders ($P_i > 0$).

$$W_i = X_i^W \beta + \gamma P_i + u_i \tag{3.11}$$

$$P_i^* = X_i^P \pi + \nu_i \tag{3.12}$$

$$P_i = \begin{cases} P_i^* & \text{if } P_i^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

Endogeneity of P arises due to the correlation between the error terms u_i and ν_i, that explain both the attainment of legal Permanent Residency status as well as wages. Unobservables that can affect both the speed of Green Card attainment and earnings are referred to as "U.S. familiarity" unobservables, which include unobserved U.S. specific networks, relationships, skills, and ability. Lubotsky (2007) finds

foreigners with low earnings often migrate out of the United States. However, it is unclear if foreigners leaving the U.S. are also those who did not receive Permanent Residency and earned less due to their legal status. It is also possible that well-connected or talented foreigners can acquire Green Cards more quickly as well as earn higher wages.

In the first step, the Permanent Residency equation is estimated as a Tobit model. In the second step, the wage equation is estimated for the sub-sample of Green Card holders ($P_i > 0$). OLS estimation of the wage equation (18) over the sub-sample will lead to inconsistent estimates since the conditional mean of the errors (u_i) is non-zero. The correlation between P_i and u_i causes a non-zero covariance between u_i and ν_i, and a non-zero conditional mean of u_i for the sub-sample of Permanent foreigners. Including a control function in the form of a generalized residual as a regressor can capture the unobserved components (u_i) in the wage equation that is correlated to the unobserved components (ν_i) in the Permanent Residency equation. The inclusion of a generalized residual as a regressor is closely related to the Heckman Mill's ratio control function approach (Heckman 1976) (3.13). The coefficient ρ captures the constant correlation between u_i and ν_i, and is not a function of X. The error term $\epsilon_i = u_i - \rho\nu_i$ is not mean-zero.

$$W_i = \beta_X X_i^W + \gamma P_i + \rho(\hat{\nu}_i) + \epsilon_i \tag{3.13}$$

However, for the sub-sample of Green Card holders ($P_i > 0$), the Tobit generalized residuals are linear in X_i^P, $\hat{\nu}_i = P_i - X_i^P\hat{\pi}$ (Vella 1993). In this application, a control function alone is not sufficient for identification. The Tobit generalized residual for the sub-sample of Permanent foreigners is linear in X_i^P, and an exclusion restriction is required to consistently estimate (3.13).

Cross-sectional data is virtually never used to estimate the economic returns of legal status; and an appropriate exclusion restriction is elusive. In related literature, the strategy to identify the economic returns from changes in legal status has relied on the use of panel data sets to control for unobserved individual effects. The research has primarily been based on a non-random sample of immigrants, namely Mexican and Latin American men legalized by IRCA legalization from the Legalized Population Survey (Borjas & Tienda 1993; Rivera-Batiz 1999; Cobb-Clark & Kossoudji 2002; Ameudo-Dorantes & Bansak 2011). The econometric strategy employed to study the effects of naturalization has also utilized panel data sets to control for unobserved individual fixed effects (Bratsberg et al 2002; Fougère & Safi 2008).[22] An appropriate panel data set is not available to study the economic returns for a random sample of Green Card holders since legal status is not a standard survey question in surveys of the U.S. population.

In the absence of appropriate exclusion restrictions, the vectors $X_i^P = X_i^W$ are now denoted as X_i. Identification follows a strategy proposed by Klein and Vella (2010) that rely on assumptions on the conditional second moments of the error terms. Under these assumptions, an additional moment condition can be introduced into equation (3.13) to allow for identification. Necessary assumptions for identification include a constant correlation coefficient in the errors conditional on X_i, and heteroskedasticity in at least one equation (wage or Permanent Residency).

I first briefly outline the conditions necessary for identification.

[22] Sample selection of naturalized foreigners is stronger since the path to U.S. Citizenship is a longer and multi-stage process. Foreigners usually have to be a Permanent Resident for at least three years before they can apply for U.S. citizenship. There are also proficiency requirements in English language and U.S. history so applicants may endogenously increase their human capital accumulation.

Conditional variances of the error terms are defined in equations (3.14) where the errors are conditional on observable X, where X_{ui} and X_{vi} may be a different set of variables than that used in estimating the conditional means. Under parametric assumptions, the error variance structures are

$$S_{ui}^2 = \exp(X_{ui}\beta_u) \text{ and } S_{\nu i}^2 = \exp(X_{\nu i}\beta_\nu) \tag{3.14}$$

The error structure under heteroskedasticity is defined in equation (3.15) where the unobserved errors u_i^* and ν_i^* are homoskedastic.

$$u_i = S_{ui}(X_i)u_i^* \text{ and } \nu_i = S_{\nu i}(X_i)\nu_i^* \tag{3.15}$$

Additional requirements for identification are that the conditional expectation of u_i^* and ν_i^* equal zero (X_i is an exogenous vector) (3.16), and a constant correlation coefficient (3.17).

$$E(u_i^*|X_i) = E(\nu_i^*|X_i) = 0 \tag{3.16}$$

$$\rho_0 \equiv E(u_i^*\nu_i^*|X_i) = E(u_i^*\nu_i^*) \tag{3.17}$$

Before discussing how these conditions will allow for identification, I first discuss the applicability of these assumptions in this setting.

In this application the unobserved errors u_i^* and ν_i^* are homoskedastic and interpreted to represent unobserved "U.S. familiarity" capturing unobserved U.S. specific networks, relationships, skills, and ability. While these factors are unobservable in the data, there is evidence that they contribute to earnings and Green Card attainment. These unobservables are viable sources of unobserved selection processes characterizing the speed to immigration.

First, U.S. based relationships or networks can lead to faster immigration, as well as simultaneously boosting earnings. Annual admittances from the Immediate Relative class are not numerically limited so these immigrants face shorter queuing. The Family Class also has the largest annual quota compared to other capped classes of immigration (Table 3.10). There is also evidence that immigrant networks can increase job arrival rates and earnings in popular immigrant occupations for immigrants from the same country of origin (Patel & Vella 2007). Foreigners with family in the U.S. are more likely to apply for Green Cards to be able to remain with their families.

Secondly, possession of U.S. specific skills can assist immigration. Talented foreigners can acquire Permanent Residency over a shorter span of time due to their abilities. For example, the Employment class allows for 140,000 new Permanent Residents annually, and high-skilled immigrants have the largest quotas and are also given first preference in the Employment class (Table 3.10). Possession of host-country specific skills have a positive effect on immigrant wage assimilation (Friedberg 2000), and can also speed up Green Card attainment through the Employment class since these individuals are more likely to be hired by U.S. companies. Possession of U.S. specific skills expresses personal preference to remain and reside in the United States.

The error structures in (3.15) implies there will be different variation in the contribution of ν_i^* towards Green Card attainment and u_i^* towards earnings conditional on observed characteristics such as country of origin, occupation, education, and marital status. The presence of heteroskedasticity is an empirical requirement. For identification, heteroskedasticity in at least one equation (earnings or Permanent Residency) is necessary by creating different mappings from u_i to ν_i for individuals with the same u_i^* or ν_i^*. While heteroskedasticity is required only in one equation, empirically it is present in both. This is allowable as long as the variance structures are not identical

in the two equations. Heteroskedasticity is much stronger in the Permanent Residency equation.

In the Permanent Residency equation, the presence of heteroskedasticity is captured by $S_{\nu i}$ and primarily driven by U.S. immigration policy. U.S. immigration policy sets a constant annual quota for the number of immigrants admitted from any country, regardless of the country's size.[23] Immigrants face slower speeds to immigration if they are from a high-volume immigrant sending country such as Mexico, India, Philippines, or China (USDS a-f; Risomena 2010). Consider two foreigners with the same ν_i^* but one is from a large immigrant sending country (e.g India) and other is from a small one (e.g. Belgium). There will be much higher variation in the time it takes to obtain a Green Card among Indians than among Belgians. Indians may wait short periods if they marry a U.S. citizen (not counted towards quota), or longer periods if they are entering through the Employment class. Permanent Residency backlogs for Indians number in the hundreds of thousands. On the other hand, the number of Green Card applications from small countries such as Belgium will not exceed annual limits. The average speed to immigration for Belgians is faster, and there should also be lower variation in their time to receive a Green Card.

