

The Effect of Massive Venezuelan Immigration on Native Wages in Roraima State, Brazil.

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Abstract

The aim of this paper is to study the massive wave of migration of Venezuelans to Roraima State, in Brazil, that was intensified in 2017. From this period on, more than 170,000 Venezuelans migrated to Brazil, but only around 85,000 stayed. However, it still represents 14.8% of the population of the state. Thus, specifically, the research question to be investigated is to check the effects of the increase in labor supply generated by this massive entrance of Venezuelans on native wages.

1 Introduction

Immigration has been a main point of discussion and study in the XXI century. The wars and misgovernment actions around the world has generated millions of refugees that are forced to leave their home countries and seek to start over in some other nation. According to an article published in Independent [16], daily, 44,500 refugees seek for asylum and the total of people looking to settle in some other country already reached 68.5 million. The phenomenon is mostly felt and studied in Europe and in the United States, given that most of the refugees look for developed countries as their destination, given that, theoretically, they can provide better job and life opportunities. However, this is not the only direction that guides refugees. Some of them do not have a choice of where to go, given they have

constrained resources to organize themselves and think about their future. Thus, they end up migrating to places nearby. That is the case of this study.

The XXI century did not start peacefully in Venezuela. Coming from a series of coup attempts on the 1990's, the country elected Hugo Chavez as president in 1998, who was the leader of a a coup attempt in 1992. Chavez was elected with a platform of bringing a "Bolivarian Revolution" into the country with the implementation of a new constitution that aimed to implement a socialist and populist economic and social policies. In order to do so, the then elected president would take advantage of the high oil prices¹ Having the land reform as one of his priorities, In 2001, Chavez was able to pass 49 laws in Congress aimed at redistributing land and wealth. As an example, article 307 of the 1999 constitution states that:

*"The predominance of large idle estates (latifundios) is contrary to the interests of society. Appropriate tax law provisions shall be enacted to tax fallow lands and establish the necessary measures to transform them into productive economic units, likewise recovering arable land. Farmers and other agricultural producers are entitled to own land in the cases and forms specified under the pertinent law. The State shall protect and promote associative and private forms of property in such manner as to guarantee agricultural production. The State shall see to the sustainable ordering of arable land to guarantee its food-producing potential"*².

During his time in presidency (1999-2013), Chavez started several social programs, taking advantage of the high oil prices in the world (See Figure 1). However, although economically the country seemed to do well, the president suffered an attempt of coup in 2003. Consequently, Chavez strengthened his government by acting to have a higher control on the media³, approximating the country's relation to Russia⁴, expropriating Exxon Mobil and ConocoPhillips, two oil companies that refused to hand over majority control of their operations in the Orinoco Belt to the Venezuelan government (2007), among so many other political actions, which raised concerns, locally and internationally, on his several terms as

¹According to OPEC website, Venezuela's oil revenues account for about 98 per cent of export earnings [15].

²Land for People not for Profit in Venezuela. Available at: <https://venezuelanalysis.com/analysis/1310>. Accessed on: 12/02/2018 [17].

³In 2007, the government refused to renew terrestrial broadcasting license of RCTV channel, a critical TV channel of President Chavez, causing massive protests for and against him and strong international condemnation.

⁴In 2006, Chavez's signs a \$3bn (£1.6bn) arms deal with Russia, including an agreement to buy fighter jets and helicopters, marking a re-orientation away from US arms supplies.

president. In addition, with the drop in the oil prices in 2010, the economic problems were added to the political instability situation that the country lived since Chavez was in power. In an attempt to control the high inflation (21.07% monthly), in 2012 Chavez promoted a control on prices of basic goods and suggested that the companies that did not follow the control would be expropriated. Even failing against inflation, Chavez won a fourth term in office, with 54% of the votes.

In 2013, Chavez died victim of a cancer. In April of that year, Nicolas Maduro was elected as his successor. His task was not easy, since the world was going through the hardest financial crisis since 1929, the inflation rate was reaching 43% monthly on that year, the oil prices, main source of Venezuela's exports, started to drop significantly and, politically, the country was shaken due to the fact that opposition groups saw as their chance to get to power after 12 years of Chavez.

