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Economic Assimilation for Immigrants in Chile: An Employment Convergence Analysis

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ECONOMIC ASSIMILATION FOR IMMIGRANTS IN CHILE: AN EMPLOYMENT CONVERGENCE ANALYSIS

by

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Abstract

Blending migration studies and labor economics, this thesis explores the economic implications of immigrant assimilation in Chile by using probit models to test for employment convergence and labor market convergence between immigrant groups and native Chileans. Using census data from 1992 and 2002, we find significant differences in the employment and labor force participation rates for these demographic groups, affected by the immigrants' gender, decade of arrival, and country of origin. We see evidence of the nascent care industry in Chile, as well as the implications of the Chilean visa system and employment contracts. Additionally, we see employment probabilities fall for all immigrants prior to the 1993-2002 cohort, due to differences in demographic characteristics and potentially due to labor market discrimination as well. Therefore, we recommend reevaluating and updating the existing Chilean migration legislation to adapt to changing trends, as well as further exploring the immigrant experience and their economic integration in Latin American countries specifically.

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I. Introduction

In an increasingly globalized world, the study of migration patterns has become highly relevant across all disciplines, especially in the field of labor economics. As the 2016 presidential election approaches in the United States, immigration reform has become a hot topic, and there is a growing body of literature surrounding the effects of immigrants—specifically of Mexican immigrants—on the domestic labor market, especially as seen in major U.S. cities and border states like California and Arizona. However, the effects of migration on labor markets have remained relatively unstudied in other parts of the world, specifically in developing countries. While labor and immigration economists have analyzed topics such as native worker displacement, the effects of ethnic enclaves on labor market integration, and the immigrant-native worker wage gap in the U.S., the economic implications of migration remain largely unexplored in Latin American countries with similar patterns of adjacent country migration. Although most of Central and South America have traditionally been countries of emigrants, with more natives leaving than foreigners entering, these migratory patterns are changing in Latin American countries like Argentina and Chile. Therefore, this thesis will explore the economic implications of immigrant assimilation in Chile by studying employment patterns to see if immigrant employment trends converge or not with those of native Chileans at the turn of the 21st century, using census data from 1992 and 2002. Moreover, we will examine the effects of racism, xenophobia, and sexism as well as education and intellectual capital attainment on economic integration as we test for employment convergence, or lack thereof.

Sociologists, anthropologists, historians, and political scientists have studied a wide range of topics pertaining to immigration in Chile—especially in the capital city Santiago—such as the feminization of migration in recent years and discrimination rooted in xenophobia and racism. However, economists have not yet looked at how these trends affect the labor market in Chile specifically. In this thesis, we further explore questions of race and gender as they influence the economics of immigration among immigrants in Chile, especially Peruvian and other South American immigrants, through regression analysis and data comparisons across different immigrant cohorts.

In the past 25 years, migration in Chile has changed dramatically. In contrast to the mass waves of emigrants who went into exile during Pinochet's dictatorship in the 1970s and 1980s, the 1990s brought not only the return of democracy to Chile but also increased economic stability and prosperity. For this reason, Chile has begun to attract immigrants once again, especially from neighboring South American countries like Peru and Bolivia. These recent and rapid changes in migration trends make Chile a uniquely interesting case for analyzing the immigrant experience in a developing country.

Although measured differently by different disciplines, immigrant assimilation undeniably affects both the labor market and other social structures and institutions. Those who argue in favor of immigrant assimilation cite that immigrants need to adapt to a new culture and potentially to a new language in order to maximize productivity and produce net benefits in the host society. If immigrants cannot integrate effectively both inside and outside the workplace, they may place a burden on welfare systems. Immigrants may have different pre-existing capital than a country's native population,

and their skill acquisition once in the host country is also of interest for maximizing capital. Therefore, this thesis analyzes both U.S. economic literature surrounding immigrant assimilation as it pertains to economic integration as well as Chilean literature about immigration patterns, in addition to applying existing research models to Chilean data.

By examining existing literature on employment convergence, wage convergence, and U.S.-based economic assimilation studies, the subsequent literature review provides background and support for following theory and data analysis. Additionally, we discuss past and present migratory politics and policies in Chile to further contextualize our work, looking closely at the relatively recent surge of Peruvian immigrants in Chile. We then examine our economic theories in more detail before introducing our data set and probit models. We find significant differences in the employment and labor force participation rates for different demographic groups, affected by immigrants' gender, decade of arrival, and country of origin, and we therefore make policy recommendations and recommendations for future research.

II. Literature Review

While limited literature exists regarding the economic implications of immigrant assimilation in Chile, ample research has discussed how immigration affects the labor market in the United States and other Western countries. Additionally, only a few studies have examined employment convergence, which analyzes employment rates of certain groups to see if they converge with one another over time or if gaps exist and/or persist. More literature exists regarding wage convergence, referring to similar convergence studies except for earnings rather than employment rates; therefore, our

review of existing literature will discuss both employment and wage convergence in detail. In order to fuse all of these topics coherently in subsequent sections, we will now examine the existing research for each of these specific areas.

Chiswick (1978), one of the pioneering economists in the realm of immigrant assimilation, discovers that 10-15 years after their initial immigration to the United States, immigrants overtake natives in terms of wage earnings. However, Borjas (1985) problematizes Chiswick's empirical analysis by studying earnings within immigrant cohorts instead of using a cross-section comparison. Borjas finds much slower earnings growth than predicted by Chiswick for most cohorts and a much later overtaking point, if immigrants ever manage to overtake their native-born counterparts. Borjas observes strong cohort effects, as newly arrived immigrants earn substantially lower wages than those in earlier cohorts; these cohort effects were lost in Chiswick's cross-section analysis. In a later study, Borjas (2013) discovers cohort effects in not only entry-level wages but also the growth rate of earnings. Moreover, he observes no evidence of wage convergence for the immigrant cohorts arriving after the 1980s and he therefore notes a substantial decline in economic assimilation.

In the realm of employment convergence, Pedace and DuBois (2012) use a Blinder-Oaxaca decomposition to analyze immigrant outcomes in the United States. With 1994-2004 pooled cross-section CPS data, they find the native worker employment differential is completely due to differences in characteristics, whereas returns on those characteristics play a role in the immigrant employment differential. However, they conclude that while recent immigrants face adjustment challenges, their employment rates converge to those of native workers within 10 years, thus closing the

employment gap without—and sometimes in spite of—policy intervention. Their model and analysis will translate well to our study; however, our more limited sample years make our data less consistent and inherently less longitudinal.

Although this study takes place in the United States and our research extends to the Southern Hemisphere, differences in labor market outcomes among immigrant groups remain relevant and interesting. For example, they found that Europeans have greater earnings power because of high levels of education and English language fluency, whereas South Americans and Mexicans have the lowest hourly wages. With this U.S.-based finding in mind, our paper will analyze these effects within South America, specifically Chile, in order to examine the hierarchy among Europeans, various South American immigrant groups, such as Argentines, Peruvians, and Colombians, as well as other immigrants from the Middle East and Eastern Asia. Additionally, our study will go further in its analysis of race as well as other variables like education and language background, among others, as we predict these variables will particularly affect immigrants' experiences in Chile and their ultimate economic integration, or lack thereof.

Rachel M. Freidburg (1996) finds that human capital, specifically in terms of education acquired domestically versus abroad, is not perfectly transferable across borders. She observes that language proficiency, labor market experience, and further education—all in the host country—help to raise returns on previously acquired education and skills. Her results provide a lens through which to view cohort analysis, leading us to predict higher employment rates and employment convergence among

immigrants who have been in the country longer, thus allowing them to gain more experience, education, and language skills if necessary.

