

Shoring Up Economic Refugees: Venezuelan Migrants in the Ecuadoran Labor Market

Sergio Olivieri,^{*} Francesc Ortega,[†] Ana Rivadeneira & Eliana Carranza

The World Bank Group & CUNY, Queens College

June 22, 2021

Abstract

Ecuador became the third largest receiver of the 4.3 million Venezuelans who left their country in the last five years, hosting around 10% of them. Little is known about the characteristics of these migrants and their labor market outcomes. This paper fills this gap by analyzing a new large survey (EPEC). On average, Venezuelan workers are highly skilled and have high rates of employment, compared with Ecuadorans. However, their employment is of much lower quality, characterized by low wages and high rates of informality and temporality. Venezuelans have experienced significant occupational downgrading, relative to their employment prior to emigration. As a result, despite their high educational attainment, Venezuelans primarily compete for jobs with the least skilled and more economically vulnerable Ecuadoran workers. Our simulations suggest that measures that allow Venezuelans to obtain employment that matches their skills, such as facilitating the conversion of education credentials, would increase Ecuador's GDP between 1.6 and 1.9 percent and alleviate the pressure on disadvantaged native workers. We also show that providing work permits to Venezuelan workers would substantially reduce their rates of informality and increase their average earnings.

^{*}Affiliation for Olivieri, Rivadeneira and Carranza: Poverty and Equity Global Practice, World Bank, Washington, DC, USA. E-mail: solivieri@worldbank.org.

[†]Corresponding Author: Economics Department, City University of New York, Queens College, Flushing, New York, 11365, USA. E-mail: francesc.ortega@qc.cuny.edu. Phone: 718-997-5440.

1 Introduction

The political and economic crisis in Venezuela has given rise to a massive exodus and UNHCR-IOM estimate that 4.6 million Venezuelans have migrated to countries in Latin American and the Caribbean. For instance, about 1.7 million Venezuelans had settled in Colombia, and over 2 million elsewhere in Latin America.¹

Naturally, Venezuelan migrants have sought employment in the host countries but, because of their recent arrival and their transient status, our knowledge of their working conditions is scant. Our paper aims to fill this gap focusing on Ecuador, where almost 400,000 Venezuelans have settled and many more have transited through the country on the way to other destinations. More specifically, we provide the first analysis of the labor-market conditions of Venezuelan migrants in Ecuador, based on a new nationally representative survey of this population that also includes information on the Ecuadorans living in the same localities. The survey (known by its Spanish acronym EPEC) was promoted by the World Bank and the government of Ecuador and implemented during the summer of 2019. The design and scope of the survey are unique in the context of the countries across Latin America hosting Venezuelan migrants. More specifically, mobile phone records by one of the largest communications providers in Ecuador were employed to identify the users that were likely recent Venezuelan migrants. Data on mobile phone ownership and the company's market share was then used to estimate the geographical distribution of recent Venezuelan migrants across Ecuador and to design the sampling strategy for the survey.

By providing detailed information on the skills, employment and wages of Venezuelan migrants, as well as the Ecuador-born population in the same local areas, we are able to analyze the effects of several policies aimed at improving the economic conditions of migrants while alleviating the adjustment costs on the native population and maximizing the net economic gain for the receiving country.

Our analysis delivers several important findings. First, we estimate that the inflows of Venezuelan migrants (between 2016 and the summer of 2019) amounted to 2% of Ecuador's population, reaching much higher concentrations in several provinces. The data also show that Venezuelan migrants are young (aged 32 on average) and highly educated, compared to Ecuador's working-age population. They also have very high employment rates, about 17 percentage-points higher than Ecuadorans in the same canton of residence, and account for 3% of Ecuador's employment. However, their em-

¹See the February 8, 2021, joint [press release](#) by UNHCR and IOM.

ployment is of much lower quality, characterized by high informality and temporality, higher weekly work hours, and lower wages, despite the higher schooling levels. The survey also provides information on the occupations held by migrants back in the home country, allowing us to document a high degree of occupational downgrading.

All in all, the previous findings strongly suggest that the skills of many Venezuelan migrants are vastly underutilized. At the same time, our findings provide additional support for [Olivieri et al. \(2020\)](#), whose labor market analysis concludes that the brunt of the adjustment to the inflows of Venezuelan workers has fallen disproportionately on the lower paid and least skilled Ecuadoran workers. The silver lining is that the high educational attainment of Venezuelan migrants, and the cultural and linguistic affinity between them and the Ecuadoran population, point toward promising policy actions that can generate substantial economic gains for Ecuador and, at the same time, shift the burden of adjustment away from the most vulnerable segments of the labor market.

We use our data to carry out two policy simulations. The first one entails providing legal work permits to all Venezuelan workers. Our analysis suggests that the rate of informal employment for Venezuelans would fall substantially and, as a result, average wages for Venezuelan migrants are likely to experience important gains (in the range of 9% to 18% depending on their education levels). We also simulate a scenario where Ecuador’s government adopts measures that allow Venezuelan workers to obtain employment that matches their education level or their pre-migration occupation. Our estimates show that Ecuador’s GDP would increase between 1.6% and 1.9%. In addition, this policy would help shift the burden of adjustment away from the more economically vulnerable native workers. This goal has become particularly important since the beginning of 2020. As argued in [Olivieri \(2020\)](#), Ecuador is now facing a *triple crisis* due to the combination of an increasingly restricted access to international credit, a dramatic plunge in oil prices and the health crisis due to the COVID-19 pandemic. These imbalances are rapidly eroding the economic footing of low-income families.

Our paper contributes to the literature on forced migration and the economic consequences for migrants and the host communities.² Despite its enormous policy interest, this topic has remained understudied due to the scarcity of high-quality data. In the last few years, the literature has evolved rapidly thanks to a large number of high-quality studies analyzing the large inflows of Syrian refugees into Turkey (estimated at

²See [Becker and Ferrara \(2019\)](#) and [Ruiz and Vargas-Silva \(2013\)](#) for insightful reviews and a discussion of the main conceptual issues and empirical challenges. In a recent study, [Fasani et al. \(2018\)](#) estimate the economic gaps between refugees and natives using data for a large set of European countries.

3.6 million individuals). The main contributions to this literature are Balkan and Tumen (2016), Ceritoglu et al. (2017), DelCarpio and Wagner (2015), Loayza et al. (2018), Tumen (2016) and Tumen (2018), and their main focus is to estimate the effects on the labor market participation, employment and wages of the workers in the host regions using a variety of empirical approaches. Taken together, these studies find evidence of negative effects on the employment and wages of native workers, typically concentrated heavily on segments of the labor market characterized by low-skill, low-pay and high informality. Some of these studies also find that women and young workers were disproportionately affected.

More recently, researchers have shifted the focus to other dimensions of the effects of Syrian refugee inflows into Turkey. Altindag et al. (2020) argue that refugee inflows had a positive impact on firm production, both in terms of the volume of production and the introduction of new product varieties. Akgunduz and Torun (2020) examine other channels by which Turkish workers and firms accommodated the inflows of Syrian refugees. The authors find that skilled native workers increased their specialization in complex tasks, moving away from manual tasks, and domestic companies took advantage of the increased abundance of labor by reducing capital intensity. As shown in earlier studies, both mechanisms contribute to mitigate the effects of immigration on the wages of the receiving country (Lewis (2005), Peri and Sparber (2009), Gonzalez and Ortega (2011) and Dustmann and Glitz (2015)).

In the last few years, some researchers have begun to analyze the economic effects of the exodus of Venezuelans on the surrounding countries but progress has been slow due to the difficulty of analyzing Venezuelan migrants equipped solely with government-provided data or the standard labor force surveys. The first studies in this literature have focused on the labor market effects in Colombia, the main receiver of Venezuelan migrants, and found evidence of negative wage effects. The findings in Caruso et al. (2019) point to a reduction in wages in the informal sector and Penaloza-Pacheco (2019)) document a large reduction in hourly wages in border areas that experienced a large influx of Venezuelan migrants, which appeared to be larger for workers with low qualifications or employed in the informal sector. Two recent papers investigate the effects of Venezuelan migration in the context of Peru's labor market. Asencios and Castellares (2020) find negative short-run effects on the employment and earnings of young, female workers with low levels of education, but also report that immigrants had a positive effect on GDP because of increased expenditure. Additionally Morales and Pierola (2020) provide evidence of complementarity effects, that is, they find that Venezuelan migration is

associated with increases in employment (and reductions in informality) among tertiary educated Peruvian workers. To our knowledge, the only existing study concerning the labor market effects of Venezuelan migration to Ecuador is [Olivieri et al. \(2020\)](#). This paper relies on Ecuador’s labor force survey to document adverse effects of the influx of Venezuelans on the quality of employment of young, low-educated Ecuadoran workers in the main receiving areas. The above-mentioned studies also highlight that Venezuelan migrants have substantially higher education levels than the native counterparts (particularly in the case of Peru and Ecuador), but are disproportionately employed in low-paying jobs in the informal sector.

Relative to these studies, our paper provides the first analysis of the labor market conditions of Venezuelan migrants in a Latin American context on the basis of a survey specifically designed for this purpose. We also use this information to analyze policies that are tailored to the specific characteristics of Venezuelan migrants in Ecuador. In this sense, our paper is also related to [Clemens et al. \(2018\)](#). This paper analyzes the effects of granting formal labor market access to refugees, highlighting the potential for substantial economic gains for the host country but also the potential costs for certain groups of the host population, which will depend importantly on the characteristics of the migrants (e.g. education) as well as features of the host labor markets. In the US context, some recent studies have analyzed the economic effects, on wages and GDP, of providing legal status to unauthorized workers ([Edwards and Ortega \(2017\)](#) and [Ortega et al. \(2019\)](#)). Lastly, we note that granting legal status can also have positive effects on crime. In this vein, [Ibanez et al. \(2020\)](#) analyze the impact of an amnesty program in Colombia that provided temporary legal status to half a million unauthorized Venezuelan migrants, allowing them to apply for formal jobs and access to healthcare and other social services, on crime. They conclude that the amnesty reduced domestic violence and empowered women to report sexual crime episodes at higher rates.

The structure of the paper is as follows. [Section 2](#) describes the survey. [Section 3](#) presents summary statistics. [Section 4](#) describes the main characteristics of Venezuelan migrants, using natives in the same local area as benchmark. [Section 5](#) analyzes the occupations of Venezuelans in Ecuador and in the home country. [Section 6](#) collects our policy analysis and [Section 7](#) concludes.

2 Data: the EPEC Survey

The main challenge faced by researchers who wish to study a newly arrived population is the inability of traditional data sources to accurately portray that population. To overcome this challenge, the World Bank and the Government of Ecuador promoted a new survey (known as EPEC) designed on the basis of large-scale mobile phone records provided by one of the largest mobile phone companies in Ecuador.³ Geo-coded information for billions of calls, text messages and web searches were employed to identify the users that were likely recent Venezuelan migrants. Data on mobile phone ownership and the company’s market share was then used to estimate the geographical distribution of recent Venezuelan migrants across Ecuador and to design the sampling strategy for the survey. More details on the design of EPEC can be found in [Appendix A](#).

The goal of the EPEC survey was to collect household-level information on the population of recent Venezuelan migrants to Ecuador along with the native population in the receiving communities. The survey focuses on Venezuela-born individuals that arrived in Ecuador after January 2016 and over-samples this population. In June and July 2019, almost 1,900 households were interviewed (in person) and provided information on 6,425 individuals. The survey is representative of the population of recent Venezuelan migrants in Ecuador and of the native population residing in the areas where Venezuelan migrants are found. Besides the typical socio-demographic and labor market information of labor force surveys, the questionnaire also includes questions regarding pre-migration employment, the gateways of entry into the country, health, children’s schooling, access to internet and remittances, among other topics.

In the final sample (of 6,425 individuals), 10% of respondents resided in sectors with low density of Venezuelan migrants (below 5% of the sector’s population), 43% in medium-density sectors (with a density ranging between 5% and 15%), and 47% from high-density sectors (with a density of Venezuelan migrants above 15% of the sector’s population). The final sample contained 6,425 individuals. Among these, 1,715 were born in Venezuela and considered recent migrants.