There is also different variation in the speed of Green Card attainment by occupation. In the Employment class, individuals working in high skilled occupation are given first preference, meaning they are treated first before applications in lower preference groups. High-skill occupation immigrants will face shorter queuing than low-skill occupation immigrants (lower variance). Individuals with higher years of education will have higher dispersion in Permanent Residency attainment since foreign country education may be awarded differently. College educated individuals are

[23] This country level quota is only relevant for capped immigration classes: Employment, Family, Diversity.

likely to enter through the Employment class which is numerically limited and is counted towards the annual country quota. Highly educated individuals from small countries will also be admitted faster than educated individuals from large countries due to the country quota.

In the wage equation, differences in wages structures across U.S. regions, occupations, and educational will create heteroskedasticity in u_i and is denoted by the function S_{ui}. Individuals with lower levels of education may have consistently lower wages while there is more variation in wages among college graduates. By occupation, laborers and low-skill occupation workers will earn a common lower wage, but there may be higher variation in wages of managers and executives depending on their location. Age is also expected to increase variation for two individuals with the same u_i^*. As individuals get older, there is increased variation in education and experience that create higher variation in earnings.

As discussed earlier, unobservable "U.S." familiarity" captures unobserved U.S. specific networks, relationships, skills, and ability. Since these unobservables are relevant in both the wage and Permanent Residency equations, the errors u_i^* and ν_i^* are now denoted as f_i^* (3.18).

$$u_i = S_{ui}(X_i)f_i^* \text{ and } \nu_i = S_{\nu i}(X_i)f_i^* \tag{3.18}$$

The constant correlation assumption is key for identification and also has economic interpretations (3.17). Statistically, the constant correlation assumption is trivially satisfied when f_i^* is homoskedastic (3.18). In this application, the assumption implies that after conditioning for observed characteristics such as country of origin or education, returns to U.S. familiarity are constant, and also implies this model does not allow for heterogeneous returns in U.S. familiarity. Conditional on X, U.S. familiarity is rewarded differently in the wage and Permanent Residency equations. For example,

recall that two individuals with the same f_i^* will face different speeds to immigration if one is from a large immigrant sending country and the other is from a small country. A discussion of these sources of this variation was outlined earlier. This variation is what identifies the returns to the speed of immigration, P.

The same "U.S. familiarity" associated with obtaining Permanent Residency status can be positively associated with earnings. If u_i and ν_i are positively correlated, then the error structures posed in (3.18) satisfy the assumptions necessary to implement KV2010. However, in the data, u_i and ν_i are negatively correlated. The interpretation for this is that unobserved components predicting rapid Green Card attainment are also associated with lower earnings. The main principle behind a negative correlation is that Green Card issuances are the most generous for refugees, victims of crime, as well as immediate relatives. These types of immigrants arrive in the U.S. unprepared or are dependent on their U.S. family members. They also receive Green Cards quickly but will also have initial lower earnings due to their circumstances.

A negative correlation in the error terms can be explained by exogenous shocks that increase the speed of Green Card attainment as well as predict lower earnings.[24] Exogenous events such as the sudden escalation of political conflict, natural disasters, and economic crisis in a foreign country are denoted as τ_u and τ_ν in (3.19). This error structure continues to satisfy the assumptions to implement KV2010 if τ_u and τ_ν are independent of X_i and uncorrelated to f_i^*. If the correlation between τ_u and τ_ν is constant and negative, then the coefficient ρ_0 will be negative and constant.

[24]Negative correlations between error terms from triangular systems have also been found in other studies, and this paper utilizes similar error structures (Schroeder 2010; Klein & Vella 2009; Farré et al 2010). The error structures proposed in these papers explain the negative correlation in the error terms and still comply with necessary error structure assumptions to implement KV2010.

$$u_i = S_{ui}(X_i)f_i^*\tau_u \text{ and } \nu_i = S_{\nu i}(X_i)f_i^*\tau_\nu \tag{3.19}$$

There are several examples of exogenous shocks that are amenable to this setting. Consider the example where foreigners migrate to the U.S. due to an escalation of conflict in their home country.[25] Permanent Residency status will be granted to refugees and asylees from these countries quickly. In the case of refugees, special legislation is usually passed so these immigrants are not counted towards annual immigration quotas.

Refugees and asylees from conflict countries arrive suddenly and are unprepared to settle in the U.S. The lack of preparation would predict lower wage potential independent of their observed characteristics. In the last 10 years, large refugee waves have arrived from a variety of countries. Between 1993 and 2003, over 817,576 refugees and asylees newly arrived in the U.S., and over 1 million in total were granted legal status (U.S. DHS 2003).[26] In fiscal year 2003, refugees comprised 6 percent of the new immigrants.

The majority of immigrants to the U.S. are family members. In fiscal year 2003, 43 percent were immediate family members and 22 percent were family sponsored. Immediate family immigrants receive Green Cards relatively quicker than family-sponsored immigrants since this class is not subject to numerical limits. Family-based immigrants will be dependent on their U.S. relatives since they are likely to join relatives in the U.S. when conditions in their home country are deteriorating.

[25] Examples of countries with sudden escalation of conflict are Egypt, Libya, Tunisia, and Syria.

[26] The number of refugee admittances can be larger than newly arriving refugees because some individuals may adjust to refugee status. For example, if a country becomes politically unstable, a foreigner can petition to stay in the U.S. To illustrate, the efficiency of the refugee channel, consider the number of Indians who have received Permanent Residency status and are on waiting lists. Between 1993 and 2003, roughly half a million Indians received LPR status. In fiscal year 2010 alone, there were 336,719 Indians on the LPR waitlist.

They are also unlikely to immigrate to the U.S. if they are very well off in their home country.

For example, individuals who face sudden natural disasters, increasing political conflict, or economic crisis in their home country may wish to join relatives in the U.S. Examples of such events are the recent tsunami in Japan, political unrest in Egypt and Libya, famine in the horn of Africa, and the economic crisis in Greece. In these examples, foreigners may wish to leave suboptimal conditions in their home country, but may also be unprepared for life in the U.S.

The literature also finds supporting evidence that immigrants who arrived in the U.S. after experiencing poor conditions in their home country perform poorly compared to other immigrants. Osili and Paulson (2009) find that immigrants who experienced an economic crisis in their host country before arriving in the U.S. are 11 percent less likely to use banks compared to similar immigrants from the same country who did not experience a financial crisis. Borjas (1987) finds that immigrants from politically repressive countries earn 27 percent lower wages relative to immigrants from politically competitive countries. Cortes (2004) uses the 1980 and 1990 U.S. decennial census data and finds that refugee immigrants initially earn less upon arrival compared to economic immigrants.[27]

The conditions discussed above will create an additional moment condition and allow for identification in the absence of a suitable exclusion restriction.

Under heteroskedasticity, the relationship between the error terms in the wage and Permanent Residency equations can be written as $\epsilon_i = u_i - A(X_i)\nu_i$, where the function $A(X_i) = (cov(u_i\nu_i|X_i))/(var(\nu_i|X_i))$ is the correlation coefficient varying in X_i. Under the assumption of heteroskedasticity and a constant correlation coefficient, the

[27] Cortes (2004) cannot identify refugees individually; she groups countries by whether they are likely refugee or economic immigrant sending countries.

function $A(X_i)$ can be written in terms of the proposed error structures.[28] In (3.20), as shown by Klein and Vella (2010), if either $S_{ui}(X_i)$ or $S_{\nu i}(X_i)$ is non-constant (or both), and the functions are not identical, then the model is identified. Identification is possible through the non-linearity of the conditional second moments.

$$W_i = X_i\beta + \gamma P_i + \rho_0 \frac{S_{ui}(X_i)}{S_{\nu i}(X_i)}\hat{\nu}_i + \epsilon_i \tag{3.20}$$

Estimation is carried out in two steps. The first step is to estimate the Permanent Residency equation over the full sample of foreigners as a Tobit model. The second step is to estimate the wage equation (3.20) over the sub-sample of Permanent Residents (Green Card holders). An outline of this procedure is presented in Appendix 3.1.

