Fleeing a Failing State: Self-selection, Earnings, and Migration Policies *

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Abstract

I examine whether potential migrants respond to economic incentives even in a situation where their own country is undergoing a serious crisis and most destination countries are similarly fragile countries. Specifically, I analyze the exodus of Venezuelans to Colombia, Peru, Chile, and the United States over the 2015-2021 period, relying on individual-level data representative of the Venezuelan population and similar data on Venezuelan migrants residing in the four main destination countries. I find that the wage differential is a robust determinant of Venezuelan migration choice. The discrete choice model reveals that controlling for the wage migration premium, migration costs depend greatly on individual and destination country-specific characteristics. Particularly, women and college graduates face lower migration costs. Moreover, distance to the destination country and pre-crisis network play a key role in migration choice. Finally, my estimates show that the visa requirement imposed by the Peruvian government led to a decrease in the educational level of migrants, suggesting that restrictive migration policies among fragile Southern countries may lead to negative unintended consequences.

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1 Introduction

Over the last decade, there has been a consistent upward trend in the global migrant population, with figures rising from 221 million in 2010 to 281 million in 2020. This surge can be attributed to a combination of economic challenges, conflicts, and political instability, which have compelled millions of individuals to leave their homes[1]. Three-quarters of the global refugee population have fled fragile contexts, and 64 percent of them have been hosted by similarly vulnerable countries[2]. Moreover, these contexts account for about 75 percent of people living in extreme poverty[3]. The most extensive migration episode ever generated by a fragile, non-war country in modern history is the Venezuelan exodus. The increase in state violence and economic crisis prompted about one-fifth of the Venezuelan population to move mostly to other developing South American countries over the 2015-2021 period[4] (Maggio and Caporali, 2024).

Although a substantial number of works have addressed the impact of Venezuelan migrants on the society and economy of neighboring countries (Olivieri et al., 2022; Rozo and Vargas, 2021), the characteristics of those who are leaving the country, and the determinants driving them to choose a specific country have not yet been investigated. In a setting where individuals mostly migrate from a failing country to developing fragile countries, studying migrants' decision-making process, according

[1]By the year 2050, an estimated 200 million individuals could be displaced as a result of increasingly frequent and severe weather phenomena such as wildfires, floods, and droughts (Clement et al., 2021). These climatic disruptions contribute significantly to the drivers of migration, alongside conflict and political instability. In 2020, the global scale of displacement caused by enduring conflicts and political unrest in countries such as Afghanistan, Myanmar, South Sudan, Syria, and Venezuela, as well as escalating conflicts within and beyond the borders of Ethiopia, reached a staggering total of over 34 million people (UNHCR, 2021).

[2]Fragility is the combination of exposure to risk and insufficient coping capacities of the state, system, and/or communities to manage, absorb and mitigate those risks (OECD, 2016).

[3]By the end of 2021, 89.3 million people were forcibly displaced worldwide as a result of persecution, conflict, violence, or human rights violations. This includes 27.1 million refugees, 53.2 million internally displaced people, 4.6 million asylum seekers, and 4.4 million Venezuelans displaced abroad (UNHCR, 2021).

[4]According to OECD's "States of Fragility 2018-2021" report, Venezuela since 2018 has been among the 30 most fragile countries in the world (alert countries). Colombia and Peru during the same period were ranked as elevated warning countries.

to their sociodemographic characteristics, and intended destination countries is particularly important for several reasons. First, understanding migrants' motivations helps to discern migrants forced to leave their countries from migrants seeking better opportunities. Second, the skill composition of migrants has critical implications for the reconstruction of the country of origin. The more skilled migrants are, the more difficult will be to rebuild the country at the end of the political and economic crisis. Third, knowing the level of intrinsic income determinants of migrants is useful for planning integration policies, thus contributing to the political and economic stability of receiving countries.

In the present study, I examine whether potential migrants respond to economic incentives even in a situation where their own country is undergoing a serious crisis and most destination countries are similarly fragile countries. Specifically, I examine migrants' selection patterns, according to potential earnings at destination, and country-specific migration costs related to network, employment rate, distance, language, and immigration policies.

To shed light on this issue, I combine unique individual-level data representative of the Venezuelan population and similar data on Venezuelan migrants residing in Colombia, Peru, Chile, and the US. The linear probability models show that educated people are significantly more likely to migrate to Colombia, Chile, and the United States, indicating that those migrants are positively selected in education compared to stayers. In contrast, Venezuelans who moved toward Peru appear negatively selected. However, the comparison of the cumulative distribution functions (CDFs) of migrants' counterfactual earnings in the origin country with stayers' CDFs reveals that migrants in the United States and Chile are positively selected in terms of expected income. Migrants in Colombia and Peru, on the other hand, are negatively selected over the stayers.

To assess the role of expected gains and migration costs in shaping the individual migration decision, I estimate a discrete choice model using the counterfactual expected earnings for all alternative locations. Specifically, I use a Conditional Logit Model (CLM) in order to disaggregate country-specific migration costs, and a Mixed Logit Model (MLM), which allows me to disentangle costs according to individual

characteristics. Both models confirm that income differential is a robust determinant of migration choice. The CLM results show that distance to country of origin and network at destination are significant factors in shaping women's and men's migration choices. MLM results, on the other hand, reveal that even when controlling for expected earnings at the destination, individual characteristics have a significant effect on the likelihood of migrating to a specific country. In particular, people with college degrees face lower costs in migrating toward Colombia, Chile, and the United States compared to uneducated. In the case of Peru, however, the college coefficient is very low and not significant, suggesting that Peru, in addition to being unattractive to educated migrants due to low college wage premium, has other confounding "non-pull" factors that make it the last choice for the most educated Venezuelans. This result implies that the costs of migration, and consequently migration patterns may depend on the policies of destination countries even in a South-South migration context.

To rigorously test this hypothesis, I estimate the effect that Peru's restrictive visa requirement migration policy has had on migration costs and the skill composition of the Venezuelan migration flow. Specifically, I evaluate the effect of the policy on migrants' education and pre-migration predicted earnings, by using a difference-in-differences (DID) research design, comparing the sample of Venezuelan migrants residing in Peru before and after the policy implementation, with those residing in Colombia, which did not implement any restrictive policy. The results indicate that the restrictive policy led to a decrease in the educational level of migrants by 9.8 percent for men and 13.6 percent for women. A potential explanation might be that cost-opportunity related to irregular migration is not constant across educational classes. On the other hand, by increasing migration costs the policy attracts migrants who, with an equal level of education, had a 4 percent higher pre-migration wage. These results indicate that restrictive migration policies among fragile Southern countries may lead to negative unintended consequences.

Although there is extensive literature on migrant self-selection, the focus has been on South-North migration. Borjas (1990) laid the groundwork for the self-selection theory, showing that migrants from a country with high return to education inequality to a more equal country in terms of education premium are expected to come

from the upper end of the skill distribution. Chiquiar and Hanson (2005), merging information from the US census on Mexican migrants' characteristics with information from the Mexican census on the stayers' characteristics, pioneered comparing the counterfactual wages of migrants in the origin country (as if they had not migrated) to the wages of stayers. They show that Mexican-born men were intermediate selected and Mexican-born women were positively selected. Grogger and Hanson (2011) confirmed the hypothesis that countries with high returns to skills attract highly skilled migrants. Using aggregate data on emigrant stocks by schooling level and source country in OECD destinations, they estimated an income maximization model and showed that migrants were positively selected and that more educated migrants were more likely to settle in destination countries with high skill returns. However, none of these studies addressed how the distribution of unobserved characteristics may affect the probability of migration and wages at the destination.

Moraga (2011) and Kaestner and Malamud (2014), provided evidence that part of the negative selection could be attributed to the unobservable characteristics that shaped migrants' earnings. Bertoli and co-authors (Bertoli et al., 2013), while accounting for unobservable characteristics, found that earnings significantly shape individual migration decisions, even in an episode in which Ecuadorians mostly chose Spain where earnings were lower than in the US. While these findings could account for the pattern of positive sorting in education toward the United States, they fail to explain why most Ecuadorians opted for Spain. In the following paper (Bertoli et al., 2011), they further explain that this preference seems to reside in the Spanish visa waiver program for Ecuadorians. Clemens and Mendola (2020) presents estimates of emigrant selection on both observed and unobserved determinants of income. In particular, they found that in low-income countries, people actively preparing to emigrate have 30 percent higher incomes than others overall, 14 percent higher incomes explained by observable traits, and 12 percent higher incomes explained by unobservable traits.