³EPEC stands for *Encuesta a Personas en Movilidad Humana y en Comunidades Receptoras en Ecuador*, which can be translated as Survey of Migrants and Receiving Communities in Ecuador.

3 Summary Statistics

3.1 Gateways and Geographical Distribution of Migrants

According to our survey, around 340,000 Venezuelans migrated to Ecuador between 2016 and the summer of 2019.⁴ As a result, the share of Venezuelan migrants in Ecuador’s population grew from close to zero to 2% in less than 3 years. The majority of Venezuelans entered Ecuador by land from Colombia, while the rest mostly arrived by plane.⁵ Perhaps not surprisingly, about 10% of the college-educated Venezuelans arrived by air, compared to fewer than 3% of the less educated migrants. As shown in [Olivieri et al. \(2020\)](#), most migrants spread across Ecuador’s geography largely in search of economic opportunity. Their regression analysis of the location choices of Venezuelan migrants shows that the main factor that explains the number of Venezuelan migrants locating in a particular canton is the size of its economy, measured by the canton’s wage bill, which is roughly proportional to the canton’s GDP. In particular, their estimates imply that a canton with a 10% higher wage bill attracts, on average, 7% more Venezuelan migrants, other things equal. In addition, proximity to the Rumichaca bridge (the main land gateway connecting Colombia and Ecuador) and to the Guayaquil airport are also associated with higher numbers of Venezuelans choosing to locate in the canton.

[Table 1](#) summarizes the geographical distribution of Venezuelan migrants across provinces in Ecuador. Columns 1 and 2 report the raw counts of respondents born in Ecuador (4,406) and in Venezuela (1,780), respectively. Columns 3 and 4 elevate the raw counts to population estimates, amounting to 16.8 million Ecuador-born individuals and 340,633 Venezuelan migrants, or about 2 Venezuelans for each 100 Ecuadorans. [Figure 1](#) plots the estimated Venezuelan population by province of residence. Clearly, the largest concentrations of Venezuelans are found along the coast and in the north of the country, in the provinces bordering Colombia. The top two provinces in terms of hosting Venezuelan migrants are Pichincha (with capital Quito) and Guayas (with capital Guayaquil), the largest urban areas in the country. We estimate that around 145,000 Venezuelan migrants were living in Pichincha at the time of the survey, followed by 61,000 in Guayas and over 38,000 in Los Rios. Thus, about 72% of all Venezuelan migrants were living in these three provinces. These figures also show that, relative to

⁴By the end of 2019, this figure had risen to approximately 390,000 individuals.

⁵As shown in Appendix [Table B.1](#), the majority of Venezuelan migrants (92%) entered by land through the Rumichaca bridge that connects Ecuador and Colombia (82%), and other land entry points were San Miguel (7%) and Huaquillas (3%). Most of the remaining arrivals (6%) were by air, with an even split between the airports of Quito and Guayaquil.

the population in the province, Venezuelan migrants made up around 2% to 3% of the population in Pichincha and Guayas, and over 4.5% in the province of Los Rios.⁶ The concentration of Venezuelan migrants in Ecuador around the main urban areas is also in line with the findings for Peru. (Morales and Pierola (2020)) report that over 85% of Venezuelan migrants in Peru have located in or around Lima and Callao. In contrast, the main concentrations of Venezuelan migrants in Colombia are found in the border regions (Penaloza-Pacheco (2019)), indicating that distance to the main entry gateways is also a significant predictor of migrants' location choices.

3.2 Sample Descriptive Statistics

Table 2 presents summary statistics for the main variables that will be used in our analysis for the whole sample, including both natives and foreign-born individuals. The data show that the average age of respondents is 30.3 years and 50.6% are women. About 70% of the respondents were born in Ecuador, 27% in Venezuela and the remaining 3% in Peru, Colombia or Argentina. In addition, slightly over 71% of the respondents have Ecuadoran nationality.⁷

It is helpful to classify the population into three education levels. For the sample as a whole, 34% have at most completed primary education, 41% completed secondary education, and 25% have a college degree. Turning now to employment status, in the sample 48% of all respondents (of any age) were employed at the time of the survey. Among these, 31% were self-employed and the rest were salaried workers. Importantly, informality and temporality rates are high in Ecuador's workforce. Among those employed, about 43% were classified as having informal employment. In addition, slightly over half of all employees (53%) have temporary contracts. As for work hours and wages, we find that, conditional on employment, the average weekly hours worked is 45.7 and average monthly earnings are \$460. As a result, the hourly wage is estimated at \$2.92.⁸

The next section provides a systematic comparison of the socio-demographic characteristics and labor-market outcomes of Venezuelan migrants relative to Ecuador's workforce.⁹

⁶The table also indicates that the population density of Venezuelans may have been over 10% in some provinces. However, the small sample size in those provinces implies large confidence intervals around these values.

⁷Among all individuals born in Venezuela, 96% (or 1,780) are considered recent Venezuelan migrants, the target population.

⁸Ecuador dollarized its economy in March of 2000.

⁹Appendix Table B.2 reports a similar table for the sub-sample of Venezuelan migrants. Those data

4 Characteristics of Venezuelan Migrants

4.1 Socio-Demographic Characteristics

The effects of Venezuelan migration on the local labor markets of the hosting regions will depend on the size and skill composition of the inflows. As a first approximation to this question, this section provides a comparison of the socio-demographic characteristics, employment and wages of Venezuelan migrants vis-a-vis the natives in the corresponding destination cantons.

Specifically, we classify all individuals in the sample in three groups according to their country of birth: individuals born in Ecuador, individuals born in Venezuela, and those born in other countries, which corresponds mostly to Peru, Colombia and Argentina. Then we estimate a battery of linear regression models for a wide range of outcomes:

$$y_{i,c} = \alpha_c + \beta_1 Vza_{i,c} + \beta_2 Other_{i,c} + \varepsilon_{i,c}, \quad (1)$$

where α_c stand for canton fixed-effects, $Vza_{i,c}$ is an indicator taking value one if individual i was born in Venezuela. Similarly, $Other_{i,c}$ is an indicator for country of birth other than Venezuela or Ecuador (and the omitted category is individuals born in Ecuador). Importantly, the model also includes dummy variables (α_c) for each canton. Thus, coefficient β_1 captures the difference in the mean value of outcome y_i for Venezuelans living in canton c relative to Ecuador natives in the *same* canton.¹⁰ These regression models do not include any individual controls so as to provide a straightforward comparison of the characteristics of Venezuelan migrants and the natives living in the corresponding cantons. To make the estimates more informative we restrict the estimation sample to working-age individuals (defined as age bracket 15-70), which includes 70% of the overall sample.

Table 3 collects the estimates. The first panel of the table presents the mean value for Ecuador natives (estimated from a separate model that contains only an intercept). The bottom panel presents the estimated difference in the mean value of the dependent variable for Venezuelans (or other immigrants) relative to Ecuadorans in the same canton

show that about 48% arrived in Ecuador in 2018, 14% in 2017 and 7% in 2016. The remaining 31% have arrived between January and June of 2019. In addition, we estimate that 11.4% of Venezuelans sent remittances in the 3 months prior to the survey. However, these amounts were relatively low. Percentiles 25, 50 and 75 were \$40, \$80 and \$100, respectively, and the highest value was \$500. Thus the median remittance over the 3-month period was about 10% of the monthly earnings.

¹⁰Analogously, β_2 captures the difference in means for individuals born in countries other than Ecuador and Venezuela, relative to natives living in the same canton.

of residence. In terms of age, we estimate that Venezuelans are 3.5 years younger, on average, than natives (while immigrants from other origins have the same average age as natives). In terms of gender, we find that the share of females is estimated to be around 51% for Ecuadorans and possibly slightly higher for Venezuelans.

The most striking differences across the three groups are found for educational attainment. The proportion of individuals with low educational attainment (at most primary education) is 22 percentage points lower for Venezuelan migrants than for Ecuadorans. At the same time, the proportion of college-graduates is 27 percentage points higher for Venezuelans than for Ecuadorans.¹¹ Hence, Venezuelan migrants appear to be much more educated than the Ecuadoran population. Thus, it is important to view this immigration episode as one of highly skilled immigration, relative to the schooling levels of the native population. Interestingly, the same pattern is also found in Peru: [Morales and Pierola \(2020\)](#) report that 57% of Venezuelan migrants in Peru had college education, compared to roughly one third of the native population. In contrast, this does not seem to be the case in Colombia. [Penaloza-Pacheco \(2019\)](#) report that only 11% of Venezuelan migrants had tertiary education.

The table also makes clear that Venezuelan migrants have much higher employment (to population) rates than Ecuadorans. We estimate this gap to be 17 percentage points. Interestingly, the employment rates of immigrants from other origins seem to be substantially lower than for natives, although the difference is not statistically significant. It is also very clear that the quality of employment is much lower for Venezuelan workers than for natives. Their informality rate is 15 percentage points higher and they are 29 percentage-points more likely to have temporary contracts. Additionally, Venezuelan workers were 6 percentage-points more likely to be underpaid by their employers than the average native in their canton of residence.

Turning now to columns 10-12 of [Table 3](#), we learn that Venezuelan migrants work 5.5 hours more than the average native worker. However, their log monthly earnings are 0.45 log points lower. More specifically, the average monthly earnings for Ecuadorans in our sample is \$476 but the average Venezuelan worker in the same canton earns 36% less. Obviously, the higher working hours and lower monthly earnings lead to a very large gap in terms of hourly wages. Whereas the average Ecuadoran worker earned \$2.84, the average Venezuelan in the same canton earned 56% less, despite the fact that Venezuelan migrants have substantially higher educational attainment.

¹¹Immigrants from other origins are also substantially more educated than Ecuadoran natives and Venezuelans living in the same cantons.

It will also be useful to compare the main labor market outcomes (employment, informality, temporality, work hours, earnings and hourly wages) between Venezuelan migrants and Ecuadoran workers with the same (nominal) education levels. This comparison also allows us to examine whether the outcomes of highly educated Venezuelans are relatively better or worse than the outcomes for the less educated ones.¹²

Table 4 reports this information. As before, we restrict the sample to the working-age population (age 15-70). The first column summarizes the values for Ecuadoran natives, column 2 reports the data for the Venezuelan migrants, and column 3 presents the ratio of the value in column 2 relative to column 1. Several points are worth noting. As noted earlier, Venezuelan workers are much less likely to have low education levels (26 percentage points) and much more likely to have a college degree (25 percentage points) than the average native. In terms of employment rates, we observe that among low-educated workers, the employment rates of Venezuelan migrants are very similar to those of natives (in the 70%-74% range). However, at higher education levels, we observe much higher employment rates for Venezuelan workers than for natives – about 30% higher.

Let us now turn to two measures of the quality of employment: informality and temporality rates. The figures in the table suggest that the quality of employment is similar for Venezuelan migrants and natives with low education levels. However, the native-migrant gap widens dramatically as educational attainment increases. For college graduates, the rates of informality and temporality are about *4 times* larger for Venezuelan migrants than for native workers. The data also show that Venezuelan workers have higher weekly work hours than natives, with gaps ranging between 9% and 15% across the three education levels. Once again, we find that the migrant-native earnings gap increases with education levels. At the bottom education category, Venezuelan migrants earn 45% less than the average native, and the gap rises to 64% for college-educated workers. Not surprisingly, the native-migrant gaps in work hours and earnings lead to

¹² We have not succeeded in obtaining a systematic comparison of the quality of education in Venezuela and Ecuador. The best assessment is based on an analysis by Juan Maragall (Inter-American Development Bank) based on a 2009 PISA study conducted in the state of Miranda in Venezuela. The data show that students in Venezuela have lower reading and math levels than the average for Latin America. More specifically, the gap is estimated to be 13 percentage points for public schools and 6 percentage points for private schools. Given that Ecuador's scores are in line with the average for Latin America, these data suggest that the quality of the Venezuelan education system is somewhat below the Ecuadoran counterpart. However, we also note that many Venezuelan migrants were schooled prior to the recent deterioration of educational institutions in Venezuela and that migrants are typically positively selected in regards to their origin populations. As a result, it seems reasonable to assume that the educational credentials of Venezuelans are comparable to those of Ecuadoran workers.

gigantic gaps in hourly wages, with migrant-native ratios ranging between 0.39 (college educated workers) and 0.63 (high-school graduates).