The data used for the empirical exercise is discussed next, and discussion of the estimation results follow.

3.5 Data

The shortage of studies on immigrant outcomes by legal status is primarily due to the lack of data. Data sets sampling the U.S. population do not include questions about a foreigner's legal status.[29] In this paper, two data sets are combined to create a data set consisting of foreigners that can be identified as either Green Card holders or non-permanent foreigners.

The first data set is the 2003 New Immigrant Survey (NIS), a cross-sectional data set comprising of only Green Card holders. All respondents from the NIS are Green Card holders and this sample is combined with likely non-permanent foreigners from

[28] The function $A(X_i)$ is similar to $\rho = \sigma_{u\nu}/(\sigma_\nu^2)$ under homoskedasticity.

[29] These data sets include the U.S. decennial census data sets, Current Population Surveys, and American Community Surveys.

the 2003 American Community Survey (ACS). The legal status of foreigners in the ACS cannot be identified (i.e. undocumented, temporary, or Permanent), as is the case in many other data sets. Therefore, foreigners from the ACS who can be identified as Green Card holders through other characteristics are removed. Naturalized foreigners and non-naturalized foreigners with U.S. citizen spouses, heads of household, or parents are excluded from the sample. Foreigners with U.S. citizen immediate relatives are very likely to hold Permanent Residency. Immediate relatives of U.S. citizens are granted Permanent Residency through the Immediate Relative class, which is not subject to numerical limitations so their applications are not backlogged due to quota restrictions.[30] In the 2003 ACS, 60,414 foreigners were naturalized or born to U.S. parents abroad. An additional 10,192 foreigners had immediate relatives who were U.S. citizens. These types of foreigners are removed from the data and the remaining ACS sample is treated as the non-permanent foreigner sample.[31] The sample is also limited to individuals who are not in school, and are prime-aged workers between 25 and 45 years of age.

Table 3.2 lists summary statistics for this sample. The sample consists of 9,012 non-permanent foreigners and 709 Green Card holders. Mexicans are almost 40 percent of non-permanent foreigners but a very small proportion of Green Card holders. They are removed from the sample.[32] In the actual U.S. population, it should be noted that the number of Permanent Residents are comparable to non-permanent foreigners.

[30] These foreigners cannot be used in the Green Card sub-sample since there is no information on the date of their Permanent Residency issuance. They are discarded, and the LPR sub-sample is only from the New Immigrant Survey.

[31] The author notes that this sample may still include some Permanent Residents, but the inclusion of Permanent Residents into the non-Permanent sample is more likely to weaken instead of overstate any results.

[32] Mexicans comprise a large portion of the non-Permanent sample and their large presence may bias any general statements we wish to make about Permanent and non-Permanent foreigners.

However in the sample, the number of non-permanent foreigners largely outnumbers the number of Green Card holders due to the small scope of the NIS.

Earnings statistics confirm the predictions of the conceptual model. Permanent Residents earn more than non-permanent workers. The average hourly wages of Green Card holders is higher than for non-Green Card holders, \$22.19 versus \$15.64.[33] Since, two samples are combined, it is important to note that the sample of Green Card holders from the NIS is not a biased group of high-skilled foreigners. Naturalized foreigners in the 2003 ACS have even higher average wages than Green Card holders from the NIS. This observation supports the notion that wages and improved legal status are positively correlated.

Dates on Green Card and visa attainment are critical data that only the NIS provides for a random sample of Green Card holders. The explanatory variable of interest, P, is the proportion of a foreigner's U.S. residency that was spent with Permanent legal status. For ACS foreigners, P=0.[34] For newly arriving Permanent Residents, P=1. For adjustor Permanent Resident immigrants in the NIS survey, the duration in a temporary status is calculated by using the issuances date (month/year) of their temporary status Non-Immigrant Visa (NIV). The date they obtained Permanent Residency is also available from the NIS and the variable P can be easily computed. On average, Green Card holders in the NIS have spent 50 percent of their total U.S. residency with a Green Card. The average duration of a permanent foreigner holding LPR status is 4 months and their average total duration in the U.S. is 48 months. These short durations are driven by the sample of "new" Green Card holders who obtained their Green Card within the last one or two years. About a third of the

[33]I remove observations with very high or low wages (+/- three standard deviations from the mean)

[34]There may be some noise in this variable since there may be Green Card holders remaining in the ACS sample who could not be identified.

sample of Green Card holders are newly arriving immigrants. Since immigrants in the NIS received their Green Cards very recently and during a similar period, it is not useful to examine if the total time holding a Green Card affects earnings. Therefore, the proportion of time is the preferred choice.

Along some characteristics, the sample of Permanent and non-permanent foreigners are comparable. They are about the same average age, 34 years in both the ACS and NIS. Within the U.S., the regional distribution of foreigners in the ACS and NIS is also similar, with the most residing in California, New York, and the Atlantic states.

Differences between the two types of foreigners are found along the dimensions of education, region of birth, and occupation. There are more ACS foreigners from Latin and South America (31 percent) than permanent residents (12 percent). The sample of Green Card holders are also more educated than the ACS sample. Seventy-seven percent of LPRs have at least a college degree compared to 42 percent from the ACS sample. Green Card holders are more likely to work in high-skilled Mathematical and Computer related occupations, while ACS foreigners are more likely to work in low-skilled occupations.

3.6 Estimation Results

This section discusses results from estimation of the model outlined in (3.11) - (3.12). In the first stage Permanent Residency equation, the explanatory variable is the proportion of U.S. residency a foreigner held a Green Card (P); the variable has a range from 0 to 1. The explanatory variable in the second stage is the log of hourly wages in 2003. The variable P is the principle variable of interest and captures the significance of the speed of immigration on earnings.

The vector of exogenous explanatory variables in both equations includes the natural log of age and years in the U.S., and dummy variables denoting if the respondent is married, male, a high school, and or college graduate. A set of dummy variables is also included to control for a foreigner's region of birth, if they are from a large immigrant sending country, and occupation.[35] Dummy variables for U.S. regions are included in the wage equation but excluded from the Permanent Residency equation since Green Cards are allocated at a national level and there is no state-level quota allocation.

3.6.1 Permanent Residency Equation

Table 3.3 presents maximum likelihood coefficient estimates from estimating the Permanent Resident equation as a Tobit model with a lower threshold of zero. Foreigners with a value $P{=}0$ are considered to be non-permanent foreigners while $P{>}0$ are Green Card holders. The equation was estimated using maximum likelihood with index parameters in both the first and second moments.

Being married predicts a faster path to immigration and is consistent with immigration policy being generous in the Family and Immediate Relative channels. There is no annual quota for the Immediate Relative class, which would reduce queuing in this channel. High school and college graduates have shorter speeds to immigration. It is possible that these individuals held temporary student visas if they were educated in the U.S. which lengthened their temporary status in the U.S. Individuals from the Latin American also have slower paths to immigration. Even excluding Mexico, there are large immigrant sending countries from that region including El Salvador and the Dominican Republic.

[35]The excluded categories for occupation, U.S. state, and foreign region are Executive occupations, California, and Europe/Oceania/Canada.

A faster speed to immigration is also predicted in several occupation groups. Individuals in computer and mathematical occupations have faster speeds to immigration, but so do individuals in a number of low-skilled occupation groups. The rationale for faster speeds in Computer and Mathematical occupation groups is preferencing in the Employment class. In low-skill occupation groups, a faster speed may be due to a large farm worker visa program in the U.S. Once farm workers arrive in the U.S., they may be able to obtain a Green Card through marriage or other channels.