This study is also related to the literature strand on the costs of international migration, which, as highlighted by Hanson (2010), is the most significant gap in the economics of migration literature. Ortega and Peri (2009) provided estimates of the

effects of immigration policy tightening on the magnitude of migration flows in 14 OECD countries over the period 1980 to 2005. They confirmed that, while South-North migration flows increase as a function of the per capita income gap between origin and destination, they decrease significantly when destination countries adopt stricter immigration laws. McKenzie and Rapoport (2010) highlighted the importance of the network in shaping migration costs. They found a positive selection for Mexican migrants leaving from communities with weak migrant networks, but negative self-selection for Mexican migrants from communities with stronger networks.

Academic interest in South-South migration is relatively new, and to date, empirical discussions have mostly focused on issues of migration and development, exploring how the effect of South-South migration may differ from that caused by South-North movements (Melde et al., 2014; Hujo and Piper, 2010; Bakewell et al., 2009). Such a strand of literature argues that in South-South migration return migration may be more common, people may move across more porous borders, wage differentials and remittances may be smaller, and migrants may move to more vulnerable, insecure, or marginal situations, meaning they gain less in welfare. Some research has been done on the effects of South-South migration on destination labor markets. In a study regarding the effects of immigration on the labor market in South Africa, Biavaschi et al. (2018) confirms the adjustment mechanism studied by Borjas (2006) in a South-South migration context, whereby natives reallocate to other districts within their own country following mass immigration.

Nonetheless, our comprehension of the dynamics surrounding South-South migration remains relatively restricted. Limited research has explored empirically the potential distinctions in self-selection and migration costs between South-South and South-North migration, especially regarding the influence of destination countries' migration policies. This study not only reveals the magnitude of South-South migration costs tied to individual characteristics but also untangles them from the migration premium associated with those characteristics. Isolating the specific impact of individual traits on migration decisions is crucial for shaping effective migration policies in destination countries. As suggested by Melde et al. (2014), "research generating reliable, up-to-date data is urgently needed". Finally, this paper extends the exist-

ing literature on the Venezuelan migration episode, which has predominantly focused on the impact of Venezuelans' arrival on destination countries (Bahar et al., 2020; Olivieri et al., 2022; Doocy et al., 2019; Namen et al., 2019; Caruso et al., 2021).

The remainder of the paper is organized as follows: Section 2 briefly overviews the salient features and the economic determinants of the Venezuelan exodus. In Section 3, I present the different sources of data and the relevant descriptive statistics. Section 4.1, is devoted to the evaluation of the role of expected earnings and migration costs in shaping the individual migration decision. Section 4.2 discusses the effect of restrictive policies on migration costs. In conclusion, I provide, in Section 5, a discussion of the main findings, along with their potential policy implications.

2 The Venezuelan Exodus

In this section, I discuss the nature of the Venezuelan migration crisis, which has been mainly directed to Colombia, Peru, Chile, and the United States. Venezuela has been facing the worst socioeconomic and political crisis ever experienced by any Latin American country. The beginning of this crisis dates back to the election of Hugo Chavez as president in 1998. During his presidency, Chavez introduced a socialist regime that included constitutional amendments, expropriations of land, implementation of populist social programs, nationalization, and restrictions on private companies. Nicolas Maduro, elected president of Venezuela in 2013, continued along the same lines as his predecessor, worsening the country's economic and social crisis. Populist policies, unsustainable public debt, low oil prices, and excessive and rigorous controls and regulations on the private sector have led to a deep economic recession. In early 2018 the Venezuelan government "essentially stopped" producing inflation estimates. However, according to Hanke (2018), by the end of 2018, the country was experiencing a hyperinflation rate of 33,151%.

The financial and economic crisis has led to a harsh humanitarian crisis, prompting an unprecedented wave of international emigration [5], with nearly 5 million Venezue-

[5]Migration throughout South America is not a new phenomenon, and Venezuela has long been

lans leaving over the 2015-2021 period, from a country with a total population of 28.9 million [6] (Figure 1). Crucially for my analysis, Venezuelans moved essentially to four main destination countries, which absorbed 70 percent of the Venezuelan migration driven by the economic crisis. The most common destination was Colombia (1.8 million migrants). Peru welcomed 1.3 million Venezuelan migrants, whereas Chile and the United States hosted 450,000 and 460,000 Venezuelans, respectively. Figure 2 plots the stock of Venezuelan migrants by year and destination country.

Interestingly, although this migration episode is highly concentrated in a few years and the timing is similar in all destinations, the scale differs substantially. Indeed, from 2015 to 2017 about 54,000 Venezuelans had migrated to the United States [7], 65,000 to Chile, while only 22,000 had migrated to Peru. In comparison, Venezuelan inflow to Colombia was twenty times larger over the same period. Specifically, in 2017 Colombia had already welcomed 600,000 Venezuelan migrants.

The policy response of destination countries has also been different. Colombia has been the most welcoming country. Since the beginning of the crisis, it has allowed Venezuelans to enter with their passports, but without the need to hold a visa. Additionally, to facilitate mobility in border areas, in February 2017, the Border Mobility Card (TMF in Spanish) was introduced by the Colombian government. This document allowed Venezuelans without passports to cross the border to buy food or access benefits such as vaccines and return to Venezuela within 7 days. Since many Venezuelans were irregularly overstaying in the neighboring country, the TMF was suspended in February 2018 [8]. Peru and Chile have had a more restrictive attitude toward

a host nation for migrants from neighboring countries. Historically, migration in the region has occurred from South to North, as the ongoing conflict in Colombia pushed millions of people to flee the violence, seeking refuge in Venezuela in the 1980s and 1990s. The direction of the migration flow changed with the first wave of Venezuelan migrants in the early 2000s under the government of Hugo Chavez. The second wave took place in 2015, while from 2017 to 2019 there was the third, most dramatic and complex Venezuelan migration wave.

[6] According to the last Population Census in 2011

[7] According to the Migration Policy Institute, in 2018 most Venezuelans were concentrated in the cities of Houston, Orlando, and especially Miami, where about 109,000 Venezuelans (2 percent of the population) lived.

[8] TMF had been approved for 1,624,915 Venezuelans until its suspension in 2018. On an average day in 2017, more than 30,000 Venezuelans used these cards to enter and leave Colombia (IOM, April 2020).

Venezuelan immigration. As of June 2019, only Venezuelans holding passports and humanitarian visas could enter Peruvian and Chilean territories. In October 2019, 67 percent of Venezuelans had arrived in Peru without having any residence permit or visa [9] [10]. The number of Venezuelans who entered Chile illegally rose to 3,333, up from 1,536 in 2018 [11]. The United States is undoubtedly the destination country that has implemented the most restrictive migration policy. Since the Trump administration (early 2017), the United States has been virtually closed to Venezuelans. The number of tourist visas issued to Venezuelans dropped to 47,942 after reaching 239,772 in 2015 [12]. Moreover, as of 2017, the United States increased the cost per visa application from 30 (in 2015) to 160 US Dollars [13].

Obviously, the distance, geographical characteristics of the routes, and the military control of the borders have made irregular migration to Chile and the United States much more difficult than to Colombia and Peru [14]. Willing to tackle irregular migration, countries in the region intensified programs to regularize irregular migrants already in the country. Colombia introduced the PEP (Permiso Especial de Permanencia) implemented in four different rounds (June 2017, February, August, and December 2018) [15], Peru developed the PTP (Permiso Temporal de Permanencia) in 2019 [16], and Chile launched the Process of Extraordinary Regularization in July 2018 [17].

The sudden economic crisis and subsequent surge in Venezuelan emigration pro-

[9] 22 percent had a temporary residence permit; 5 percent a tourist visa; 3 percent a permanent residence permit; and 2 percent a work or study visa.