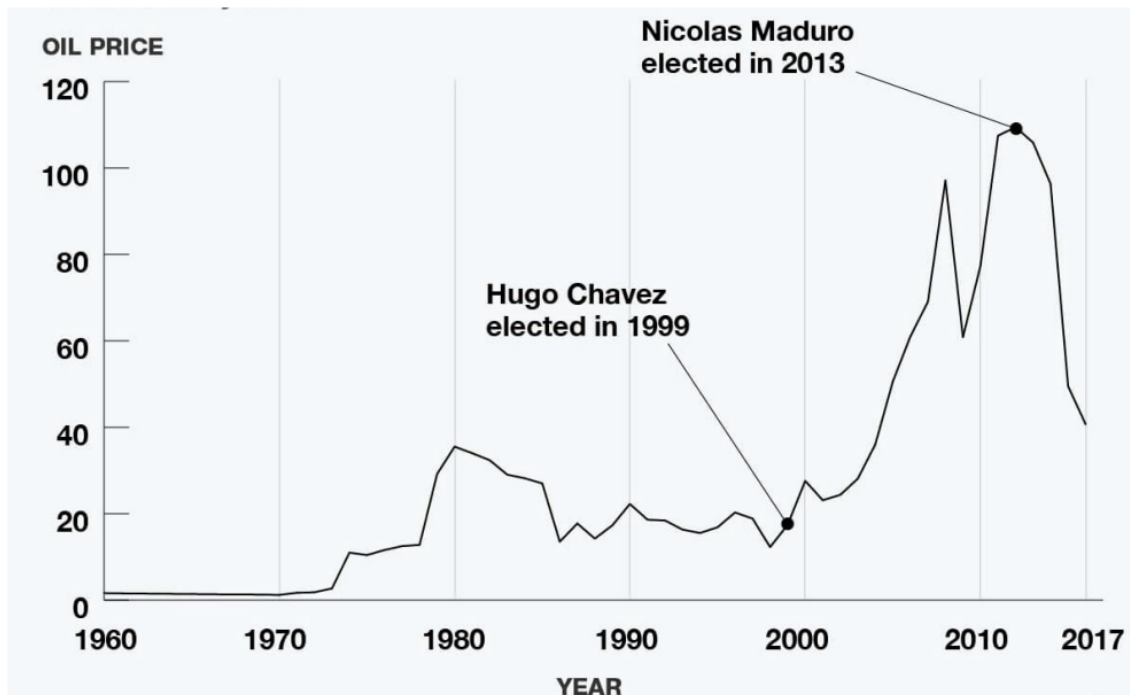


Figure 1: Global Oil Prices Over Time
Source: tradingeconomics.com

Maduro could not handle the situation in the country. His misgovernment lead the country to deepen itself into the crisis that was being formed since 2010. The authoritarian⁵

⁵In December of 2014, the Venezuela's chief prosecutor formally charges leading opposition figure Maria Corina Machado with conspiracy to assassinate President Maduro. In February, 2015 February, Antonio Ledezma, opposition mayor of Caracas, charged with plotting coup with US support. Ledezma denied the

way o government of Maduro gave rise to violent protests that killed several Venezuelans⁶. Inflation reached more than 50% in the end of 2014 and is beyond astonishing 8,000,00% currently⁷ The continuity of the social programs started by Chavez were put at stake⁸ when global oil prices dropped and, by 2016, the government had to increase petrol prices for the first time in 20 years. Finally, in 2018, "the UN warned of a migration "crisis", estimating that economic woes and food and medical shortages have caused more than two million Venezuelans to leave their country since 2014. Most are settling in nearby Peru, Ecuador, Colombia and Brazil, leading to tensions in the region"⁹. Figure 2 reports the number of refugee requests by Venezuelans over time in Brazil.