The procedure outlined in Klein and Vella (2010) requires heteroskedasticity in at least one equation. Recall the variance structure in the Permanent Residency equation is defined as $\exp(X_i\beta_\nu)$ (3.14). A test of the null hypothesis that $\beta_\nu = 0$ is an appropriate test to detect heteroskedasticity. I regress $\ln(\hat{\nu}_i^2)$ on the set of explanatory variables. The F-statistic of joint significance is 212.9, which imply that the explanatory variables are jointly significant and rejects $\beta_\nu = 0$.

Table 3.4 shows estimates of the second moment in the Permanent Residency equation. Since the index is estimated parametrically, variables with positive coefficients are associated with higher variance in the Permanent Residency residuals, and vice versa. Individuals with a college education have higher dispersion in Permanent Residency residuals. Education can result in faster Green Card attainment through the Employment class, yet highly educated immigrants from large countries will have slower speeds to immigration due to constraining country quotas. Individuals who are married have lower variance which is consistent with quicker processing of family and immediate relative Green Card applications.

Coefficients on foreign regions are not significant even though immigration policy should create variation in the speed to immigration between immigrations from large and small countries. One reason for the lack of significance is the inclusion of newly arriving Green Card holders. There is no way to know how long newly arriving Green

Card holders waited in queues before they were admitted. Excluding newly arriving Green Card holders in the estimation will yield significant coefficient estimates on foreign region variables and will be discussed shortly.

3.6.2 The Wage Equation

Table 3.5 shows results from estimating the wage equation. The wage equation is estimated including U.S. region dummies in addition to all the explanatory variables in the Permanent Residency equation.

The first three columns show OLS estimates, while the remaining columns show adjusted coefficient estimates obtained from including a control function (CF) following equation (3.22) in the Appendix. Standard errors for the wage equation estimated with the control function are calculated from 250 bootstraps with replacement. To obtain coefficients estimates using the control function approach, a non-linear least squares problem is minimized. After the minimization problem, the wage equation is re-estimated to separate the estimation of the coefficients in the wage equation and the conditional variance function (3.23). I discuss OLS estimates and Control Function estimates that are re-estimated.

For the majority of variables, OLS and Control Function coefficient estimates are similar. Males earn 28 percent more than females. Years in the U.S. and education significantly predict higher wages. Since the sample in the NIS is comprised of "new" immigrants, it is unlikely that education was acquired after Green Card attainment, especially since those enrolled in school are also excluded from the sample. Green Card holders from large immigrant sending countries have significantly higher earnings, consistent with evidence that immigrant networks positively influence earnings (Patel & Vella 2007).

The principle result is the significance of the coefficient on the share of time in the U.S. holding a Green Card (P). Among Green Card holders, those who experienced a faster speed to immigration earn significantly higher hourly wages than those with slower speeds. This is the case even after controlling for an individual's years in the U.S., occupation, and education. The OLS estimate for P is 0.17 and the control function estimate is 0.32; both coefficients are statistically significant.

In the sample of Green Card holders, the average proportion of time in the U.S. holding a Green Card is 0.5. Evaluated at the mean, the elasticity of earnings with respect to the speed of immigration is 0.16. An increase in the proportion by 10 percentage points predicts a 3 percent increase in wages. While the wage impact is small, remember that the NIS is comprised of new immigrants who recently arrived in the U.S. or adjusted to Permanent Residency within the last two years. The recent attainment of Green Cards may be a factor to the small coefficient estimate. At the same time, this is a merit of the data since it is important that Green Cards were received recently to minimize possible assimilation effects after legalization. In the literature, possession of host country-specific skills and language fluency has been found to positively impact the earnings of foreigners (Friedberg 2000; Chiswick & Miller 1995). Faster speeds to immigration can improve earnings in a similar manner by making a foreigner more attractive to employers and suited for the U.S. labor market.

The control function estimate for P is larger than the OLS estimate, which is consistent with a negative correlation coefficient. The correlation coefficient is -0.9 and statistically significant with a t-statistic of -2.53. A significantly negative correlation coefficient indicates that the speed to immigration is not exogenous. In this application, the error terms represent U.S. familiarity in both the Permanent Resident and wage equations. This implies that U.S. familiarity has opposing contribu-

tions to Green Card attainment and earnings. This may appear counterintuitive since it is reasonable to expect U.S. familiarity to positively aid Green Card attainment and earnings. However, this negative correlation can also be caused by a substantial number of Green Card holders who arrived as refugees or dependent family members. These types of immigrants arrive in the U.S. through channels that a fast path to Green Card attainment. However their dependence or unpreparedness is also associated with lower initial earnings. In OLS estimates, the residuals include the effect of disadvantaged or dependent immigrants receiving a Green Card quickly. Since these are also the types of immigrants who have lower initial earnings, the OLS coefficient on P is negatively biased.

In the sample, 40 percent of Green Card holders are from the refugee, family, or diversity class. A significant portion of respondents follow the scenario that predicts a negative correlation coefficient that was discussed earlier. A negative correlation coefficient is also consistent with related literature; Cortes (2004) finds that immigrants from refugee countries as opposed to economic countries have lower initial earnings but have higher earnings assimilation. There is debate as to whether immigrants are negatively (Borjas 1987) or positively selected (Chiswick 1999). The results of this paper show that selection of Green Card holders may be negative since current immigration policy is more generous to those seeking amnesty or family reunification.

Table 3.6 presents coefficient estimates of the heteroskedasticity index in the wage equation. A full set of exogenous variables is used to estimate the conditional variance. A number of coefficients are significant. Years of education predicts higher variance in the wage residuals. Green Card holders from the Middle East and Africa have significantly lower variance in earnings. Immigrants from this region are more likely to be refugees who recently arrived in the U.S., so it is likely they have consistently lower earnings. Age predicts higher variance in earnings which is also found in Farré

et al (2010). As individuals get older, acquisition of experience and education begins to vary and this results in higher variation in earnings.

The structure of heteroskedasticity in the wage equation must be different from the Permanent Residency equation. A comparison of coefficients confirms this assertion. For example, marriage predicts significantly lower variance in Permanent Residency equation residuals but is insignificant in predicting the dispersion in the wage residuals.

3.6.3 Adjustor Immigrants Only

As an additional exercise, newly arriving immigrants are excluded from the estimation. Adjusting and newly arriving immigrants may follow different selection mechanisms into immigration. Newly arriving immigrants are typically direct dependents and less likely to enter through the employment class. Thus, they have little U.S. familiarity. In 2003, 94 percent[36] of diversity immigrants and 82 percent[37] of family class immigrants were new arrivals. Adjustors have more experience in the U.S. and proactively apply for Green Cards. In 2003, adjustors outnumbered newly arriving immigrants two to one in the employment class. Since adjustors are based in the U.S. when applying for Green Cards, their U.S. familiarity should be beneficial towards Green Card attainment. In the U.S. population, about half of new immigrants are newly arriving and half are adjustors. In the sample for this paper, 18 percent of Green Card holders are newly arriving.

Estimates of the Permanent Residency conditional mean equation after newly arriving Green Card holders are removed from the sample are shown in Table 3.7. The coefficient on the large country dummy variable is now significant. Foreigners from

[36] 43,750 out of 46,347

[37] 129,782 out of 158,894

a large immigrant sending country have significantly slower paths to immigration, which is consistent with a binding country quota for large countries.

In the Permanent Residency conditional variance equation, there are also differences in coefficient estimates. The coefficient on the dummy variable "large country" is now positive and significant (Table 3.7). The large country dummy represents China, India, and the Philippines, countries where there are significant backlogs in Green Card applications due to annual country quotas. A positive coefficient implies immigrants from a large country are more heterogeneous in their speed to immigration. This is consistent with individuals from a large immigrant sending country waiting short times in the Immediate Relative class or facing extremely long queuing in other channels due to constraining country quotas. Immigrants from small countries have lower variance in Green Card attainment because the country quota is not binding and there will be no backlogs from this constraint.

