



**Barcelona School of Economics**

**Master's in Economics**

**“Migration shocks and occupational  
downgrading: Evidence from Venezuelan  
migrants in Chile”**

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## **ABSTRACT**

The following paper examines the downgrading in job status that immigrant workers suffer when settling in a new country. We consider the massive Venezuelan exodus and the impacts this shock had on the job outcomes of migrants who settled in Chile. Our approach is based on linear regression analysis and multinomial logistic regression models to estimate the penalty immigrants face. To this end, we use household-level data and employ two job-status indexes. Results show that migrants who arrived before the 2015 Venezuelan crisis did not face significant downgrading. However, migrants who have arrived after 2015 do. Findings are relevant to understanding the impact of massive and sudden migratory shocks.

## **RESUMEN:**

En el siguiente artículo se estudia la degradación profesional que sufren migrantes. Este fenómeno consiste en acceder a puestos de trabajo para el cual se está sobrecalificado. Nos centramos en el caso de migrantes venezolanos residentes en Chile, quienes han migrado de forma masiva desde 2015 debido a la crisis que atraviesa el país. Utilizamos OLS y modelos MNL para estimar cuánta degradación sufre este grupo. Los datos provienen de encuestas a nivel hogar y las variables dependientes consisten en dos índices laborales. Como resultado encontramos que aquellos migrantes venezolanos que llegaron a Chile antes de 2015 no sufren degradación, mientras que aquellos que llegaron después, sí. Estos resultados son relevantes para entender los efectos de shocks migratorios.

## **KEYWORDS:**

Migratory shocks; Occupational Downgrading; ISEI index; EGP class-schema.

## **PALABRAS CLAVE:**

Shock migratorio; Degradación ocupacional; Índice ISEI; Esquema de clases EGP.

# Migration shocks and occupational downgrading: Evidence from Venezuelan migrants in Chile

Master's Project

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## Abstract

The following paper examines the downgrading in job status that immigrant workers suffer when settling in a new country. This phenomenon is of special interest as it may lead to market failures and affect less-skilled workers in the host country. We consider the massive Venezuelan exodus and the impacts this shock had on the job outcomes of migrants who settled in Chile. Our approach is based on linear regression analysis and multinomial logistic regression models to estimate the penalty Venezuelan immigrants face compared to Chilean-born residents. To this end, we use household-level data and employ two job-status indexes. Results show that migrants who arrived before the 2015 Venezuelan crisis did not face significant downgrading, regardless of the time spent in Chile. However, migrants who have arrived after 2015 do. Findings are relevant to understanding the impact of massive and sudden migratory shocks.

**Keywords**— Migratory shocks, Occupational Downgrading, ISEI index, EGP class-schema

# 1 Introduction

Migration is a global phenomenon that has long been, is and will likely continue to be a major part of human evolution and history. Regardless of the factors that push individuals to leave their country, migratory fluxes have impacts of important magnitude on both the macroeconomy (of the origin and host countries) and the individual migrants themselves. These effects have been subject to much speculation and scientific investigation over the past few decades (Okkerse, 2008; Borjas, 1999).

Borjas (1999) surveys the “Economic Analysis of Immigration” and structures it in four research areas: impacts of immigration on wages; the impact of immigration on the host country’s economy; migrant’s skills theory; and migrant’s skills empirics. In general, it is observed that skills are a key component for understanding the effects of migration in labor markets.

Evidence on the impact of migration on wages is heterogeneous (Borjas, 2013), because the analyses conducted vary by the empirical strategies and assumptions used to study this phenomenon (Aydemir and Borjas, 2011; Dustmann et al., 2016). For instance, Monras (2020) doesn’t find overall negative impacts on wages associated with migration, while Longhi, Nijkamp and Poot (2010) do find a small negative effect. Interestingly, Dustman, Frattini and Preston (2012) find that impacts on wages are distributed differently depending on workers’ skills.

There is more of a consensus in the literature on the relationship between migration and growth. Empirical evidence seems to converge in showing that immigration favours growth. As Borjas (2019) summarizes: “[overall, there is] consensus on one important point: Immigration has a more beneficial impact on growth when the immigrant flow is composed of high-skill workers”. The immigrants’ skills and their assimilation to the host market thus appear to be major factors in the study of migration economics.

At the theoretical level, it has been modelled and empirically assessed that migrants positively self-select and usually leave their countries of origin when their expected income in the destination country is higher (Borjas et al., 2018; Liebig and Sousa-Poza, 2004). In this context, brain drain has been a major concern for countries affected by emigration, as a growing amount of skilled workers prefer to migrate in order to access better salaries and work and life conditions, especially in more developed countries (Docquier and Rapoport, 2012).

Lastly, for the empirics of labor skills, it has been shown that migrants face difficulties integrating to host markets, particularly during the first years after arrival. For example, being an immigrant is associated with a lower salary (Zhang and Banerjee, 2021; Warman and Worswick, 2015), extended unemployment (Zhang and Banerjee, 2021) and being hired for lower skill-required jobs (Beyer,

2017). Overall, occupational integration follows a U-shaped trajectory over time and these gaps tend to diminish after some years (Simón et al., 2014; Simon et al., 2011). As Zorlu (2011) describes: “occupational status of immigrants declines after immigration sharply and subsequently increases with duration of residence in the host country as they acquire more host-country-specific capital”. Nevertheless, “women and more educated immigrants face a slower assimilation” (Rica et al., 2013). These gaps and slow assimilation translate into skill misallocations, eventually resulting in market failure and welfare loss. Besides, this misallocation “could impact negatively the most economically vulnerable native workers” (Blyde et al., 2020). As discussed previously, positive immigration impacts on salaries and growth rely on the optimal allocation of talent.

In this paper, we will focus on *occupational downgrading*, a case of skills misallocation that is observed “when the position of immigrants in the labor market is systematically lower than the position of natives with the same observed education and experience levels” (Dustmann et al., 2016). While much of the literature focuses on the wage gap faced by migrants, we choose to look at assimilation from an occupational perspective, not constraining it to earnings, as it gives a more complete image of immigrants’ path of integrating the host country’s labor market. Many studies have indeed confirmed that migrants tend to be overqualified for their job positions after controlling by education and other observables (Akresh, 2008; Simon et al., 2011; Alcobendas and Rodriguez-Planas, 2009; Simón et al., 2014; Rica et al., 2013; Beyer, 2017; Warman and Worswick, 2015; Zhang and Banerjee, 2021; Aleksynska and Tritah, 2013; Poot and Stillman, 2016). Nevertheless, most of this research has analyzed migration from developing to developed countries (Spain, Germany, Canada, the European Union, New Zealand and the USA) where language (Beyer, 2017; Simón et al., 2014) and cultural factors (Kracke and Klug, 2021) play a crucial role.

We study downgrading in a different setting: the massive migration from Venezuela to Chile as a product of the profound political and socio-economic crisis that the former is still facing. Within this developing-to-developing country migration context, our goal is to shed light on the extent of the occupational downgrading that Venezuelan migrants may be facing, where language and cultural disparities do not act as the main drivers. Moreover, we employ two labor-status indexes using Household-level cross-sectional data and estimate Linear Regression and Multinomial Logit (MNL) models to study downgrading among migrants depending on whether they are recently arrived or established migrants and if they arrived after the 2015 crisis. We find that the first cohort of migrants (those who arrived before 2015) didn’t experience downgrading, whereas those who arrived after 2015 do. Additionally, our models suggest that at the moment each survey was conducted, recently arrived migrants face a higher downgrading gap than those established migrants.