[10] Encuesta Dirigida a la Poblacion Venezolana residente en el Pais 2019

[11] Chilean Investigative Police (PDI)

[12] US officials could detain Venezuelans arriving on tourist visas if inspectors suspected they intended to stay rather than visit (IOM, 2020)

[13] The price was prohibitive, as the average salary of a Venezuelan in 2018 was about 250 US Dollars per year

[14] Refugees and migrants compelled to leave Venezuela to use diverse routes to reach their destination including by land, plane, and sea, sometimes putting their lives at risk. Many leave without documents to cross borders. They face great risks at the hands of smugglers and traffickers (UNHCR 2019).

[15] According to Migración Colombia, the State's immigration authority, there are approximately 600,000 Venezuelans who have a PEP.

[16] As of Oct 29, 2019, 549,606 Venezuelans had received a PTP

[17] As of Jul 23, 2018, 31,682 Venezuelans had taken part in the regularization program.

vide a clean exogenous shock that rules out the possibility that education may be endogenous to the prospect of emigration.

3 Data

3.1 Data sources

The analysis requires individual-level data representative of the Venezuelan population residing in the origin country and of the four main receiving countries over the relevant period. Specifically, the full dataset was created by combining five different data sources. For Venezuela, I use the 2018 Encuesta Nacional de Condiciones de Vida (hereafter ENCOVI [18]), representative of the Venezuelan population remaining in the country of origin. As a representative sample of the Venezuelan migrants residing in Colombia, I rely on the 2021 Colombian National Household Survey (or GEIH in the Spanish acronym [19]). For Peru, I use the 2021 Encuesta Dirigida a la Población Venezolana que Reside en El País (ENPOVE [20]). For the United States, I chose the 2021 American Community Survey [21]. For Chile, I rely on the National Socioeconomic Survey 2021 (or Casen in the Spanish Acronym [22]).

[18]The survey was carried out by the Universidad Catolica Andres Bello de Caracas in 2018. It provides information about 21,382 individuals across 22 states (The sample does not include Amazonas and Dependencias Federales). The survey covers a wide variety of topics, including basic demographics, educational background, and labor market conditions.

[19]Source: Departamento Administrativo Nacional de Estadística, Gran Encuesta Integrada de Hogares - GEIH - 2021. It was conducted at the end of 2021 and it includes 17,7428 Venezuelan migrants.

[20]Instituto Nacional de Estadística e Informática, "Encuesta Dirigida a la Población Venezolana que Reside en el País 2021"). The survey, performed at the end of 2021, collects information on 9.847 Venezuelan migrants residing in Peru, which is the second-largest receiving country. It was carried out by the Peruvian National Institute for Statistics (INEI) between November and December 2021. It is representative by design of the Venezuelan population residing in Peru. In particular, it was conducted in the five largest cities in the country (Lima, Tumbes, Trujillo, Cusco, and Arequipa), where 85 percent of Venezuelans reside.

[21]Source: U.S. Census Bureau, American Community Survey (ACS), Public Use Microdata Sample (Pums), 2021. Its sample is approximately 2.5 percent of the resident population in the US.

[22]conducted by the Ministry of Social Development. It provides information on 1.2 percent of the total population living in Chile.

Finally, I combined the five datasets, appropriately weighted, to account for the different coverage of the samples with respect to the populations under analysis [23]. The full dataset contains individual-level information on age, employment status, occupation, and labor earnings. According to the existing literature on economic migration, I opted to restrict the sample to the working-age population (18 to 60). My final sample consists of 40,031 observations provided by 12,335 stayers, 17,742 Venezuelans settled in Colombia, 7,484 migrants in Peru, 1805 migrants in Chile, and 765 migrants in the United States.

The timing of the surveys described above fits well with the need to focus on Venezuelans who left their home country driven by Venezuela's sudden economic collapse. Furthermore, I chose to use ENCOVI 2018 as a sample representative of stayers since most of the migrants residing outside their country of origin, moved between 2017 and 2019 (see Figure 1). Finally, the investigation concerns only Venezuelan migrants who were legal at the time of the survey. However, I cannot rule out the possibility that some Venezuelans previously entered irregularly between 2015-2021 and then obtained the required documents thanks to the regularization policies mentioned in section 2.

3.2 Descriptive statistics

Table 1 reports some basic descriptive statistics on stayers and migrants to the four destination countries. It shows that Venezuelans who emigrated to Colombia and Chile are predominantly women (53-54 percent), while in Peru and the United States, the sample is gender balanced. Consistent with the literature on migration selection, migrants are younger than stayers, regardless of gender, with the exception of the United States, where Venezuelan migrants are, on average, the same age as those who remained in the country of origin. The average age of the Venezuelans who chose

[23] The ENCOVI sample is representative of the estimated 26 million Venezuelan residents in 2018. The GEIH sample is representative of 1.8 million Venezuelan migrants residing in Colombia. The ENPOVE sample is representative of 1.3 million Venezuelans residing in Peru. While CASEN and ACS samples are representative of 448,000 and 460,000 Venezuelan migrants residing in Chile and United States, respectively.

not to leave the country was 37 at the time of the survey [24]. For both genders, migrants living in Colombia, Chile, and the USA are more educated than non-migrants. Venezuelan migrants residing in Peru are on average as educated as those remaining in Venezuela. 19 percent of them have a university degree. Venezuelans who moved to the United States are the most educated. 55 percent of them are college graduates. The share of college graduates among Venezuelan women is higher than among men (58% in the US, 55% in Chile, 26% in Colombia, and 23% in Peru).

When examining the earnings data, several aspects deserve careful consideration. First, I note a remarkable migration premium. Despite being younger, migrants earned much higher annual incomes than non-migrants. Additionally, within our sample, Venezuelan migrants are classified as short-term migrants, meaning they have departed from their home country within the past five years. This implies that some years after migration they may obtain a much higher migration premium. Second, the data reveal a substantial and relatively constant gender disparity in earnings. The largest gap is observed in the Venezuelan population residing in the United States (35 percent for women with a college education and 31 percent for women without a college education), while Chile has the lowest female penalty among the countries analyzed (12 percent for college graduated and 16 percent for non-college graduated women). Third, university premiums differ greatly depending on the destination country. Peru shows the lowest return to education. On average Venezuelan migrants who settled in Peru and have a degree earn only 9% more than migrants with no university degree (4612$ compared to 4228$). Colombia has much higher rates of return to education than Peru: the degree on average ensures 25% higher income. Chile shows the highest return to education: a college-graduated migrant earns 50% percent more than a non-college graduate.

The premium differences across destinations are not due to the length of migrants' stay. The clean "push shock" due to the sudden economic crisis led to mass migration in the short term. Most of the migrants in my sample migrated between 2017 and 2019. These descriptive statistics regarding earnings and education rates are in line

[24]Some World Bank estimates show a constant increase in the average age since the beginning of the crisis, due to a lower survival rate at birth, a lower birth rate and migration of young people.

with the results obtained by Grogger and Hanson (2011), which state that the absolute differences in earnings between college and non-college individuals are higher in high-income countries. Although descriptive statistics suggest that migrants have the potential to obtain a large gain by moving from their home country (which is not surprising given the economic situation in Venezuela), it is unclear to what extent this is due to their observable and unobservable characteristics.

Furthermore, I extend the descriptive statistics by running a series of multivariate regression models examining the relationship between personal characteristics and migration probabilities to the different countries [25]. Table 2 presents evidence for the full migrant sample and separately for the four destination countries. I also estimate each specification for males and females [26]. In column 1, I find that, for both males and females, educated people are significantly more likely to migrate, which means that migrants are positively selected in education with respect to stayers. However, as suggested by the two-sided tests of coefficient equality across regressions, the effect of having a college degree on the probability of migrating is different depending on the country of destination and gender. Indeed, Table 2 shows a weaker positive selection for Venezuelan females who moved to Colombia and a negative selection for Venezuelan males who moved to Peru (respectively Columns 2 and 3 of Table 2) [27]. These descriptive results confirm the positive selection of migrants compared to stayers and the positive sorting of the migration flow towards developed countries (Chile and the United States) with respect to Venezuelan migrants living in developing countries (Peru or Colombia) [28].

[25] I restrict the analysis to working-age Venezuelans (aged 18 to 60) who reported earnings other than zero, in order to focus on those most likely to have the decision-making power to migrate and to have completed the education path.