Borjas (2003) argues that education and work experience must both be considered when analyzing whether or not immigration influences employment opportunities of native workers. Building on the assumption that workers are imperfect substitutes for each other and breaking down skill groups into educational levels and prior work experience, Borjas observes that immigration has negatively impacted the labor market opportunities for many native workers by dramatically shifting the supply curve. However, he acknowledges the need for further studies that incorporate the benefits of immigrants on their host communities, and his study can be replicated in other areas of the world.

Blau et al. (2008) analyze labor market characteristics as they pertain specifically to gender in both the source and host countries. They discover that women migrating from countries with high female labor market participation rates have greater participation rates in the host country's labor market as well. However, rates of male labor market participation do not affect immigrant men's propensity to seek and find employment. These findings are made even more interesting when considering the recent feminization of migration, especially in Latin America.

Carolina Stefoni Espinoza (2002) provides a framework with which to analyze these distinctly Chilean differences in terms of migratory trends, and she calls for a new migratory policy in Chile that allows for real integration of foreigners into Chilean society. Although she does not delve into specific policy recommendations, she argues that mass media and popular reactions that enforce negative stereotypes limit

immigrants in their integration on all fronts, especially socially and economically. Chile has recently begun to attract immigrants because of its relatively stable economy in comparison with other Latin American countries, combined with recent border closures and stricter immigration policies in more typical migration destinations, such as the United States and Western Europe. In 1992, 34.4% of all immigrants in Chile are from Argentina—up from 19.7% ten years earlier—whereas only 7.6% of total immigrants were Peruvian. Although those numbers have changed significantly in recent years as Peruvian immigration has increased while Argentine trends have remained mostly constant, Peruvians remain hyper-visible while their Argentine counterparts are cordially ignored. Despite the greater gross percentage and rate of growth for Argentine immigrants in Chile, factors like race, education, accent, positive stereotypes, and other similarities work to disguise Argentine migration and overemphasize the Peruvian differences.

Stefoni Espinoza notes that labor data analysis is sorely lacking for immigrants in Chile specifically, as compared to available data for Western countries. Furthermore, studying gender as it pertains to economic integration and labor market outcomes has been largely ignored in previous economic analyses of immigration, even though the feminization of migration has become increasingly prevalent and important in labor economics as it pertains to immigration specifically. Therefore, we will further investigate potential race and gender differences, especially for Peruvians and other South American immigrants in Chile, comparing different countries of origin. While neither our data set nor Stefoni Espinoza's work captures the full scope of current Peruvian immigration, this data analysis remains necessary to contextualize Chile's

current migration politics. Argentina and Chile have a much more reciprocal relationship, especially in terms of migration. However, migration from other South American countries, especially Peru and Bolivia, is more one-sided and therefore those immigrants may be prone to more discrimination and assimilation difficulties in Chile. Moreover, we predict that employment outcomes will look quite different for male and female immigrants in Chile, due to traditional gender norms that dictate job choices and assimilation possibilities.

Employment comparisons are important because wage comparisons can only come after workers have received employment in the first place. We need more studies that focus on employment convergence before and in addition to looking at wage convergence, because while immigrant wages may converge with those of natives, their employment opportunities may be dramatically different because of different rates of acquiring employment in the first place. Used together with wage convergence information, employment convergence studies can provide a more complete analysis of immigrant assimilation.

III. History of Migration and Migration Policy in Chile

Sandwiched between the Andes Mountains and the Pacific Ocean and extending from the border with Peru to the southern tip of South America, Chile has a unique geography that has shaped its migratory histories. Chile's migratory politics began with selective migration through a government sanctioned *blanqueamiento*, or "whitening", in which the Chilean government established a migratory agency in Germany in 1882 to attract Western European settlers. This policy, implemented in the mid- to late- 1800s, encouraged European immigration to Southern Chile by offering large land tracts as

Figure 1: Map of Chile

incentives to these European settlers. By the beginning of the 20th century, German immigrants had established small colonies in Valdivia (near Puerto Montt), and Eastern European immigrants from former Yugoslavia created communities at the northern and southern extremes of the country in Antofagasta and Punta Arenas. This European presence is still evident in architecture, breweries, and local customs, but more notably, it remains present in the general effects of the *blanqueamiento* on the Chilean population. Chile continues to have one of the "whiter" populations in South America due to the small yet historic European presence, attracted by land tracts that were taken from the native Mapuche people in order to more forcibly change Chile's racial composition. Arab immigrants from Palestine, Syria, and Lebanon began to arrive in the mid-20th century, fleeing conflict in the former Ottoman Empire. Due to racial differences, however, these Arab immigrants did not receive the same warm welcome as the Europeans, and many faced racial discrimination from Chileans.

However, the military coup that overthrew President Salvador Allende and installed General Augusto Pinochet in 1973 changed migration patterns in Chile, leading to mass emigration as liberal Chileans went into exile, primarily fleeing to

Canada, the United States, Sweden, and Argentina. While existing emigrant statistics are only rough estimates because of Pinochet's organized silencing, scholars estimate that 200,000 to 1,000,000 Chileans left in either forced or voluntary exile during the dictatorship. Additionally, the brutality of Pinochet's rule obviously discouraged most immigration. In 1982, only 84,000 immigrants were recorded in Chile, a record low for the country and only 0.75% of its total population. After Pinochet's regime came to an end in the late 1980s, officially ending in 1990, many exiled Chileans returned to their native country, but many continued to live abroad and still have not returned to Chile. Decades after Pinochet's dictatorship, his 1975 Immigration Act continues to govern migration laws in Chile through strict visa criteria and harsh contract laws for immigrants seeking work.

Despite this rapid recent growth, Chile still does not have much formalized migration legislation, due to its long history as an emigrant-sending country and its geographic isolation. The laws in place are extremely outdated; the most comprehensive legislation on migration was ratified in 1975 under Pinochet's dictatorship. The 1975 Immigration Act became the cornerstone of Pinochet's migration policy, put into place to strengthen national security. This legislation began Chile's strict visa policy, which requires all foreigners to obtain a tourist, resident, or permanent visa to remain in the country. Resident visa categories include student, temporary, contract, official, and refugee, even though the United Nations High Commissioner for Refugees (UNHCR) only estimated 1,900 refugees and asylum-seekers in Chile in 2010. While contract visas must be sponsored by an employer, temporary visas are given more freely to those the country views as "beneficial", such as scientists and businessmen, usually of

European or North American origin. These separate but similar categories provided Pinochet's government a loophole to entice predominantly white and wealthy immigrants to come to Chile while discouraging other immigrant groups through otherwise strict migration legislation. Under this law, no migrant-specific category exists.

Although the Chilean government has proposed legislative changes and additions to its migration policy since 1975, these proposed changes—very few of which have actually been approved and implemented—are small in scale and lack the comprehensiveness to override the former Pinochet legislation. This absence of formal legislation is surprising, yet it is largely due to Chilean indifference and a long history of emigration when compared to this relatively recent immigration trend. Chileans' lack of knowledge surrounding national immigration policy and their stereotypical intolerance towards immigrants—especially those from poorer South American countries—creates a vicious cycle of misrepresentation in the media, which in turn fuels Chilean intolerance and discriminatory attitudes. As a result of their legacy of *blanqueamiento*, Chileans harbor racism—in addition to xenophobia—towards brown and black people, despite their own indigenous Mapuche roots. This racism and xenophobia manifests itself strongly against Peruvian immigrants because of their stronger presence in Chile relative to other South American immigrant groups, such as Bolivians and Ecuadorians with similar skin tones and indigenous phenotypes. Moreover, racist undertones and overtones in Chilean society explains their symbiotic migratory relationship with Argentina, a quasi-European and uncharacteristically pale-skinned country for South America. The media bias, as well as racist and xenophobic

attitudes, fuel Chileans' apathy toward changing the dictatorial legislation of 1975, which is discriminatory, overly conservative, and geared toward increasing European and North American migration while keeping all South American immigrants—other than Argentinians—out of the country.