Our results will therefore contribute to the literature with novel information on downgrading in developing countries and migratory shocks. Our research will also offer some insight on the difference



in downgrading and labor market inclusion for migrants displaced in regular times and migrants displaced in times of crisis. In this context, we expect to provide further evidence on migrants' skills empirics in a context of massive and sudden migrations due to political conflict, war or climate change, such as has been the case for the Ukrainian population forcibly displaced by the war (3 million individuals), the Syrian population (6.7 million individuals) or the Afghani population (2.6 million individuals) (UNHCR, 2022). The implementation of constantly improving measures and policies is thus essential and, to this end, evidence like the one provided in this paper is required.

The rest of the paper is structured as follows: Section 2 describes Venezuelan migration to Chile. Section 3 describes household data used for this study and summarizes the sample's main characteristics. Section 4 details the linear regression analysis and the multinomial logistic regression models upon which our empirical strategy is based. Finally, section 5 shows and discusses our main results and section 6 summarizes our conclusions.

## 2 Venezuelan Migration to Chile

Beyond the relative proximity and cultural factors, Chile can be perceived as an attractive destination for Venezuelans for several reasons. For one, while it might still be considered a developing country, Chile holds the highest Human Development Index in the region (Human Development Report Office, 2020) as well as the highest GDP per capita, of approximately 13,000 USD (World Bank, 2020). The country also possesses generally more stable institutions and higher quality of life standards. Moreover, Chile distinguishes itself regionally by an open market economy, a high degree of economic freedom, and of competitiveness (World Bank, 2020).

According to the Inter-Agency Coordination Platform for Refugees and Migrants from Venezuela (2022), 6 million Venezuelans have been displaced since 2015, an approximate 20% of the entire population. This event has been qualified as the "second-largest external displacement crisis in the world" (UNHCR, 2020) after the Syrian crisis and was caused by the major political, social and economic crisis that the country has been facing in the past few years.

The Venezuelan migration outflow increased abruptly between the years 2015 and 2017 (IOM, 2018) and has continued with no clear end in sight (UNHCR, 2020). Most Venezuelan migrants have moved within Latin America, with neighboring Colombia hosting the biggest share (1.84 million), followed by Peru (1.29 million), Ecuador (513.9 thousand), and Chile (448.1 thousand) (R4V, 2022). This phenomenon has been partially addressed from a general perspective, trying to account for economic integration outcomes in Latin America (Blyde et al., 2020), and less frequently studied from a Venezuelan-focused perspective on novel outcomes, such as the perception of discrimination

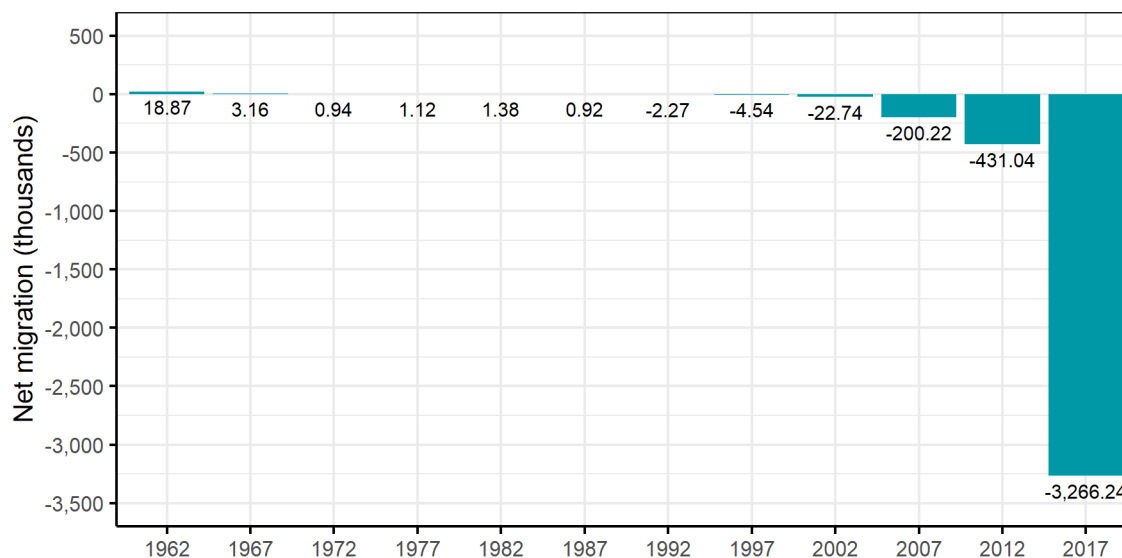


Figure 1: Net migration in Venezuela. Source: World Bank. Own elaboration

(Groeger et al., 2022).

Historically, the migrant population in Chile has been relatively low. According to official data systematically retrieved by the NGO *Servicio Jesuita Migrante* (N.d.)<sup>1</sup>, in 2014 there were 410,998 foreign-born individuals living in Chile, which represented 2.3% of the population. Starting in 2015, this number increased significantly, reaching 746,465 individuals in 2017 and 1,462,403 people by 2020. Overall, this implies that the migrant population rate tripled in six years, consisting today of 7.5% of the population living in the country.

The Venezuelan migration shock implied that within three years, Venezuelans became the largest community living in Chile. As of 2020, they represent 30.7% of the migrant population in the country, almost double the Peruvian community (16.3%), the second-largest one. We can visualize the important increase in Venezuelan migration by using Chile's migration office's data. The amount of Venezuelans who received a temporary residence permit increased significantly in 2018 (Figure 2) and nowadays represents 60% of permanent residency permits granted (Figure 3).

Venezuelan migrants show relatively high levels of integration in educational institutions and in the labor market (*Servicio Jesuita Migrantes. SJM and Educación 2020, 2021*). In fact, underage migrants are effectively incorporated into the educational system (as the percentage of foreign-born students enrolled in primary and secondary education is the same as that of local-born students), but their incorporation into higher education is significantly lower (*Servicio Jesuita Migrantes. SJM*

<sup>1</sup>It has to be noted that this NGO has compiled and systematized all migration-related official data that is available in the country, becoming the best source on the matter.