[26] Outcome variables are as follows: *migrant to any country* is the outcome variable in Column 1; migrants who moved to Colombia in Column 2; Venezuelan migrants in Peru in Column 3; migrants in Chile in Column 4, and migrants in the US in Column 5. In each analysis, the control group of stayers consists of ENCOVI respondents. I also run two-sided tests on whether the college dummy coefficient is statistically different across regressions for each country.

[27] Stronger positive self-selection of people moving to more developed countries is in line with Borjas (1990), as the US and Chile have much wider income differences than Venezuela (Grogger and Hanson, 2011).

[28] A logistic model is also estimated, with which I measure the selection and sorting of migrants (In appendix, Table A1).

4 Self-Selection: Wage Differentials, and Policies.

As discussed in Section 2, since almost a quarter of the population has left the country (nearly 6 million out of 29 million), and the skill, age, and gender compositions of the migration flow are very diverse, the Venezuelan exodus provides a unique context for studying migrants' decision-making process and their location choices. In addition, the Venezuelan migration has been directed to countries with different levels of economic development and different migration policy responses [29]. The heterogeneous migration flow combined with rare data on the labor situation of stayers and migrants in the main destination countries allows me to disentangle migration costs based on individual and destination countries' characteristics.

4.1 Wage Differentials and Migration Costs

In this section, I use the unique information on the annual earnings of Venezuelans to assess self-selection of migrants and to evaluate the role of expected earnings and migration costs in their choice of destination country. Finally, I disentangle how migration costs change accordingly with individual and receiving country characteristics.

As the migrants' surveys did not collect information on how much Venezuelans earned in their home countries before they left and, of course, each individual is only observed in one single location, the first step involves predicting individual-level earnings for all alternative locations, according to their individual observable characteristics. The availability of data on migrants' earnings in destination countries is of great value, especially for South-South migration episodes. Indeed, most empirical studies have had to rely on extrapolations from income figures for the general popula-

[29] In terms of numbers, only the Syrian exodus is comparable to the Venezuelan one (about 6 million refugees). The difference, however, lies in the determinants of migration and the choice of destination countries. Indeed, while Syria has been a country in conflict, Venezuela has gone through the most severe and profound crisis of any non-war failing state in modern history. In fact, Venezuelan migration could stem from both economic motivations and political violence. Moreover, the Syrian migration flow has been more concentrated toward Turkey, a country with a much higher income per capita than Colombia and Peru.

tion. However, as shown by McKenzie and Rapoport (2010) in the context of Tongan migrants to New Zealand, migrants are likely to differ from non-migrants in several unobservable aspects. Even in the context of interest, there might be some unobserved characteristics that push people to move to a specific destination country and systematically bias their wage draws. For example, suppose that equally educated Venezuelans moving to the United States are less risk-averse people than Venezuelans migrating to Peru or Venezuelans who chose to stay in their home country. At the same time, they will be more likely to be hired in more risky and better-paid jobs. Therefore, unobserved heterogeneity in the propensity to migrate affecting also earnings would create a selection bias in the wage equation.

To address this concern, I apply the self-selection correction method proposed by Dahl (2002) [30]. First, I divided the population into 18 mutually exclusive groups, based on gender, education (college versus high school versus non-educated), and age (three age groups). For each of these groups, I calculate the proportion of individuals who remain in Venezuela and work for a wage there ($\hat{p}_{i1}$), migrate to the US, and work for a wage there ($\hat{p}_{i2}$), migrate to Colombia ($\hat{p}_{i3}$), migrate to Peru ($\hat{p}_{i4}$), and migrate to Chile and work for a wage there ($\hat{p}_{i5}$). These terms represent the predicted probabilities of individuals belonging to specific groups choosing to work in the respective locations. Next, I estimate the Mincer regressions by adding the Dahl's correction Polynomial $f_j(\hat{p}_{i,j}, \hat{p}_{i,j'})$. As suggested by Bertoli et al. (2013), I include it as a second-order polynomial in the retention probability for stayers and a second-order polynomial in the retention and first-best probability for migrants plus an interaction term. The purpose of this polynomial term is to correct the potential bias arising from migrant workers having a higher unobserved propensity to migrate and work in specific destinations, which can impact their actual earnings. The underlying assumption of Dahl's method is that the unobserved heterogeneity within the groups is relatively small. Lastly, I predict the logarithm of earnings ($\hat{w}_{ij}$) in all five locations for all individuals within the sample.

Once I obtain selection-corrected individual wages, I use them to assess the self-

[30]The method was also used by Bertoli et al. (2013). In a South-North migration episode (from Ecuador to the US and Spain) they found that, including the Dahl parameter, the estimates of the expected earnings do not change much.

selection of migrants with respect to predicted incomes. To this end, I apply the method suggested by Borjas et al. (2019), who showed that the same conditions that result in positive or negative selection in terms of expected earnings also imply a stochastic dominance relationship between the counterfactual earnings distribution of migrants in the origin country and the earnings distributions of stayers.

Finally, I evaluate the role of expected earnings and migration costs in shaping the individual migration decision. Specifically, I estimate a discrete choice migration model, by using the predicted counterfactual earnings for all alternative locations.

I can summarize the utility function of individual i in location $j = 1, 2, 3, 4, 5$ with:

$$U_{i,j} = \alpha ln(\hat{w})_{i,j} + x_i\beta_j + \upsilon_{i,j} \tag{1}$$

In practice, I estimate a conditional logit model in order to evaluate the effect of expected earnings on the location choice and to disaggregate country-specific migration costs. I then estimate a mixed logit model, which allows me to disentangle costs according to individual characteristics. In both models, the main explanatory variable for the probability of choosing a specific location is my estimate of predicted self-selection corrected log earnings at that location ($\hat{w}_{i,j}$). In the Conditional Logit Model estimation, I include country-specific intercepts in the first specification, while in the second specification, they are replaced by four country-specific cost variables: distance from the country of origin (kilometers), percentage of Venezuelans in the population of the destination country, language similarity and unemployment at the destination. I estimate this specification separately by gender. The mixed logit model permits me to include individual controls used in the previous steps: age, age squared, education, and gender (x_i) and country-specific intercepts to account for differences in policies, institutions, culture, and cost of living across the four destination countries. Although individual controls have already been used in earnings prediction, I include them in the decision model to capture individual differences in migration costs depending on the destination chosen.

Figures 3 and 4 compare cumulative distribution functions of selection-corrected

[31] migrants' predicted income (in the origin country) with stayers' CDFs. Figure 3 clearly suggests that male migrants in US and Chile are positively selected in terms of predicted incomes. Male migrants to Peru, on the other hand, appear to be negatively selected over the stayers. The CDF of predicted income of Venezuelan males in Colombia almost overlaps with that of stayers, suggesting that the two populations are very similar. The female Figure 4, instead, shows that both Venezuelan females who migrated to Peru and to Colombia appear negatively selected.

In the case of migration from Venezuela to Colombia, the results regarding migration self-selection in terms of predicted income contradict the positive selection shown in descriptive statistics. As a matter of fact, migrants who moved to Colombia are better educated than stayers, but they are negatively selected in terms of predicted income. This leads to a key consideration regarding the Venezuelan exodus: migration costs strongly influence the location choice and vary greatly according to individual and country characteristics. For example, highly educated Venezuelans might face lower migration costs due to the greater likelihood of obtaining the required migration documents, having networks at destination, or finding information on how to migrate and settle abroad.

Table 3 shows the estimates of the conditional logit model specifications, in which the effects of the individual characteristics on migration costs do not vary across alternatives. The earning coefficient α is positive and highly significant for both genders, suggesting that higher expected earnings in a particular country increase the probability of moving there. In the first two columns, the coefficients of the country intercepts are high and strongly significant. Moreover, we can see that they differ greatly across destination countries, suggesting that Colombia has the lowest migration costs while migrating to the United States is the most expensive choice. When I replace the country intercept with country-specific migration cost variables,

[31] Table A2 shows the results of the wage regressions with (even-numbered columns) and without (odd-numbered columns) including the Dahl correction term for self-selection in unobservables. The upper panel refers to the sample of males, while the lower panel refers to females. P-Values (F-test Dahl polyn.) suggest that unobserved individual characteristics play an important role in predicting the wage. Among destination countries, the estimates imply the lowest college premium for migrants residing in Peru (9,3% for males and 11,9% for females). This is in line with the low-skill composition of migrants in Peru.