The current Chilean president Michelle Bachelet has yet to conclusively change anything either, despite talk of greater "inclusion, regional integration, and rights". In 2013, a bill came before the Chilean congress to update the 1975 Immigration Act; however, its changes were not comprehensive, including only small legal additions like a new visa category for seasonal workers and requiring foreigners to obtain a work visa before their arrival. In 2007, Bachelet instated a general amnesty for foreigners living in Chile, issued to combat the abuse of undocumented workers on a national scale and to improve international relations with neighboring countries. The amnesty benefited 50,000 immigrants overall, including 32,000 Peruvians. Apart from these recent developments, discourse regarding changing migration policy has been largely absent in Chile. Additionally, the lack of a cohesive and comprehensive economic development plan makes shaping policy and responding to migration trends more difficult. Bachelet's administration has tried to emphasize the human development of migrants over their economic development, meaning that she has placed a greater emphasis on immigrants' wellbeing and social integration and less on their economic participation, as the more conservative governments of Pinochet and Piñera did. However, these words have yet to come to fruition. While a national Migration Policy Council has technically existed since 1975, its membership has never been officially implemented or constituted.

The 1975 Immigration Act continues to have lasting repercussions for Chile. Due to Pinochet's dictatorship, Chile continued to be a country of emigrants even after the return of democracy. In 1998, 860,000 Chileans—7% of the total population—were estimated to be living outside of Chile, whereas immigrants in Chile comprised 1.22% of the total population. This data clearly establishes Chile as a country of emigrants and therefore, any studies of migration in Chile will look different and have different implications than for example, U.S.-based studies because of the countries' distinct positionalities in relation to migration politics, with the U.S. as a historically and predominantly immigrant-receiving country. However, more recent data from the OECD International Migration Outlook (2012) shows that 370,000 foreign-born persons were living in Chile in 2010, which is nearly twice the number of immigrants registered in 2002. Thus, migration patterns are obviously shifting.

As previously mentioned, most immigrants living in Chile are from other South American countries, with the majority coming from the neighboring countries of Peru, Argentina, and Bolivia. As seen in Figure 2, Peru has recently replaced Argentina as the main country of origin; between 2002 and 2009, the number of immigrants from Peru has more than tripled, growing from 37,860 in 2002 to 130,859 in 2009. Data from 2012 estimates that Peruvians now account for 37% of the immigrant population in Chile, followed by Argentines (17%), Bolivians (6%), Ecuadorians (5%), and Colombians (4%). While these current numbers are not reflected in our data set, this rapid growth of migration in Chile remains important when analyzing past data and predicting trends. Figure 2 also shows that Bolivian migration more than doubled between 2002 and 2009, growing from 10,919 to 24,116, and Ecuadorian immigrants

doubled from 9,393 in 2002 to 19,089 in 2009 as well. Additionally, Colombian migration tripled in that same period, from 4,095 immigrants in Chile in 2002 to 12,929 in 2009.

Figure 2: Immigrant Stock and Percentage Growth in Chile (1982-2009)

Country of Origin	Census 1982	Census 1992	Census 2002	DEM estimate* 2009	Intercensal growth (%) 1982-1992	Intercensal growth (%) 1992-2002	Growth (%) 2002-2009
South America							
Argentina	19,733	34,415	48,176	60,597	74.4	40.0	25.8
Peru	4,308	7,649	37,860	130,859	77.6	395.0	245.6
Bolivia	6,298	7,729	10,919	24,116	22.7	41.3	120.9
Ecuador	1,215	2,267	9,393	19,089	86.6	314.3	103.2
Brazil	2,076	4,610	6,895	9,624	122.1	49.6	39.6
Venezuela	942	2,397	4,338	N/A	154.5	81.0	
Colombia	1,069	1,666	4,095	12,929	55.8	145.8	215.7
North America							
United States	4,667	6,249	7,753	9,720	33.9	24.1	25.4
Europe							
Spain	12,290	9,879	9,084	11,025	–19.6	–8.0	21.4
Germany	6,125	5,603	5,473	6,547	–8.5	–2.3	19.6
Asia							
China	669	1,170	2,401	4,589	74.9	105.2	91.1
Other Countries	24,413	30,897	38,077	63,249	26.6	23.2	66.1
Total	83,805	114,531	184,464	352,344	36.7	61.1	91.0

*DEM: Departamento de Extranjeria y Migracion, Ministerio del Interior, Chile (Department of Immigration, Secretary of Interior, Chile)Source: DEM, 2009; Martinez, 2003; Martinez, 2011.

Bolivians, Ecuadorians, and Colombians face similar discrimination and difficulties in Chile as Peruvians do; however, the sheer number of Peruvian immigrants in Chile now makes them an important individual focus and valuable predictor of employment patterns, assimilation, and general wellbeing for other immigrant groups as well.

IV. Peruvian Migration

Peruvian migration has become an especially important recent trend, one that our data set only begins to capture. The influx of Peruvian immigrants in Chile represents the most recent demographic change in Chilean migration patterns, but since Peruvian immigration had just begun to intensify at the turn of the 21st century, our data set does not accurately capture its effects on current policies and society. Therefore, we rely on more recent sociological, political, and anthropological research to fill the gap between

2002—the latest year of available Chilean IPUMS census data—and present-day (2016).

Especially notable in this most recent wave is the feminization of migration. Table 1, as seen below, shows the total number and percentages of female immigrants from various countries of origin in Chile in 2009:

Table 1: Stock of Female Immigrants from Various Countries of Origin in Chile (2009)

Country	Female, Total	Female, % of immigrants from specific country
Peru	74,314	56.79
Argentina	30,080	49.64
Bolivia	12,994	53.88
Ecuador	10,504	55.03
Colombia	7,559	58.47
Spain	5,192	47.09
United States	4,398	45.25
Brazil	5,285	54.91
Other countries	35,993	48.92
Total	186,319	52.88

Countries like Peru, Bolivia, Ecuador, Brazil, and Colombia show an increasing feminization of migration, with females migrating at a higher rate than the expected 50% for equal gender migration. Countries like Spain, the United States, and Argentina show a more even split or less female migration. These trends show that women tend to migrate to Chile more from economically unstable countries, due to Chile's economic and political stability as well as its geographic proximity. Women may be forced to migrate to make money for their families and send back remittances, especially if they are single mothers or if their husbands have already migrated in search of work.

The budding care industry also provides more opportunity for female workers abroad as domestic caretakers. More developed economies demand domestic workers

and caretakers for both young children and elderly relatives as Chilean women are now entering the workforce in greater numbers, and struggling economies have begun to supply these domestic workers and caretakers in greater abundance. When accounting for the total volume of immigrants and not just percentages, Peruvian women especially are migrating in unprecedented numbers, with 74,314 Peruvian women in Chile in 2009, thus dominating Chile's care industry along with that of countries like Argentina and Spain as well. They choose to immigrate to Chile, Argentina, and Spain in search of higher wages through participation in the care industry, and many Peruvians end up in Chile due to its geographic proximity. Chile's economy has only become stronger in relatively recent years, beginning to grow again after the return of democracy in 1990. Immigrant women with university degrees from poorer countries are working far below their education and skill levels as domestic caretakers in Chile. Peruvian immigrants tend to be highly educated, many coming to Chile with university degrees. However, due to job availability, discrimination, and desperation, Peruvian women accept caretaking jobs and men accept janitorial positions, despite having worked as professors or in other more esteemed professions in their native country. Moreover, the emigration of Peruvian women from Peru to relatively wealthier countries creates a cycle of care, as the emigrating woman relies on local relatives to care for her own family while she cares for another family in another country.