Results excluding newly arriving Green Card holders also reveal interesting differences in the wage equation (Table 3.8).[38] The impact of the speed of Green Card attainment is more positive and still significant (0.43 excluding newly arriving vs. 0.32 including newly arriving). The average duration of U.S. residency with a Green Card for adjustors is less at 0.39, compared to 0.5 under the full sample. Evaluated at the mean, the elasticity of earnings with respect to the speed of immigration is 0.17, which is almost identical to the elasticity of 0.16 calculated using the full immigrant sample.

The correlation coefficient in this estimation is -0.81, which is slightly less negative and is now insignificant. The exclusion of newly arriving immigrants primarily

[38]Estimates of the conditional variances are shown in Table 3.9. Heteroskedasticity is not captured well in the wage equation, however it is empirically only necessary in one equation to implement the identification strategy.

excludes family reunification immigrants that may be driving strong negative selection. The insignificance of the correlation coefficient suggests the mechanisms adjustors face in receiving Green Cards is driven by immigration policy issuing Green Cards in a rather exogenous manner. There is some indirect ability sorting in preference ordering in the Employment class, however these groupings are still very general. Moreover, there is no preferential processing within preference groups; immigrants are processed on a first-come first-served basis. The U.S. preference-based immigration system is a divergence from point-based immigration systems in Canada and Australia. In these countries, immigrants are given preference based on points awarded for characteristics such as age, language ability, education, pre-arranged employment with employers, and certifications.

While the results show some evidence of negative selection, positive selection is ruled out. This does not imply the U.S. admits low quality immigrants, but that the U.S. readily admits immigrants from assorted backgrounds. This stance differs from systems in Canada and Australia where there are clear attempts to attract the best immigrants. From one respect, this is a good indication that the U.S. immigration system allows individuals from a variety of circumstances to be admitted, and that the U.S. is truly a country of immigrants. This also adheres to the intention of U.S. immigration policy to prevent any one type of immigrant from dominating the immigrant flow. On the other hand, this does raise concerns that some talented foreigners are facing a slow path to immigration. Legislation proposals such as the STAPLE Act deserves serious re-considerations. The STAPLE Act would grant all non-immigrant PhDs in science, technology, engineering, and mathematics a Green Card as well as remove numerical limits on H1-B temporary work visas.

3.7 Conclusion

This paper examined the economic significance of the speed to immigration. While the literature has uncovered positive effects from legalization itself, it has not effectively discussed if the speed to immigration significantly impacts the earnings of Green Card holders as well. Among new Green Card holders, a faster path to immigration does predict significantly higher earnings. The mechanism for the positive impact can be associated with labor market benefits available to Green Card holders, and labor market disadvantages faced by non-permanent foreigners. Foreigners holding a temporary status for a prolonged duration of their U.S. residency are subject to poor employment opportunities, low wage bargaining power, and discrimination. These negative histories can carry over and affect employment outcomes even after an individual becomes a Permanent Resident. This scarring is relatable to scarring from unemployment spells, job displacement, and part-time work.

A number of policy makers and economists remark that the immigration system is "broken" (Urban Institute 2011). Politicians supporting immigration reform argue that the immigration system has failed immigrants. Millions of foreigners reside in the U.S. in a non-permanent status that restricts their access to the opportunities that attracted them to the U.S. in the first place. The last major legislation passed outlining immigration quotas in the employment and family immigration classes was the Immigration Act of 1990. Since then, legislation proposing to legalize additional groups of foreigners have been stalled or failed to pass.

The concern about brain-drain and loss of American-trained foreign talent is a legitimate one. Some evidence of negative selection was found which is consistent with preferential treatment of family reunification and humanitarian migration, however positive selection is ruled out. It is commendable that the U.S. immigration system

admits foreigners with a focus on family reunification and humanitarian relief, especially since countries like Canada and Australia give preference to skilled immigrants. For example, Canada targeted to admit double the number of economic immigrants than family immigrants in fiscal year 2009.[39] Their immigration goals are opposite to those in the U.S. where two-thirds of immigrants are family based. Skilled foreigners may face a longer path to immigration in the U.S. This possibility reinforces the importance of proposals such as the STAPLE Act which aims to retain foreign talent and prevents them from relocating to other countries where preference is given to skilled foreigners. Retaining skilled immigrants may be a weakness of the U.S. immigration system when compared to point-based systems in other countries that target skilled immigrants.

The U.S. is often seen as a haven for migrants escaping conflict or looking for a better life. However, entry into this country is not sufficient to enjoy all the benefits and freedoms that are possible. Permanent legal status is an important condition. In terms of policy responses aimed to improve immigrant assimilation and welfare, these results support efficient processing of Green Card applications, and a concerted effort to retain highly-skilled foreigners.[40] Significantly increasing the annual quota of Green Card issuances is a more difficult policy amendment to achieve, politically and implementation-wise.

[39] In fiscal year 2009, Canada intended to admit between 240,000 and 265,000 new immigrants, including at least 140,300 immigrants in the economic category, 68,000 in the family category, 23,600 protected persons and 8,100 in the humanitarian and compassionate category (CIC 2008).

[40] Efficient processing of Permanent Residency applications is important because the number of backlogged applications is significant, especially for applicants from large sending countries such as Mexico, Philippines, India, and China (USDS a-f).

Appendix 3.1: Summary of Estimation Procedure

Klein and Vella (2010) outline a procedure for identification in triangular models without exclusion restrictions. The implementation procedure employs non-parametric estimation techniques that are computationally burdensome. This paper follows a parametric approach outlined in Farré et al (2010) and is summarized below.

(1) In the first stage, the Permanent Residency equation is estimated as a Tobit model with a lower threshold of zero, using maximum likelihood. The structure of the error variance is specified as $\exp(X_{\nu i}\beta_\nu)$, where X_i includes a constant. MLE yields index parameters for the mean ($\hat{\pi}$) and variance ($\hat{\beta}_\nu$), and Tobit residuals are computed. For the sub-sample of Permanent Residents ($P > 0$), the Tobit residuals are $\hat{\nu}_i = P_i - X_i\hat{\pi}$. The conditional second moment $\hat{S}_{\nu i}$ can be estimated as $\sqrt{\exp(X_{\nu i}\hat{\beta}_\nu)}$.

(2) The second step is to estimate the wage equation (3.20) over the sub-sample of Permanent Residents ($P > 0$). Tobit residuals and estimates of the conditional second moments in the Permanent Residency equation are taken from the first step estimation. The structure of the error variance in the wage equation follows the same parametric form as in the Permanent Residency equation.

$$S_{ui} = \sqrt{\exp(X_{ui}\hat{\beta}_u)} \tag{3.21}$$

The wage equation is estimated using non-linear least squares. Final estimates of $(\beta, \gamma, \beta_u, \rho_0)$ is the solution to the minimization of (3.22) and obtained over an iterative procedure.

$$\min_{\beta,\gamma,\beta_u,\rho_0} \sum \left(W_i - X_i\beta - \gamma P_i - \rho_0 \frac{\sqrt{\exp(X_{ui}\hat{\beta}_u)}}{\hat{S}_{\nu i}} \hat{\nu}_i \right)^2 \tag{3.22}$$

The minimization of (3.22) yields consistent estimates. However, I also re-estimate the wage equation to separate the estimation of the coefficients in the wage equation from the estimation of S_u. The final estimates from the minimization of (3.22) are denoted as $(\beta_f, \delta_f, \beta_{uf}, \rho_{0f})$. Wage residuals calculated from these final parameter estimates are denoted as u_{if}. Using these residuals, the conditional second moments of the wage equation, $\hat{S}_u(u_{if})$, can be estimated via a regression of $\ln(\hat{u}_i^2 f)$ on the dependent variables. The parameters from the regression is β_{uf} and $\hat{S}_u(u_{if}) = \sqrt{\exp(X_{ui}\hat{\beta}_{uf})}$. Using $\hat{S}_u(u_{if})$, the wage equation can be re-estimated as

$$W_i = X_i\beta + \gamma P_i + \rho_0 \frac{\hat{S}_u(u_{if})}{\hat{S}_\nu} \hat{\nu}_i + \epsilon_i \tag{3.23}$$

Estimates of the coefficients and standard errors are obtained from 250 bootstrap replications with random replacement.