Summing up, this section has shown that Venezuelan migrants are substantially younger and much more educated, on average, than Ecuadorans in the same cantons. Despite these more favorable characteristics, they work longer hours and have much lower earnings than natives, both on a per-month and per-hour bases. Additionally, the native-immigrant gaps in quality of employment and earnings are much larger among workers with higher education levels. This evidence strongly suggests that college-educated Venezuelans are unable to access high-skill, high-productivity jobs. An important implication is that low-skill Ecuadorans are disproportionately bearing the brunt of Venezuelan migration because they compete for jobs with both the low and the high-education recent arrivals (as documented in detail in [Olivieri et al. \(2020\)](#)).

4.2 Characteristics of Venezuelan Migrants by Year of Arrival

Next, we carry out a comparison of the characteristics of the Venezuelan migrants in Ecuador by year of arrival. The interest of this information is twofold. First, it will provide descriptive evidence on whether the composition of the immigrant flow changes over time. Second, because all outcomes are measured at the same date (summer of 2019), the data will also be informative regarding whether migrants' employment quality and earnings improve with time in Ecuador.¹³

Table 5 classifies Venezuelan migrants on the basis of their arrival in Ecuador. Let us first describe the size of each arrival cohort. We estimate that 11,140 Venezuelans arrived in 2016 (and remained in the country until the time of the survey). The flows increased 6-fold in 2017 to 66,305 arrivals in that year. Once again the annual inflow tripled in 2018 to an estimated 184,075 individuals. The inflows probably plateaued in 2019 and we estimate that about 63,664 Venezuelans settled in Ecuador in the first half of 2019. This pattern is consistent with the adoption of increasingly restrictive entry requirements in the summers of 2018 and 2019.¹⁴

¹³Our dataset is a single cross-section. Thus we will not be able to disentangle cohort effects from economic assimilation. Furthermore, the picture is complicated further by selective out-migration. As a result, our focus here is entirely descriptive.

¹⁴During 2017, Colombia, Chile, Ecuador and Peru made legal changes to provide temporary legal status to Venezuelan migrants, or otherwise facilitate their legal residence. However, throughout 2018 and 2019, all of these countries began adopting restrictions to stem the inflows of Venezuelans. For instance, in August 2018 Ecuador started requiring passports with at least 6 months of validity in order to formalize the entry of Venezuelan migrants, which lowered the monthly recorded arrivals. Further, from September 2019 onward, Ecuador imposed a visa requirement, which sharply reduced Venezuelan

The top panel of the table also shows that the average age of migrants has been falling over time. The average migrant arriving in 2016 was 32.3 years old whereas the average age of the most recent arrivals (2019) has fallen to 24.6 years. The data also show a 10 percentage-point increase in the share of females between 2016 and 2019 and a marked change in the skill composition of the Venezuelan arrivals in Ecuador. Among those who arrived in 2016, 70% had a college degree. In contrast, that proportion is only 29% among those arrived in 2019. In sum, these observations suggest that the most educated migrated first. But, as economic conditions deteriorate in Venezuela, individuals with a lower propensity to migrate, such as women and lower-educated workers, are also choosing to leave their home country.

The remaining panels in the table focus on labor market indicators for working-age individuals. It is helpful to focus on the two most recent arrival cohorts, which are fairly similar in terms of average age and educational attainment. The data show that the 2018 arrival cohort has a higher employment rate, higher earnings and a higher hourly wages than the 2019 arrival cohort. Thus, Venezuelan migrants do seem to experience a substantial improvement in their work conditions through the first year in Ecuador. However, the improvement appears to stall when comparing to the 2017 arrival cohort.

The bottom panels of the Table also stratify by education level. Focusing again on the two most recent arrival cohorts, we observe no sign of improvement in working conditions for migrants with at most primary schooling. In contrast, earnings and hourly wages appear to increase substantially for workers with medium and high education levels, one year after arrival. The data are less conclusive regarding whether the earnings for these workers keep improving with time in the country. We will return to this question in the next section.

4.3 Earnings and Skill Prices

The data presented so far clearly show the existence of very large wage gaps between Venezuelan migrants and Ecuadoran workers with the same education levels. Specifically, [Table 4](#) showed that Venezuelan migrants earn 37 to 61 percent less than natives with the same education level. The same table also documented that the hourly wages of Venezuelan workers are increasing in educational attainment (from \$1.07 for workers with at most primary schooling to \$1.32 for high-school graduates and \$1.95 for college

inflows. Clear evidence of the effectiveness of visa requirements in curtailing immigration flows is also provided in [Bertoli et al. \(2011\)](#) and [Ortega and Peri \(2013\)](#).

graduates).

This section provides cleaner estimates of the wage gaps between native and migrant workers by estimating Mincer wage regressions that allow us to account for individual heterogeneity in socio-demographic characteristics. We also investigate the effect of informality on wages and its determinants. This analysis will also be an important input in our policy simulations.

The dependent variable in our analysis in this section is the log of hourly wages. We begin by considering the whole sample, which contains both native and foreign-born workers. Namely, the log of the hourly wage for individual i in canton c is given by

$$\ln w_{i,c} = \alpha_c + \beta_1 Vza_i + \beta_2 Other_i + \lambda X_{i,c} + \varepsilon_{i,c}, \quad (2)$$

where α_c stands for canton-level fixed-effects, and Vza_i and $Other_i$ are indicators for being born in Venezuela or in another foreign country, respectively. The specification also includes controls for age, gender and education level (in vector X_i). Thus, coefficient β_1 identifies the average wage gap between Venezuelan workers and Ecuadorans living in the same canton and with similar socio-demographic characteristics.¹⁵

Table 6 presents the results. Column 1 illustrates the existence of very large gaps in log hourly wages between native and foreign-born workers in Ecuador. Specifically, the Venezuelan-native gap is estimated to be 0.56 log points. Controlling for individual characteristics (column 2) shows that the log wage gap is even larger (at a staggering 0.79 log points), reflecting the fact that Venezuelans are more educated, on average, than Ecuador-born workers. The estimates in column 3 also show that women’s log wages are 0.31 log-points lower than men’s with similar characteristics and that college education exhibits a large log wage premium (of 0.68 log points relative to workers with at most primary schooling). Column 3 also shows that informality is associated with much lower log hourly wages (by about 0.49 log points). Further, the Venezuelan-native log wage gap now falls to 0.66 log points, indicating that the rate of informality is higher among Venezuelan migrants than for Ecuador-born workers.

The dependent variable in the last two columns is an indicator for informal employment. The estimates show that informality rates are 0.31 percentage points higher among Venezuelan workers than for native workers in the same canton and with similar individual characteristics. Not surprisingly, informality rates tend to be much lower for

¹⁵Similarly, β_2 captures the wage gap between native workers and similarly skilled individuals born in countries other than Ecuador and Venezuela.

highly educated workers. Last, columns 4 and 6 restrict the sample to female workers and show that the Venezuelan-native wage and informality gaps have the same magnitude in the female sub-sample.

Next, we restrict our analysis to the sub-sample of Venezuelan workers. This allows us to estimate the returns to education in Ecuador for these workers along with the pattern of economic assimilation over time (subject to the caveats noted earlier due to the purely cross-sectional nature of our data). [Table 7](#) reports the results. Comparing columns 1 (whole sample) and 2 (only Venezuelans) shows that the determinants of hourly wages are similar for Venezuelan and Ecuadoran workers. Namely, women earn lower wages than men in the same canton and with the same educational attainment, and workers with higher education levels earn higher wages. Specifically, all things being equal, women’s wages are 22 log-points lower than men’s and college graduates earn wages that are 53 log-points higher than workers with at most primary education (column 2).

Column 3 controls for arrival cohort. The estimates suggest that, relative to 2019 arrivals, workers that arrived between 2016 and 2018 earn much higher wages (by 33 log-points), which may be due to transitions to better jobs, migration to higher-wage areas or a general upward trend in economic conditions in the country. In addition, the point estimate in Column 4 suggests that wages in the informal sector are 23 log-points lower, but the precision of the estimate is too low to make strong assertions.

The dependent variable in column 5 is an indicator for informal employment. The estimates suggest that women are much more likely to be in the informal sector and that educational attainment does not provide a safeguard against this low-quality employment. It also appears that informality falls by 5 percentage-points one year after arrival in Ecuador. Furthermore, we learn that individuals with *legal status* (i.e. work permit) are 17 percentage-points less likely to have informal employment, which will be a crucial piece of information in our policy simulation exercises.

In sum, the estimates presented here show that the wage structure of Venezuelan workers is similar to that of native workers, although wage levels are much lower. In addition, informality is associated to lower wages and, in turn, informality is strongly influenced by legal status.

5 Occupational Analysis

5.1 Occupations in Ecuador

Education levels may lack comparability across Ecuador and Venezuela, and this could distort the wage gaps by education level reported in the previous section (as discussed in footnote 12). For instance, if tertiary education has deteriorated in Venezuela to the point that the quality of a college education is substantially lower than in Ecuador, the large migrant-native wage gaps for college graduates reported earlier would not reflect productivity gaps and, hence, a waste of productive skills.

To address this concern we use data on workers' occupations in Ecuador. More specifically, we rely on the survey question that informs us about the type of employer and classifies workers into the following categories: private-sector employee, self-employed, government employee, day laborer (*jornalero or peón*), manager, domestic employee and outsourced employees (*empleado terciarizado*).¹⁶

The results are collected in Table 8. The top panel reports the occupational distribution for Ecuadorian natives. According to the data, an estimated 2.7 million individuals are private-sector employees and a similar number are self-employed. The highest average hourly wage is \$5.59 for government employees, followed by \$3.67 for managers. The middle panel reports the analogous information but in reference to Venezuelan migrants. We estimate that about 102,000 Venezuelans in Ecuador are private-sector employees, about 66,000 are self-employed and close to 14,000 are day laborers.

The bottom panel compares the within-occupation characteristics of Venezuelan migrants to native workers by computing ratios for all variables included in the table. The main takeaways are the following. Relative to their population density, Venezuelan migrants are over-represented in three occupations: outsourced workers, domestic employees and private-sector employees. Except for private-sector employment, these occupations are characterized by low wage levels (on the basis of the data for Ecuadorian workers).

Second, within-occupation hourly wages are much lower for Venezuelan workers in all occupations, with the exception of government employees and outsourced workers. However, these occupations employ very few Venezuelan migrants (merely 2.5%). In the occupations employing the highest numbers of Venezuelans, Venezuelan migrants

¹⁶The EPEC survey also contains a more traditional occupation variable. However, the variable is too detailed and cannot be aggregated as it lacks numerically coded categories. For example, the top 10 occupations only account for 4% of the workers in the survey.

earn between 25% and 50% less than Ecuadorans. We also note that informality rates are often much higher among Venezuelan migrants than for native workers in the same occupation. For private-sector employees and self-employed, the excess informality is around 20 percentage points. In contrast, the informality rate for Venezuelan day laborers is 14% lower than for natives. Last, the last column of the table shows that the share of college-educated Venezuelan migrants in all occupations is substantially higher than the corresponding share for natives, strongly suggesting a serious problem of over-qualification for Venezuelan migrants.

Summing up, within a given occupation, Venezuelan migrants tend to earn much lower wages than native workers and have higher informality rates, despite their higher education levels. These findings suggest that educated Venezuelan migrants face large entry barriers into the more qualified occupations and that their skills may be inefficiently allocated.