Furthermore, many immigrant workers in the care industry are undocumented; the personal and intimate nature of the work forgoes government involvement and makes direct contracting the most common employment practice. However, difficult visa processes and strict contract systems can bind workers to abusive and exploitative

employers either directly, through formal contracts and legal documents, or indirectly, through threats of deportation. Moreover, due to their precarious immigration status on temporary work visas, Peruvian women in the care industry do not have the power to negotiate their salaries and working conditions. Despite amnesty programs in recent years to promote regularization, many Peruvian women continue to migrate illegally due to high regularization costs and the fear of deportation for coming forward as undocumented in the first place. Terminating the contract immediately terminates the corresponding visa, leaving the immigrant without work and without legal documentation. If a worker loses his/her job or quits, he/she only has 30 days to find a new job, receive a new contract, and get government approval and notarization before facing deportation.

The current number of immigrants in Chile and the country's immigrant to emigrant ratio may not seem particularly noteworthy on a global scale. Chile's migratory patterns have only recently altered in the 1990s to make it a country receiving more immigrants than sending emigrants, but its emigrant stock still remains higher than its immigrant stock. Thus, the national media's emphasis on immigrants in Chile makes the national percentage appear much higher and more extreme than it actually is. A 2007 survey by Latinobarómetro exposed discriminatory and xenophobic attitudes in Chile when it revealed the country to be the "third most immigrant-averse country" in Latin America, after Costa Rica and Ecuador, making it one of the least open countries to receiving immigrants. Only 35% of Chileans surveyed agreed that immigrants should have the same rights as native Chileans. These discriminatory attitudes ignore the high number of Argentinian immigrants in Chile—over 60,000 in 2009 (Figure 2)—because

the two countries have a more reciprocal migratory relationship. Additionally, while the Peruvian population began to dramatically increase in Santiago, Peruvians had already normalized their presence in Chile's northern regions of Tarapacá and Antofagasta decades ago, due to the regions' proximity to the Peruvian border. Therefore, much of the media hype is attributable to the new centrality of the immigrants rather than their sheer numbers. That being said, Chile has experienced unprecedented migration in recent years. After 1992, Chile's immigrant population grew by over one third, and in 2002 its migration department recorded the highest absolute number of immigrants in the country's history. Thus, Chile needs an updated and holistic migration policy to adequately respond to these changing patterns and demographics.

V. Theory

In light of changing migration patterns in Chile, the extent of immigrant assimilation raises important policy questions for countries with growing rates of immigration. Varying degrees of completeness in terms of immigrant assimilation can impact the labor market and other social structures, and this incompleteness is often due to variations in human capital levels as well as structural and social differences. Furthermore, race and ethnicity can greatly impact assimilation both socially and economically, and much of this racial or ethnic variation can result in double discrimination through the combination of xenophobia and racism. Additionally, darker-skinned women immigrants often face triple discrimination, resulting from being a minority across three different identities. On the contrary, Western European or North American—specifically U.S. American and Canadian—immigrants may assimilate

more easily as a result of more privileged educational and ethnic backgrounds as valued by the host country.

In order to analyze immigrant assimilation, economists often look at wage convergence. We study employment convergence far less often; however, these two should be analyzed in tandem. Employment convergence provides a means of empirical analysis regarding the extent of immigrant assimilation in that it highlights who gets into the labor market in the first place. Wage convergence studies can only reveal convergence among labor market participants; however, employment convergence captures unemployment and inactivity, allowing us to analyze labor market entry and stability. Moreover, both employment convergence and wage convergence analyses allow us to isolate different immigrant groups, which will be of interest if racism and xenophobia both have effects, as predicted. This research will not only analyze immigrant assimilation as a whole through an examination of employment assimilation but also provide group-specific analyses within the broader immigrant category.

Examining employment assimilation through regression analysis allows us to observe the effects of specific variables on employment and labor force participation rates, such as educational attainment, age, gender, number of children and their ages, decade of arrival to Chile, race, and ethnicity, among others. Using two probit models, one with employment as our dependent (y) variable and the other with labor force participation, we can use our specifications to predict employment for a worker with certain characteristics, such as level of education, job type, country of origin, and other demographic characteristics. By including dummy variables for immigrant cohorts, we can isolate their effects and their magnitudes to better observe how different factors

affect employment for immigrants as opposed to native Chileans. For example, we predict that educational attainment and work experience will be positive and significant factors in terms of obtaining employment for all labor force participants, but these variables may have different magnitudes for different groups, both natives as compared to immigrants as well as across immigrant cohorts. We hypothesize that employment trends look different across different immigrant groups, with older cohorts, Europeans and other lighter-skinned immigrants, and men faring better in terms of labor force participation and employment convergence than more recent immigrants, other South Americans excluding Argentina, and women.

VI. Data

Our study uses pooled cross-sectional Chilean census data as the basis of our analysis. The primary data source for this study is the the Integrated Public Use Microdata Series, International. IPUMS International compiles census data from various countries for social and economic research purposes, and the Minnesota Population Center, National Statistical Offices, and other international data archives have all collaborated on this project. Specifically, our data comes from the most recent Chilean censuses in 1992 and 2002—2012 data is not yet available—in order to analyze immigration patterns after the Chilean dictatorship, which lasted from 1973 to 1990. While we would like to compare migration patterns and groups across more recent time periods, the available data is limited and thus we must constrain our analysis within the scope of available and accessible data. Individual or household level wage data is not available either, likely due to the prevalence of tax evasion in many Latin American countries; if asked about

income data, the participants may not respond to the survey questions at all. Therefore, our study will discuss employment convergence exclusively.

The data set, combining 1992 and 2002 census data, contains 1,885,532 observations total. Of these, 1,827,031 are native Chileans and 21,276 are immigrants (37,225 are unknown/missing), which means only 1.13% of our sample population are foreign-born. We notice a significant increase in the annual immigration numbers after 1988. This result makes sense historically, since the 1988 Chilean national plebiscite ended Pinochet's military rule and the country officially returned to a democracy in 1990. Of the immigrants surveyed, 9,323 people immigrated over 10 years ago while 1,639 immigrated within the past year. In each of these categories, 6,449 people—0.34% of the total sample—did not complete all of the necessary survey questions for our analysis and are therefore not included in our immigrant-specific analysis. Variables of interest are age, sex, educational attainment, detailed employment status, class of worker, and occupation. Variables like country of origin will become important in cross-group comparisons between different immigrant cohorts, and we created dummy variables for immigrant cohorts to capture differences in year of arrival. We have four cohort variables for the decades 1993-2002, 1983-1992, 1973-1982, and those arriving in 1972 or before, which we use as the base group and thus do not include as a variable in the regressions.

The legal working age in Chile was age 14 in 1992 and age 15 in 2002, and the retirement age is 60 and 65 for women and men, respectively. Therefore, we have dropped observations outside of these age ranges. A more detailed description of employment status captures this information more thoroughly by expanding the

categories of "employed", "unemployed", and "inactive" to include factors like disabilities, retirement, and housework in their own home. Overall, the data contains 1,018,956 labor force participants, and of the labor force participants, 901,830 are employed and 117,126 are unemployed.