Appendix 3.2: Figure and Tables

Figure 3.1. Legal Status

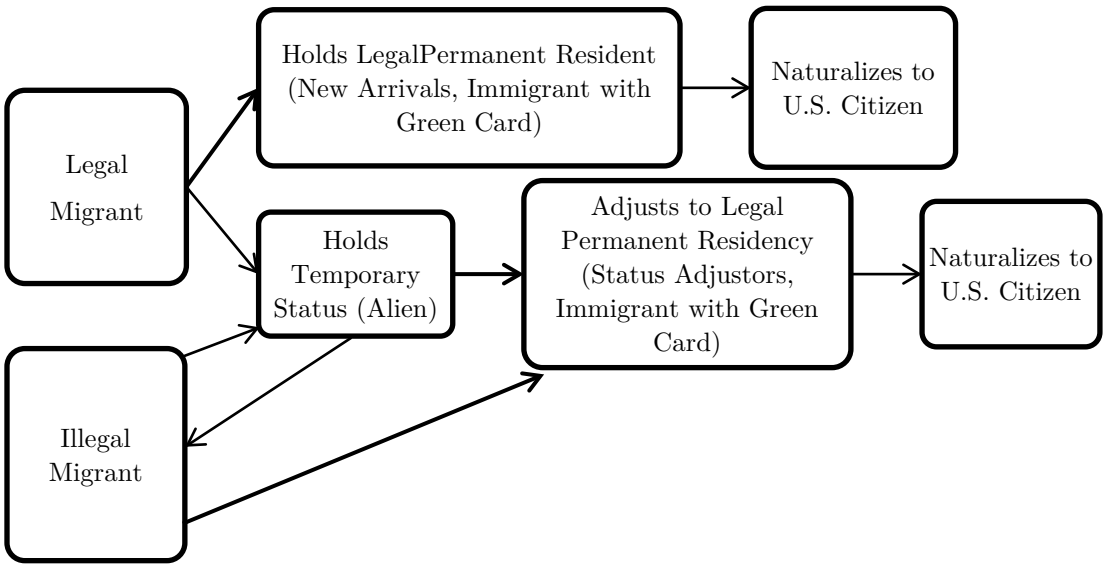

Table 3.1. U.S. Immigration Legislation that supports Legalization

Legislation	Proposed Population to Legalize	Status of Legislation
Development, Relief and Education for Alien Minors (DREAM) Act (2001-2011)	Legalize undocumented individuals who arrived in the U.S. as young children.	Active
Comprehensive Immigration Reform Act of 2006, 2007	Provide path to citizenship for 12-20 million illegal immigrants.	Failed to Pass
Stopping Trained in America Ph.D.s From Leaving the Economy (STAPLE) Act (2009)	PhD graduates in Science, Technology, Engineering, and Mathematics fields.	Failed to Pass

Table 3.2. Sample Statistics

	ACS 2003 (Non-Permanent)		NIS 2003 (Permanent)	
	(mean)	(sd)	(mean)	(sd)
log(hourly wages)	2.75	0.72	2.98	0.68
% duration in US holding LPR status			50.0%	45.5%
High School	36.6%	48.2%	11.2%	34.7%
College	41.5%	49.3%	71.1%	49.9%
Married	67.8%	46.7%	77.2%	44.0%
Years in U.S.	7.05	2.34	5.71	2.05
Age	34.67	1.18	34.23	1.17
Male	58.8%	49.2%	63.4%	48.5%
Asia	32.8%	46.9%	47.8%	48.0%
Latin America	30.9%	46.2%	12.3%	46.2%
Middle East/Africa	7.2%	25.9%	10.7%	27.4%
Large immigrant sending country	18.9%	39.2%	33.2%	43.2%
Executive, Financial Services	13.3%	34.0%	15.4%	32.1%
Computer and Mathematical	9.5%	29.4%	24.9%	38.1%
Architecture and Engineering	7.5%	26.4%	9.3%	25.6%
Education Training and Library	4.4%	20.6%	4.0%	17.3%
Arts Sports & Media	2.1%	14.5%	1.8%	11.3%
Sales	8.2%	27.4%	7.0%	25.5%
Office and Administrative Support	8.8%	28.3%	6.4%	25.3%
Community, Legal, Protective Services	2.0%	14.2%	2.9%	15.6%
Healthcare	7.6%	26.5%	7.5%	25.6%
Construction, Maintenance, Production	21.8%	41.3%	10.9%	39.7%
Low Skill Miscellaneous	14.2%	34.9%	9.8%	36.6%
California	17.5%	38.0%	15.1%	41.6%
Florida	9.9%	29.8%	7.0%	25.9%
Illinois	3.5%	18.4%	5.1%	21.4%
New Jersey	6.1%	24.0%	9.8%	27.7%
New York	11.5%	31.9%	11.3%	30.4%
Texas	4.1%	19.9%	4.8%	23.4%
New England	8.1%	27.3%	11.0%	29.4%
West North Central	4.5%	20.7%	4.6%	17.9%
Mountains	4.6%	21.0%	2.8%	18.7%
Pacific	4.7%	21.2%	5.0%	19.8%
Middle and South Atlantic	13.7%	34.4%	14.8%	34.2%
East Central	11.6%	32.1%	8.6%	25.7%
N	9047		856	

Table 3.3. Dependent Variable: (P) % of U.S. Residency with Permanent Status

First Stage, Conditional Mean

	coef.	s.e.	t-stat
Constant	0.71	0.80	0.89
High School	-0.51	0.13	-4.09
College	-0.26	0.10	-2.66
Married	0.36	0.10	3.50
Age	-0.59	0.22	-2.62
Male	-0.02	0.07	-0.26
Asia	-0.10	0.12	-0.88
Latin America	-0.44	0.14	-3.25
Middle East/Africa	0.22	0.11	2.05
Large immigrant sending country	0.03	0.12	0.27
Computer and Mathematical	0.42	0.15	2.74
Architecture and Engineering	-0.05	0.21	-0.24
Education Training and Library	-0.33	0.31	-1.08
Arts Sports & Media	-0.22	0.41	-0.54
Sales	0.34	0.17	2.01
Office and Administrative Support	0.36	0.18	1.97
Community, Legal, Protective Services	0.28	0.27	1.04
Healthcare	0.22	0.19	1.17
Construction, Maintenance, Production	0.40	0.16	2.56
Low Skill Misc	0.50	0.16	3.15
Observations	9903		
Pseudo R-squared	0.08		
F-statistic on residuals	212.99		
	(0.000)		

Notes: Sample includes newly arriving and adjustor Green Card holders. Estimates obtained from Tobit MLE with a lower threshold of zero. The error variance structure is specified as exponential heteroskedastic.

Table 3.4. Dependent Variable: (P) % of U.S. Residency with Permanent Status

First Stage, Conditional Variance

	coef.	s.e.	t-stat
Constant	-2.26	1.19	-1.91
High School	0.23	0.19	1.24
College	0.73	0.16	4.72
Married	-0.40	0.13	-3.02
Age	0.59	0.33	1.80
Male	0.06	0.11	0.52
Asia	0.12	0.16	0.72
Latin America	0.21	0.18	1.18
Middle East/Africa	-0.16	0.19	-0.88
Large immigrant sending country	0.07	0.17	0.42
Computer and Mathematical	-0.09	0.19	-0.50
Architecture and Engineering	-0.05	0.25	-0.19
Education Training and Library	0.20	0.32	0.61
Arts Sports & Media	0.09	0.43	0.21
Sales	-0.46	0.23	-1.96
Office and Administrative Support	-0.61	0.25	-2.42
Community, Legal, Protective Services	-0.09	0.35	-0.26
Healthcare	-0.36	0.25	-1.47
Construction, Maintenance, Production	-0.68	0.21	-3.19
Low Skill Misc	-0.71	0.22	-3.17

Notes: Sample includes newly arriving and adjustor Green Card holders. Estimates obtained from Tobit MLE with a lower threshold of zero. The error variance structure is specified as exponential heteroskedastic.