I see that distance to country of origin (cost of travel) and network at destination are significant factors in shaping women's and men's migration choices (columns 3 and 4).

Table 4 shows the estimates for the Mixed Logit Model. The first column shows the effect of individual characteristics on the likelihood of migrating to Colombia, column 2 of migrating to Peru, column 3 to Chile, and the last column the choice to migrate to the United States. Again, the coefficient of expected earnings is positive and highly significant (0.651), clearly suggesting that earnings at destination are a robust determinant of migration choices. Turning to the interpretation of the coefficients of individual controls and country intercepts, I note that the coefficients associated with the education variable are still positive and significant, despite the fact that I am controlling for earnings. This confirms the hypothesis mentioned in section **??** that people with college degrees, conditional on expected earnings, may face lower migration costs (Column 1 in Table 4). Several potential explanations may lie in welcoming migration policies for college graduate migrants or better networking at destination.

In the case of Peru, however, the coefficient is not significant and close to zero. This result is surprising for several reasons. Peru is geographically farther away than Colombia, and there were very few Venezuelans living in Peru before the crisis (weak Venezuelan network). In fact, Table 3 confirms that migrating to Peru is 30 percent more expensive than migrating to Colombia. However, in accordance with the literature, the better educated should also be better able to cope with the non-monetary costs of migration (i.e. due to the ability to make better use of the network and to obtain information about the destination and migration route). The negative selection of Venezuelan migrants living in Peru (Table 2 and Figure 3 and 4) combined with the results in Table 4 suggest that Peru, in addition to being unattractive to more educated migrants due to low college premium (Table A2) compared to neighboring Colombia, has other confounding "non-pull" factors that make it the last choice for the most educated. One potential explanation could lie in the unintended consequences of a restrictive migration policy implemented by the Peruvian government in June 2019. In the last section, I will then evaluate the effect of the Peruvian visa requirement on

migration costs and the skill composition of the Venezuelan migration flow.

4.2 Impacts of Policies

While the effect of migration policies implemented by high-state capacity and developed countries seems quite clear (Ortega and Peri, 2009; Mayda, 2010), the effect of restrictive migration policies introduced by neighboring and underdeveloped countries is still under-researched and debated.

In section 3.2, I showed that Venezuelan migrants working in Peru appear less educated than migrants residing in Colombia, despite the fact that the cost of migrating to the former is higher than the cost of migrating to the latter. One of the explanations given throughout this paper is that the low college premium assured to graduates in Peru plays an important role in disincentivizing them from continuing their migration route to the country. Educated Venezuelans who are unable to leave for the U.S. or Chile because of budget constraints or personal ties to South America prefer to move and stay in Colombia, where they can obtain a 25 percent college premium compared to 9 percent in Peru (see Table A2). Despite this, the results of section 4.1 show that controlling for the earnings at destination, Peru is the only country among those under analysis that does not ensure lower migration costs for educated migrants (see Table 4). Therefore, the first step in this analysis involves assessing the effect that Peru's restrictive visa requirement migration policy has had on the skill composition of the Venezuelan migration flow.

Until the onset of the Venezuelan crisis in 2015, Latin American citizens could migrate to other countries within the continent without the need for a visa or passport (Selee and Bolter, 2020). South American governments, through institutions such as MERCOSUR, CAN, CARICOM, and UNASUR, and a series of multilateral agreements had made the continent a liberal context in terms of free people movements (Ceriani and Freier, 2015; Fernandez-Rodriguez et al., 2020). However, faced with a backlash from Peruvian public opinion following the first wave of migration in 2017-2018 (Figure 2), Peru began to implement restrictions starting in 2018 (Arcarazo et al., 2019). In August 2018 it imposed passport requirements, conforming to

Colombia's migration policy. However, realizing that the passport requirement had not had the desired effect, Peru required visas for Venezuelan migrants at the end of June 2019 (Selee and Bolter, 2020). As shown in Figure 5, although there has been a spike in migrants' arrivals right before the implementation of the restrictive policy - possibly due to the anticipation of it - as of July 2019, the number of people migrating to Peru started to gradually decrease. In the same month, however, the percentage of migrants crossing the border illegally increases dramatically (Figure 6). This policy clearly imposes new potential Peru-related migration costs, such as the monetary cost and the waiting time to get the visa. The second step in this section consists, then, in estimating the increase in migration costs for Peru as a result of the implementation of the visa restriction.

Specifically, I test the two hypotheses formulated above, by using a difference-in-differences (DID) research design, comparing the sample of Venezuelan migrants residing in Peru before and after the implementation of the restrictive policy, with those residing in Colombia, which did not implement any restrictive policy. Colombia is found to be the most reliable control case among all the other destination countries, as migrants in the two countries are similar in many respects (Figures 3 and 4). I restrict the sample of Venezuelan migrants to those who arrived in Peru or Colombia one year before and one year after the introduction of the visa restriction to rule out the possibility that other confounding factors or policies could make the results biased. The DID general model for both dependent variables is:

$$Y_{it} = \alpha + \gamma Peru_i + \lambda T_t + \delta(Peru_i * T_t) + \beta X_{it} + \epsilon_{it} \tag{2}$$

where Y_{it} is the log of education years or predicted pre-migration earnings for individual i in period t. $Peru_i$ is a dummy variable that is 1 if the migrant resides in Peru (Treatment group), and 0 for the migrants residing in Colombia, T_t is the time dummy, which is 0 for before and 1 after the introduction of visa restriction, while $Peru_i T_t$ is the interaction term between time and treatment. X_{it} is a vector of demographic variables, including age, age squared, and education (only for wage regression). α is the constant, and ϵ_{it} is the error term.

Table 5 shows the results of the DID OLS regressions for the two dependent variables, stratified by gender. Columns 1 and 2 indicate that the restrictive policy led to a decrease in the educational level of migrants by 9.8 percent for men and 13.6 percent for women. Columns 3 and 4 reveal instead that the policy leads to attracting migrants who, given equal education, have a predicted pre-migration wage that is 4 percent higher [32]. The effect is significant only for male migrants. These results suggest that the policy has had mixed effects, some intended, while others are unexpected. As a matter of fact, one plausible explanation could be that the introduction of the visa brings increased migration costs for all categories of migrants, who consider migrating irregularly. Cost-opportunity related to irregular migration, however, is not constant across educational classes. An educated Venezuelan who migrates irregularly would not be able to validate his degree and/or find a job in the formal labor market in line with his skills. A poorly educated Venezuelan, on the other hand, might be able to find the same job and salary he would have if he had migrated regularly. The rest of the costs related to irregular migration – for example, the likelihood of being caught and/or lack of health care – are the same for both classes of education.

In conclusion, it does not seem that restrictive migration policies among Southern countries can have a positive influence on migration flows. If not implemented with the right timing these policies can also lead to negative unintended consequences. This may probably also be due to the impossibility of border control by low-state-capacity countries, which leads to irregular migration mainly supported by organized crime. Therefore, I believe the perception that restrictive policies are the only tools governments can rely on to monitor, control, and limit cross-border flows of people needs to be revised (Neumayer, 2010). Beyond border policies, more attention needs to be paid to interventions that successfully affect pull and push factors.

[32] An average salary in Venezuela is about 250 USD. So the extra 4 percent is equivalent to 10 USD, which is about the cost of the Peruvian visa.

5 Conclusion

In this paper, I examine migrants' selection patterns according to wage differentials, country-specific migration costs, and immigration policies in a context where their own country is undergoing a serious crisis and most destination countries are similarly fragile countries. I combine individual-level data representative of the Venezuelan population with similar data on Venezuelan migrants residing in Colombia, Peru, Chile, and the US.