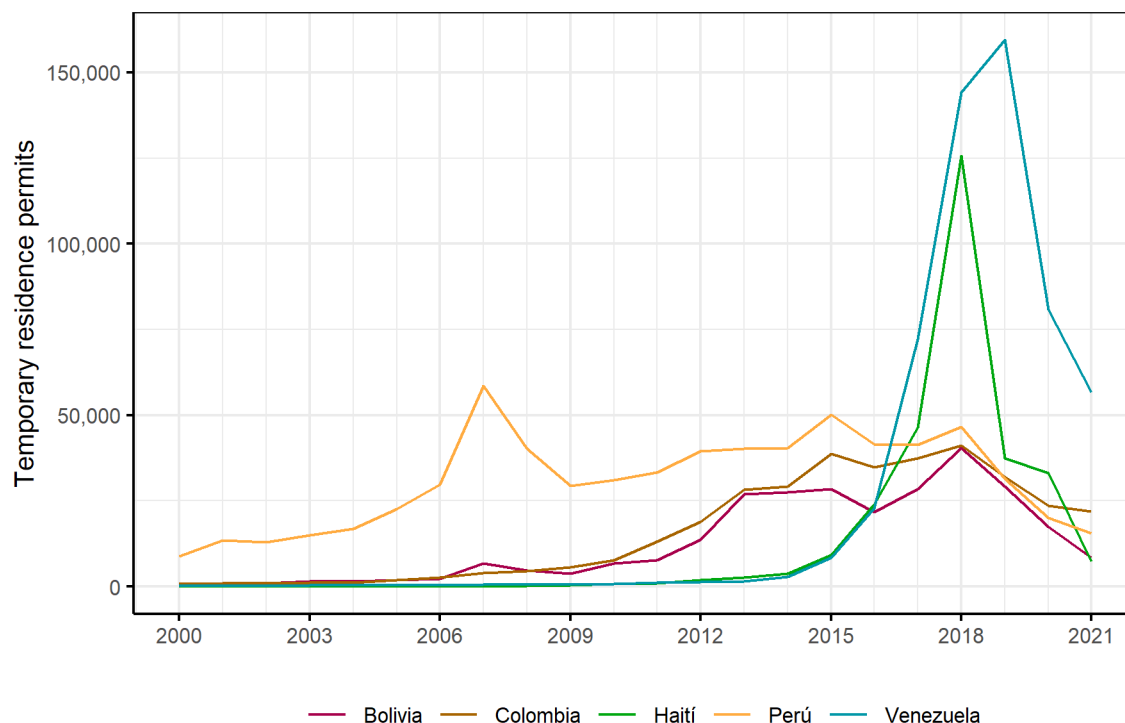


Figure 2: Temporary Residence Permits granted by country. Source: Extranjería, Gobierno de Chile. Own Elaboration

and Educación 2020, 2021). Raw data points to the fact that higher levels of studies for migrants are associated with a lower probability of income poverty and of unemployment. Nevertheless, data also seems to imply that it is unlikely for this highly educated migrant population to have an occupation according to their level of studies (Servicio Jesuita Migrantes. SJM and Educación 2020, 2021), which offers the first evidence of *downgrading*.

### 3 Data

Data used for this study comes from the National Socioeconomic Characterization Survey (*CASEN* by its name in Spanish). This is a household-level survey that collects detailed information about the socio-economic characteristics of each household member. It is conducted every two years in person, except for the 2019 version, which had to be postponed to 2020 due to civil unrest in the country and then slightly shortened due to the pandemic. This survey is representative of the national and regional levels. It serves as the basis for most Chilean social policy, as it aims to characterize those groups that have been defined as a priority (Observatorio Social, Gobierno de Chile, N.d.).

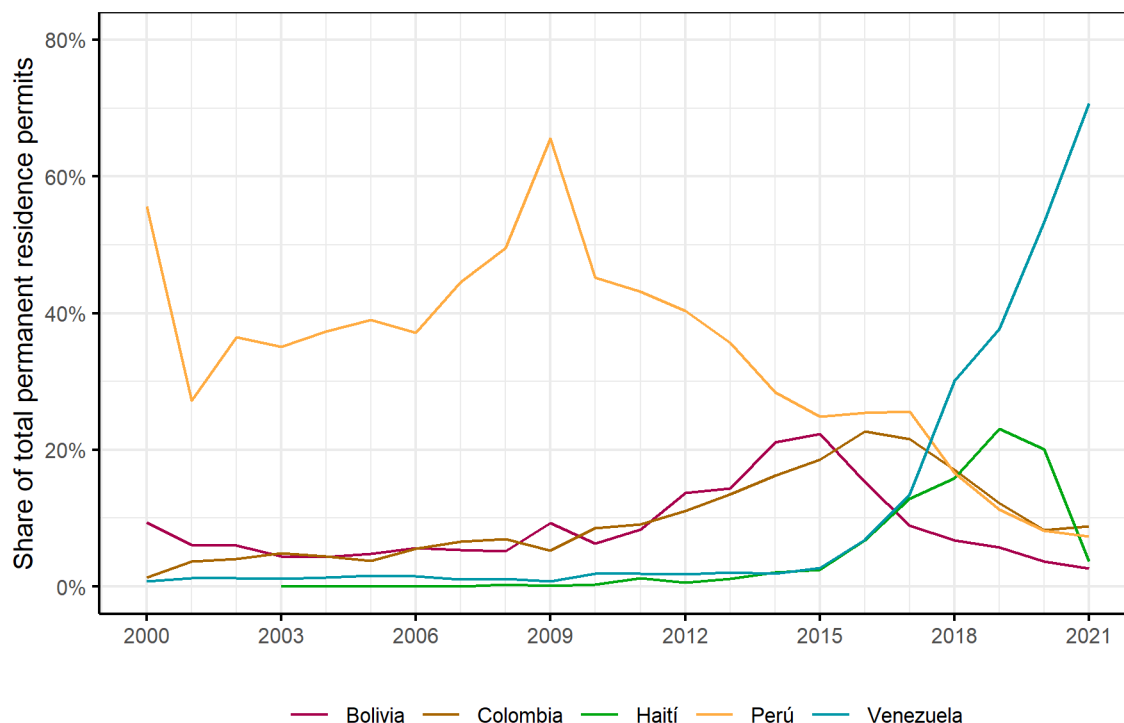


Figure 3: Share of total permanent residency permits by nationality. Source: Extranjería, Gobierno de Chile. Own Elaboration

CASEN provides detailed data on job occupation, income, education, health, living conditions, and internal and external migration. Regarding immigrants, the 2011-2017 editions of the CASEN asked for the year of the arrival of each individual. However, the 2020 survey dropped that question and asked where the person was living five years before. Nonetheless, it still allowed us to identify individuals that arrived in Chile after 2015.

Our sample comprises 20 to 65-year-old Chilean-born and Venezuelan-born individuals from 2011 to the 2020 surveys. After cleaning the database, we obtained roughly 120,000 observations per survey for Chilean-born residents and a rapidly increasing number of observations corresponding to Venezuelan immigrants (from 30 to 2,000).

### 3.1 Sample Characterization

Table 1 summarizes the main descriptive statistics for our sample distinguishing by nationality and by the year data was collected. First, it can be noticed that Chilean-born individuals share specific similar characteristics with Venezuelan-born individuals across the years. Women represent

a higher share of both groups, and about a third of the sample is married (this average is lower for Venezuelan immigrants).

The share of Venezuelans who hold a college degree or have postgraduate-level studies has decreased over time, from 63.7% in 2011 to 50.4% in 2020. Nevertheless, this share is considerably higher than the 17.5% of Chileans who had the same educational level by 2020. Additionally, the share of Venezuelan immigrants who haven't finished their high school studies is much lower than that of Chileans who haven't finished their high school studies: we calculate that, on average per survey year, only approximately 5% of Venezuelan immigrants have an educational attainment of "less than High School" whereas, for Chileans, that share stands at approximately 33%. This suggests that, in general, Venezuelan immigrants are more educated than their Chilean counterparts.

More notable differences arise when analyzing employment statistics for both samples. Venezuelans persistently have a higher participation rate in the labor market (88% against 70% in 2020, for instance). The difference is still noticeable even when controlling for sex. Chilean women have, on average across 2013-2020, a 58.3% participation rate, while 83.2% of Venezuelan-born women in Chile actively participate in the labor market. For the case of men, the gap is smaller, with 84.8% for natives and 94.5% for Venezuelan immigrants. Although the rate for both Chileans and Venezuelans increased recently during the pandemic, Venezuelan immigrants also show lower unemployment rates than Chileans (2020). This remains true for both sexes, with Venezuelan women having a 1.9 percentage point (p.p.) lower unemployment rate than native women (9.4%) and Venezuelan men having a 3.8 p.p. lower unemployment rate than their native counterparts (7.8%). These general results are also highlighted in Table 1.