Table 3.5. Dependent Variable: ln(wage)

Second Stage, Conditional Mean

	OLS			CF		
	coef.	s.e.	t-stat	coef.	s.e.	t-stat
Constant	1.89	0.33	5.65	1.90	0.56	3.36
High School	-0.02	0.05	-0.29	-0.11	0.16	-0.70
College	0.31	0.06	4.98	0.35	0.13	2.67
Married	0.01	0.04	0.32	0.05	0.08	0.58
Age	0.21	0.10	2.13	0.09	0.18	0.50
Years in U.S.	0.13	0.03	4.82	0.14	0.05	2.94
Male	0.28	0.03	8.92	0.31	0.08	3.91
Asia	-0.20	0.05	-4.01	-0.23	0.09	-2.67
Latin America	-0.16	0.06	-2.85	-0.27	0.12	-2.16
Middle East/Africa	-0.15	0.06	-2.67	-0.11	0.11	-1.04
Large immigrant sending country	0.14	0.05	2.54	0.15	0.10	1.57
Computer and Mathematical	0.05	0.05	1.16	0.15	0.11	1.37
Architecture and Engineering	-0.16	0.06	-2.68	-0.15	0.11	-1.36
Education Training and Library	-0.40	0.08	-4.94	-0.49	0.20	-2.41
Arts Sports & Media	-0.35	0.11	-3.04	-0.37	0.19	-1.97
Sales	-0.65	0.10	-6.81	-0.56	0.17	-3.34
Office and Administrative Support	-0.63	0.07	-8.41	-0.61	0.12	-5.13
Community, Legal, Protective Services	-0.93	0.12	-7.69	-0.99	0.19	-5.10
Healthcare	-0.19	0.08	-2.43	-0.07	0.15	-0.48
Construction, Maintenance, Production	-0.68	0.08	-8.98	-0.72	0.20	-3.63
Low Skill Misc	-0.74	0.08	-9.52	-0.78	0.16	-4.77
Florida	-0.10	0.08	-1.23	-0.06	0.12	-0.54
Illinois	0.11	0.08	1.40	0.12	0.10	1.12
New Jersey	0.06	0.06	0.97	0.04	0.09	0.48
New York	-0.01	0.07	-0.09	-0.05	0.11	-0.42
Texas	0.04	0.08	0.50	0.01	0.12	0.10
New England	0.08	0.05	1.53	0.06	0.09	0.63
West North Central	0.18	0.08	2.40	0.11	0.12	0.93
Mountains	-0.01	0.10	-0.07	-0.03	0.16	-0.19
Pacific	0.03	0.07	0.47	0.01	0.15	0.04
Middle and South Atlantic	0.01	0.06	0.13	0.00	0.08	-0.05
East Central	0.00	0.07	0.01	-0.10	0.19	-0.52
P (time with Green Card)	0.17	0.04	4.54	0.32	0.08	4.19
Control Function				-0.95	0.38	-2.53
Observations	856					
R-squared	0.63					
Breush-Pagan Test	8.42					
	(0.0037)					
White Test	495.04					
	(0.0022)					

Notes: Sample includes newly arriving and adjustor Green Card holders. Standard errors for control function estimates are calculated from 250 bootstraps. Excluded Occupation: Management, Executive, Financial Service. Excluded U.S. region: California. Excluded foreign region: Europe/Oceania

Table 3.6. Dependent Variable: ln(wage)

Second Stage, Conditional Variance

	coef.	s.e.	t-stat
Constant	-3.67	0.46	-8.03
High School	0.42	0.50	0.85
College	0.80	0.78	1.02
Married	-0.30	0.37	-0.81
Age	1.04	0.26	3.97
Years in U.S.	-0.03	0.24	-0.11
Male	-0.25	0.41	-0.60
Asia	0.15	0.41	0.37
Latin America	0.00	0.50	-0.01
Middle East/Africa	-0.27	0.44	-0.61
Large immigrant sending country	0.52	0.52	0.99
Computer and Mathematical	-0.42	0.46	-0.90
Architecture and Engineering	0.13	0.40	0.32
Education Training and Library	0.32	0.48	0.67
Arts Sports & Media	0.21	0.38	0.55
Sales	-1.10	0.86	-1.28
Office and Administrative Support	-0.39	0.42	-0.94
Community, Legal, Protective Services	-0.39	0.58	-0.68
Healthcare	-0.43	1.00	-0.43
Construction, Maintenance, Production	-0.75	0.58	-1.28
Low Skill Misc	-0.74	0.56	-1.31
Florida	-0.10	0.51	-0.20
Illinois	-0.19	0.45	-0.44
New Jersey	-0.10	0.42	-0.25
New York	0.08	0.40	0.20
Texas	0.02	0.41	0.06
New England	0.09	0.40	0.23
West North Central	0.02	0.35	0.04
Mountains	0.32	0.42	0.77
Pacific	0.03	0.38	0.09
Middle and South Atlantic	-0.10	0.30	-0.33
East Central	0.39	0.39	0.99

Notes: Sample includes newly arriving and adjustor Green Card holders. Standard errors are calculated from 250 bootstraps.

Table 3.7. Dependent Variable: (P) % of U.S. Residency with Permanent Status (Adjustors Immigrants Only)

First Stage, Conditional Mean

	coef.	s.e.	t-stat
Constant	0.53	0.54	0.99
High School	-0.26	0.08	-3.16
College	-0.46	0.07	-6.47
Married	0.25	0.07	3.45
Age	-0.34	0.16	-2.16
Male	-0.21	0.05	-4.19
Large immigrant sending country	-0.19	0.07	-2.63
Observations	9751		
Pseudo R-squared	0.08		
F- statistic on residuals	577.2		
	(0.0000)		

First Stage, Conditional Variance

	coef.	s.e.	t-stat
Constant	-3.68	1.18	-3.12
High School	0.27	0.20	1.36
College	1.57	0.16	9.85
Married	-0.30	0.13	-2.27
Age	0.46	0.34	1.37
Male	0.55	0.11	5.05
Large immigrant sending country	0.69	0.12	5.60

Notes: Sample excludes newly arriving Green Card holders. Estimates obtained from Tobit MLE with a lower threshold of zero. The error variance structure is specified as exponential heteroskedastic.