Immigrants in Chile have a slightly higher employment rate and slightly lower unemployment rate than their Chilean counterparts. These findings make sense, since many immigrants migrate in search of work. Immigrants also have a lower percentage of the population that is not in the labor force, which also makes sense; often, only one parent migrates to a new country and the other stays with the children in their native country, and elderly or retired people may return to their native country when they are no longer working. The following table compares education attainment levels between immigrants and native Chileans. It shows percentages obtained with the "education attainment" variable and the immigrant cohort dummy variables:

Table 2: Education Attainment Cohort Comparisons

	Less than primary completed (%)	**Primary completed (%)**	**Secondary completed (%)**	**University completed(%)**
Native Chilean (N=1,827,031)	16.33	48.28	31.39	4.00
Cohort 1993-2002 (N=7,206)	4.48	22.55	56.31	16.65
Cohort 1983-1992 (N=4,362)	3.99	32.78	49.22	14.01
Cohort 1973-1982 (N=2,233)	3.81	33.86	47.65	14.69
Cohort pre-1973 (N=4,647)	13.94	37.81	36.75	11.49

This data shows that native Chileans are more likely to have only completed primary education or have completed less than primary education while immigrants as a whole are much more likely to have secondary or university degrees. These preliminary results are of interest for later regressions, since prior research has considered human capital attainment to be an important deciding factor in employment convergence. Immigrants are overwhelmingly more likely to be high school and university graduates, seen especially in the more recent cohorts. In our probit regressions, we use those with less than primary education completed as the base group.

Another variable of interest is sex, and while this variable may prove more important among different immigrant cohorts, the following table shows that the gender distribution between males and females for natives and immigrants:

Table 3: Gender Breakdown Comparison between Immigrants and Native Chileans

	Male (%)	**Female (%)**
Immigrant	49.36	50.64
Native Chilean	48.65	51.35

We observe a nearly 50%/50% gender breakdown, with almost equal percentages for both native Chileans and immigrants. This result is interesting because males have historically dominated migration patterns as the traditional breadwinners, so we may expect the immigrant percentages especially to be more skewed. However, within the last few decades, the feminization of migration has become increasingly prevalent, especially in Latin America. While this trend has continued in recent years, this data shows that the feminization of migration had already begun by 2002. Chile specifically has received more Latin American women in recent years who immigrate to become maids and nannies for Chilean families.

The table below contains summary statistics for our most important regression variables:

Table 4: Means and Standard Deviations for Dependent and Independent Variables

Variables	Immigrants (N=21,276)		Native Chileans (N=1,827,031)	
	Mean	Standard Deviation	Mean	Standard Deviation
Employed	.9176	.2750	.8824	.3221
Labor force participation	.5630	.4960	.5367	.4987
Age	34.3503	13.6160	35.2094	13.7384
Marital status	1.6551	.6291	1.7191	.6533
Young child (ages 0-5)	.1713	.3768	.2180	.4129
Primary completed	.2891	.4534	.4706	.4991
Secondary completed	.4983	.5000	.3139	.4641
University completed	.1497	.3568	.0400	.1959
Occupation: Management	.0783	.2685	.0278	.1645
Occupation: Professionals	.1121	.3155	.0417	.1999
Occupation: Technicians	.0661	.2484	.0513	.2206
Occupation: Clerks	.0393	.1943	.0535	.2251
Occupation: Service sector	.0619	.2409	.0612	.2397
Occupation: Agriculture/Fish (Skilled)	.0120	.1088	.0436	.2043
Occupation: Crafts/Tradesmen	.0418	.2001	.0779	.2680
Occupation: Factory	.0264	.1602	.0454	.2081
Elementary Occupations	.0974	.2964	.1093	.3120

These means and standard deviations, run separately for immigrants and native Chileans, further illustrate our preliminary results. For example, immigrants have a much higher mean value for university education completed, but they also have a larger standard deviation. We also see a slightly higher employed mean with a smaller standard deviation. Those in elementary occupations, which are low-skill jobs, comprise our occupation base group. In addition to the variables listed in Table 4, we created dummy variables for the most common countries of origin for immigrants in Chile,

which are Argentina, Peru, Bolivia, Ecuador, the United States, Spain, and Germany. We also created a dummy to capture all other Latin American countries and all other European countries, with our reference group being all other countries not included in the aforementioned dummies.

VII. Model

Our initial model was the ordinary least squares (OLS) regression model:

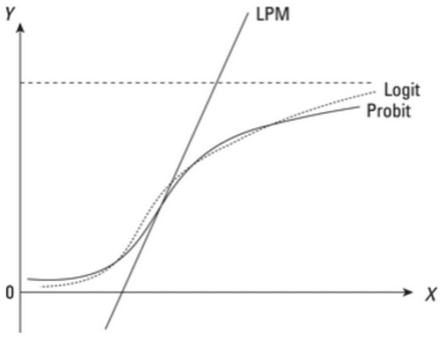
$$Y= \beta 0 + \beta 1X + \beta 2X+... \beta kX$$

However, our dependent variables are employment status and labor force participation, which makes the OLS model insufficient. It does not guarantee that the predicted probabilities will fall within the [0,1] interval, which means that the OLS model may not always have predictive value. We ran preliminary OLS regressions using Stata, but as predicted, the OLS regression model yielded extremely low R^2 values and high collinearity between variables. The age and age squared variables were extremely collinear with other variables, with a variance inflation factor (VIF) of 32.49 and 32.04, respectively. Age collinearity is likely due to age's impact on almost all variables of interest, such as education, occupation, marital status, and children. The education dummies were also collinear, with VIFs ranging from 3 to 5. Moreover, we had to drop the educational attainment in Chile variable due to collinearity as well. However, capturing country specific educational attainment is important in thinking of education as a signal of productivity and human capital. Signals are more effective when they are well understood, and thus education specific to the host country may have a greater positive impact on employment than education obtained elsewhere. In another regression that included occupation dummies as well as education dummies,

cohort dummies, marital status, and children for the four different groups—native males, native females, immigrant males, and immigrant females—we found extremely high VIFs for most of the occupation variables, ranging from 2 to 48. We expected collinearity to be a major problem in standard multiple regression analysis and thus will focus exclusively on our probit regression results.

Therefore, we used probit specifications to constrain the predicted probabilities to the interval [0,1]. The probit model is based on the standard normal cumulative density function (CDF), and in the probit model, the standard normal CDF replaces the linear function. This replacement means that the beta terms are not estimated with OLS but rather through maximum likelihood (ML). Therefore, for any given *x*, the probit model provides the *Z* value.

Figure 3: Probit and logit models as compared with the linear probability model (LPM), also known as OLS



We have converted the probit coefficients to show each variable's marginal effects. By taking the derivative and finding the discrete change in the dependent dummy variable from 0 to 1, we can interpret the coefficients as we would interpret OLS beta coefficients, as percent changes in probability. We ran 8 separate probit regressions in two distinct sets, one with "employed" as the binary dependent dummy variable and another with "in the labor force" as the dependent variable. For each of these, the reference group is "unemployed" and "not in the labor force", respectively. Additionally, we ran separate regressions that include countries of origin as independent

variables to analyze more country-specific effects on employment outcomes. Our probit equations are as follows:

1) $Pr(y=1) = F(X)$ *If female==0*

2) $Pr(y=1) = F(X)$ *If female==1*

3) $Pr(y=1) = F(X, \lambda)$ *If female==0*

4) $Pr(y=1) = F(X, \lambda)$ *If female==1*

where y is employment for Regressions 1-4 and labor force participation for Regressions 5-8, and F(X), F(X, λ) is the value of the standard normal cumulative density. X is a vector that includes age, marital status, and various dummy variables: young child ages 0-5, primary education completed, secondary education completed, university education completed, immigrant cohort 1993-2002, cohort 1983-1992, and cohort 1973-1982. A separate set of regressions, specified by F(X, λ), includes the aforementioned variables in X, as well as country of origin dummy variables for Peru, Argentina, Bolivia, Ecuador, the United States, Spain, Germany, other Latin American countries, and other European countries in λ.