Finally, it must be noted that the Venezuelan sample is younger. More than 50% of this group is between 20 to 34 years old. The share of Chileans within the same range is only 24%. This makes sense: younger people tend to be more mobile than their older counterparts and thus choose to migrate more on average. Moreover, the percentage of Venezuelan-born people above 50 consists of roughly 10% of the sample across the different surveys, while this share corresponds to 32% for Chileans.

Considering the above-discussed information, we can state that a randomly drawn Venezuelan in our sample is more likely to be more educated, younger, and employed than a Chilean native.

## 4 Empirical Strategy

We specify three different linear regression models (OLS) and, subsequently, three multinomial logit models (MNL), computed from pooled data from several cross-sectional CASEN surveys (2011 to

Table 1: Demographics for Chilean and Venezuelan-born sample. Own elaboration from CASEN data

	Chileans					Venezuelan Immigrants				
	2011	2013	2015	2017	2020	2011	2013	2015	2017	2020
Male	46.9%	46.8%	46.7%	46.9%	44.8%	43.3%	40.4%	45.0%	48.2%	47.8%
Married	39.8%	37.6%	36.3%	34.0%	30.5%	26.1%	18.6%	51.1%	26.9%	27.4%
Less than High School	38.1%	35.7%	32.4%	31.0%	27.1%	5.8%	9.1%	1.0%	2.5%	6.2%
High School	32.9%	32.7%	33.6%	32.9%	30.7%	8.7%	9.8%	12.4%	13.4%	19.4%
Some College	12.8%	12.8%	13.9%	14.0%	15.1%	12.8%	27.3%	7.3%	12.1%	11.3%
Technical degree	5.5%	6.7%	7.4%	8.2%	9.5%	9.0%	9.3%	7.1%	14.8%	12.6%
<b>College Degree</b>	<b>10.7%</b>	<b>12.1%</b>	<b>12.8%</b>	<b>13.9%</b>	<b>17.5%</b>	<b>63.7%</b>	<b>44.5%</b>	<b>72.2%</b>	<b>57.2%</b>	<b>50.4%</b>
<b>Participation rate</b>	<b>69.6%</b>	<b>70.7%</b>	<b>72.0%</b>	<b>72.9%</b>	<b>68.0%</b>	<b>89.7%</b>	<b>82.1%</b>	<b>89.3%</b>	<b>91.9%</b>	<b>88.1%</b>
Men	85.7%	85.9%	86.1%	86.1%	80.2%	91.6%	96.7%	92.3%	96.3%	95.9%
Women	55.4%	57.3%	59.7%	61.2%	58.1%	88.3%	72.2%	86.9%	87.8%	81.0%
<b>Unemployment rate</b>	<b>7.3%</b>	<b>6.7%</b>	<b>7.1%</b>	<b>7.7%</b>	<b>12.5%</b>	<b>5.2%</b>	<b>4.5%</b>	<b>6.5%</b>	<b>4.8%</b>	<b>7.1%</b>
Men	5.9%	6.0%	6.6%	7.1%	11.7%	0.0%	4.5%	4.1%	2.8%	4.8%
Women	9.2%	7.8%	7.9%	8.5%	13.3%	9.4%	4.6%	8.7%	6.9%	9.7%
20-24 years old	16.1%	15.4%	14.8%	14.0%	13.3%	17.4%	13.1%	5.9%	11.3%	7.0%
25-29 years old	12.0%	12.1%	12.9%	12.7%	12.3%	15.0%	35.2%	24.2%	37.4%	25.8%
30-34 years old	10.4%	10.4%	10.2%	10.5%	11.6%	36.1%	12.9%	31.9%	26.8%	27.1%
35-39 years old	10.4%	10.1%	9.5%	9.5%	9.7%	9.6%	7.1%	16.5%	11.4%	14.0%
40-44 years old	11.1%	11.4%	11.0%	10.4%	9.9%	8.0%	10.4%	9.6%	4.1%	10.6%
45-49 years old	11.7%	11.4%	11.0%	10.5%	10.8%	5.8%	3.4%	7.6%	2.4%	5.1%
50-54 years old	11.8%	11.8%	11.8%	12.2%	11.1%	0.4%	5.4%	2.2%	2.0%	4.5%
55-59 years old	9.2%	9.4%	10.3%	10.6%	11.1%	7.7%	10.6%	0.5%	3.7%	4.0%
60-64 years old	7.4%	8.1%	8.4%	9.6%	10.1%	0.0%	1.8%	1.7%	0.9%	2.0%
Observations	166,359	123,684	151,437	121,460	101,373	30	45	119	622	2,008
N (thousands)	9,663	9,792	9,955	9,937	10,563	3	5	17	147	374

2020). The OLS models aim to study whether employed Venezuelan immigrants in Chile face a penalty, and if so, how large is it while the MNL models' objective is to investigate the odds for a Venezuelan migrant to have a job in a lower category than a comparable Chilean-born individual. For the linear regression set-up, we will employ the International Socio-Economics Index (ISEI) (Ganzeboom et al., 1992), a continuous scale that associates each profession to a certain ranking describing its importance in terms of skills required and status. For the alternative MNL regression set-up, we use the Erikson-Goldthorpe-Portocarero (EGP) class schema (Erikson et al., 1979; Erikson et al., 1983), which establishes discrete categories based on the skills required to perform a determined job.

To disentangle the effect that belonging to different cohorts (groups of immigrants categorized by year of arrival) has on facing downgrading, we use a combination of the following three binary variables. The latter allow us to identify all the different subgroups by time since the arrival to the

country and whether the person arrived in the country before or after the migratory shock of 2015 (cohort effect). These binary regressors are:

- **Recently Arrived Migrant:** Which corresponds to all those Venezuelan migrants who have stayed in Chile for less than five years at the moment the survey was taken.
- **Established Migrant:** Which corresponds to those Venezuelan immigrants who have been living in Chile for five or more years at the moment the survey was taken.
- **Post-Crisis Migrant:** Which receives a one for all those Venezuelan immigrants who arrived after the 2015's migration shock.

Additionally, we control by observable socio-economic variables, namely gender, age, marital status, and educational level. Moreover, following the literature (Zorlu, 2011), we use the Two-step Heckman estimator to check for sample selection. Finally, as a complement to the main results of the OLS analysis, we run the last specification for the case of Peruvian and Colombian immigrants using 2009 as the time period corresponding to the shock.

The main hypothesis we want to test is whether there are statistically and economically significant differences in occupational terms between natives and Venezuelan immigrants when considering if they are recent or established immigrants. Moreover, we evaluate whether immigrants from before the crisis faced similar initial penalties and how they evolved over time.

## 4.1 Classification of occupations using ISEI index and EGP class schema

CASEN classifies each person's occupation. This data is reported following the International Standard Classification of Occupations of 1988 (ISCO-88) and we adapt it to the ISEI index and EGP scheme following Ganzeboom and Treiman's methodology (1996) and using the correspondence tables that they constructed.

### 4.1.1 International Socio-Economic Index (ISEI) of Occupational Status

The International Socio-Economic Index (Ganzeboom et al., 1992) is a continuous variable derived from ISCO-88 that presents "an optimal scaling procedure, assigning scores to each of 271 distinct occupation categories in such a way as to maximize the role of occupation as an intervening variable between education and income". In this index, a higher value corresponds to higher socioeconomic

job status. For instance, a medical doctor has a score of 88 whereas a housekeeper has one of 16. The density of jobs by the ISEI index in Chile by nationality is shown in figure 4. These shares correspond to the cross-section of each specific year (i.e the density for each year includes older immigrants as well).