Table 3.8. Dependent Variable: ln(wage) (Adjustors Immigrants Only)

Second Stage, Conditional Mean

	OLS			CF		
	coef.	s.e.	t-stat	coef.	s.e.	t-stat
Constant	1.97	0.36	5.50	2.21	0.68	3.23
High School	-0.02	0.06	-0.40	-0.06	0.10	-0.61
College	0.31	0.06	4.99	0.23	0.21	1.12
Married	0.01	0.04	0.24	0.06	0.09	0.73
Age	0.16	0.10	1.49	0.02	0.20	0.09
Years in U.S.	0.15	0.03	5.22	0.15	0.06	2.55
Male	0.24	0.03	7.03	0.20	0.07	2.89
Asia	-0.14	0.06	-2.59	-0.17	0.10	-1.62
Latin America	-0.14	0.06	-2.45	-0.14	0.11	-1.25
Middle East/Africa	-0.10	0.06	-1.62	-0.10	0.12	-0.90
Large immigrant sending country	0.11	0.06	1.89	-0.02	0.15	-0.14
Computer and Mathematical	0.07	0.06	1.22	0.14	0.11	1.21
Architecture and Engineering	-0.12	0.06	-1.94	-0.12	0.12	-0.94
Education Training and Library	-0.40	0.09	-4.47	-0.40	0.16	-2.47
Arts Sports & Media	-0.15	0.13	-1.14	-0.14	0.20	-0.68
Sales	-0.57	0.11	-5.15	-0.48	0.18	-2.76
Office and Administrative Support	-0.56	0.09	-6.46	-0.51	0.13	-3.80
Community, Legal, Protective Services	-0.87	0.13	-6.86	-0.82	0.20	-4.06
Healthcare	-0.20	0.09	-2.18	-0.18	0.14	-1.29
Construction, Maintenance, Production	-0.54	0.08	-7.08	-0.49	0.14	-3.52
Low Skill Misc	-0.66	0.08	-7.83	-0.62	0.17	-3.56
Florida	-0.12	0.08	-1.50	-0.16	0.11	-1.45
Illinois	0.09	0.09	1.00	0.04	0.16	0.23
New Jersey	0.02	0.07	0.27	0.04	0.12	0.31
New York	0.01	0.08	0.15	-0.02	0.11	-0.20
Texas	0.12	0.10	1.25	0.12	0.14	0.85
New England	0.05	0.06	0.84	0.06	0.10	0.58
West North Central	0.17	0.08	2.06	0.13	0.15	0.86
Mountains	0.02	0.14	0.13	-0.12	0.28	-0.41
Pacific	0.07	0.08	0.94	0.03	0.15	0.22
Middle and South Atlantic	-0.04	0.06	-0.62	-0.06	0.10	-0.61
East Central	0.06	0.07	0.89	0.01	0.14	0.06
P (time with Green Card)	**0.26**	**0.05**	**5.19**	**0.43**	**0.11**	**4.06**
Control Function				**-0.81**	**0.44**	**-1.86**
Observations	702					
R-squared	0.64					
Breush-Pagan Test	5.86					
	(0.015)					
White Test	494.39					
	(0.001)					

Notes: Sample excludes newly arriving Green Card holders. Standard errors for control function estimates are calculated from 250 bootstraps. Excluded Occupation: Management, Executive, Financial Service. Excluded U.S. region: California. Excluded foreign region: Europe/Oceania.

Table 3.9. Dependent Variable: ln(wage) (Adjustors Immigrants Only)

Second Stage, Conditional Variance

	coef.	s.e.	t-stat
Constant	-3.50	2.15	-1.63
High School	0.24	0.50	0.47
College	1.17	0.93	1.26
Married	-0.10	0.30	-0.35
Age	0.68	0.55	1.23
Years in U.S.	0.04	0.19	0.24
Male	0.08	0.25	0.33
Asia	0.10	0.39	0.26
Latin America	-0.35	0.40	-0.88
Middle East/Africa	0.01	0.30	0.03
Large immigrant sending country	0.61	0.66	0.92
Computer and Mathematical	-0.21	0.31	-0.67
Architecture and Engineering	0.04	0.28	0.15
Education Training and Library	-0.05	0.44	-0.11
Arts Sports & Media	0.18	0.31	0.57
Sales	-0.31	0.54	-0.56
Office and Administrative Support	-0.12	0.30	-0.39
Community, Legal, Protective Services	-0.55	0.59	-0.93
Healthcare	0.00	0.33	-0.01
Construction, Maintenance, Production	-0.26	0.28	-0.91
Low Skill Misc	-0.46	0.40	-1.14
Florida	0.05	0.23	0.21
Illinois	-0.16	0.32	-0.50
New Jersey	-0.28	0.28	-1.00
New York	0.02	0.25	0.09
Texas	-0.07	0.34	-0.22
New England	-0.12	0.23	-0.50
West North Central	-0.08	0.25	-0.33
Mountains	0.32	0.44	0.73
Pacific	0.09	0.21	0.41
Middle and South Atlantic	-0.02	0.26	-0.07
East Central	0.00	0.26	0.01

Notes: Sample excludes newly arriving Green Card holders. Standard errors are calculated from 250 bootstraps.

Table 3.10. Annual Numerical Limits on Permanent Resident Admittance

	Persons Qualified	Annual Limit
Family Class		**226,000**
First Preference	Unmarried sons and/or daughters (i.e., offspring aged 21 or older) of U.S. citizens	23,400 plus any numbers unused by the fourth preference
Second Preference	Spouses and children of legal Permanent Residents, and unmarried sons and/or daughters of legal Permanent Residents	114,200 plus any numbers not required for the first preference; 23,400 plus any numbers not required by the first and second preferences
Third Preference	Married sons and daughters of U.S. citizens	65,000 plus any numbers not required by the first three classes
Fourth Preference	Siblings of U.S. citizens who are at least 21 years of age	
Employment Class		**140,000**
First Preference	Priority workers (persons with extraordinary ability, outstanding professors and researchers, and certain multinational executives and managers)	28.6% of the employment-based total, plus any visa numbers not required by the fourth and fifth preferences
Second Preference	Members of the professions with advanced degrees and persons of exceptional ability	28.6%, plus any numbers unused by the first preference
Third Preference	Skilled workers, professionals (without advanced degrees), and other (i.e., unskilled) workers	28.6%, plus any numbers unused by the first two preferences; 10,000 limit for unskilled workers
Fourth Preference	Special immigrants (other than returning residents and certain former U.S. Citizens)	7.1%, of which not more than 5,000 numbers may be allocated for certain religious workers
Fifth Preference	Employment creators, i.e., aliens whose investments will create employment for at least 10 U.S. citizens and/or legal Permanent Residents	7.1%, of which not less than 3,000 are reserved for investors in a targeted rural or high-unemployment area
Diversity Class		**50,000**
Immediate Relative Class		**No limit**

Source: U.S. Department of State. "Appendix A. Provisions of the Law and Numerical Limitations on Immigrant Visas" (http://travel.state.gov/pdf/FY2000%20app%20A.pdf)

Appendix: Data Sources

[1] US DHS, Legal Permanent Resident data set, is provided by ICPSR as "Interuniversity Consortium for Political and Social Research", University of Michigan. These files were collected by Hamutal Bernstein and B. Lindsay Lowell through Michael Hoefer at Department of Homeland Security's Office of Immigration Statistics.
[2] 2003 American Community Survey (ACS): ipums.org
[3] 2003 National Immigrant Survey (NIS) by Princeton University

Data Sets from IPUMS-USA and IPUMS-International (http://international.ipums.org)

[4] Argentina 2001, 10 percent Census
[5] Bolivia 2001, 10 percent Census
[6] Brazil 2000, 6 percent Census
[7] Canada 2001, 2.7 percent Census
[8] Cambodia 2008, 10 percent Census
[9] Chile 2002, 10 percent Census
[10] Colombia 2005, 10 percent Census
[11] Costa Rica 2000, 10 percent Census
[12] Cuba 2002, 10 percent Census
[13] Greece 2001, 10 percent Census
[14] Ireland 2002, 10 percent Census
[15] Kyrgyz Republic 1999, 10 percent Census
[16] Malawi 2008, 10 percent Census
[17] Malaysia 2000, 2 percent Census
[18] Mexico 2000, 10.6 percent Census
[19] Mongolia 2000, 10 percent Census
[20] Nepal 2001, 11.35 percent Census
[21] Peru 2007, 10 percent Census
[22] Philippines 2000, 10 percent Census
[23] Portugal 2001, 5 percent Census
[24] Romania 2002, 10 percent Census
[25] South Africa 2001, 10 percent Census
[26] Spain 2001, 5 percent Census
[27] Thailand 2000, 1 percent Census
[28] United States 1990 & 2000, 5 percent Census
[29] Venezuela 2001, 10 percent Census

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ABS (Australian Bureau of Statistics). (2008). "3105.0.65.001 Australian Historical Population Statistics, 2008", Table 9.22, Table 9.23.

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