The results show that migrants residing in the US, Chile, and Colombia are positively selected in terms of education, while migrants in Peru are negatively selected. Moreover, South-North migrants appear positively sorted compared to South-South migrants. By controlling for self-selection in unobservables, migrants located in Chile and the US are positively selected compared to stayers in terms of predicted income. South-South migrants, instead, appear negatively selected compared to Venezuelans who chose not to leave the country. Such a result implies that unobservable characteristics play a key role in identifying the level of productivity of migrants.

I also find that income differentials and migration costs are robust determinants of Venezuelan migration choice. Discrete choice models reveal that controlling for the wage migration premium, migration costs still depend greatly on individual and destination country-specific characteristics. Particularly, women and college graduates face lower migration costs. Moreover, distance to the destination country and pre-crisis network play a key role in migration choice. In the case of Peru, however, it is surprising to find that having a college degree does not ensure lower migration costs. Although the evidence confirms that Peru has higher migration costs than Colombia given the greater geographic distance and weak network, Venezuelans residing in Peru are less educated.

Finally, I evaluate the effect that a restrictive policy implemented by the Peruvian government has had on migration costs and the skill composition of the migration flow. The results show that the restrictive policy led to a decrease in the educational level of migrants. Restrictive migration policies among fragile Southern countries may

lead to negative unintended consequences.

These findings extend the literature on migrant self-selection, bringing empirical evidence in a context where South-South migration outweighs South-North migration. Although observable characteristics explain much of the variance in wages, unobservable characteristics also play an important role in estimating the migrant's level of productivity. In addition, distinguishing and disaggregating the importance of each migration cost faced by Venezuelan migrants is crucial for the analysis of this specific migration episode and for properly implementing migration policies in both destination countries and the country of origin. Although this current work illuminates the importance of self-selection and migration costs in shaping the migration decision, further studies focusing on South-South migration and effective policy interventions are highly recommended.

Figures and Tables

Table 1: Descriptive statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Venezuela		Colombia		Peru		Chile		U.S.	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Female	0.52	0.50	0.54	0.50	0.51	0.50	0.53	0.50	0.50	0.50
Age	37	12	32	10	33	10	35	10	37	11
College	0.19	0.39	0.23	0.42	0.19	0.39	0.51	0.50	0.55	0.50
Labor income, USD	249	539	2,332	1,354	4,305	2,246	8,643	5,724	31,998	27,380
Non-college graduate	241	523	2,201	1,195	4,228	2,121	6,810	2,564	26,621	23,243
College graduate	276	594	2,756	1,708	4,612	2,667	10,201	7,055	36,356	29,643
College premium	0.15		0.25		0.09		0.50		0.37	
Male										
Age	36.82	12.42	31.55	9.75	32.35	9.51	34.32	9.53	36.32	11.24
College graduate	0.15	0.36	0.19	0.39	0.14	0.34	0.46	0.50	0.52	0.50
Labor income, USD	268	545	2,558	1,311	4,740	2,310	9,070	5,854	37,624	29,417
Non-college graduate	254	513	2,420	1,158	4,655	2,195	7,288	2,830	30,805	24,652
College graduate	342	691	3,145	1,704	5,241	2,846	10,887	7,389	43,719	31,950
College premium	0.35		0.30		0.13		0.49		0.42	
Female										
Age	36.80	12.44	32.12	10.34	33.43	10.46	35.44	9.94	36.98	10.85
College graduate	0.23	0.42	0.26	0.44	0.23	0.42	0.55	0.50	0.58	0.49
Labor income, USD	216	527	2,013	1,349	3,747	2,030	8,154	5,537	25,447	23,177
Non-college graduate	211	544	1,845	1,167	3,587	1,826	6,133	1,946	21,136	20,054
College graduate	225	499	2,407	1,636	4,178	2,447	9,544	6,668	28,559	24,780
College premium	0.07		0.30		0.16		0.56		0.35	
Wage Female Penalty										
Non-college graduate	-0.17		-0.24		-0.23		-0.16		-0.31	
College graduate	-0.34		-0.23		-0.20		-0.12		-0.35	
Observations		12,235		17,742		7,484		1,805		765

Source: Author's elaboration on ENCOVI 2018, GEIH 2021, ENPOVE 2021, ACS 2021 and CASEN 2021.

Notes: The first panel includes the full sample of working-age people (aged 18 to 60). The second panel includes sample of male and the third sample of females. The wage female penalty represents the difference of wages between females and males by class of education. I applied 2020 USD exchange rate.

Table 2: Self-selection of Venezuelan migrants (aged 18 - 60)

	(1) All Migrants	(2) Colombia	(3) Peru	(4) Chile	(5) US
Male					
College Graduate	0.068***	0.059***	-0.034**	0.213***	0.157***
	(0.008)	(0.011)	(0.014)	(0.013)	(0.012)
Age	0.026***	0.021***	0.030***	0.015***	0.002
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Age sq. * 1000	-0.461***	-0.424***	-0.505***	-0.221***	-0.032
	(0.028)	(0.031)	(0.036)	(0.027)	(0.021)
Observations	18,855	13,926	9,442	6,649	6,214
R-squared	0.059	0.067	0.052	0.082	0.058
Female					
College Graduate	0.046***	0.025***	-0.002	0.174***	0.108***
	(0.007)	(0.009)	(0.012)	(0.011)	(0.009)
Age	0.018***	0.016***	0.022***	0.015***	0.005***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Age sq. * 1000	-0.336***	-0.329***	-0.367***	-0.207***	-0.061***
	(0.026)	(0.030)	(0.036)	(0.026)	(0.020)
Observations	21,063	15,855	10,081	7,195	6,673
R-squared	0.038	0.048	0.028	0.067	0.040

Notes: Standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Outcome variable, migrant, is equal to 1 for Venezuelans who left the origin country and 0 for respondents in Venezuela at the time of the ENCOVI survey. The sample of column 1 includes stayers and the migrants residing in all destination countries. In column 2 I restrict the sample to stayers and migrants residing in Colombia. In column 3 the sample include stayers and migrants living in Peru. In column 4, the sample includes stayers and migrants in Chile. In column 5, the sample comprises stayers and migrants in the US. The college graduate coefficients are statistically different across all specifications.

Table 3: Location choice model: Conditional Logit Model

	(1) Male	(2) Female	(3) Male	(4) Female
Earnings	1.611**	2.939***	1.611**	2.939***
	(0.921)	(0.397)	(0.921)	(0.397)
Colombia dummy	-5.212*	-9.588***		
	(2.870)	(1.231)		
Peru dummy	-7.418***	-12.966***		
	-2.492	(2.014)		
Chile dummy	-9.608**	-16.153***		
	(4.238)	(2.800)		
US dummy	-11.920**	-19.160***		
	(5.153)	(2.936)		
Network			0.491**	0.917***
			(0.237)	(0.107)
Distance			-1.018*	-1.512***
			(0.539)	(0.506)
Unemployment			0.079	0.136
			(0.272)	(0.303)
Language			2.319	2.964*
			(2.098)	(1.534)
Observations	13,546	8,530	13,546	8,530
Pseudo R-squared	0.244	0.237	0.244	0.237
Log-likelihood	-26535.84	-26535.84	-26535.84	-26535.844

Notes: Standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This Table shows the estimates of the conditional logit model specifications, in which the effects of the individual characteristics on migration costs do not vary across alternatives. The first row indicates the effect of expected earnings at destination to migrate to that country. The higher the expected earnings, the greater the probability of migrating to that destination. In the first two columns, I only include expected earnings and country intercepts. In columns 3 and 4, I replace the country intercept with country-specific migration cost variables, such as distance to country of origin (cost of travel), network at destination, pre-crisis unemployment rate, and a language dummy (which takes value 1 if spanish is the official language at destination).