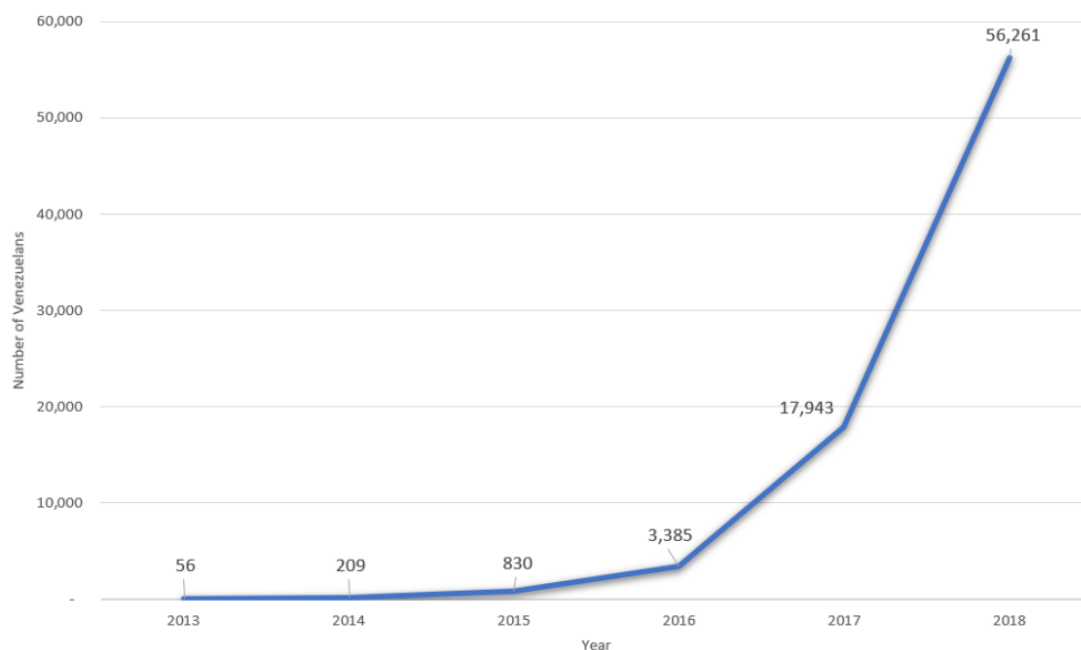


Figure 2: Number of Regufee Requests by Venezuelans Per Year, 2013-2018

Source: Federal Police

Although it does not represent the total number of people crossing the borders, it is indeed a lower bound of the number of Venezuelans migrating to the country, since some accusations and, instead, accused the government of *stifling criticism*.

⁶In September of 2016, hundreds of thousands of people participated in a protest in Caracas calling for the removal of President Maduro, accusing him of responsibility for the economic crisis. In 2017, several people die in confrontations with security forces during mass protests demanding early presidential elections and the revoking of a planned constituent assembly to replace the National Assembly.

⁷*Venezuela Inflation Rate*. Available at: <https://tradingeconomics.com/venezuela/inflation-cpi>. Accessed on 03/12/2018 [12].

⁸In November of 2014, the government announced cuts in public spending.

⁹Venezuela profile - Timeline. Available at: <https://www.bbc.com/news/world-latin-america-19652436>. Accessed on 03/12/2018. [2]

of them do not request the refugee status by some reason (not being informed about it or some other reason). We can see, therefore, that, although we had a spike already in 2015 and 2016, the slope of the curve is steeper from 2017 onward and the number of Venezuelans requesting a refugee peaks in 2018.

Given the situation, Venezuelans that live close to the Brazilian border, are migrating to the country looking for food and better life conditions. Most of them cross the border walking, as they do not have any resource. On the other side of the country, Venezuelans are migrating to Colombia, also given the proximity. Roraima is the 12th, among 27 states plus the Federal District, in the HDI ranking. With a population of 576,568 inhabitants, the average income is approximately \$271 monthly. Venezuelans are crossing the border of the country with the city of Pacaraima, with a population of 15.580 inhabitants. The city scores even lower on average wage, reaching \$258 approximately monthly (1.8 the minimum wage) and 46.5% of the population earn up to 1/2 the minimum wage. Finally, Roraima ("RR" in figure 3) is the state that is receiving the majority (almost all) of the Venezuelans migrating to the country.

