The Impact of Police Violence on Migration: Evidence from Venezuela. *

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Abstract

This study unveils the causal effect of authoritative violence on individuals' likelihood to migrate. Specifically, we examine the migration patterns of Venezuelans during the 2017-2018 political and economic crisis. We draw insights from regional-level data on civilian casualties caused by security forces, along with information extracted from the ENCOVI-2018 survey data that captures migration flows. The estimates rely on the travel time from the capital city as an instrumental variable and are robust to the inclusion of several households and socio-economic regional-level characteristics. The findings strongly suggest that authoritative violence is a significant non-economic push factor for international migration. Moreover, additional evidence indicates that this type of violence influences the skill composition of migrants, especially in the context of South-to-South migration flows.

JEL codes: F22, O15, R23
Keywords: Venezuela, Police Militarization, Violence, Migration, Crisis

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1 Introduction

Networks and wage differentials are among the most analyzed pull or push factors for migrants, together with distance, unemployment rates, educational characteristics, and level of human capital in origin and destination countries or regions. However, especially in a context like Latin America, non-economic factors could play an important role in shaping the cost-benefit analysis of potential migrants. In particular, the decision to migrate might also depend on the risks individuals are exposed to (Rodriguez and Villa, 2012; Massey et al., 2010). As clearly noted by Rodriguez and Villa (2012), households in developing countries confront a variety of threats. Although some of them can be countered by formal and informal mechanisms, some others imply a higher level of risk (actual or perceived) for which the above-mentioned mechanisms might not be enough. In light of this, there is good reason to suspect that a particular non-economic component, such as the fear of death from political violence, plays a crucial role in many people's migration decisions (see Morrison, 1993).

With this paper, we examine whether authoritative[1] violence represents a significant push factor for Venezuelan international migration. Interestingly, despite a consistent number of works that have addressed the impact of Venezuelan migrants on the society and the economy of the neighboring countries (Anatol and Kangalee, 2021; Knight and Tribin, 2020), we still know very little about the determinants of their choice to abandon their country of origin. The role of violence as an independent push factor, in particular, is not yet investigated (Niedomysl, 2011). Focusing on the regional level, to account for the possible variation across the different Venezuelan federal entities (hereafter, regions), we aim at proving that, as the percentage of homicides committed by police forces with respect to the overall number of homicides rises, the likelihood for an individual to migrate increases significantly. To investigate this relationship, we first look for trends or relevant patterns in our data using a

[1] We use the definition of authoritative violence following the one provided by Morrison and May (1994). According to the authors, *authoritative* violence includes also the actions of *state-sponsored* actors, such as the so-called death-squad activity, which is often "authorized" by the state, even when the perpetrators are not wearing police or military uniforms or are officially off-duty.

Linear Regression Model. In addition to the specific individual and household characteristics, our approach relies on *ad hoc* regional controls to account for the local economic opportunities and demographic, political, and geographical characteristics of the Venezuelan regions. Our results suggest that authoritative violence is a significant non-economic push factor for international migration. We also find evidence that this type of violence plays a role in shaping the migrants' skill composition. In fact, the effect is significant only among males and people with a lower level of education.

To overcome the endogeneity issues, we adopt an IV strategy using the *travel time from the Capital City* to each region's most populated city to instrument the authoritative violence. The Capital District and its neighboring regions have experienced a higher level of Maduro's loyal armed body's interventions with respect to the furthest ones. We, therefore, adopt the travel time from Caracas to account for the quality, ease, and security of the movements across the Country. Our assumption is consistent with the literature, according to which state-sponsored violence spreads faster in areas with greater state capacity (defined as a shorter distance from the capital). Pieces of evidence also suggest that, in general, political or state-sponsored violence is significantly higher close to the capital city because rebellions are more effective when they take place closer to the capital itself. Therefore, the state has the incentive to violently control the political discontent in the areas closest to the political seat of the country.

Although prior empirical research on the impacts of violence on migration has not been conclusive, it does highlight some crucial factors. The claim that violence in some places encourages emigration is supported by numerous international studies (Schultz, 1971; Morrison, 1993; Ibáñez Londoño et al., 2005; Ibáñez and Vélez, 2008; Bohra-Mishra and Massey, 2011; Contreras, 2014; Fernandez-Dominguez, 2020). While the majority of them found violence significant only related to the intra-national migration or displacement (Schultz, 1971; Morrison, 1993; Morrison and May, 1994; Engel and Ibáñez, 2007; Ibáñez and Vélez, 2008), Moore and Shellman (2006) found that state violence targeting civilians tend to produce international refugees. Similarly, Bohra-Mishra and Massey (2011) studied how armed violence during a period of