The densities for Chileans and Venezuelan-born individuals seem to converge as migration increased over the years: initially, migrants were accessing better jobs but this distribution smoothed and by 2020, converged to that of Chilean workers. However, this convergence is evidence of downgrading since the average Venezuelan in Chile is more educated than the average Chilean despite the fact that, as is seen in Table 1, the proportion of Venezuelan immigrants with a lower level of education increased over the years as immigration grew more massive. Hence, what figure 4 tells us is that better educated Venezuelan migrants have jobs of comparable status to less educated Chilean-born workers.

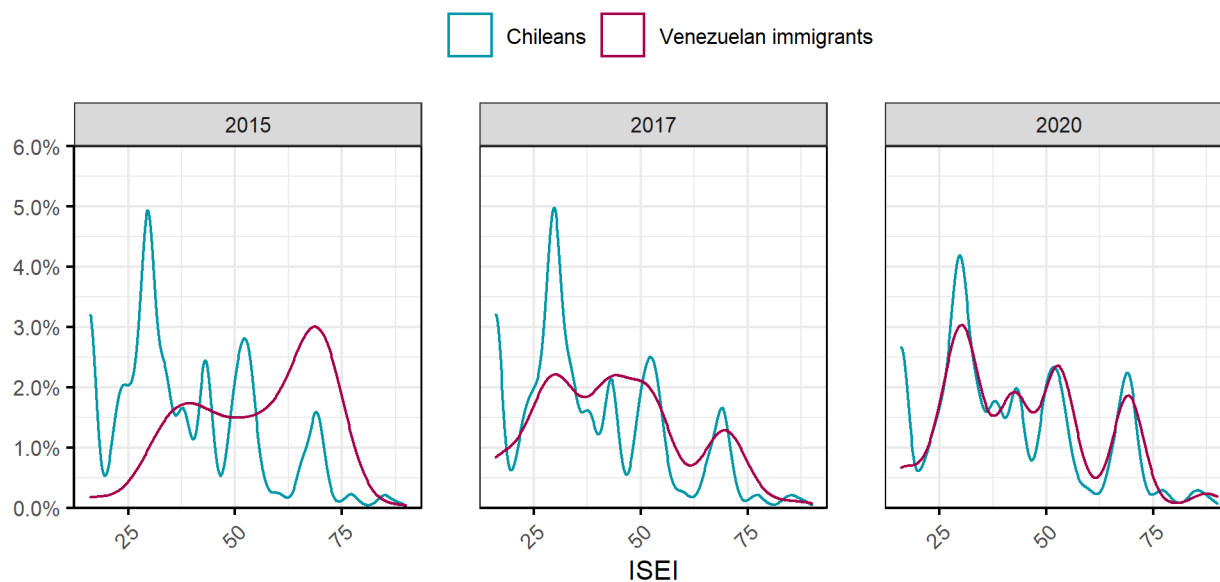


Figure 4: ISEI density among Chilean and Venezuelan immigrants for years 2015, 2017 and 2020. Source: CASEN data and ISEI index. Own Elaboration

#### 4.1.2 Erikson-Goldthorpe-Portocarero Class Schema

The EGP class schema (Erikson et al., 1979; Erikson et al., 1983) consists of categorizing jobs into 9 different classes, based on the skills required to perform them and the relevance they have for society. The authors structure these classes from the highest to the lowest. For our purposes, we collapse these classes into three categorical variables to which each person will be associated,



depending on their job: unskilled, intermediate, and professional. A similar strategy has been applied previously in the literature (Zorlu, 2011).

As we can see in Figure 5, the share of Venezuelan immigrants having a professional-class job decreased over the years, while that of Venezuelans having an unskilled or intermediate job position increased. Again, this supports evidence for increased downgrading after the migratory shock, even though this initial analysis is not controlled by important determinants of job occupations.

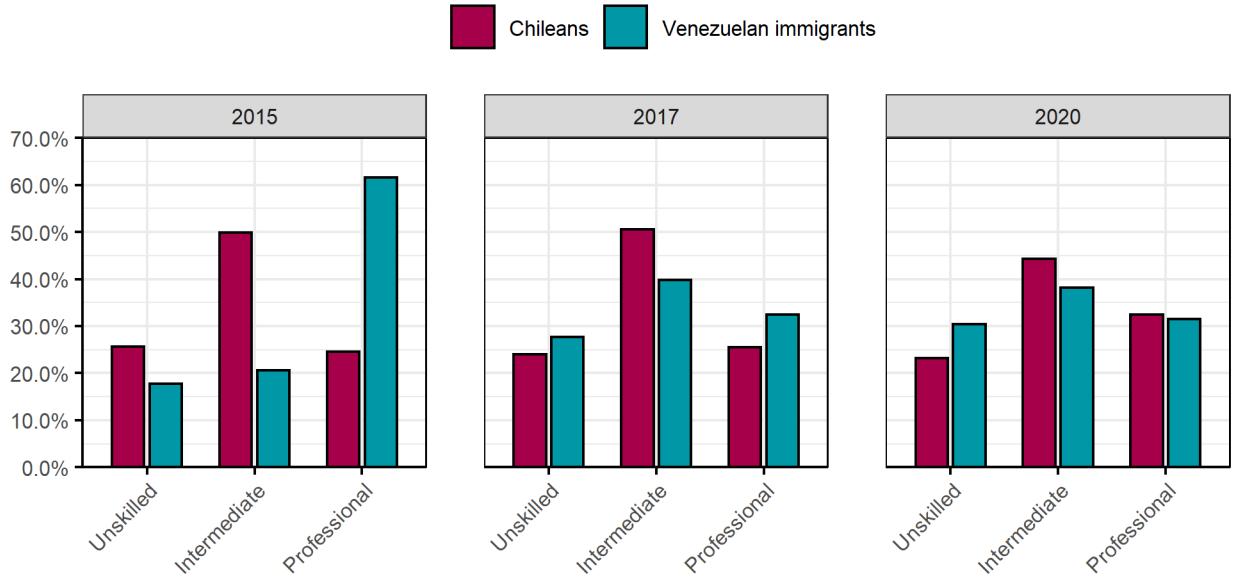


Figure 5: EGP distribution among Chilean and Venezuelan immigrants for years 2015, 2017 and 2020. Source: Own elaboration, based on CAsEN data and EGP class schema.

## 4.2 Models

### 4.2.1 Linear Regression Model (OLS)

We first run a linear regression model over the ISEI index, similarly to Zorlu's approach (2011). This model controls by observable socio-economic variables: gender, age, level of education, and marital status. Additionally, we control by the three dummy variables previously described. The model is the following:

$$Y_i = \alpha + \beta D'_i + \gamma X'_i + \varepsilon_i$$

Where  $Y_i$  is the ISEI score assigned to the job of individual  $i$ ,  $D_i$  is the vector of dummy variables and  $X_i$  corresponds to the vector of socio-economic variables.

We build three models. The base model estimates the penalty of being either a Recently Arrived Migrant or an Established one while controlling by age, gender, and marital status. The second model builds on the base model and includes education controls. The third model is akin to the second one but includes the dummy variable for identifying Post-Crisis Migrants, differentiating between those who arrived before and after 2015 to the country.

This approach builds on previous literature that studies downgrading by years since arrival (Zorlu, 2011) and expands on it by considering if the immigrant arrived either in a normal period of time or a time of crisis (here, before or after the Venezuelan migratory shock).