VIII. Results

As previously mentioned, we generated dummy variables in Stata to represent immigrant cohorts, defined by decade of arrival, and our current results combine 1992 and 2002 data. The following table shows the unemployment rate for each cohort compared with the total unemployment rate for both native Chileans and immigrants as a whole:

Table 5: Unemployment Rate Cohort Comparisons

	Unemployment rates (%)
Native Chileans	11.76
Immigrants (pooled)	8.24
Cohort 1993-2002	8.27
Cohort 1983-1992	10.09
Cohort 1973-1982	10.45
Cohort pre-1973	6.69

These results, although preliminary, show lower unemployment rates for all cohorts as compared to their native Chilean counterparts, with the unemployment rate for native Chileans at 11.76% across our census years. While it may seem surprising that even the most recent immigrants have a low unemployment rate, Chilean migration policy requires many immigrants to already have a job contract before migrating, thus ensuring employment. The contract process in Chile is especially prevalent for temporary and seasonal jobs, as well as domestic work. These preliminary calculations show that immigrants may have better employment prospect trends than native Chileans, due to these migration policies and requirements. However, these results do not account for type of employment or employment preferences. For instance, many new immigrants provide seasonal labor, which differs from other industry jobs in that it can be less stable and less predictable. Moreover, immigrants may be working part-time when they would like to work full-time, or they may be working below their qualifications, and our results cannot account for these various differences in individual preferences. Although the unemployment rate appears to be smaller, immigrants may not necessarily be better off.

A. Regressions 1-2 (Table 6)

We ran 8 separate probit regressions, with different regressions for males and females and with two distinct binary dependent variables to analyze employment as well as labor force participation. Regressions 1-2 predict employment probabilities for men and women, respectively, without including country of origin dummies. In Regression 1, our model predicts y=0.8950, meaning the predicted probability of a man being employed according to this model is 89.50%, which leaves an overall unemployment rate of approximately 10.5%. Most explanatory variables are statistically significant, with the exception of our secondary education completed dummy and our cohort 1983-1992 and 1973-1982 dummies. These three variables are all negative but insignificant, and therefore we cannot draw decisive conclusions about their implications. All other variables, including the cohort 1993-2002 dummy, have significant and positive effects on employment likelihood. For men in this regression, pertaining to the most recent immigrant cohort increases their employment probability by 1.73% as compared to the base group of immigrants who arrived in 1972 or before.

Regression 2, which is the same as Regression 1 except for females instead of males, shows slightly different results. Its predicted probability of employment is y=0.9007, meaning the probability of a woman being employed is 90.07%. All of the independent variables are statistically significant except for the cohort 1983-1992 and 1973-1982 dummy variables once again. However, other results were surprising. For women, primary, secondary, and university education have statistically significant negative effects, which is alarming and discouraging for women pursuing education to improve their employment prospects. In most developing countries, it is normal to

observe a U-shaped pattern in the relationship between female education and employment and labor force participation rates. Primary education tends to improve women's job prospects over illiteracy, but most of these jobs are low-skill jobs. While secondary education tends to not help women's employment or labor force participation prospects significantly, university education may allow them to access better, higher-skilled jobs.

On the contrary, our results show that each successive level of education worsens employment probabilities, with secondary education decreasing a woman's employment probability by 6% and university education decreasing her probability by 10%. At the time of our data, Chile's economy had only recently become more robust and stable in the last decade, since Pinochet's dictatorship did not end until 1990. Therefore, the labor market may have not yet caught up with changing labor force trends, such as more women entering the workforce. We see in Regressions 6 and 8 that labor force participation rates increase with each successive level of education; women with university degrees are 55% more likely to be in the labor force than those with less than a primary education. However, the labor market may not yet have adapted to this surge of educated women in the labor force, especially if firms are discriminatory and sexist and thus resistant to hiring women. Many immigrant women, especially Peruvian women, are highly educated in their countries of origin and therefore inclined to look for jobs to match their education background in Chile. Highly educated women will be the most reluctant to accept low-quality jobs, thus contributing to negative employment probabilities but positive labor force participation rates. More current data from decades after the 1990 return of democracy is necessary to corroborate this hypothesis and

observe if women's return on education shows a more expected positive increase in employment prospects.

Additionally, in Regression 2, the young child dummy variable has statistically significant positive effects on women's employment probabilities, as do age and marital status. The 3.5% increase in women's employment probabilities with a young child or young children is perhaps unexpected for women, since they are the traditional caretakers for newborns and young children. However, this result is better explained by Regressions 6 and 8, both of which show a negative young child effect on female labor force participation. Thus, the positive effect on employment makes more sense, recognizing that many women are not actively seeking employment with young children and therefore not included in the binary employed or unemployed sample. Women who are active in the labor force with young children may be especially desperate for work for financial reasons and especially willing part-time work, potentially explaining their increased employment probabilities.

B. Regressions 3-4 (Table 6)

Regressions 3 and 4 are the same as Regressions 1 and 2 with the addition of country of origin dummy variables into the probit regressions. In the male regression, Regression 3, secondary education is once again negative and insignificant, as are the cohort 1983-1992 and 1973-1982 variables. Cohort 1993-2002 is positive but insignificant now. Many of the country of origin dummy variables are statistically insignificant as well, but Peru, Argentina, and Spain are all marginally significant. Peru and Spain are positive, increasing employment probabilities by 1.9% and 5.8% respectively and relative to the base group, while Argentina is negative, decreasing

employment probability by 2.1%. This result may seem surprising, because we expect Argentine immigrants to have equal if not better employment probabilities compared to other Latin American immigrants in Chile. Argentina and Chile traditionally have a more reciprocal relationship and more similar political, economic, and social characteristics when compared to other nearby countries. However, our base group for these countries of origin dummies is all other countries not included in the regression as dummy variables, which is primarily all of Asia and Africa. These coefficients—including their signs—are all relative to this base group. As previously discussed in the "History of Migration and Migration Policy in Chile" section, Chile requires an employment contract in order to obtain a temporary work visa. This policy explains why we see universally better employment and labor force participation prospects for the most recently arrived immigrants in the cohort 1993-2002.

This policy also inadvertently explains why Peruvians may seemingly see better employment probabilities than Argentines. Peruvian immigrants typically face more discrimination in Chilean society than Argentines do, due to more pronounced racial, ethnic, socioeconomic class, and cultural differences. Therefore, these contract laws for migrating workers are often more strictly enforced for Peruvian immigrants and those from other poorer countries, which are considered "less desirable" countries of origin by many Chileans. On the other hand, Argentines have a more reciprocal migratory relationship with Chile and are more likely to fall into the temporary worker category, not just the stricter contract category. Temporary visas are given to more "beneficial" immigrants and these immigrants are not required to have a job lined up before migrating. Therefore, the seemingly contrary negative employment effect for

Argentines in particular may in fact be signaling a more cordial general relationship between the two countries.

Regression 4 is similar to Regression 2 with the addition of the countries of origin dummy variables, predicting employment outcomes for women in Chile. Once again, all levels of education show negative and statistically significant effects on employment. Belonging to the most recent immigrant cohort, arriving in the years 1993 to 2002, is positive and statistically significant at the 10% level. In contrast with Regression 3, Regression 4 shows most of the country of origin dummy variables as statistically significant, with the exception of Bolivia, the United States, and Germany. While the Argentina and "other Latin American countries" dummies have negative effects, Peru and Spain continue to have statistically significant positive effects, as do Ecuador and other European countries.