5.2 Migration and Occupational Downgrading

Language barriers, institutional constraints and localized knowledge imply that skill transferability across borders is imperfect. As a result, migration may entail negative effects on the productivity and wages of migrants, often reflected in terms of occupational downgrading (Jasso et al. (2000)). For instance, our survey indicates that 72% of the Venezuelans who migrated to Ecuador report that their skills were used more productively in their jobs back in Venezuela. This finding is somewhat at odds with more general episodes of cross-border migration, which typically entail moves from low to high productivity countries (Clemens (2011)). The crucial distinction is that the majority of Venezuelans were *forced* to leave their country of origin due to the extreme deterioration of the economy or political persecution. More generally, we hypothesize that when migration is driven by natural or man-made disasters, migrants may not experience productivity gains to the same extent because their choices are driven by more urgent concerns, such as survival.

An important feature of the EPEC survey is that it contains retrospective information on the last job held by migrants prior to leaving Venezuela. The goal in the remainder of this section is to compare the changes in occupation experienced by Venezuelan migrants relative to their pre-migration jobs. Accordingly, we restrict the sample to Venezuelan migrants (living in Ecuador) that report information on both their current job and their last job prior to migration.

The findings are collected in [Table 9](#). Among Venezuelan migrants to Ecuador, the three most popular occupations *prior* to migration were private-sector employment (about 116,000), government employment (about 30,000) and self-employment (21,000). In comparison, their shares of employment in Ecuador as self-employed, day laborers, domestic employees or outsourced employees have experienced large increases. In contrast, the shares of managers and government employees are sharply lower than prior to migration. More specifically, when we focus on Venezuelan migrants employed as day laborers in Ecuador, we find that their main occupations in Venezuela were private-sector and government employment. Both of these occupations are characterized by much higher wages than what day laborers typically earn and highlight the large occupational downgrading experienced by Venezuelan migrants.

6 Policy Simulations

This section carries out a number of simple, yet informative policy simulations. We focus on two policy actions: legalization (in the sense of providing legal work and residence permits to Venezuelan migrants) and the adoption of measures aimed at improving the quality of employment for highly educated Venezuelan migrants.

6.1 The Effects of Legalization

Largely connected to the increasingly stringent requirements for legal entry and stay adopted by Ecuador beginning in the summer of 2018, the EPEC data reveal that approximately 90% of Venezuelan migrants in Ecuador lack legal status, which bars them from working legally. This has important consequences for Venezuelan workers. As shown in [Section 4.3](#), lack of legal status is associated with a higher likelihood of informal employment (column 5 in [Table 7](#)).

Importantly, in July of 2019, the government of Ecuador announced the onset of a process to provide temporary legal status to Venezuelan migrants. Along the lines of [Clemens et al. \(2018\)](#), the goal of this section is to use our previous estimates to simulate the consequences of providing legal work permits to Venezuelans on the quality of their employment (measured by informality) and, through this channel, on their productivity (measured by wages).

The relevant information is collected in [Table 10](#). We classify Venezuelan workers that *lack legal status* (for short, unauthorized) on the basis of their education level (primary,

secondary or tertiary) and the quality of their employment (formal or informal). Based on the data in column 3 of the table, on average, unauthorized workers with primary or tertiary education with informal employment earn lower hourly wages than workers with the same education working in the formal sector. Specifically, unauthorized Venezuelan workers with (at most) primary schooling who are working informally earn an average hourly wage of \$0.65 whereas those in the formal sector earn 2.6 times more (\$1.68). Similarly, those with tertiary education with formal employment earn 1.5 times more than those in the informal sector. Interestingly, for workers with secondary education wages are slightly lower in the formal sector (\$1.29) than in the informal one (\$1.41). Most likely, this small difference is due to sampling variability.

Column 4 reports the baseline distribution of workers in terms of informality for each education level. The data show that the majority of Venezuelan workers lacking legal status are employed in the informal sector. This is the case for 53% of the workers with (at most) primary education, 64% of those with secondary education and 58% of the tertiary educated. Next, column 5 combines the data in the two previous columns to produce the average hourly wages for unauthorized Venezuelan workers by education level, pooling together those in the formal and informal sectors (with the appropriate baseline shares). Those with at most primary education earn \$1.14 per hour on average, those with secondary education earn \$1.37, and the college-educated earn \$1.91.

Having described the baseline average wages for Venezuelan workers lacking legal status, we now turn to the simulation. Columns 6 and 7 consider the hypothetical scenario where all Venezuelan workers are granted legal work permits. On the basis of our earlier estimates (column 5 in [Table 7](#)), the proportion of workers employed in the formal sector would increase by 17 percentage points at each education level. This is reflected in the simulated shares of Venezuelan migrants in the formal and informal sectors (column 6 of [Table 10](#)), which incorporate the 17 percentage-point reduction in informality. Assuming that wages by education and type of employment remain unaffected by the legalization process, the change in composition will produce increases in the average wage for workers with primary and tertiary education of 15.4% and 7.5%, respectively. In contrast, the average wage of workers with secondary education would remain practically unchanged (experiencing a small decline from \$1.37 to \$1.35 per hour).¹⁷

¹⁷To keep the analysis simple, our simulation keeps wages constant. This assumption is not unreasonable if we are concerned on the effects of the policies on wages at the national level, given that Venezuelan migrants account only for about 3% of employment in Ecuador. However, we do note that these policies might have a sizable impact over the wage structure in local labor markets with a high

6.2 Employment Upgrading for Skilled Migrants

Our empirical analysis has shown that over-qualification is a pervasive problem among Venezuelan migrants in Ecuador. As a result, their productivity and wage levels are well below those of Ecuadorans in the same region of residence and with the same education level. This is a waste of productive skills that lowers GDP and shifts the burden of the labor-market adjustment toward low-skill natives (as documented in [Olivieri et al. \(2020\)](#)).

A natural policy to consider is to facilitate the access of highly educated Venezuelans to skilled jobs. The main goal of this section is to conduct a simulation of the potential effects of such a policy. As a first step, we begin by analyzing some relevant information in the EPEC survey. In practical terms, a barrier that may be preventing skilled Venezuelan workers from applying to skilled jobs may be the lack of transferability of education credentials.

We estimate that around 51,000 Venezuelan migrants in Ecuador completed college education prior to migration. Among these, 76% report having received a college degree certification. Presumably, the remaining 24% left the country prior to receiving the certificate.¹⁸ Our data reveal that only 17% of the 51,000 Venezuelan college graduates have registered their college certificate with the corresponding government agency in Ecuador (SENESCYT). The survey also reveals that among those graduates who have not registered their degree, about 90% state that they are interested in carrying out the registration but are unable to do so because they lack the required documents (47%), are not familiar with the procedure (35%), or lack the funds to pay for the associated fees (7%). In contrast, only 1.4% are currently in the process of registering their degree in Ecuador.¹⁹

In the remainder of the section we simulate the GDP effects of adopting policies that successfully allowed college-educated Venezuelan migrants to obtain jobs according to their qualifications. We report the estimated GDP effects for Ecuador as a whole,

density of Venezuelan migrants. For a general-equilibrium treatment of the effects of legalization on GDP and wages in the context of the United States, see [Edwards and Ortega \(2017\)](#) and [Ortega et al. \(2019\)](#).

¹⁸In many countries these official certificates are signed by a high government official, introducing a substantial delay between graduation and actually receiving the official certificate.

¹⁹More specifically, among the 47% college-educated Venezuelans that have not undertaken the registration of their degree in Ecuador, 21% did not bring their college diploma to Ecuador and 26% did bring it but have not obtained the Apostille of the Hague. Obtaining the [Apostille in Ecuador](#) costs \$20 and legalization of the document with the Ecuadoran government costs an additional \$20. These amounts are not insignificant given that the average college-educated Venezuelan migrant earns \$1.95 per hour. Thus, over 20 hours of work are required to finance these costs.

as well as for the two provinces with the largest numbers of Venezuelan migrants. In the counterfactual scenario we assume that Venezuelan workers earn the same monthly earnings as Ecuadoran workers with their same education level (or with the same occupational category) and residing in the same province. We obtain the data we use to perform the simulation from the EPEC survey, which allows us to estimate the number of Ecuadoran and Venezuelan workers by province of residence and education level (or occupational category), along with their average monthly earnings. Using these data we compute the economy-wide wage bill in the baseline year, defined as the sum of the annualized earnings of all workers. In addition, we compute the counterfactual wage bill where Ecuadoran workers are assumed to have the same earnings as in the baseline while Venezuelan workers' earnings are changed to match the corresponding earnings of Ecuadoran workers with the same education (or occupation) in the same province of residence. The relative comparison of the wage bills in the baseline and in the simulated scenario provides an estimate of the relative increase in GDP.²⁰

6.2.1 Upgrading in Terms of Education

Our first simulation considers a counterfactual scenario where every Venezuelan migrant earns the wages of native workers in the same province of residence with the same education level. As discussed earlier, a policy that would help approximate this situation is to facilitate the registration of Venezuelan college degrees with the corresponding Ecuadoran agency.

Table 11 presents our findings (column 1). The top panel reports the estimated increase in GDP at the national level. Relative to the baseline value, GDP would increase by 1.9% if all migrants with tertiary education were able to transition to highly skilled jobs. More specifically, we estimated that Venezuelan migrants account for 0.4%, 2.4% and 4.9% of the primary, secondary and tertiary employment in Ecuador, respectively. Further, we found that the monthly earnings of Venezuelan workers are 36%-68% (**Table 4**) lower than the corresponding values for Ecuadoran workers with the same education level and living in the same region. Closing the migrant-native wage gap for each

²⁰Simply put, the definition of GDP in the national accounts is the sum of the wage bill, capital income and economy-wide profits. Under the standard assumption that the economy's output is produced by means of a Cobb-Douglas production function combining labor and capital, it is well known that the wage bill is proportional to GDP. Hence, a policy that increases the wage bill by one percent will also increase GDP by the same percentage. Last, as was the case in the previous section, our simulation keeps relative wages across education levels constant. This is a reasonable assumption given that Venezuelan migrants are no more than 3% of Ecuador's employment.

education group entails a substantial salary increase for the Venezuela-born workers, resulting in an aggregate 1.9% increase in Ecuador’s GDP.

The bottom panel of the table shows the estimated GDP gains for the two provinces with the largest Venezuelan resident populations. We estimate that the adoption of policies that close the earnings gap between Venezuelan and Ecuadoran workers (with the same characteristics) would increase GDP in Pichincha (capital Quito) and Guayas (capital Guayaquil) by 3.5% and 2.1%, respectively. These estimates are in line with the density of Venezuelan migrants in these provinces, which we estimated at 3.3% and 2.0%, respectively (Table 1).

6.2.2 Occupational Upgrading

As we argued earlier, it is reasonable to assume that education quality in Venezuela and in Ecuador are comparable, although this assessment was based on very limited data. This raises concerns about the credibility of the estimates obtained in our previous simulation where we relied heavily on the comparability of education credentials across the two countries. To address this concern, next we carry out an alternative simulation that avoids this issue altogether. This simulation builds on the EPEC’s retrospective information about the labor market conditions of Venezuelan migrants before emigrating to Ecuador.

As documented earlier (Section 5.2), Venezuelan migrants in Ecuador have experienced substantial occupational downgrading, relative to their last occupations prior to emigrating from Venezuela. The EPEC data show that 12,255 Venezuelan migrants are employed as day laborers in Ecuador, one of the lowest paid occupations. However, only 855 of these workers were day laborers back in Venezuela. Almost 8,000 of them were private-sector employees and 2,300 were public-sector employees. Similarly, it is estimated that 5,750 Venezuelan migrants are domestic employees in Ecuador when only 63 held this occupation back in Venezuela and approximately 5,300 were private-sector employees.

Next, we simulate the economic outcomes that would result in a scenario where Venezuelan migrants in Ecuador are able to work in the same occupations they held in the *country of origin*. As before, we then compare the counterfactual GDP (wage bill) to the baseline values. More specifically, the counterfactual scenario assigns each Venezuelan worker to his/her occupation prior to migration and assumes he/she receives the same wages as Ecuadoran workers in the same occupational category.