civil conflict in Nepal influenced intra-national and inter-national migration[2]. They found that people migrated only under conditions of extreme violence in which the threats to safety are perceived to exceed the risks of travel. When it comes to developing countries, the risk related to state violence is one of the most difficult to insure against. When the insurance costs are perceived to be too high as noted by Rodriguez and Villa (2012), even life-threatening, households may choose to migrate to escape them. As highlighted by Fernandez-Dominguez (2020), the sensibility of the effect of violence on migration may depend, indeed, on the level of violence. According to Bohra-Mishra and Massey (2011) and Morrison (1993), this relationship is not linear; that is, when societal violence levels are low, they have a negative impact on emigration. On the other hand, when societal violence levels rise above a certain threshold, the impact turns positive. Ibáñez Londoño et al. (2005) discovered in their research that other migration determinants have the opposite effect when there is violence. The lack of a clear and/or uniform understanding and of strong quantitative evidence is mainly given, as noted by Clemens (2017), by the great variety of the type of violence at the sub-national level, as so as to the difficulties in identifying the sub-national place of origin of both violent stimuli and migrants. In this sense, the migration literature is also missing a consistent understanding of the impact of violence on the migrants' skills composition and, therefore, the self-selection processes, particularly regarding the so-called South-to-South migration flows (Clemens and Mendola, 2020). In addition, the difficulties related to the analysis of violence are related to the role of perception, a process of mediation driven by personal characteristics, which is not always easy to account for (Becker et al., 2004). Depending on an individual's socioeconomic (Arceo-Gómez, 2012) or psychological (Becker, 2011) circumstances, violence may have an impact on migration decisions. Regarding this, Becker (2011) argued that fear influences emotions, which in turn influences beliefs and behaviors.

This paper is organized as follows. In section 2, we provide a detailed explanation of the process of militarization adopted by President Maduro, and of its role in strengthening the unstable position of the ruling party during the last 10 years.
In section 3, we present the different sources of data and the variables analyzed,

[2]As put by Chiquiar and Hanson (2005), 'intra-state' and 'inter-state' migration are two different phenomena, which need to be analyzed separately (see also Fernandez-Dominguez, 2020)

differentiating data and variables used for analyzing migration choice, violence, and regional and household controls. We then present the empirical approach and discuss the main econometric challenges such as the potential omitted variable bias related to the analysis of violence impact.
Section 4, is dedicated to the outline of the results, by presenting the main estimates regarding the coefficients of the variable of interest.
In conclusion, we provide, in section 5, a discussion about the most relevant findings, along with their potential implications.

2 The Militarization Process in Venezuela

During the 2010s, Venezuela underwent the worst and deepest economic and demographic crisis of any *non-war-ridden* country in modern history (Bull and Rosales, 2020). Migration rates have been growing exponentially since 2016, becoming the largest human mobilization in South America's recent history. Contextually the level of violence[3] has been constantly increasing. Venezuela has been showing one of the highest rates in Latin America of civilians killed by officials. In 2016, according to the Public Prosecutor Office (Galavís, 2020), public security officers were responsible for 22 percent of the total number of homicides. Between 2015 and June 2017 there were 8,292 alleged extrajudicial executions. Between 2018 and May 2019, the government reported 6,856 killings by officials during security operations that were classified as "resistance to authority", which may constitute extrajudicial executions (OHCHR 2019 in Galavís, 2020). Such a dramatic soar in officials' brutality is mainly due to a change in citizens' securitization policies. The militarization of police is, indeed, one of the key instruments for the transition of the Venezuelan system from a democratic to an authoritarian regime (Marsteintredet, 2020; Corrales, 2020; Pareja, 2020; Legler, 2020). As explained by the Inter-American Commission on Human Rights (Goldman, 2009; Cerna, 2019), the police and the military have different purposes, as well as training, equipment, and skills. As Osse (2006) put it, while the military is trained

[3]We proxy the level of violence through the homicide rate also drawing on UN recommendations. See for more: https://www.unodc.org/unodc/en/data-and-analysis/global-study-on-homicide.html

to use force to kill, the police are only to shoot to kill as a last resort. Therefore, the police militarization process[4] occurred in Venezuela, based on the transformation of the civil police into a military body, as well as on the engagement of the military in domestic security operations, represents a critical factor in the developing of the relationship between Government and citizens (Mummolo, 2018).

In 2015, Maduro's government started resorting to manipulation of laws, as well as the use of the National Bolivarian Armed Forces to repress the opponents, and to assure their ability to govern in such a difficult environment (Maya, 2014). The National Government approved the Homeland Security Plan, through which President Maduro implemented the militarization of public safety police forces, placing the national police under the control of the Army. In the same year, the Ministry of the Interior headed by Néstor Reverol created a new instrument for the systematic repression of the government opponents: Operation Liberation and Protection of the People (Operacion de Liberacion del Pueblo, hereafter OLP). According to the United Nations High Commissioner for Human Rights (Galavís, 2020), Venezuelan authorities used such an operation as a tool to demonstrate their alleged success in crime reduction. In reality, always according to OHCHR and the media (Marco, 2016), OLP actions have been showing patterns of disproportionate and unnecessary (ab)use of force and violence, producing a relevant number of extrajudicial victims, as reported above. In 2017, under the pressure of the NGOs and international bodies, Maduro has been forced to cease the OLP. However, to maintain its purposes, he created an elite body within the new Bolivarian National Police, the Special Action Forces (hereafter, FAES). FAES became the new form of OLP, whose work was not focused on reducing crime rates, but rather on constituting a mechanism of social and territorial control, to face civil unrest, the loss of consensus, and the political discontent due to the severe humanitarian crises. They have been massively employed