#### 4.2.2 Multinomial Logit Model

We then estimate the likelihood for Chilean and Venezuelan workers of belonging to each of the EGP classes. The estimated model is the following:

$$Pr(y_i = j | D_i, X_i) = p_{ij} = \frac{e^{D_i' \beta_j + X_i' \gamma_j}}{1 + \sum_{l=2}^m e^{D_i' \beta_l + X_i' \gamma_l}}$$

Where  $p_{ij}$  is the probability that individual  $i$  belongs to class  $j$  (professional or unskilled) as compared to the “Intermediate” base category,  $D_i$  is the vector of dummy variables controlling by being more or less than five years in the country and the cohort of arrival.  $X_i$  is the same vector of observable variables used for the Linear Regression models: gender, age, marital status, and education.

The three MNL models estimated have a similar structure to the OLS ones. The first model assesses the effect of being an early or established migrant, controlling by gender, age, and marital status. The second includes educational level controls and the third one includes the Post-Crisis Migrant dummy variable.

## 5 Results

### 5.1 Linear Regression Analysis - ISEI Index

The linear regression models provide relevant insights regarding downgrading among Venezuelan immigrants. In Table 2, we analyze the penalty associated with being a recently arrived immigrant or an established one. The first model, on the surface, seems to provide no evidence of downgrading as Venezuelan immigrants have a higher ISEI-ranked occupation, on average, compared to their Chilean counterparts. Nevertheless, this result—computed from an initial naive model—does not

hold after controlling by education (model 2). This fact highlights the crucial role of education on occupational status and aligns our results with the considerations discussed in section 4.

From the second model, we find evidence of downgrading and that the gap is wider for recently arrived migrants. People belonging to this group are expected to have a job that is, on average, 7.5 points lower in the ISEI-index compared to Chilean individuals with similar characteristics. We illustrate the difference of 7.5 ISEI points, using examples that have been selected from the most common job positions in our sample:

- Being downgraded from *Computer Systems Designer or Analyst* to *Primary Education Teaching Professional*.
- Being downgraded from *Nursing Associate Professional* to *Cook*.
- Being downgraded from *Bank Cashier* to *Shop Assistant*.

On the other hand, established immigrants essentially face no penalty, as the coefficient for this group of long-lasting migrants is not statistically different from zero.

As expected, age is associated with an increase of 0.0783 points, which we interpret as a positive correlation between experience and job status. The negative coefficient for the square of age confirms that this positive correlation is decreasing over time. In addition, we confirm the importance of education in job status. Higher educational level is associated with an increased ISEI-index. In fact, the coefficient for high school-level studies is 6.385, whereas the coefficient for people with a college degree or postgraduate studies is 33.17. This result demonstrates the importance of having completed university-level studies for having a highly ISEI-ranked occupation.

The critical political and socio-economic circumstances that have been causing Venezuelan mass migration since 2015 may have changed not only the structural composition of immigrants in Chile but also the occupational choice of this particular group. Therefore, in the quest to disentangle the differentiated effects these migrants may be facing, a cohort-specific model is utilized as a third specification.

We find evidence consistent with very high skilled migration before 2015 in the third model. Our results show very small or null downgrading signals for immigrants who arrived before the migratory shock. One explanation for this is that people belonging to this group already had secured jobs before moving or moved specifically for job-related opportunities.

While the coefficients for Pre-Crisis Recent and Established Migrants are not statistically significant, the Post-Crisis Migrants coefficient is. The estimated coefficient shows a 7.73 points lower ISEI score, which can be interpreted as a sharp signal of downgrading. The large confidence interval

Table 2: Linear Regression Estimates (OLS): results

Variables	(1) OLS	(2) OLS with education controls	(3) OLS with cohorts and education controls
Recent Immigrant	3.672*** (1.422)	-7.574*** (1.014)	
Established Immigrant	10.50*** (2.216)	-0.139 (1.793)	
Recent Immigrant (Pre-crisis cohort)			-2.646 (6.057)
Established Immigrant (Pre-crisis cohort)			-0.139 (1.793)
Recent Immigrant (Post-crisis cohort)			-7.733*** (1.035)
Woman	2.728*** (0.0966)	0.557*** (0.0720)	0.556*** (0.0720)
Age	0.325*** (0.0253)	0.0783*** (0.0196)	0.0782*** (0.0196)
Age <sup>2</sup>	-0.00642*** (0.000303)	-0.00113*** (0.000232)	-0.00113*** (0.000232)
Married	2.675*** (0.104)	1.323*** (0.0752)	1.321*** (0.0752)
High School		6.385*** (0.0734)	6.385*** (0.0734)
Some College		15.92*** (0.149)	15.92*** (0.149)
Technical degree		15.52*** (0.120)	15.52*** (0.120)
College Degree		33.17*** (0.110)	33.17*** (0.110)
Constant	35.07*** (0.488)	26.03*** (0.388)	26.03*** (0.388)
Observations	420,644	420,644	420,644
R-squared	0.031	0.489	0.489

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

for the variables corresponding to the Pre-Crisis cohort could be explained by the relatively low size of our sample. Furthermore, we find similar values and signs for the rest of the variables across the three models.

In all three models, being a woman is associated with a higher ISEI-index, which can be explained by selection bias and the fact that, given that women have a significantly lower participation rate in the labor market (Godoy, 2022), those who effectively join it do so in a better position.

It is important to note that downgrading signals found in models 2 and 3 are, on average 50% lower than the ones found by Zorlu (2011) for the most disadvantaged migrants in the Netherlands. We partially explain this result by the fact that Venezuelans don't face two key obstacles to labor market assimilation: language barriers (Beyer, 2017; Simón et al., 2014; Zorlu and Hartog, 2018) and cultural differences (Kracke and Klug, 2021).

Moreover, the previous analysis has some limitations. In the first place, there may be a sample selection. Data available only allow us to know the ISEI score of a person that is employed in a context in which immigrants could face more pressure to find a job soon after their arrival, regardless if it matches their skill level or not. Second, we can only observe the short-term downgrading penalty that Post-Crisis Venezuelan immigrants face. And, given that the older cohort showed no downgrading in the short or long term, it is not possible to determine how this penalty will evolve for the post-crisis cohort with the available data.

To address the first issue, we used the Two-Step Heckman estimator using having any children as an instrument (Shields and Whitley Price, 2004; Zorlu, 2011; Piracha and Saraogi, 2011). We applied this estimator over a reduced sample consisting of only the 2017 and 2020 observations because older samples didn't ask for the number of children to men. Nevertheless, this allows us to confirm that there is evidence of sample selection, although not severe enough to alter the results in a meaningful way. The results of this procedure are shown in appendix A.1, Table 4.

For the second issue, we ran the third model specification on two different samples: one consisting of Chilean natives and Peruvian immigrants and another with Colombians instead (see appendix A.2, Table 5). We used 2009 as the dividing year for the cohorts in both cases, as it is the year when both groups increased their migration to Chile due to the 2008 recession (see Figure 2). This analysis offers us a benchmark to extrapolate how downgrading evolves for recent and established migrants before and after a significant rise in migration and extrapolate for the Venezuelan case.

We find that recent Peruvian migrants face higher downgrading than Established ones in both cohorts (pre and post-2009). Interestingly, Peruvian migrants who arrived after 2009 face lower levels of downgrading. On the other hand, Colombians in Chile seem to face minor downgrading in both cohorts, although the relatively small sample for this group could also be a problem in this

case. Overall, we infer from the Peruvian case that the post-crisis cohort of Venezuelan immigrants could reduce their occupational gap relative to the natives over time.