Table 11 presents the results (column 2). Our calculations suggest that Ecuador’s GDP would increase by 1.6% relative to the baseline value. This increase is only slightly lower than the one obtained earlier in our educational upgrading simulation (1.9%). Turning now to the province-level analysis, we estimate that the GDP of the Pichincha and Guayas provinces would experience increases of 2.8% and 1.1%, respectively, which are somewhat lower than what we obtained in the education-based simulation (3.5% and 2.1%, respectively).

Summing up, the results in this section suggest that policies aimed at speeding up employment upgrading among Venezuelan migrants, so that those with higher skills are able to transition to better jobs, can lead to substantial increases in GDP. Furthermore, these changes would have the additional benefit of shifting the burden of adjustment away from low-skill, low-income Ecuadoran workers who are currently experiencing the largest increase in labor market competition. Naturally, highly skilled natives would experience an increase in labor market competition as a result of the skill upgrading of Venezuelan migrants. But, because of their higher income and wealth levels, highly skilled workers can more easily bear a small reduction in wages than their lower skilled, lower income counterparts.

It is worth emphasizing that the *overall* economic gains from Venezuelan immigration differ from the estimates reported here. The overall contribution of Venezuelan migrants to Ecuador’s economy could be assessed by comparing GDP in Ecuador in a scenario where the country’s labor force includes Venezuelan migrants to the counterfactual GDP in a scenario that excludes Venezuelan workers. Instead, what we report in this section is the *additional* increase in GDP that could be obtained should the quality of the employment of Venezuelan migrants be upgraded to their potential level.²¹

²¹A back-of-the-envelope calculation of the economic contribution of Venezuelan migrants to Ecuador as of the summer of 2019 can be done as follows. On the basis of the EPEC survey, we have established that Venezuelans account for about 3% of overall employment in Ecuador. If migrant workers had the same skill distribution as natives and were employed accordingly, we would expect their contribution to GDP to be also around 3%. To the extent that we have documented substantial under-employment of Venezuelan migrants, their contribution to GDP at the time of the survey is likely to be well below 3%. On the other hand, because of their high educational attainment, their potential contribution to Ecuador’s GDP is likely to be significantly higher once Venezuelan workers manage to access employment that is in accordance with their skills.

7 Conclusions

Our data provide a detailed overview of the size and characteristics of the Venezuelan migrants that have arrived in Ecuador since 2016, as well as their labor market conditions. We estimate that over 340,000 Venezuelans migrated to Ecuador between 2016 and the summer of 2019, which amounts to 2% of Ecuador’s population (and 3% of employment). Relative to Ecuador’s workforce, Venezuelan migrants are highly skilled, both in terms of educational attainment and the occupations they held prior to leaving their home country. As initially observed by [Zelinsky \(1971\)](#), it is a well-established empirical relationship that emigration is a function of a country’s economic development with an inverted-U shape. Empirical analyses of this relationship typically conclude that the mechanism underlying this pattern is a combination of credit constraints and migration incentives: individuals and households need enough economic resources to finance the relocation, but individuals that are in a very comfortable economic situation lack the an incentive to migrate.²² In contrast to this pattern, we find that Venezuelan migrants are highly positively selected, both relative to the origin and destination populations. This suggests that, in episodes of forced migration, the relationship between migration and resources at the individual level is instead monotonic: those with more financial or human capital are the first to flee the country of origin once socio-economic conditions deteriorate enough. The ongoing Venezuelan exodus, along with other recent episodes of forced migration, should be the focus of future research on the relationship between resources and migration at the household level.

The data also demonstrate that a large majority of Venezuelans have found employment in Ecuador. However, their employment is characterized by high informality, temporary contracts, and very low wages, compared to Ecuadoran workers with the same educational attainment living in the same regions. Venezuelan migrants in Ecuador are employed in occupations characterized by much lower status than their occupations in their country of origin. While overqualification among recent migrants is widespread ([Jasso et al. \(2000\)](#)), our findings underscore that the degree of overqualification is greatly magnified in episodes of massive migration that lead to large concentrations of recent migrants in some geographical areas. Moreover, other aggravating factors seem to be at play in the case of Venezuelan migration to Ecuador, such as lack of legal status ([Ortega and Hsin \(2021\)](#)) and worsening economic conditions in the host country. Typically, as migrants acquire local human capital and adapt to the demands of em-

²²See [Dao et al. \(2018\)](#) for a modern revision of these ideas.

ployers in the host country, their economic situation typically improves (Lalonde and Topel (1993)). This will likely be the case for Venezuelan migrants in Ecuador, and our study suggests that the process can be accelerated by the adoption of policies that facilitate the transition of highly skilled migrant workers to jobs that align to their skills. Providing work authorization to Venezuelan migrants (as recently done in Colombia), facilitating the recognition of their academic credentials, and giving migrants and their families access to social services are important steps in this direction. Future research on the labor market experiences of Venezuelan migrants across Latin America should analyze the effectiveness of the policy responses adopted in each country and how the assimilation of Venezuelan migrants to the host labor markets has been affected by the Covid-19 pandemic.

Our findings have important policy implications, which likely apply to Venezuelan migration in Peru that is also characterized by being substantially more educated than the native population. First, the skills of many Venezuelan migrants are vastly underutilized. Secondly, the brunt of the adjustment to the inflows of Venezuelan workers has fallen disproportionately on the lower paid and least skilled Ecuadoran workers in the main receiving areas (as shown in Olivieri et al. (2020)). There is a silver lining to this situation. The high educational attainment of Venezuelan migrants and the cultural and linguistic proximity between them and the Ecuadoran population point toward promising policy actions that can generate substantial economic gains for Ecuador and, at the same time, shift the burden of adjustment away from the most vulnerable segments of the labor market. This policy goal has become more urgent since the beginning of 2020 due to the sharp drop in oil prices, the reduced access to international credit and the health impact of the COVID-19 pandemic. Collectively, these events are disproportionately hurting low-income workers and their families (Olivieri (2020)).

Our simulation analysis suggests that there are large economic gains to be had from adopting measures that allow Venezuelan workers to obtain employment that matches their skills. We estimate that this could entail an increase in Ecuador's GDP in the range of 1.6% to 1.9%. It is worth noting that administrative actions to facilitate the validation of Venezuelan educational credentials do not have a large price tag and could have a large rate of return. We also estimate that providing legal work permits to Venezuelan migrants would lower their rate of informal employment by 17 percentage points, generating important wage increases. Due to the ongoing pandemic, economic conditions are deteriorating rapidly in Ecuador and households that rely on informal employment are particularly vulnerable. As we have documented, Venezuelan workers

are highly reliant on informal employment.²³ Thus, policies that help improve their labor market outcomes, while simultaneously shifting the burden away from the most vulnerable Ecuadoran workers, are urgently required.

8 Acknowledgements and Disclaimer

We thank Carlos Vayas and José Muñoz from *Telefonica Ecuador* and Juan Muñoz and Ana Aguilera for their advice and knowledge on sampling design. We also thank Leticia Arroyo-Abad, Michael Clemens, Marianne Fay, Jesus Fernandez-Huertas and Tanja Goodwin for their helpful comments, and Oliver Balch for expert editing advice. All errors are our own.

The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

²³Preliminary data suggests that Venezuelan migrants are suffering the effects of the pandemic even more intensely than Ecuadorans. Between February and June 2020, it is estimated that 27% of Venezuelan households experienced loss of employment (for at least one member of the household). In comparison, the corresponding figure is 50% for Venezuelan households in Ecuador ([Olivieri \(2020\)](#)).

References

- Akgunduz, Yusuf Emre and Huzeyfe Torun, “Two and a half million Syrian refugees, tasks and capital intensity,” *Journal of Development Economics*, 2020, *145*, 102470.
- Altindag, Onur, Ozan Bakis, and Sandra V. Rozo, “Blessing or burden? Impacts of refugees on businesses and the informal economy,” *Journal of Development Economics*, 2020, *146*, 102490.
- Asencios, Roger and Renzo Castellares, “The Impact of Venezuelan Immigration on Employment and Wages: the Peruvian Case,” Working Papers 2020-002, Banco Central de Reserva del Peru 2020.
- Balkan, Binnur and Semih Tumen, “Immigration and prices: quasi-experimental evidence from Syrian refugees in Turkey,” *Journal of Population Economics*, July 2016, *29* (3), 657–686.
- Becker, Sascha O. and Andreas Ferrara, “Consequences of forced migration: A survey of recent findings,” *Labour Economics*, 2019, *59* (C), 1–16.
- Bertoli, Simone, Jesus Fernandez-Huertas Moraga, and Francesc Ortega, “Immigration Policies and the Ecuadorian Exodus,” *World Bank Economic Review*, March 2011, *25* (1), 57–76.
- Caruso, German, Christian Gomez Canon, and Valerie Mueller, “Spillover effects of the Venezuelan crisis: migration impacts in Colombia,” *Oxford Economic Papers*, 11 2019. gpz072.
- Ceritoglu, Evren, H. Burcu Gurcihan Yunculer, Huzeyfe Torun, and Semih Tumen, “The impact of Syrian refugees on natives’ labor market outcomes in Turkey: evidence from a quasi-experimental design,” *IZA Journal of Labor Policy*, December 2017, *6* (1), 1–28.
- Clemens, Michael A., “Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?,” *Journal of Economic Perspectives*, Summer 2011, *25* (3), 83–106.
- Clemens, Michael, Cindy Huang, and Jimmy Graham, “The Economic and Fiscal Effects of Granting Refugees Formal Labor Market Access,” Working Papers 496, Center for Global Development October 2018.
- Dao, Thu Hien, Frdric Docquier, Chris Parsons, and Giovanni Peri, “Migration and development: Dissecting the anatomy of the mobility transition,” *Journal of Development Economics*, 2018, *132* (C), 88–101.
- DelCarpio, Ximena Vanessa and Mathis Christoph Wagner, “The impact of Syrian refugees on the Turkish labor market,” Policy Research Working Paper Series 7402, The World Bank August 2015.
- Dustmann, Christian and Albrecht Glitz, “How Do Industries and Firms Respond to Changes in Local Labor Supply?,” *Journal of Labor Economics*, 2015, *33* (3), 711–750.
- Edwards, Ryan and Francesc Ortega, “The economic contribution of unauthorized workers: An industry analysis,” *Regional Science and Urban Economics*, 2017, *67* (C), 119–134.