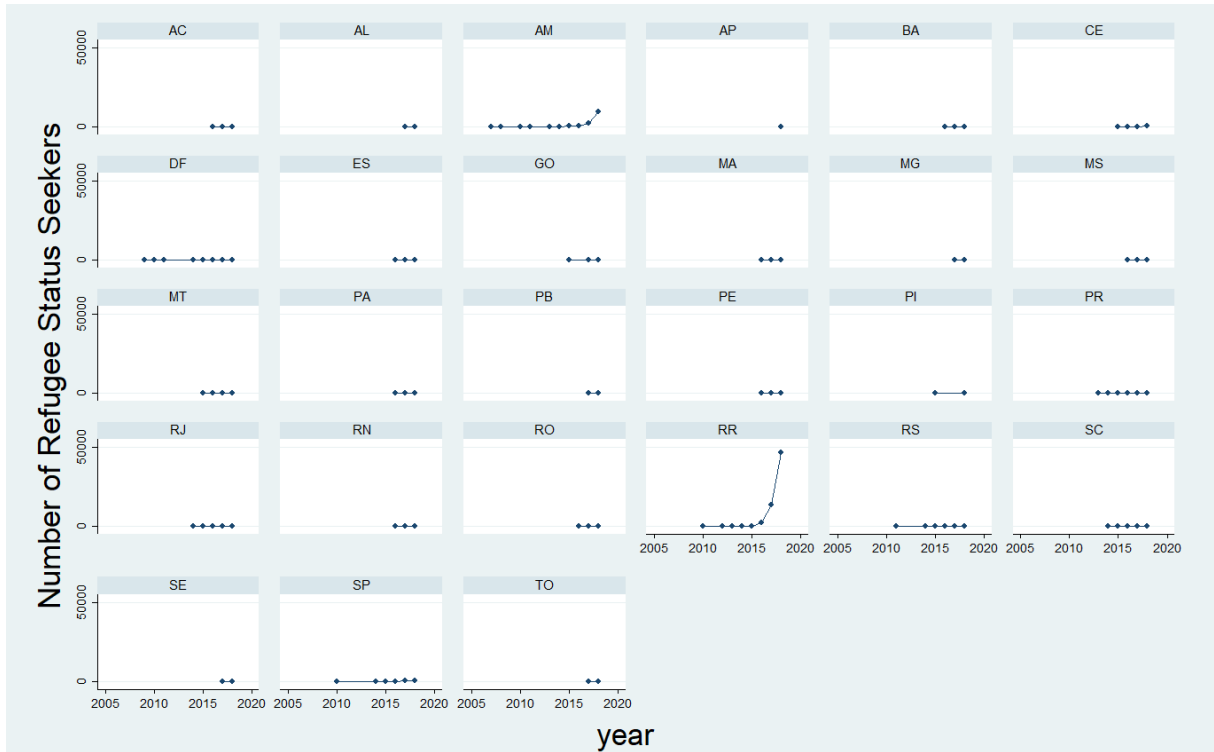


Figure 3: Number of Venezuelans Refugee Requests by State Over Time
Source: Federal Police

Figure 3 shows that considerable amount of Venezuelans are also going to Amazonas

("AM" in the figure). However, they are entering the country through Roraima and then trying to reach Amazonas. This is because the state has one of the main industrial concentration of the country, which provides better job opportunities, and also because it is still close to the border, making it easier to communicate, send money and maybe bring the rest of the family to Brazil. However, Roraima is still by far the main destination of Venezuelans. All these facts provides evidences and suggest that people are migrating because they have no alternative and Roraima is the closest place they can reach¹⁰, given their constrained resources. Thus, we can interpret this phenomenon as a natural experiment.

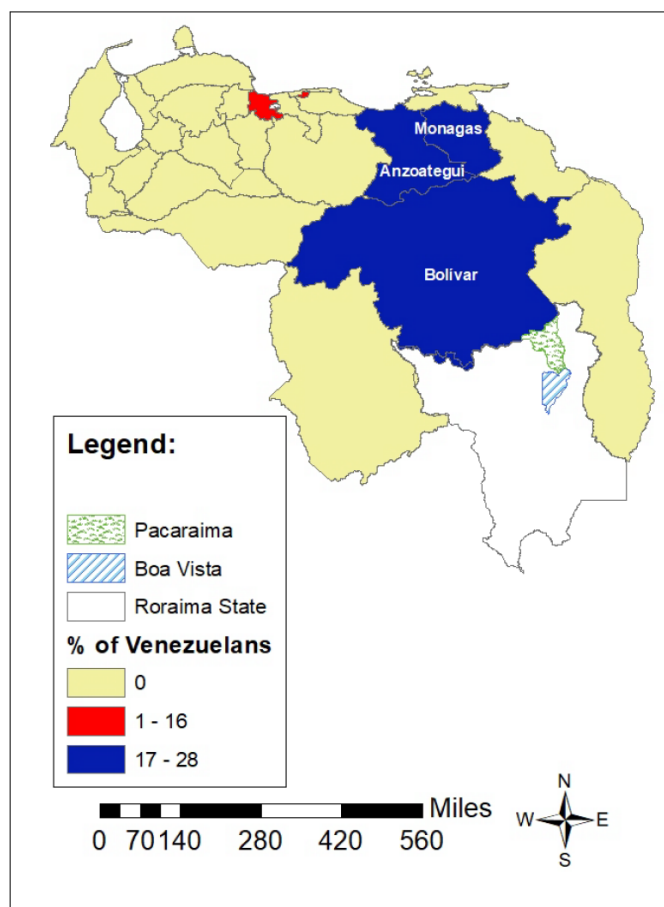


Figure 4: Migration of Venezuelans to Roraima State, through Pacaraima

From 2017 to 2018 (until October, 2018), 176,259 Venezuelans migrated to Brazil through Pacaraima. Although almost half of those who migrated had left the country at some point, 85,268 of them stayed either in Pacaraima, Boa Vista (the capital of the state) or were relocated to other states. This number accounts for 14.78% of the population of the