Table 4: Location choice model: Mixed Logit Model

	(1) Colombia	(2) Peru	(3) Chile	(4) USA
Earnings		0.651***		
		(0.108)		
College graduate	0.165***	0.035	1.395***	1.496***
	(0.042)	(0.060)	(0.074)	(0.085)
Age	0.014	0.034**	0.131***	-0.059**
	(0.011)	(0.015)	(0.027)	(0.028)
Female	0.287***	0.318***	0.070	0.261***
	(0.035)	(0.044)	(0.075)	(0.084)
Age sq*1000	-0.001***	-0.001***	-0.002***	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
Country Intercept	-1.185**	-3.015***	-7.203***	-5.428***
	(0.482)	(0.586)	(0.722)	(0.797)
Number of cases		22,967		
Log-likelihood		-27337		

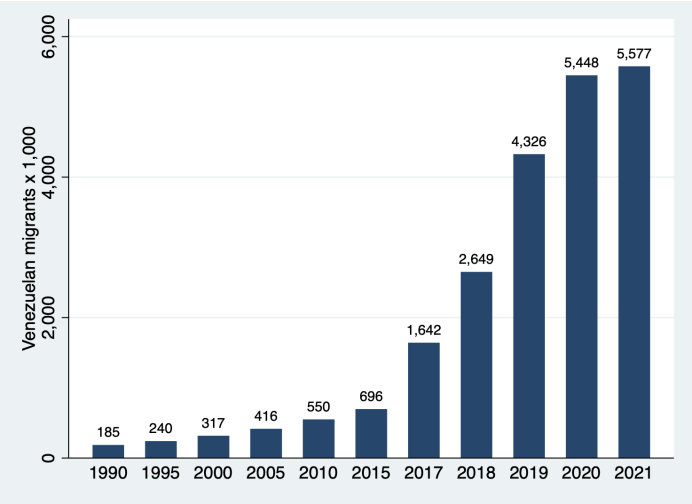
Notes: Standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This Table shows the estimates for the Mixed Logit Model. The first row indicates the effect of expected earnings at destination to migrate to that country. The higher the expected earnings, the greater the probability of migrating to that destination. The first column shows the effect of individual characteristics on the likelihood of migrating to Colombia, column 2 of migrating to Peru, column 3 to Chile, and the last column the choice to migrate to the United States. The sample includes males and females.

Table 5: Diff-in-Diff visa restriction

	(1)	(2)	(3)	(4)
	Education		Earnings	
	Male	Female	Male	Female
Treatment*Post Visa	-0.098***	-0.136***	0.040***	0.008
	(0.026)	(0.033)	(0.006)	(0.008)
Treatment (Peru migrants)	-0.188***	-0.149***	-0.006	-0.009
	(0.017)	(0.021)	(0.004)	(0.005)
Post Visa	-0.060***	-0.035	-0.017***	-0.000
	(0.020)	(0.025)	(0.005)	(0.007)
College graduate			0.466***	0.284***
			(0.003)	(0.005)
High School			0.129***	-0.052***
			(0.004)	(0.005)
Age	0.035***	0.054***	0.049***	0.022***
	(0.004)	(0.006)	(0.001)	(0.001)
Age Squared	-0.000***	-0.001***	-0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	3,991	2,919	3,991	2,919
R-squared	0.095	0.096	0.883	0.721

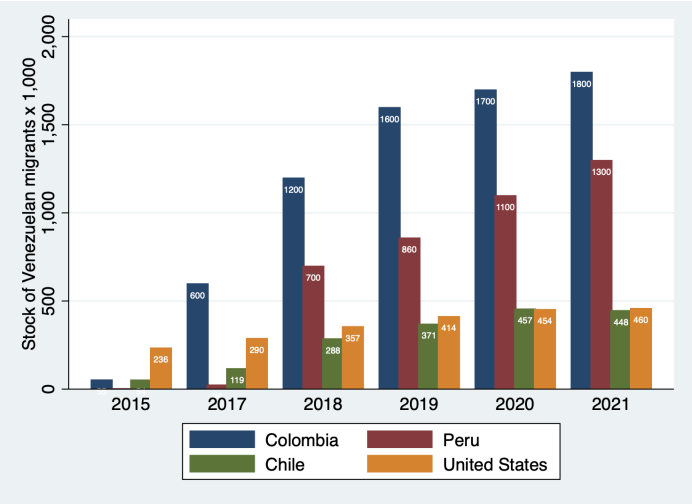
Notes: Robust standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The outcome variable Education represents the logarithm of years of education. The outcome variable Earnings is the logarithm of the predicted wage (selection - corrected) at home country. The sample has been restricted to Venezuelan migrants who moved to Colombia (control group) or Peru (treatment group) between June 2018 and June 2020. The visa policy has been introduced in June 2019.

Figure 1: Stock of Venezuelan migrants by year (1990 - 2021)



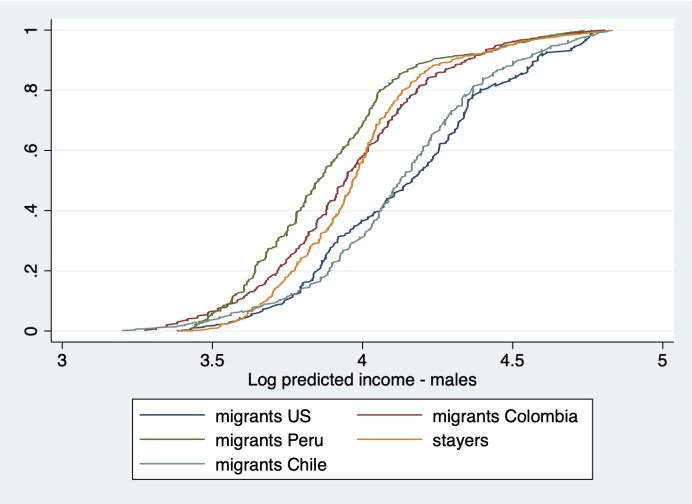
Source: Author's calculations based on R4V - Plataforma de Coordinación para Refugiados y Migrantes de Venezuela and United Nations High Commissioner for Refugees (UNHCR) data.

Figure 2: Stock of Venezuelan migrants by year and country (2015 - 2021)



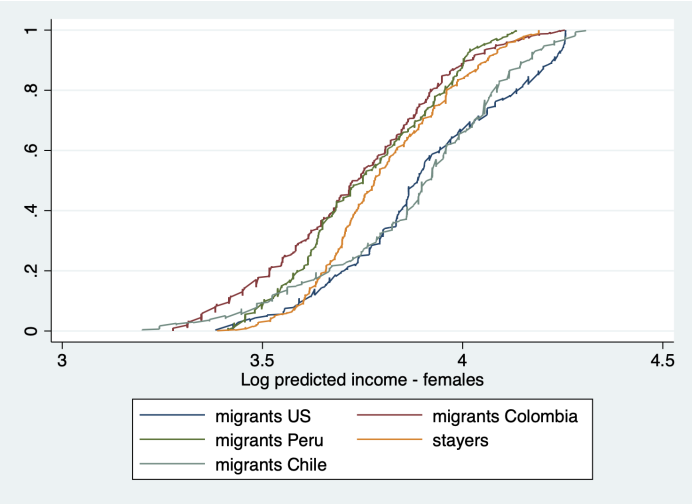
Source: Author's calculations based on R4V - Plataforma de Coordinación para Refugiados y Migrantes de Venezuela and United Nations High Commissioner for Refugees (UNHCR) data.

Figure 3: Cumulative distribution functions of predicted income in Venezuela - Males



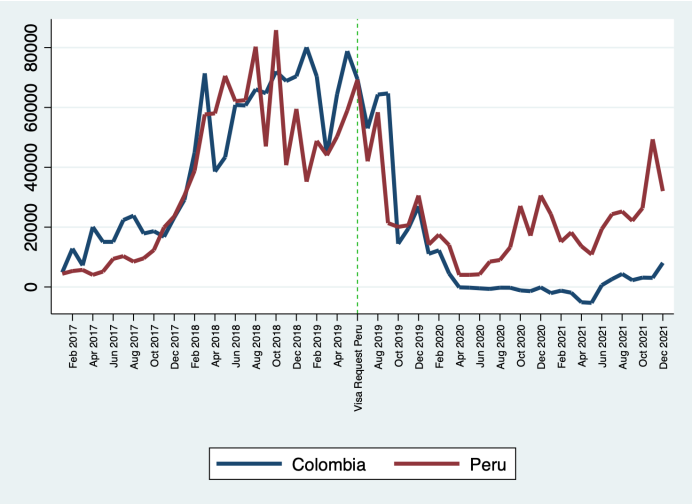
Notes: This chart presents cumulative distribution functions of Venezuelan migrants' and stayers' predicted income in the origin country (Male sample). I used the predicted earning selection-corrected à la Dahl.