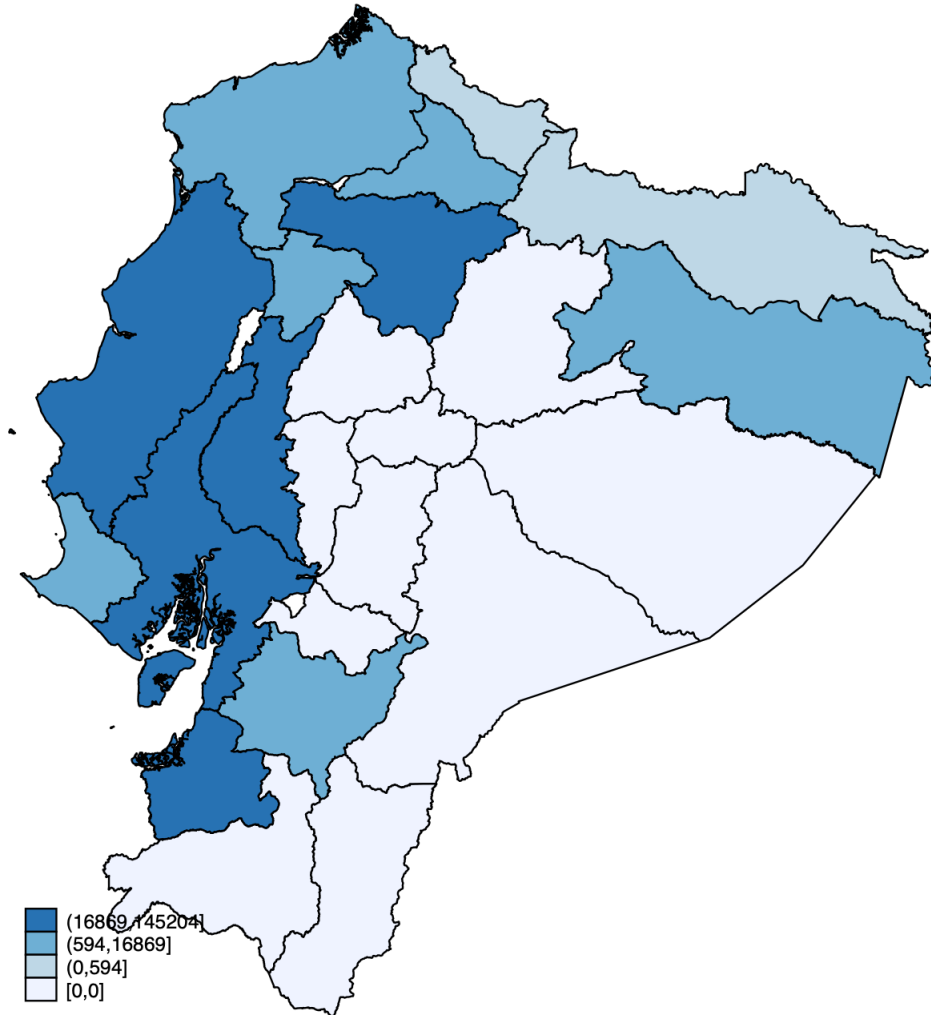
- Fasani, Francesco, Tommaso Frattini, and Luigi Minale, “(The Struggle for) Refugee Integration into the Labour Market: Evidence from Europe,” IZA Discussion Papers 11333, Institute of Labor Economics (IZA) February 2018.
- Gonzalez, Libertad and Francesc Ortega, “How do very open economies adjust to large immigration flows? Evidence from Spanish regions,” *Labour Economics*, January 2011, 18 (1), 57–70.
- Ibanez, Ana Maria, Rozo Sandra V., and Dany Bahar, “Empowering Migrants: Impacts of a Migrant’s Amnesty on Crime Reports,” IZA Discussion Papers 13889, Institute of Labor Economics (IZA) November 2020.
- Jasso, Guillermina, Douglas Massey, Mark Rosenzweig, and James Smith, “The new immigrant survey pilot (NIS-P): Overview and new findings about U.S. Legal immigrants at admission,” *Demography*, February 2000, 37 (1), 127–138.
- Lalonde, Robert J. and Robert H. Topel, “Economic impact of international migration and the economic performance of migrants,” in M. R. Rosenzweig and O. Stark, eds., *Handbook of Population and Family Economics*, Vol. 1 of *Handbook of Population and Family Economics*, Elsevier, 1993, chapter 14, pp. 799–850.
- Lewis, Ethan, “Immigration, skill mix, and the choice of technique,” Technical Report 2005.
- Loayza, Norman V., Gabriel Ulyssea, and Tomoko Utsumi, “Informality and the Labor Market Effects of Mass Migration: Theory and Evidence from Syrian Refugees in Turkey,” Technical Report, Manuscript 2018.
- Morales, Fernando and Martha Denisse Pierola, “Venezuelan Migration in Peru: Short-term Adjustments in the Labor Market,” IDB Publications (Working Papers) 10541, Inter-American Development Bank 2020.
- Munoz, Juan, Jose Munoz, and Sergio Olivieri, “Big Data for Sampling Design: The Venezuelan Migration Crisis in Ecuador,” Policy Research Working Paper Series 9329, The World Bank 2020.
- Olivieri, Sergio, “Pincered: the welfare and distributional impacts of the 2020 triple crisis in Ecuador,” Technical Report, Manuscript World Bank April 2020.
- , Francesc Ortega, Ana Rivadeneira, and Eliana Carranza, “The Labor Market Effects of Venezuelan Migration in Ecuador,” Policy Research Working Paper Series 9336, The World Bank July 2020.
- Ortega, Francesc and Amy Hsin, “Occupational Barriers and the Productivity Penalty from Lack of Legal Status,” CReAM Discussion Paper Series 2118, Centre for Research and Analysis of Migration (CReAM), Department of Economics, University College London June 2021.
- and Giovanni Peri, “The effect of income and immigration policies on international migration,” *Migration Studies*, 01 2013, 1 (1), 47–74.
- , Ryan Edwards, and Amy Hsin, “The Economic Effects of Providing Legal Status to DREAMers,” *IZA Journal of Labor Policy*, 2019, 9 (1).
- Penaloza-Pacheco, Leonardo, “Living with the Neighbors: The Effect of Venezuelan Forced Migration on Wages in Colombia,” CEDLAS, Working Papers 0248, CEDLAS, Universidad Nacional de La Plata July 2019.

- Peri, Giovanni and Chad Sparber, “Task Specialization, Immigration, and Wages,” *American Economic Journal: Applied Economics*, July 2009, *1* (3), 135–169.
- Ruiz, Isabel and Carlos Vargas-Silva, “The Economics of Forced Migration,” *Journal of Development Studies*, June 2013, *49* (6), 772–784.
- Tumen, Semih, “The Economic Impact of Syrian Refugees on Host Countries: Quasi-experimental Evidence from Turkey,” *American Economic Review*, May 2016, *106* (5), 456–460.
- , “The Impact of Low-Skill Refugees on Youth Education,” IZA Discussion Papers 11869, Institute of Labor Economics (IZA) October 2018.
- Zelinsky, Wilbur, “The hypothesis of the mobility transition,” *Geographical Review*, 1971, *61*, 219–249.

Figures List

1. Venezuelan migrants in Ecuador, by province of residence.

Figure 1: Venezuelan migrants in Ecuador, by province of residence



Notes: Our own figure based on the *Telefonica Ecuador* estimates of the size of the Venezuelan population by province. The estimates correspond to the data reported in [Table 1](#). The provinces colored in dark blue are: Pichincha, Guayas, Los Rios, Manabi, El Oro and Imbabura (in decreasing number of Venezuelan migrants).

Table 1: Geographical Distribution Venezuelan Migrants

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------|------------|-------------|------------|-------------|---------------------|------------|
| Weights | no | no | yes | yes | yes | yes |
| Province | Ecuadorans | Venezuelans | Ecuadorans | Venezuelans | Province Shares (%) | Vz/Pop (%) |
| Pichincha | 672 | 400 | 4,199,771 | 145,204 | 42.6 | 3.3 |
| Guayas | 851 | 403 | 3,028,132 | 60,937 | 17.9 | 2.0 |
| Los Rios | 227 | 79 | 810,372 | 38,313 | 11.2 | 4.5 |
| Manabi | 800 | 359 | 1,947,224 | 25,917 | 7.6 | 1.3 |
| El Oro | 281 | 108 | 890,554 | 17,562 | 5.2 | 1.9 |
| Imbabura | 111 | 135 | 104,250 | 16,869 | 5.0 | 13.9 |
| Azuay | 133 | 54 | 1,153,850 | 16,455 | 4.8 | 1.4 |
| Sto. Domingo | 328 | 130 | 912,210 | 10,532 | 3.1 | 1.1 |
| Orellana | 57 | 27 | 37,403 | 4,436 | 1.3 | 10.6 |
| Santa Elena | 301 | 29 | 183,526 | 2,027 | 0.6 | 1.1 |
| Esmeraldas | 274 | 29 | 715,720 | 1,222 | 0.4 | 0.2 |
| Carchi | 61 | 6 | 32,299 | 594 | 0.2 | 1.8 |
| Sucumbios | 132 | 21 | 89,430 | 567 | 0.2 | 0.6 |
| Tungurahua | 45 | 0 | 634,462 | 0 | 0.0 | 0.0 |
| Loja | 22 | 0 | 549,726 | 0 | 0.0 | 0.0 |
| Morona Stgo. | 42 | 0 | 34,134 | 0 | 0.0 | 0.0 |
| Bolivar | 27 | 0 | 19,786 | 0 | 0.0 | 0.0 |
| Cotopaxi | 21 | 0 | 613,756 | 0 | 0.0 | 0.0 |
| Canar | 21 | 0 | 837,259 | 0 | 0.0 | 0.0 |
| Total | 4,406 | 1,780 | 16,793,862 | 340,633 | 100 | 2.0 |

Notes: The Table reports the observation counts (and population-weighted totals) for Ecuador-born and Venezuela-born individuals in the EPEC survey, at the province level. The provinces have been sorted by the estimated number of Venezuelans. Ecuador has 24 provinces (further subdivided into 221 cantons) but only 19 provinces were included in the survey. Columns 1-2 report the raw number of observations in the survey. Columns 3 and 4 apply the survey weights to inflate the raw counts to population estimates. Column 5 computes the province *shares* of Venezuelans. Column 6 is the share of Venezuelan migrants in each province. The Total entry in column 6 is the share of Venezuelan migrants in Ecuador's population on the basis of our survey. The capital cities of Pichincha and Guayas are Quito and Guayaquil, respectively.

Table 2: Descriptive Statistics EPEC Survey. Complete sample

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|------------------------|------|---------|-----------|-----|---------|
| Age | 6425 | 30.281 | 20.358 | 0 | 99 |
| Female | 6425 | .506 | .5 | 0 | 1 |
| Ecuadoran nationality | 6303 | .715 | .451 | 0 | 1 |
| Born Ecuador | 6303 | .699 | .459 | 0 | 1 |
| Born Venezuela | 6303 | .272 | .445 | 0 | 1 |
| Born Other | 6303 | .029 | .167 | 0 | 1 |
| Primary education | 5600 | .341 | .474 | 0 | 1 |
| Secondary education | 5600 | .405 | .491 | 0 | 1 |
| Tertiary education | 5600 | .253 | .435 | 0 | 1 |
| Employed | 6425 | .479 | .5 | 0 | 1 |
| Self-employed | 3077 | .314 | .464 | 0 | 1 |
| Informal employment | 3049 | .434 | .496 | 0 | 1 |
| Temporary employment | 2113 | .527 | .499 | 0 | 1 |
| Paid as agreed | 2102 | .89 | .313 | 0 | 1 |
| Weekly work hours | 3045 | 45.681 | 22.851 | 0 | 224 |
| Monthly earnings (USD) | 2885 | 459.502 | 631.648 | 0 | 13000 |
| Hourly wage (USD) | 2830 | 2.917 | 4.897 | 0 | 146.188 |

Notes: EPEC survey, unweighted data. Primary education includes those that did not complete primary education. Secondary and tertiary education include only individuals that completed the corresponding stages. Variable *Paid as agreed* is an indicator taking value of one if the worker received the payment that had been previously agreed upon with the employer.