¹⁰See Figure 4

state, 22.7% of the population of the capital Boa Vista and incredibly 547% of the population of Pacaraima. According to Displacement Tracking Matrix (DTM), "a system to track and monitor the displacement and population mobility, [...] designed to regularly and systematically capture, process and disseminate information to provide a better understanding of the movements and evolving needs of displaced populations, whether on site or en route", in a research made with the Venezuelans that migrated to Roraima in Boa Vista and in Pacaraima between January 25th and March 8th of 2018, they found that 23% of them came from Bolívar, the nearest state to the Brazilian border, 24% from Monagas, and 28% came from Anzoátegui (see Figure 4). These three states account for 75% of the total of migrants. From the sample of 3,516 interviews, 2,420 Venezuelans in Boa Vista and 1,096 of them in Pacaraima, 67% reported that they left Venezuela because of economic/labor reasons, 22% reported the lack of access to food and medical services as the main reason to leave the country and 7% elected violence as the reason to migrate¹¹ Moreover, 42% report that they would hunger if they had to go back to Venezuela, 32% say they would have no employment, 19% say there would be no problem and about 1% fear being persecuted.

In fact, from these findings, it is possible to argue that people are migrating to Brazil because they do not see any alternative. They look either to stay in the country, or using the country as mean to go elsewhere. The same research ran by DTM, reported that 48% of the interviewees wanted to stay in Brazil, while 52% have another country, specially Argentina (58% out of the initial 52%), as their final destination. From those who are willing to stay, 22% want to stay in Roraima, while 59% aim to go to the state of Amazonas. Besides, 50% of these people have only secondary education, while 12% have only primary education, 28% have a college degree and only 1% have some kind of post-graduation degree¹². This fact raises the assumption that the sectors that should feel the biggest impacts on native wages are indeed the low-skilled jobs. 57% reported being unemployed¹³ and 42% reported being employed. 33% of the employed people are in the service sector, 31% in commerce, followed by 13% on construction. Another astonishing fact is that 83% earn less than the Brazilian minimum wage (\$254 approximately).

One of the biggest concerns of the society is that the arrival of these immigrants would result in an increase in labor supply, which could harm natives by pressuring down the

¹¹Brasil — Monitoramento do uxo migratorio venezuelano 1 (Abril 2018). Available at: <http://www.globaldtm.info/pt/brazil-ĩńĆow-monitoring-venezuelan-migration-ĩńĆow-abril-2018>. Accessed on: 12/04/2018 [10].

¹²From the sample, 0.15% reported no schooling.

¹³Out of the unemployed, the distribution of schooling levels are extremely similar to the total sample, leading to the fact that schooling is not a decisive factor in the hiring of Venezuelans.

wages and by worsening native work conditions. However, this relationship is not as straight forward as it seems and has been generating debates among economists since the 1990's. First, the difference in the composition of migrants (low and high skill people - even more different groups, according to education) play an important role in these studies, given they will compete for different jobs in different industries of distinct sectors in the economy of destination. Besides, it is not obvious that natives and immigrants will compete for the same jobs (Altonji and Card, 1991), which leads to think of possible ambiguous results in the estimation. The long-run impacts of an increase in the population of a certain city could (more than) offset the short-run effects. Assuming this process will also turn into an increase in demand for food, services and other economic activities, pushing local business and industries to increase their demand for labor and rising the economical growth of those areas (Altonji and Card, 1991 [1]; Jaeger *et al.*, 2018 [14]). Adding to these potential sources of ambiguity, the estimation strategies used to study the effects of immigration on native wages is far from a consensus and generate endless debates and discussions.