## 5.2 Multinomial Logit - EGP class schema

The MNL model uses three different measures of EGP social class schema, namely professional, intermediate, and unskilled, treating these three classes as independent categories rather than a natural rank order (Evans, 1992). Table 3 shows the parameters resulting from fitting a multinomial logit model for these three categories, using the intermediate category as the base outcome. This choice allows us to assess potential downgrading from a dual perspective, accounting for either the overrepresentation of Venezuelan migrants in the “unskilled” group relative to natives or the underrepresentation of Venezuelans in the “professional” group, again, relative to natives.

The different model specifications are consistent with the specifications explained in subsection 5.1. We provide the marginal effects of our regressors for each model in view of interpretability. These marginal effects represent the magnitude of a marginal change in our explanatory variables on the probability of each of the discrete occupational outcomes while accounting for the values of the remaining covariates.

It is worth highlighting the essential role that educational controls play in our model specification. Model 1 initially indicates that Venezuelan migrants, regardless of the time spent in Chile, have a higher probability of being employed within the “professional” category. However, the first signals of potential downgrading arise when comparing Venezuelan migrants with natives, controlling by educational level. Venezuelan migrants with less than 5 years in Chile have almost 14 percentage points lower probability than the natives of being employed in the “professional” category. This gap is lower for established migrants (those living in the country for more than 5 years), although they still have a 4.59 percentage points lower probability than the natives of belonging to the “professional” group.

Similarly, on the opposite side of the employment distribution, we can appreciate that, regardless of the number of years spent in Chile, Venezuelan migrants face significantly higher probabilities of being employed in the “unskilled” group, when compared to their native counterparts.

Additionally to the previous analysis, we also consider in this model the effect of increased migration after the Venezuelan crisis in 2015. With this, we can study whether there is a differentiated effect in the type of migrants as well as in the type of outcomes achieved by these migrants (model 3). In this model, our main finding lies in the remarkable difference between the two cohorts (pre and post-crisis) of recently arrived migrants, compared to natives. While pre-crisis recently arrived

Table 3: MNL Estimates: coefficients, (standard errors), [marginal effects]

	(1)		(2)		(3)	
	Basic Model EGP		Model with education EGP		Cohort Model with Education	
	Professional	Unskilled	Professional	Unskilled	Professional	Unskilled
Recent Immigrant	0.299*** (0.00386) [0.0344531]	0.327*** (0.00380) [0.0416501]	-1.617*** (0.00488) [-0.1398161]	0.237*** (0.00394) [0.0988249]		
Established Immigrant	1.214*** (0.0219) [0.1972997]	0.753*** (0.0246) [0.031237]	-0.131*** (0.0268) [-0.0459902]	0.789*** (0.0245) [0.1636416]		
Sex	0.460*** (0.000877) [0.0583307]	0.448*** (0.000881) [0.0539319]	0.254*** (0.00118) [0.0092795]	0.465*** (0.000885) [0.0733852]	0.254*** (0.00118) [0.0092558]	0.466*** (0.000885) [0.0734214]
Age	0.0624*** (0.00027) [0.0148015]	-0.0476*** (0.000270) [-0.0128404]	0.0455*** (0.000371) [0.0060783]	-0.0409*** (0.000265) [-0.0087526]	0.0455*** (0.000371) [0.0060759]	-0.0409*** (0.000265) [-0.0087529]
Age <sup>2</sup>	-0.000961*** (0.00000329) [-0.0002095]	0.000447*** (0.00000319) [0.0001447]	-0.000420*** (0.00000444) [-0.0000555]	0.000360*** (0.00000316) [0.0000777]	-0.000420*** (0.00000444) [-0.0000555]	0.000360*** (0.00000316) [0.0000777]
Married	0.310*** (0.00097) [0.0572628]	0.0344*** (0.000996) [-0.014078]	0.241*** (0.00131) [0.0233913]	0.0394*** (0.000997) [-0.0018309]	0.241*** (0.00131) [0.0233172]	0.0397*** (0.000997) [-0.0017565]
High School			0.540*** (0.00187) [0.0353774]	-0.112*** (0.00101) [-0.0349267]	0.540*** (0.00187) [0.0353744]	-0.112*** (0.00101) [-0.0349059]
Some College			2.432*** (0.00214) [0.3153141]	0.0451*** (0.00169) [-0.1034511]	2.432*** (0.00214) [0.3152887]	0.0451*** (0.00169) [-0.1034339]
Technical degree			2.137*** (0.00205) [0.2796581]	-0.387*** (0.00179) [-0.1524568]	2.137*** (0.00205) [0.2797191]	-0.388*** (0.00180) [-0.1525718]
College Degree			4.938*** (0.0022) [0.8137084]	0.238*** (0.00235) [-0.2781516]	4.938*** (0.0022) [0.8137049]	0.237*** (0.00235) [-0.2781776]
Recent Immigrant (Pre-crisis cohort)					-0.684*** (0.0317) [-0.0256442]	-3.121*** (0.0920) [-0.2305771]
Established Immigrant (Pre-crisis cohort)					-0.131*** (0.0268) [-0.0459946]	0.789*** (0.0245) [0.1637001]
Recent Immigrant (Post-crisis cohort)					-1.655*** (0.00498) [-0.1431589]	0.266*** (0.00396) [0.1062509]
Constant	-1.784*** (0.00520)	0.238*** (0.00529)	-3.839*** (0.00744)	0.179*** (0.00522)	-3.839*** (0.00744)	0.179*** (0.00522)
Observations	$n = 32418059$					
Pseudo R-squared	0.012		0.223		0.223	
	* $p < 0.05$		** $p < 0.01$		*** $p < 0.001$	

migrants show a slightly lower probability than natives (2.5 percentage points lower) of being in the “professional” category, post-crisis recently arrived migrants face a significantly lower probability than natives (14 percentage points).

The gap between these two different cohorts of migrants becomes even more noticeable when assessing it from the “unskilled” class perspective. Pre-crisis migrants with less than 5 years in the country show 23 percentage points lower probability of being “unskilled” than natives. This probability is completely reversed when looking at the post-crisis cohort of migrants as now there are 10.6 percentage points of higher probability than natives of being in the “unskilled” category.

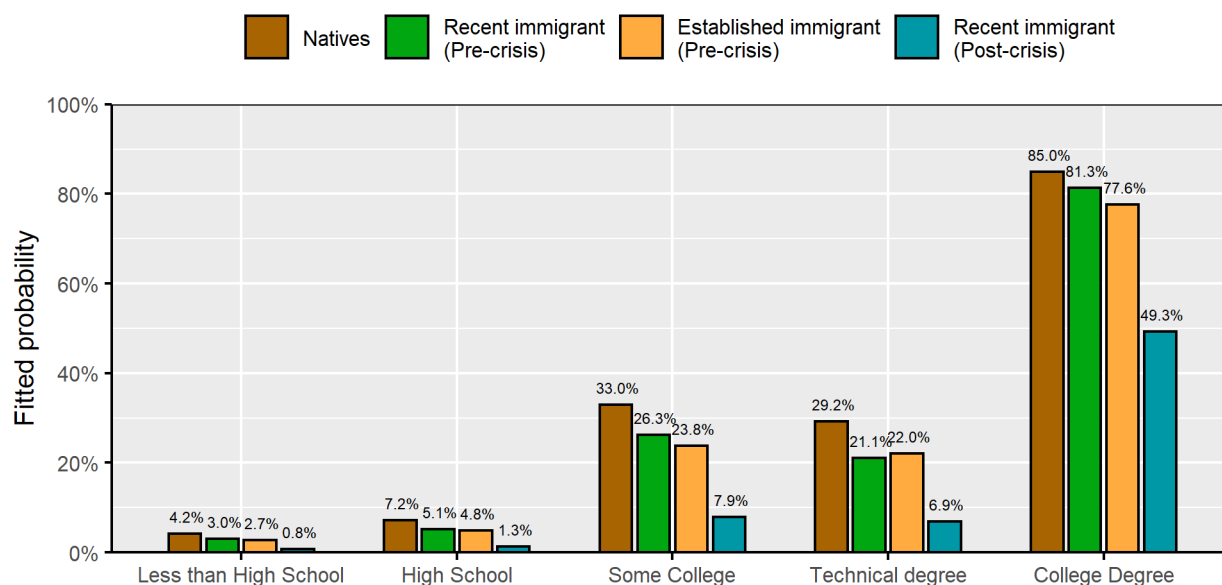


Figure 6: Fitted probabilities of being in a Professional occupation for a 35 years old single male. Source: Own Elaboration