Table 3: Estimation Migrant-Native Gaps (within canton).

| Birth country | (1) Age | (2) Fem | (3) Edu1a | (4) Edu2a | (5) Edu3a | (6) Emp. | (7) Informal | (8) Tempo | (9) Agreed | (10) Hours work | (11) ln w | (12) ln wh |
|----------------|--------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| Ecuador | 36.01*** [0.84] | 0.51*** [0.02] | 0.30*** [0.04] | 0.51*** [0.04] | 0.19*** [0.03] | 0.68*** [0.02] | 0.51*** [0.04] | 0.41*** [0.04] | 0.91*** [0.02] | 42.76*** [1.37] | 5.65*** [0.12] | 0.63*** [0.10] |
| Venezuela | -3.49 [2.28] | 0.04 [0.03] | -0.22*** [0.02] | -0.05 [0.07] | 0.27*** [0.07] | 0.17*** [0.03] | 0.15** [0.07] | 0.29*** [0.05] | -0.06*** [0.02] | 5.49** [2.25] | -0.45*** [0.11] | -0.56*** [0.08] |
| Other country | 0.01 [1.36] | 0.23* [0.12] | -0.22*** [0.06] | -0.26*** [0.07] | 0.48*** [0.11] | -0.21 [0.22] | -0.07 [0.13] | -0.12 [0.16] | -0.17 [0.19] | 3.62 [4.20] | -0.63 [0.79] | -0.72 [0.70] |
| Est. pop. (Mn) | 11.5 | 11.5 | 11.3 | 11.3 | 11.3 | 11.5 | 7.9 | 5.0 | 5.0 | 7.9 | 7.0 | 6.8 |
| Obs. | 4,400 | 4,400 | 4,282 | 4,282 | 4,282 | 4,400 | 3,002 | 2,081 | 2,091 | 2,998 | 2,662 | 2,629 |
| N. cantons | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 |

Notes: Regressions use survey weights and include canton fixed-effects. Working-age sample (15-70). The top panel reports the mean of the corresponding dependent variable for individuals born in Ecuador (without fixed-effects). Bottom panel collects estimates for indicators for born in *Venezuela* and born in *Other country*. In those regression models the omitted category is *Born in Ecuador*. Variables *Edu1a*, *Edu2a* and *Edu3a* are indicators for (at most) primary education, (completed) secondary and tertiary education, respectively. Variable *Emp* is an indicator for employment status. Variables *Informal* and *Tempo* are indicators for informal employment and temporary contract, respectively. *Agreed* is an indicator taking value of one if the worker received the payment that had been previously agreed upon with the employer. The dependent variables in columns 11 and 12 are the logs of monthly earnings and hourly wages (in USD). Standard errors clustered at the canton level and heteroskedasticity-robust. The bottom panel reports the estimated population size of each sample, in millions of individuals. Standard errors are heteroskedasticity-robust and clustered by canton (in brackets). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Employment and earnings by education and country of birth

| | Ecuadoran | Venezuelan | Vza/Ecu |
|-----------------------|------------|------------|---------|
| Freq. Obs. | 3,000 | 1,311 | 0.44 |
| Freq. Est. Pop. | 11,178,362 | 255,755 | 0.02 |
| Educ. shares | | | |
| Edu 1a | 0.30 | 0.04 | |
| Edu 2a | 0.51 | 0.52 | |
| Edu 3a | 0.19 | 0.44 | |
| Employment rate | | | |
| Edu 1a | 0.74 | 0.70 | 0.94 |
| Edu 2a | 0.65 | 0.84 | 1.30 |
| Edu 3a | 0.69 | 0.87 | 1.27 |
| Informality rate | | | |
| Edu 1a | 0.75 | 0.57 | 0.76 |
| Edu 2a | 0.50 | 0.64 | 1.28 |
| Edu 3a | 0.13 | 0.52 | 4.19 |
| Temporality rate | | | |
| Edu 1a | 0.53 | 0.96 | 1.82 |
| Edu 2a | 0.45 | 0.69 | 1.53 |
| Edu 3a | 0.20 | 0.77 | 3.76 |
| Weekly work hours | | | |
| Edu 1a | 43.13 | 49.45 | 1.15 |
| Edu 2a | 43.32 | 50.48 | 1.17 |
| Edu 3a | 42.03 | 45.60 | 1.09 |
| Monthly earnings (\$) | | | |
| Edu 1a | 393.57 | 218.40 | 0.55 |
| Edu 2a | 360.58 | 246.11 | 0.68 |
| Edu 3a | 853.06 | 309.44 | 0.36 |
| Hourly wage (\$) | | | |
| Edu 1a | 2.43 | 1.07 | 0.44 |
| Edu 2a | 2.10 | 1.32 | 0.63 |
| Edu 3a | 5.06 | 1.95 | 0.39 |

Notes: Working-age population (age 15-70). Means computed using survey weights.

Table 5: Employment and Earnings Venezuelan migrants by year of arrival in Ecuador

| Arrived in | 2016 | 2017 | 2018 | 2019 (Junio) |
|-------------------|--------|--------|---------|--------------|
| <hr/> | | | | |
| All | | | | |
| Obs. | 118 | 245 | 816 | 534 |
| Est. Pop. | 11,140 | 66,305 | 184,075 | 63,664 |
| Shares | 0.03 | 0.20 | 0.57 | 0.20 |
| Age | 32.3 | 27.3 | 25.4 | 24.6 |
| Female | 0.40 | 0.34 | 0.55 | 0.49 |
| Edu 1a | 0.07 | 0.14 | 0.21 | 0.22 |
| Edu 2a | 0.23 | 0.33 | 0.49 | 0.50 |
| Edu 3a | 0.70 | 0.53 | 0.31 | 0.29 |
| <hr/> | | | | |
| All Edu | | | | |
| Employed | 0.88 | 0.97 | 0.87 | 0.68 |
| Informal | 0.19 | 0.57 | 0.63 | 0.57 |
| Monthly earnings | 621 | 281 | 276 | 182 |
| Weekly hours work | 56 | 50 | 48 | 46 |
| Hourly wage | 3.40 | 1.52 | 1.63 | 1.22 |
| <hr/> | | | | |
| Edu 1a | | | | |
| Employed | 0.10 | 1.00 | 0.69 | 0.72 |
| Informal | 1.00 | 0.40 | 0.63 | 0.51 |
| Monthly earnings | 205 | 394 | 169 | 260 |
| Weekly hours work | 45 | 47 | 46 | 55 |
| Hourly wage | 1.14 | 2.21 | 0.76 | 1.33 |
| <hr/> | | | | |
| Edu 2a | | | | |
| Employed | 0.70 | 0.95 | 0.85 | 0.77 |
| Informal | 0.56 | 0.72 | 0.65 | 0.56 |
| Monthly earnings | 347 | 208 | 273 | 181 |
| Weekly hours work | 45 | 55 | 50 | 50 |
| Hourly wage | 2.24 | 0.99 | 1.44 | 1.09 |
| <hr/> | | | | |
| Edu 3a | | | | |
| Employed | 0.94 | 0.98 | 0.91 | 0.51 |
| Informal | 0.09 | 0.49 | 0.60 | 0.63 |
| Monthly earnings | 684 | 299 | 284 | 158 |
| Weekly hours work | 59 | 47 | 45 | 36 |
| Hourly wage | 3.67 | 1.67 | 1.96 | 1.52 |

Notes: EPEC Survey, weighted means, working-age population (15-70).

Table 6: Mincer regressions (hourly wages). Full sample

| Dep. Var. | (1) $\ln wh$ | (2) $\ln wh$ | (3) $\ln wh$ | (4) $\ln wh$ | (5) Informal | (6) Informal |
|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Born Vza | -0.56*** [0.08] | -0.79*** [0.06] | -0.66*** [0.06] | -0.67*** [0.07] | 0.31*** [0.06] | 0.35*** [0.07] |
| Born Other | -0.72 [0.71] | -0.96 [0.76] | -0.96 [0.79] | -1.41 [1.08] | 0.08 [0.10] | -0.01 [0.11] |
| Age | | -0.01 [0.01] | -0.01 [0.01] | -0.01 [0.01] | 0.00 [0.00] | 0.00 [0.00] |
| Female | | -0.31** [0.12] | -0.27** [0.10] | | 0.11 [0.10] | |
| Edu2a | | -0.14 [0.10] | -0.25** [0.10] | -0.08 [0.18] | -0.19*** [0.07] | -0.11 [0.11] |
| Edu3a | | 0.68*** [0.14] | 0.40*** [0.13] | 0.54 [0.35] | -0.53*** [0.09] | -0.56*** [0.10] |
| Informal Emp. | | | -0.49*** [0.08] | -0.50*** [0.17] | | |
| Observations | 2,629 | 2,555 | 2,555 | 1,094 | 2,915 | 1,282 |
| R-squared | 0.18 | 0.28 | 0.30 | 0.39 | 0.30 | 0.35 |
| Cantons | 42 | 42 | 42 | 41 | 42 | 41 |
| Sample | All | All | All | Females | All | Females |

Notes: EPC survey, working-age population (15-70). Estimation using survey weights. All specifications include canton fixed-effects. The omitted category is (at most) primary education (Edu 1a). From column 3 to the end we also control for the density of Venezuelans in the population at the sector level, which is a subdivision of canton. The coefficient is never statistically significant. Standard errors are heteroskedasticity-robust and clustered by canton (in brackets). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Mincer regressions (hourly wages). Venezuelan sample

| Dep. Var. | (1) lwh | (2) lwh | (3) lwh | (4) lwh | (5) Informal |
|-----------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| Age | -0.01 [0.01] | 0.00 [0.01] | 0.00 [0.00] | 0.01* [0.00] | 0.01** [0.00] |
| Female | -0.32** [0.12] | -0.22** [0.09] | -0.22** [0.08] | -0.17*** [0.04] | 0.18** [0.07] |
| Edu 2a | -0.15 [0.10] | 0.29** [0.12] | 0.18 [0.12] | 0.21 [0.13] | 0.11 [0.10] |
| Edu 3a | 0.62*** [0.15] | 0.53*** [0.13] | 0.39** [0.15] | 0.38** [0.15] | -0.02 [0.12] |
| Arrived 2016-18 | | | 0.33* [0.17] | 0.31 [0.21] | -0.05 [0.18] |
| Informal emp. | | | | -0.23 [0.21] | |
| Legal status | | | | | -0.17*** [0.04] |
| Obs. | 2,555 | 843 | 843 | 843 | 947 |
| R-squared | 0.26 | 0.12 | 0.17 | 0.19 | 0.20 |
| Cantons | 42 | 27 | 27 | 27 | 27 |
| Sample | All | Vza | Vza | Vza | Vza |

Notes: EPC survey, working-age population (15-70), born in Venezuela (except in column 1 where we use the whole sample). Estimation using survey weights. All specifications include canton fixed-effects. The omitted category is (at most) primary education (Edu 1a). Standard errors are heteroskedasticity-robust and clustered by canton (in brackets). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: Occupation in Ecuador by country of birth

| | Freq. | Est. Pop. | Hourly wage | Informal | Edu3a |
|-------------------------|-------------|-------------|-------------|-----------|-----------|
| Birth country | Ecuador | Ecuador | Ecuador | Ecuador | Ecuador |
| Private-sector employee | 749 | 2,698,328 | 3.31 | 0.23 | 0.25 |
| Self-employed | 624 | 2,767,916 | 1.96 | 0.79 | 0.10 |
| Government employee | 189 | 607,761 | 5.59 | 0.00 | 0.72 |
| Laborer | 140 | 655,637 | 1.87 | 0.68 | 0.07 |
| Manager | 98 | 203,119 | 3.67 | 0.79 | 0.08 |
| Domestic employee | 43 | 152,698 | 2.65 | 0.59 | 0.04 |
| Outsourced employee | 15 | 51,881 | 1.35 | 0.00 | 0.04 |
| Birth country | Venezuela | Venezuela | Venezuela | Venezuela | Venezuela |
| Private-sector employee | 511 | 101,803 | 1.66 | 0.27 | 0.46 |
| Self-employed | 269 | 66,642 | 1.32 | 0.97 | 0.52 |
| Government employee | 11 | 1,807 | 10.30 | 0.00 | 0.99 |
| Laborer | 120 | 13,658 | 1.40 | 0.58 | 0.18 |
| Manager | 10 | 1,045 | 3.06 | 0.24 | 0.79 |
| Domestic employee | 20 | 6,010 | 1.40 | 0.93 | 0.74 |
| Outsourced employee | 13 | 3,263 | 2.17 | 0.75 | 0.85 |
| Ratio | 100*Vza/Ecu | 100*Vza/Ecu | Vza/Ecu | Vza/Ecu | Vza/Ecu |
| Private-sector employee | 68.2 | 3.8 | 0.50 | 1.19 | 1.86 |
| Self-employed | 43.1 | 2.4 | 0.67 | 1.23 | 5.22 |
| Government employee | 5.8 | 0.3 | 1.84 | NA | 1.38 |
| Laborer | 85.7 | 2.1 | 0.75 | 0.86 | 2.67 |
| Manager | 10.2 | 0.5 | 0.83 | 0.30 | 9.36 |
| Domestic employee | 46.5 | 3.9 | 0.53 | 1.59 | 20.56 |
| Outsourced employee | 86.7 | 6.3 | 1.61 | NA | 20.62 |

Notes: Information based on survey question 4.18 (relationship to employer, current employment in Ecuador). Means computed using survey weights using the working-age population (15-70). In columns 1-2 in the bottom panel the figures have been multiplied by 100 (percentage points).