The first studies on this matter relied on spatial variation in immigrants inflow as a source of identification. However, this approach brings with it an endogeneity issue, given that migrants tend to go to places with better job opportunities and higher wages, as already mentioned above. In order to solve or minimize this problem, the first attempt was to use past share of immigrants as an instrumental variable (Altonji and Card, 1991 [1]). This identification strategy would satisfy both the relevancy and exogeneity assumptions respectively given that immigrants tend to settle into cities with large immigrant population from their own nationality and that past geographic distance would not affect current demand for native wages. The biggest disadvantage of this method is that, the share of immigrants in a certain year in the past is fixed, which would prevent the insertion of controls addressing potential sources of city heterogeneity (city Fixed Effects).

As an alternative to it, the typical method that has been used is what is known as the "shift-share IV". The main goal of this strategy is to generate variation at local level by exploiting variation in national inflows, trying to overcome the problem of lack of variation when using past share of immigrants in a city as the instrumental variable (Card, 2001 [7]; Card, 2009 [8]). The basic idea of this source of identification is to predict the inflow of immigrants based on two facts: a) the current inflow of immigrants from the countries of origin at the national level (*shift*); and b) the previous share of population from each country of origin in a city (*share*). However, the use of this instrument was criticized due to the tendency of presenting less negative results if compared to other approaches (Jaeger *et al.*, 2018 [9]) and to change signs with different time periods in the same country studied (Borjas,

1999 [3]). The main source of this *bias* would be the lack of explanation with the ambiguous effects of both the short and long-run impacts of migrants on native wages. Besides the concern with a general equilibrium effect, "the country of origin composition and settlement patterns of immigrants are often correlated over time, with the same cities repeatedly receiving large inflows" (Jaeger, *et al.*, 2018, p. 2), what would make the exogeneity assumption of the "shift-share" IV invalid. The suggestion therefore was to exploit periods of dramatic changes in the component of immigrants together with instrumenting both current and past immigrants inflows. In other words, using two instruments.

Another set of studies took as the source of identification the different groups within the migrants. The assumption is that it is possible to separate migrants into groups according to their specific characteristics. While some studies use education and experience as the separator criteria (Borjas, 2003 [4])¹⁴, others use groups occupation (Friedberg, 2001 [13])¹⁵, skills (Dustman *et al.*, 2016 [11])¹⁶ and so many other migrants characteristics. This approach became known, therefore, as the *national skill cell approach* (Borjas, Freeman and Katz 1992, 1996, 1997 [6]; Jaeger, 1996 [14]).

Finally there is a set of studies that take into consideration randomized phenomena in order to estimate the effect of immigration on native wages. One of the most famous events studied is the Mariel boatlift, a mass emigration of Cubans, who traveled from Cuba's Mariel Harbor to the United States between April 15th and October 31st of 1980. This historical fact provided a good source of a natural experiment (Card, 1990). "The Mariel immigrants increased the Miami labor force by 7%, and the percentage increase in labor supply to less-skilled occupations and industries was even greater because most of the immigrants were relatively unskilled" (Card, 1990, p. 245). Evidences suggest that the city of Miami was able to rapidly absorb the increase in labor supply, which resulted in no effect on native wages or on unemployment rates. However, studies that revisited the same phenomenon from a different perspective provide evidence that the wage of high school dropouts in Miami dropped by 10% to 30% (Borjas, 2017 [5])¹⁷.

¹⁴Borjas finds that immigration lowers the wage of competing workers: a 10 percent increase in supply reduces wages by 3 to 4 percent.

¹⁵Friedberg uses a combination of natural experiment with an instrumental variable that exploits data on immigrants' occupations in their country of origin. The results, in general, suggest that immigrants adversely affect the earnings and employment opportunities of native workers.

¹⁶Given different approaches, Dustman argues that the estimations measures different coefficients according to their strategies. The *national skill-cell approach* rely on the assumption that an immigrant and a native with the same measured education and experience compete against each other. In their work, Dustman *et al.* argues that it is not the case in the United States context.

¹⁷Borjas argues that 60% of Cubans who migrated were high school dropouts, which would impact primarily the low-skill occupations in Miami. By studying only this specific group, Borjas finds an elasticity of

Thus, there are several approaches that aim to identify the effects of immigration on native wages. Some of them, like the *area approach*, often find no effect, arguing that there is an equilibrium effect that equates the increase in labor supply by also increasing the goods demand. Others, like the *national skill cells approach* tend to find mixed results on native wages, arguing that migrants are different in their characteristics, which would cause heterogeneous effects on different sectors in the destination country. This paper, therefore, aims to contribute to this literature, specifically looking at a natural experiment and by innovating in analyzing the effects of a massive migration from a developing country to another developing country in South-America, a region that is mostly left behind on the majority of the migration studies.

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