Table 6: Probit results with marginal effects (mfx) coefficients—employment rates

Independent Variables (y=employed)	Marginal effect coefficients			
	Regression 1 Males (N=682,767)	**Regression 2 Females (N=336,189)**	**Regression 3 Males (N=682,767)**	**Regression 4 Females (N=336,189)**
Age	.00112***	.00279***	.00112***	.00278***
Marital status	.02509***	.00620***	.02508***	.00621***
Young child (0-5)	.03537***	.00341**	.03538***	.00345**
Primary completed	.00315***	-.02465***	.00315***	-.02472***
Secondary completed	-.00059	-.06465***	-.00064	-.06502***
University completed	.00680**	-.10282***	.00673**	-.10301***
Managers	.08993***	.09139***	.08894***	.09148***
Professionals	.08904***	.10052***	.08903***	.10069***
Technicians	.06768***	.06669***	.06772***	.06703***
Clerks	.08021***	.07228***	.08021***	.07254***
Service workers	.06385***	.04933***	.06386***	.04962***
Agriculture/fishery (skilled)	.07461***	.02894***	.07460***	.02917***
Craftspeople	.03951***	.05454***	.03950***	.05472***
Factory workers	.06789***	.05871***	.06790***	.05879***
Cohort 1993-2002	.01733***	.05336***	.01401*	.02071**
Cohort 1983-1992	-.00433	.00071	.00036	.00111
Cohort 1973-1982	-.00854	.00035	-.00208	.01414

Peru	n/a	n/a	.01928**	.06448***
Argentina	n/a	n/a	-.02112**	-.04423***
Bolivia	n/a	n/a	.00933	.00639
Ecuador	n/a	n/a	.01554	.03596**
U.S.A	n/a	n/a	.02330	.02278
Spain	n/a	n/a	.05809	.05384*
Germany	n/a	n/a	-.00080	.01224
Other Latin American countries	n/a	n/a	-.02081	-.03767***
Other European countries	n/a	n/a	.01874	.03525*
Note: *** denotes statistical significance at the 1% level, ** denotes significance at the 5% level, and * denotes significance at the 10% level. Results without asterisks are statistically insignificant.				

C. Regressions 5-6 (Table 7)

Regressions 5-8 are similar to Regressions 1-4 except Regressions 5-8 use labor force participation as the dependent variable instead of employment. The labor force participation dummy includes both employed and unemployed workers, as both are in the labor force, as well as inactive workers, who are not included in the "unemployed" category. In Regression 5, the male regression predicting labor force participation without country of origin dummies, all independent variables are statistically significant. Each level of education increases a man's labor force participation probability, a finding that also makes sense. Primary education increases labor force participation probabilities by 4.3%; secondary education increases it by 9.0%; and university education increases it by 13.1%. In terms of employment outcomes, primary education only increases male employment probabilities by 0.3% and even university education only increases it by 0.6%. Belonging to all immigrant cohorts shows significant and negative effects on labor force participation. The most recent cohort (1993-2002) sees the probability of labor force participation decrease by 3.7%, while cohorts 1983-1992 and 1973-1982 see lower probabilities by 17% and 11%,

respectively. While this finding may not seem to make sense given previous results and migration policy, it may result from tied migrants, especially spouses, who move with their partner to Chile and only one of them works. This sample size is almost twice as large as those of Regressions 1-4, meaning it likely includes many immigrants' spouses and family members that were not encapsulated by pure employment data. Moreover, the years of arrival are especially important for these immigrants. The 1983-1992 and 1973-1982 immigrants all arrived during or almost during Pinochet's dictatorship, resulting in historically low numbers of immigrants and distinct demographics, since leftists and socialists were fleeing Chile rather than entering it.

Regression 6, which is specific to women, yields different results. Age once again has a significant coefficient, although small, as do the marital status and young child variables. The young child variable is the strongest of the three in terms of its effect magnitude. These results make sense, as gender norms dictate that women are more likely to stay at home to care for young children and less likely to need to work if married to a husband in the labor force. In this regression, the 1993-2002 cohort variable is positive and significant while the other cohort variables are negative. The 1993-2002 cohort is 10.8% more likely to be in the labor force than those who immigrated before 1973, but cohorts 1983-1992 and 1973-1982 see a decrease in probabilities by 12.2% and 6.2%, respectively. The women in this most recent cohort migrated at the beginning of the shift in migratory trends. As discussed in the section on Peruvian migration, at the turn of the century Peruvian women—as well as Bolivian, Ecuadorian, and other women from nearby, poorer South American countries—began to migrate to Chile in unprecedented numbers to work in the aforementioned care industry.

Therefore, these more recent immigrants may see higher labor force participation rates relative to the base group of immigrants who arrived in 1972 or before.

D. Regressions 7-8 (Table 7)

In Regressions 7 and 8, we include country of origin dummies once again. In Regression 7, these country dummies are all negative and statistically significant, except for Ecuador, which is positive but insignificant, and Peru, which is positive and significant at the 1% level. The most recent cohort dummy is also negative and statistically insignificant now. Regression 8 has similar results as Regression 6, but the added country dummies are particularly interesting. While many of them are negative and all are statistically significant, the effects are positive for Peru, Bolivia, and Ecuador, all relatively poor and nearby countries. Peru is especially statistically significant, with a Z-value of 17.76 as opposed to the Z values of 3.06 and 2.86 for Bolivia and Ecuador, respectively. These findings all corroborate the budding care industry in Chile at the turn of the 21st century, as Chile's economy began to grow once again after Pinochet's dictatorship and nearby economies began to collapse, forcing workers to seek stability elsewhere. The Peruvian economy collapsed at the turn of the century as a result of Alberto Fujimori's dictatorship, causing a massive wave of Peruvians to migrate to Chile in search of more economic and political stability. This historical context informs and explains the positive effects of recent migration and Peru as the country of origin for female immigrants specifically. As mentioned previously, one sign of an economy transitioning from developing to developed is the need for more caretakers as native women enter the workforce in greater numbers, which began to happen in Chile in the 1990s and early 2000s. Thus, the timeline and the magnitude of

these effects make sense historically. The feminization of migration and the greater demand for female workers in the care industry may also explain the negative coefficients for male immigrants from Bolivia, as they may be tied migrants and immigrate with their spouse who is in the labor force, but employment for these men may be more difficult to find.

Table 7: Probit results with marginal effects (mfx) coefficients—labor force participation rates

Independent Variables (y=labor force participation)	Marginal effect coefficients			
	Regression 5 Males (N=920,913)	Regression 6 Females (N=964,619)	Regression 7 Males (N=920,913)	Regression 8 Females (N=964,619)
Age	.00417***	.00244***	.00417***	.00245***
Marital status	.12022***	-.02595***	.12014***	-.02600***
Young child (0-5)	.20547***	-.07243***	.20543***	-.07236***
Primary completed	.04304***	.09932***	.04306***	.09947***
Secondary completed	.09045***	.34232***	.09062***	.34245***
University completed	.13131***	.55216***	.13198***	.55308***
Cohort 1993-2002	-.03744***	.10866***	-.01440	-.00003
Cohort 1983-1992	-.17012***	-.12184***	-.12602***	-.13992***
Cohort 1973-1982	-.11751***	-.06153***	-.07328***	-.07064***
Peru	n/a	n/a	.05562***	.27552***
Argentina	n/a	n/a	-.02579**	.00637
Bolivia	n/a	n/a	-.03475**	.05331***
Ecuador	n/a	n/a	.00475	.10394***
U.S.A	n/a	n/a	-.21061***	-.08820***
Spain	n/a	n/a	-.09927**	-.12301**
Germany	n/a	n/a	-.08518***	-.05783**
Other Latin American countries	n/a	n/a	-.11156***	-.03940***
Other European countries	n/a	n/a	-.08431***	-.07647***

Note: *** denotes statistical significance at the 1% level, ** denotes significance at the 5% level, and * denotes significance at the 10% level. Results without asterisks are statistically insignificant.