Figure 4: Cumulative distribution functions of predicted income in Venezuela - Females



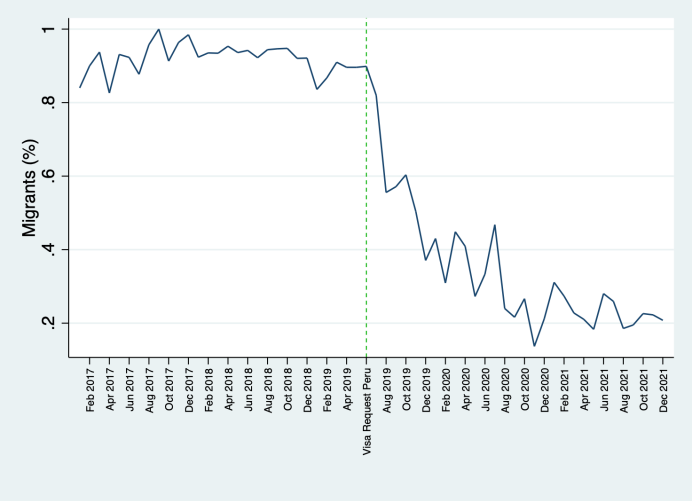
Notes: This chart presents cumulative distribution functions of Venezuelan migrants' and stayers' predicted income in the origin country (Female sample). I used the predicted earning selection-corrected à la Dahl.

Figure 5: Venezuelan arrivals in Peru and Colombia (Jan 2017 - Dec 2021)



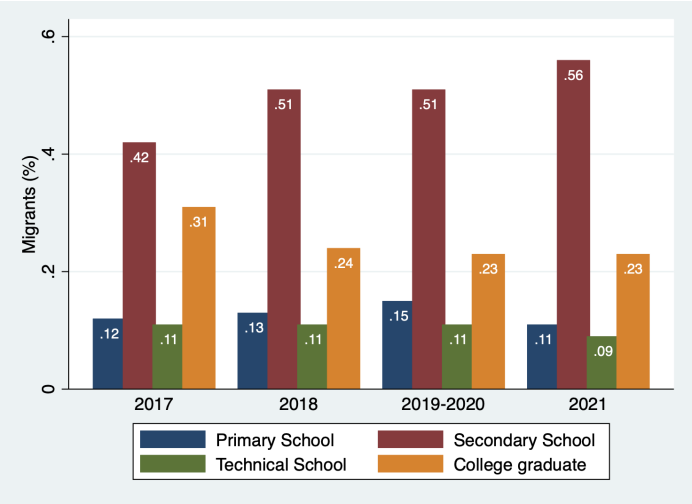
Notes: This chart presents the arrivals of Venezuelan migrants in Peru and Colombia. Source: For Peru, I use elaborations from ENPOVE 2021. For Colombia, I extrapolate data from the Ministerio de Relaciones Exteriores.

Figure 6: Percentage of regular migrants in Peru



Notes: This chart presents the percentage of migrants who entered regularly Peru over time (Jan 2017 - Dec 2021)
Sources: Author's elaboration of ENPOVE 2021 data.

Figure 7: Skill composition of Venezuelan migrants over time



Notes: This chart presents the skill composition of migrants over time Sources: ENCOVI 2017, ENCOVI 2018, ENCOVI 2019 - 2020, ENCOVI 2021

Appendix

Table A1: Self-selection of Venezuelan migrants (aged 18 - 60) - Logit specification

	(1) All Migrants	(2) Colombia	(3) Peru	(4) Chile	(5) US
Male					
College Graduate	0.357***	0.260***	-0.166***	1.475***	1.762***
	(0.044)	(0.048)	(0.063)	(0.079)	(0.103)
Age	0.108***	0.095***	0.168***	0.186***	0.037
	(0.010)	(0.011)	(0.014)	(0.027)	(0.033)
Age sq. * 1000	-1.976***	-1.870***	-2.760***	-2.760***	-0.575
	(0.133)	(0.149)	(0.200)	(0.370)	(0.420)
Observations	16,876	12,189	9,825	6,084	6,154
Female					
College Graduate	0.239***	0.109***	-0.014	1.307***	1.477***
	(0.037)	(0.039)	(0.051)	(0.073)	(0.103)
Age	0.076***	0.065***	0.111***	0.169***	0.095***
	(0.009)	(0.010)	(0.013)	(0.025)	(0.034)
Age sq. * 1000	-1.424***	-1.362***	-1.812***	-2.396***	-1.254***
	(0.123)	(0.135)	(0.176)	(0.332)	(0.438)
Observations	17,039	12,826	9,769	6,535	6,650

Notes: Standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Outcome variable, migrant, is equal to 1 for Venezuelans who left the origin country and 0 for respondents in Venezuela at the time of the ENCOVI survey. The sample of column 1 includes stayers and the migrants residing in all destination countries. In column 2 I restrict the sample to stayers and migrants residing in Colombia. In column 3 the sample include stayers and migrants living in Peru. In column 4, the sample includes stayers and migrants in Chile. In column 5, the sample comprises stayers and migrants in the US. The college graduate coefficients are statistically different across all specifications.

Table A2: Determinants of labor earnings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Venezuela		Colombia		Peru		Chile		Usa	
	Standard Wage Eq	Selection corrected	Standard Wage Eq	Selection corrected	Standard Wage Eq	Selection corrected	Standard Wage Eq	Selection corrected	Standard Wage Eq	Selection corrected
Male										
College graduate	0.391***	-0.182	0.245***	0.231***	0.061**	0.093**	0.287***	0.483***	0.309***	0.646***
	(0.087)	(0.126)	(0.019)	(0.051)	(0.028)	(0.045)	(0.044)	(0.120)	(0.100)	(0.213)
Age	0.024	0.050**	0.052***	0.056***	0.035***	0.034***	0.057***	0.064***	0.077**	0.096***
	(0.019)	(0.020)	(0.005)	(0.006)	(0.007)	(0.008)	(0.017)	(0.019)	(0.031)	(0.036)
Age squared * 1,000	-0.213	-0.182	-0.712***	-0.664***	-0.445***	-0.461***	-0.674***	-0.716***	-0.861**	-0.981**
	(0.246)	(0.244)	(0.071)	(0.084)	(0.094)	(0.124)	(0.224)	(0.257)	(0.396)	(0.453)
Observations	3,604	3,604	6,720	6,720	2,269	2,269	539	539	373	373
R-squared	0.008	0.019	0.045	0.056	0.020	0.021	0.116	0.125	0.077	0.087
P-Value, F-test Dahl polyn.		0.000		0.119		0.770		0.046		0.282
Female										
College graduate	0.349***	0.319***	0.246***	0.322***	0.121***	0.119***	0.345***	0.369***	0.319***	-0.002
	(0.084)	(0.090)	(0.027)	(0.032)	(0.027)	(0.030)	(0.050)	(0.076)	(0.119)	(0.236)
Age	0.080***	0.091***	0.011	0.015	0.021**	0.031***	0.023	0.028	0.029	0.026
	(0.027)	(0.030)	(0.009)	(0.011)	(0.008)	(0.010)	(0.020)	(0.028)	(0.038)	(0.045)
Age squared * 1,000	-0.949***	-1.013***	-0.209*	-0.152	-0.313***	-0.528***	-0.344	-0.399	-0.466	-0.492
	(0.342)	(0.349)	(0.120)	(0.155)	(0.111)	(0.139)	(0.265)	(0.375)	(0.485)	(0.523)
Observations	2,046	2,046	4,777	4,777	1,769	1,769	471	471	320	320
R-squared	0.015	0.016	0.021	0.028	0.020	0.027	0.110	0.110	0.031	0.043
P-Value, F-test Dahl polyn.		0.370		0.009		0.000		0.660		0.499

Notes: Standard errors in parentheses. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The odd-numbered data columns report the results of the Standard wage equations, while the even columns show the Dahl earnings regression estimates. I include the Dahl term as a second-order polynomial in the retention probability for stayers and a second-order polynomial in the retention and first-best probability for migrants plus an interaction term. The sample has been restricted to working-age population (aged 18 to 60), who reports wage different from zero.

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