Table 9: Occupation in Venezuela and in Ecuador. Venezuelan migrants only

| | Freq. | Est. Pop. | Edu1a | Edu2a | Edu3a |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| Employment in | Venezuela | Venezuela | Venezuela | Venezuela | Venezuela |
| Private-sector employee | 495 | 115,770 | 0.03 | 0.46 | 0.51 |
| Self-employed | 137 | 21,191 | 0.05 | 0.61 | 0.34 |
| Government employee | 163 | 30,254 | 0.03 | 0.25 | 0.72 |
| Laborer | 22 | 3,418 | 0.10 | 0.88 | 0.02 |
| Manager | 24 | 5,074 | 0.14 | 0.63 | 0.23 |
| Domestic employee | 3 | 143 | 0.11 | 0.89 | 0.00 |
| Outsourced employee | 4 | 508 | 0.00 | 0.53 | 0.47 |
| Employment in | Ecuador | Ecuador | Ecuador | Ecuador | Ecuador |
| Private-sector employee | 511 | 101,803 | 0.03 | 0.51 | 0.46 |
| Self-employed | 269 | 66,642 | 0.02 | 0.46 | 0.52 |
| Government employee | 11 | 1,807 | 0.00 | 0.01 | 0.99 |
| Laborer | 120 | 13,658 | 0.12 | 0.69 | 0.18 |
| Manager | 10 | 1,045 | 0.00 | 0.21 | 0.79 |
| Domestic employee | 20 | 6,010 | 0.00 | 0.26 | 0.74 |
| Outsourced employee | 13 | 3,263 | 0.02 | 0.13 | 0.85 |
| Ratio | Ecu/Vza | Ecu/Vza | Ecu/Vza | Ecu/Vza | Ecu/Vza |
| Private-sector employee | 1.03 | 0.88 | 1.16 | 1.09 | 0.91 |
| Self-employed | 1.96 | 3.14 | 0.43 | 0.76 | 1.51 |
| Government employee | 0.07 | 0.06 | 0.00 | 0.03 | 1.38 |
| Laborer | 5.45 | 4.00 | 1.20 | 0.79 | 8.59 |
| Manager | 0.42 | 0.21 | 0.00 | 0.32 | 3.46 |
| Domestic employee | 6.67 | 42.03 | 0.03 | 0.29 | NA |
| Outsourced employee | 3.25 | 6.42 | NA | 0.25 | 1.79 |

Notes: Information based on survey question 4.48 (relationship to employer, usual employment in Venezuela prior to emigration) and 4.18 (relationship to employer, employment in Ecuador). Means computed using survey weights using the working-age population (15-70) for Venezuelan migrants reporting information on last job in Venezuela. The bottom panel reports the ratio of the value corresponding to the job in Venezuela relative to the job in Ecuador.

Table 10: Simulation Effects of Legalization on Average Hourly Wage Venezuelan workers

| Edu | Employment | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|-------|------------|---------------|-----------------------|------------|----------------|----------------|------------------|--------------|----------------|
| | | Base freq. | Base freq. weights | Base wh | Base shares | Base wh edu | Simula shares | Simula wh | Sim./Base % |
| 1a | Formal | 15 | 2,848 | 1.68 | 0.47 | 1.14 | 0.64 | 1.31 | 15.4 |
| 1a | Informal | 40 | 3,207 | 0.65 | 0.53 | | 0.36 | | |
| 2a | Formal | 287 | 35,735 | 1.29 | 0.36 | 1.37 | 0.53 | 1.35 | -1.5 |
| 2a | Informal | 154 | 62,687 | 1.41 | 0.64 | | 0.47 | | |
| 3a | Formal | 131 | 29,704 | 2.40 | 0.42 | 1.91 | 0.59 | 2.05 | 7.5 |
| 3a | Informal | 198 | 41,822 | 1.56 | 0.58 | | 0.41 | | |
| Total | | 825 | 176,003 | | | | | | |

Notes: Baseline values in columns 1-5. Simulated values columns 6-7. Working-age population (15-70). Baseline values are means (using survey weights). Simulated scenario keeps education levels and working conditions as in baseline. Hourly wages for Venezuelan workers (by education level) are also kept constant. Variable *wh* is the hourly wage.

Table 11: Simulation Employment Upgrading on the basis of education levels and occupational category

| | (1) | (2) |
|-----------|-------------------|-------------------|
| | Education | Occupation |
| | GDP Sim./Baseline | GDP Sim./Baseline |
| Ecuador | 101.9 | 101.6 |
| Province | | |
| Pichincha | 103.5 | 102.8 |
| Guayas | 102.1 | 101.1 |

Notes: GDP base value indexed to 100. According to the EPEC survey, Venezuelan workers account for 2.9% of employment in Ecuador. Simulated scenario assumes that Venezuelan workers obtain the same monthly earnings as Ecuadoran workers with the same education level (in column 1) or occupational category (in column 2) in the same province of residence. The simulation maintains wage levels constant at each education level and province. Quito is the capital of the Pichincha province and Guayaquil is the capital of Guayas.

Appendix

A EPEC survey design

Designing a survey addressed to recent migrants is a formidable challenge due to their high geographic mobility. To address it we adopted a creative approach to characterize the geographical distribution of the population of interest by enlisting the collaboration of *Telefonica Ecuador*, one of the largest mobile communications providers in the country. Next, we provide a brief description of the process. More details on the implementation of the survey can be found in [Munoz et al. \(2020\)](#).

Using several billion geocoded records of phone calls, text messages and data usage (collected between June 2018 and March 2019), *Telefonica Ecuador* provided us with estimates of the share of active mobile phones belonging to recent Venezuelan migrants in each of Ecuador’s 40,681 Census sectors. Second, these data were used to extrapolate the share of mobile phones for this specific mobile services provider to the complete population of mobile phones (from all companies). Last, we devised adjustment factors based on the population that owns mobile phones to make the figures consistent with the number of households in each Census sector. [Olivieri et al. \(2020\)](#) use these data to analyze the factors determining the location choices of Venezuelan migrants and conclude that distance to the main gateways into the country (by land and air) as well as the economic size of the destination cantons have high explanatory power.

Relying on the previous data, a nominal sample of 2,800 households was selected in two stages (even though the realized sample was smaller). The first sampling stage involved selecting 200 Census sectors with pre-defined characteristics, whereas the second stage involved sampling 14 households within each of those Census sectors. More specifically, the Census sectors to include in the sample were randomly chosen according to three strata defined by the density of Venezuelan mobile phones in the sector: (i) 100 high-density sectors (above 15%), 80 medium density sectors (between 5% and 15%) and 20 low density sectors (below 5%). Within each of the selected Census sectors, households were randomly selected on the basis of a complete enumeration of all households in the selected sectors. Importantly, due to the high mobility of recent migrants, the enumeration was carried out twice: once a month before the fieldwork and again immediately before data collection. All interviews were conducted in person during June and July 2019. The final sample includes 1,900 households and 6,425 individuals.

B Additional Tables

Table B.1: Gateways into Ecuador

| | All | Primary Educ. | Secondary Educ. | Tertiary Educ. |
|-------------------------|---------|---------------|-----------------|----------------|
| By Land | | | | |
| Rumichaca | 82.6 | 93.1 | 79.9 | 84.6 |
| Huaquillas | 2.6 | 1.3 | 3.8 | 1.2 |
| San Miguel | 7.0 | 2.9 | 9.9 | 3.9 |
| By Air | | | | |
| Quito Airport | 2.9 | 0.0 | 1.3 | 5.3 |
| Guayaquil Airport | 2.8 | 2.0 | 1.4 | 4.7 |
| Other | | | | |
| Unofficial entry points | 2.0 | 0.8 | 3.7 | 0.2 |
| Population | 235,477 | 14,100 | 126,137 | 95,061 |
| Observations | 1,239 | 104 | 655 | 479 |

Notes: Entry points into Ecuador. Estimations based on EPEC data for sub-sample of individuals born in Venezuela, age 18 or older.

Table B.2: Descriptive Statistics EPEC Survey. Venezuelan sample

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|------------------------|------|---------|-----------|-----|------|
| Age | 1715 | 25.257 | 14.994 | 0 | 78 |
| Female | 1715 | .501 | .5 | 0 | 1 |
| Ecuadoran nationality | 1715 | .038 | .192 | 0 | 1 |
| Born Ecuador | 1715 | 0 | 0 | 0 | 0 |
| Born Venezuela | 1715 | 1 | 0 | 1 | 1 |
| Born Other | 1715 | 0 | 0 | 0 | 0 |
| Arrived in 2018 | 1715 | .476 | .5 | 0 | 1 |
| Arrived in 2017 | 1715 | .143 | .35 | 0 | 1 |
| Arrived in 2016 | 1715 | .069 | .253 | 0 | 1 |
| Legal status | 1715 | .093 | .291 | 0 | 1 |
| Primary education | 1521 | .221 | .415 | 0 | 1 |
| Secondary education | 1521 | .445 | .497 | 0 | 1 |
| Tertiary education | 1521 | .334 | .472 | 0 | 1 |
| Employed | 1715 | .568 | .496 | 0 | 1 |
| Self-employed | 974 | .277 | .448 | 0 | 1 |
| Informal employment | 967 | .521 | .5 | 0 | 1 |
| Temporary employment | 705 | .716 | .451 | 0 | 1 |
| Paid as agreed | 704 | .885 | .319 | 0 | 1 |
| Weekly work hours | 966 | 50.66 | 23.485 | 0 | 189 |
| Monthly earnings (USD) | 944 | 315.535 | 390.495 | 0 | 6400 |
| Hourly wage (USD) | 926 | 1.839 | 2.601 | 0 | 40 |

Notes: EPEC survey, unweighted data. Sample includes only individuals born in Venezuela that arrived in Ecuador prior to January 1, 2016. In EPEC sample 30.5% of respondents were born in Venezuela. In weighted sample, Venezuelans account for 2%% of Ecuador's population. Primary education includes those that did not complete primary education. Secondary and tertiary education include only individuals that completed the corresponding stages. Variable *Legal status* is an indicator for valid and current work and residence permit. Variable *Paid as agreed* is an indicator taking value of one if the worker received the payment that had been previously agreed upon with the employer.

Table B.3: List of labor market outcomes

| Variable name | Values |
|--------------------------------|---|
| Age | years |
| Female (Fem) | 1 if female, 0 otherwise |
| Ecuadoran nationality | 1 if Ecuadoran national, 0 otherwise |
| Born Ecuador | 1 if born in Ecuador, 0 otherwise |
| Born Venezuela | 1 if born in Venezuela, 0 otherwise |
| Born Other | 1 if born in a country other than Ecuador or Venezuela, 0 otherwise |
| Primary Education (Edu1a) | 1 if individual had at most completed primary education, 0 otherwise |
| Secondary Education (Edu2a) | 1 if individual completed secondary education, 0 otherwise |
| Tertiary Education (Edu3a) | 1 if individual completed tertiary education, 0 otherwise |
| Employed (Emp) | 1 if individual was employed at the time of the survey, 0 otherwise |
| Paid as agreed (Agreed) | 1 if the worker received the payment previously agreed upon with the employer, 0 otherwise |
| Weekly work hours (Hours work) | number of hours worked in the previous week |
| Monthly earnings (w) | earnings (in USD) received in the previous month |
| Log of earnings (ln w) | log of monthly earnings |
| Hourly wage (wh) | earnings received in the previous month over 4 times the number of weekly work hours (in USD) |
| Log of hourly wage (ln wh) | log of hourly wage |
| Informal employment (Informal) | 1 if the individual is employed in the informal sector ²⁴ , 0 otherwise |
| Formal employment (Formal) | 1 if individual is employed but his/her employer is not considered to belong to the informal sector |
| Temporal employment (Tempo) | 1 if the individual has a temporary contract (i.e. with a previously established end date) |
| Arrived 2016-18 | 1 if year of arrival in Ecuador 2016-2018 and 0 otherwise |
| Legal status | 1 if individual has legal status (work and residence permit), 0 otherwise |

Notes: The source for all variables is the EPEC survey.