Additionally, in line with the Alcobendas and Rodríguez-Planas’ methodological approach (2009), we report the fitted probabilities of being in a Professional-class occupation given each educational level (See Figure 6). This has been estimated for the “Typical Venezuelan Migrant”—a 35 years old single male— and is compared against the Chilean equivalent. As it can be appreciated, the occupational downgrading faced by recently-arrived Venezuelan immigrants (post-crisis cohort) is consistent across educational levels. However, this gap becomes especially large for the highest one.



## 6 Conclusions

In this paper, we analyzed the downgrading faced by Venezuelan immigrants in Chile. We segmented our analysis between migrants who were recently arrived (less than five years since data was collected) and those who were established (living in Chile for five or more years since data was collected). We additionally studied downgrading for these two groups differentiating by year of arrival: specifically, we studied downgrading among immigrants who arrived before the 2015 Venezuelan crisis that pushed increased migration and those who arrived after.

Results show that, when assessing occupational downgrading, there are significant disparities between the different cohorts of migrants we account for in this paper. For those migrants who arrived before 2015, regardless of the number of years since arrival, we do not find evidence of occupational downgrading, whereas for those who arrived in Chile after 2015 statistically and economically significant coefficients are found, which can be interpreted as a strong signal of occupational downgrading. Furthermore, if the post-crisis cohort is to follow a similar path to the Peruvian case after 2009, we could expect to see their gap with respect to the natives reduced once they become established migrants.

We reached this conclusion after running OLS models over a labor-status index (ISEI)—which showed a lower estimated score for post-crisis recently arrived migrants—and MNL model over a class-schema analysis (EGP)—which showed that the post-crisis cohort of recently arrived migrants presents a much lower probability of belonging to a professional occupation class than the native counterpart when the educational level is comparable between them.

While our results are consistent with recent literature on downgrading, they are lower in magnitude. This might be explained by the fact that, in this context, language and cultural background are not against-integration factors as has been shown in previous studies. The observed downgrading might be explained by the urge post-crisis migrants have for finding a job, extended times for accrediting formal studies, or discrimination. (Groeger et al., 2022).

Our results provide valuable insights for policy. First, they show that migrants can be assimilated into the local labor market. Thus, future policy should focus on accelerating this process and making the most of the skills that migrants have. In this sense, providing help to settle down and accelerating the accreditation process for formal studies can allow local authorities to assimilate migrants with higher qualifications faster. Additionally, we found that immigrants arriving at “regular times” (during low-rate migration waves) to a country with a similar cultural background don’t face downgrading. In contrast, the penalty faced by immigrants leaving their home country during a time of crisis is significant. This would suggest that authorities should frame their immigration policies differentiating by the motives and the scale of the crisis at the time of migration.

This research also provides novel results on occupational downgrading in the case of migration from one developing country to another. Nevertheless, it must be noted that this case study is a recent one, and more time and data are necessary to confirm the long-term penalties that the current cohort of immigrants may or may not face. Moreover, having more detailed data on job occupations over the years could provide even more relevant information about the possible barriers immigrants face to fully integrating into the job market. It would thus be ideal to repeat this exercise with new data in the years to come, in order to study assimilation and detect if, eventually, the studied gap converges to zero.

Further research could focus on more in-depth questions that remain unanswered. For instance, would the post-crisis cohort still face significant downgrading even after being in the country for more than five years? This could be studied in a few years when migrants arriving after 2015 have become themselves established migrants. Investigating the pattern of migrants' assimilation is another interesting research avenue: For instance, do immigrants make gains in the first year and then plateau, or is there steady improvement until complete assimilation? It could also be explored how migration patterns evolve due to changes in the host country's popular opinion (Ajzenman et al., 2020). Finally, further research may focus on assimilation pattern determinants, controlling by educational level, gender, age, and specific region where migrants establish themselves.

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# A Appendix

## A.1 Two-step Heckman Estimator Results

Table 4: Two-step Heckman Estimator results

(1)		
<i>ISEI</i>		
Recent Immigrants	-6.549***	(-11.49)
Established Immigrants	1.336	(0.73)
High School	6.836***	(53.40)
Some College	15.34***	(83.75)
Technical degree	16.30***	(77.16)
College Degree	33.58***	(152.50)
Woman	0.0693	(0.31)
Age	0.360***	(7.31)
Age <sup>2</sup>	-0.00410***	(-7.28)
Married	1.000***	(9.23)
Constant	18.03***	(15.31)
<hr/>		
<i>select</i>		
Recent Immigrants	0.339***	(5.19)
Established Immigrants	0.202	(1.00)
High School	0.273***	(27.53)
Some College	-0.117***	(-8.18)
Technical degree	0.583***	(35.11)
College Degree	0.847***	(57.12)
Woman	-0.871***	(-103.44)
Age	0.139***	(58.23)
Age <sup>2</sup>	-0.00160***	(-57.41)
Married	-0.271***	(-28.55)
Has children	0.368***	(34.03)
Constant	-2.211***	(-47.52)
<hr/>		
/mills		
lambda	2.106***	(4.03)
<hr/>		
<i>N</i>	120777	
<hr/>		

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## A.2 Cohort model for Peruvian and Colombian immigrants in Chile

Table 5: Cohort model for Peruvian and Colombian immigrants

VARIABLES	(1)	(2)
	Peruvians	Colombians
Recent Immigrants (Before 2009)	-8.526*** (1.867)	5.000 (4.569)
Established Immigrants (Before 2009)	-5.597*** (0.629)	3.738*** (1.450)
Recent Immigrants (After 2009)	-7.050*** (0.944)	-2.071*** (0.697)
Established Immigrants (After 2009)	-4.386*** (1.597)	-2.644 (1.795)
Woman	0.562*** (0.0675)	0.595*** (0.0675)
Age	0.0763*** (0.0194)	0.0814*** (0.0195)
Age <sup>2</sup>	-0.00111*** (0.000231)	-0.00115*** (0.000231)
Married	1.346*** (0.0729)	1.339*** (0.0730)
High School	6.324*** (0.0736)	6.347*** (0.0732)
Some College	15.89*** (0.147)	15.93*** (0.147)
Technical degree	15.48*** (0.122)	15.47*** (0.120)
College Degree	33.29*** (0.106)	33.33*** (0.105)
Constant	26.06*** (0.385)	25.90*** (0.386)
Observations	421,485	419,850
R-squared	0.493	0.493

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1