Across all of these results, the marginal effect coefficients can only capture the net effect of various supply and demand factors associated with each specific variable. On the supply side, we see certain skillsets for immigrants from different countries and

different cohorts that are not directly accounted for by our independent variables, such as soft skills. On the demand side, we have national and firm-level policies that influence the model's coefficients as well. While we have discussed national migration politics in Chile in earlier sections, firms can collectively influence labor market trends as well. For example, firms' hiring policies, as well as any firm-level discrimination or preconceived stereotypes, influence our variable coefficients but are not captured by the model. These various supply and demand factors push and pull against each other, leaving us with only the net effect in the form of the marginal effect probit coefficients. Therefore, the full magnitude and scope of many variables may actually be more extreme than we see in the existing coefficients. Our null hypothesis states that there is no difference in employment patterns between native Chileans and immigrants across various cohorts, our statistically significant results allow us to reject the null, since certain cohorts and countries of origin see different employment and labor force participation probabilities.

IX. Conclusion

Our results show different employment and labor force participation probabilities based on year of immigration, country of origin, and gender. We see evidence of the nascent care industry in Chile through differences in male and female employment prospects with the same country of origin and decade of immigration, with a significant 6.4% increase in employment probability for Peruvian women and only a marginally significant 1.9% increase for Peruvian men (Table 6). We also see some of the implications of the contract visa system, with many recently-immigrated workers having better prospects of employment by necessity to obtain a Chilean visa in the first

place. Men in the most recent immigrant cohort (1993-2002) see a significant increase in employment probabilities by 1.7%, and women see an even greater increase by up to 5.3% (Table 6). Employment and labor force participation probabilities decrease after this first cohort, perhaps due to different preferences and demographic characteristics but also perhaps to labor market discrimination that makes it difficult to find work after leaving the initial contract. Other results are disconcerting, such as the negative returns on each level of education for women's employment probabilities; however, positive labor force participation probabilities indicate potentially changing trends as the country has developed further. Our low R^2 values—around 0.058 for employment regressions and around 0.121 for labor force participation regressions—reveal the low predictive value of our models, likely due to many omitted variables. For example, due to collinearity problems we did not include a variable to account for education attained in Chile versus education attained abroad, even though education in Chile would likely be a better predictor of employment outcomes since it is a more reliable signal for Chilean employers. Other demographic characteristics such as a more detailed breakdown of race and ethnicity would be useful, as well as province of residence in Chile to analyze regional differences in employment outcomes. Moreover, we cannot draw conclusions about immigrant employment outcomes over time since we did not include interaction variables to interact the cohort and age variables for immigrants.

While we only had employment data available through the Chilean census and not wage data, our study would pair nicely with wage analysis for the same demographic groups. Studying employment and wage patterns together would create a more complete economic picture of immigrant assimilation in Chile, both across and

between immigrant groups. However, obtaining wage data can prove difficult, especially in Latin America; due to high levels of tax evasion and tax fraud, census employees often avoid wage questions altogether to promote honesty and compliance. Furthermore, replicating our study with more recent census data would allow a better analysis of potential recent changes in employment patterns. Peruvian migration specifically has increased dramatically in the past decade, and Peruvians now constitute Chile's largest immigrant population. Since our data set only began to capture this trend, studying Peruvian immigration in this recent context is necessary to understand the current face of migration in Chile, and the tools and methodology employed by our study will lend themselves nicely to reapplication when more data becomes available.

Additionally, the Chilean population is much smaller than the U.S. population—17 million as opposed to 318 million—and the countries' respective immigrant populations are even more distinct. While Chile has been experiencing substantial migration, especially in recent years, its emigrant stock still remains higher than its immigrant stock historically. According to the OECD World Migration Report, the United States is one of the only countries in the world that receives more immigrants than emigrants leaving the country, and thus its positionality in immigration policy is unique and distinctive. While Chile is currently receiving immigrants at an unprecedented rate, Pinochet's relatively recent dictatorship continues to shape the country's migration politics. During Pinochet's regime, many Chileans went into exile abroad, but the country's recent economic prosperity has made it a newly popular migration destination for South Americans and other immigrant groups.

Moreover, our study specifically cannot account for the migration and employment patterns of undocumented immigrants. While these immigrants are likely included in our data set, we have no way to distinguish them. Estimates show that Chile likely received 15,000 to 20,000 undocumented immigrants, specifically from Peru and Bolivia, at the turn of the 21st century, but using official census data keeps these immigrants invisible and removed from the discussion. Although 20,000 is a small estimate compared to countries like the United States, the presence of undocumented immigrants has important policy implications in Chile. In 1998, under President Eduardo Frei Ruiz-Tagle, the Chilean government offered temporary visas to undocumented Peruvian and Bolivian immigrants, but the process was time and cost intensive and the uptake was low. In 2007, President Michelle Bachelet granted amnesty that afforded legal status to 50,000 immigrants, but this amnesty was merely a temporary solution. A more permanent and more extensive regularization process is not yet in place, but regularization could help with economic integration by allowing immigrants to fully capitalize on their skills without the need to hide and to remain under the often oppressive contract of their original employer.

Future analysis will require more longitudinal studies and a wide variety of measures of immigrant integration and assimilation. Even so, assimilation may not be the goal in many cases. In other words, immigrants may not want to completely assimilate to their host country for a variety of reasons, so as to not lose their language or culture. Our results show employment convergence, and in some cases, even better employment outcomes for recent immigrant cohorts than for native Chileans, which has positive implications for immigrants' economic assimilation. However, older cohorts

have lower employment and labor force participation probabilities, potentially elucidating a lack of comprehensiveness in assimilation and integration. Even for the more recent immigrant cohort for which we see employment and labor force participation convergence, they may still face barriers to integration due to xenophobia, racism, or both, and our research cannot account for the full effects of discrimination. Our study uses economic assimilation through employment convergence as the measurement aim, but we recognize the need for other studies with different objectives and metrics to create a more complete picture of immigrant experiences. Nonetheless, our results provide important information for economists, policymakers, and the general public. Our results capture the beginning of the new wave of immigrants at the turn of the century that has continued to present-day, thus solidly reaffirming the need for a new comprehensive migration policy in Chile to update the outdated 1975 Immigration Act.

Since our results show different returns to intellectual capital and prevalent gender differences, policymakers can target more specific outcomes than general immigrant assimilation. For example, education should not decrease a woman's employment probability; this result should be further investigated and addressed accordingly, possibly through gender-based affirmative action programs to equalize women's chances. By providing an in-depth analysis of the differences in employment patterns between immigrant groups and native Chileans, we provide new labor market analysis. We see that there are significant differences in employment and labor force outcomes across native Chileans and immigrants and thus, while we see immediate employment convergence, we do not observe it sustainably in the long run. The most

recent immigrant cohort consistently sees an improved employment rate, but all older cohorts have lower employment probabilities. Findings like these necessitate further analysis and potential policy changes to examine root causes and to assist with labor market integration and immigrant assimilation, if assimilation is, in fact, the goal.

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