[4]According to Flores-Macías and Zarkin (2021); Galavís (2020), there are different types of militarization. The first is the one in which the militarized police rely on military tactics and equipment, maintaining a civilian jurisdiction as so as a low-hierarchy structure. The second one is the paramilitary police, operating under military deployment tactics and units, maintaining civilian jurisdiction and a police rationale. The third one is represented by the *constabularized* militaries, assuming citizen security tasks such as "crime prevention, crime contention, and prison security while reporting to the Ministry of Defence" Galavís (2020):71).

in the surroundings of the Capital City, in the attempt to secure the central government headquarters and the centers of power of the Federal Administration (Ades and Glaeser, 1995; McDoom, 2014). The worst-affected areas were the *barrios* of Caracas, and the regions of Carabobo, Miranda, Aragua, Zulia, Merida, and Anzoategui, low-income communities which have experienced a higher level of anti-government protests.

3 Data and Empirical Approach

3.1 Migration Data

We use the Encuesta Nacional de Condiciones de Vida (hereafter, ENCOVI) to examine Venezuelan citizens' decision to migrate out of their country of origin. The survey was carried out by the Universidad Catolica Andres Bello de Caracas between July and September 2018. It is representative by design of the Venezuelan population and provides information about 21.382 individuals, divided into 5,950 households across 22 regions (the sample does not include Amazonas and Dependencias Federales[5]).
Our dependent variable is binary and takes value 1 if an individual has left the Country between 2017 and September 2018[6].
Moreover, we use ENCOVI to draw information regarding individual and household characteristics. At the individual level, we account for age, education, and gender.

[5]As shown in Figure 3 and Figure 4, we dropped the migration data regarding Portuguesa, because we do not have data on violence for that region.

[6]Individual information on migrants' characteristics and their destinations are reported by the interview respondents, who are the household heads. We report here the questionnaire question translated from Spanish to English: "During the last few years, since June 2013, has anyone who lived with you in this household moved to another country? In what year and month did they migrate?". We restrict the sample of migrants to those who moved between 2017 and September 2018. The reason why we decided to keep the observations of 2018 in the estimation is mainly related to the attempt to grasp the potential time-lagged effect of the authoritative violence 'outbreak' of 2017. ENCOVI only accounts for those migrants who have at least a household member left behind. This could imply a loss of representativity of the sample, limiting the validity of our analysis. To overcome such a limitation, we use the Encuesta Dirigida a la Poblaciòn Venezolana que reside en el Pais (see section 4.1). The survey, performed at the end of 2018, collects information about 9.847 Venezuelan migrants residing in Peru, which is the second-largest receiving country.

We then consider the number of the members of the family, and the level of education of the household head[7].

Figure 4 maps the percentage of migrants in relation to the population in August 2018. It shows that the majority of migrants are from regions near the Capital District and the northwest part of the country. Consistently with IOM estimates[8], we observe that Colombia and Peru are the main receiving countries worldwide. The other main destinations are Chile, Ecuador, and the US. Migrants are on average younger and more educated[9] compared to the population remaining in the Country.

3.2 Homicide data

To proxy the level of violence we use data on homicides estimated and made public by the Observatorio Venezolano de Violencia (OVV)[10]. Since 2016, the Observatory has been collecting data on violent deaths by discriminating among their causes: common crime, resistance to authorities, and others (see Figure 1).
We use the total number of violent death classified as homicides[11] as a proxy for the level of Total Violence. The level of Authoritative Violence is proxied by the number of

[7]The variable regarding the education level is a binary one, and takes value 1 if the household head has at least attained a high school diploma.

[8]So far it has been estimated that 5.2 million Venezuelans have moved beyond the border. The most common destination (1.8 million migrants) is Colombia; Peru welcomed 830,000 migrants, Chile 455,000, Ecuador 360,000, and the USA 352,000.

[9]The average age of the migrants in the sample is 29 years old with respect to 41 of the population remaining in Venezuela. 32 percent of the migrants have at least a bachelor's degree, whereas only 13 percent of those who have remained at home are college graduates.

[10]It is an institution capillary distributed across the country, which analyzes data on homicides matching governmental sources, journalistic investigation, and international organizations inquiries. In early 2005, the Laboratory of Social Sciences (LACSO) of Venezuela set out to build a Violence Observatory in order to obtain accurate information on the phenomenon of victimization and the perception of insecurity in Venezuela, given the restrictions that at the time existed for journalists and academics in accessing official statistics on "known cases" of violence registered by the police (https://observatoriodeviolencia.org.ve/sobre-nosotros/; Uribe et al., 2016). If until 2010 OVV's work was mainly relying on statistical predictions, starting from 2016/2017 the observatory has begun applying a more complex methodology of collecting information by media, via victimization surveys, by organizing focus groups and in-depth interviews, and by collecting extra-official information from different institutions (OVV, 2017 in Ávila, 2018).

[11]A death is classified as an intentional homicide following the International Statistical Classification of Diseases and Related Health Problems published by the World Health Organization.

violent deaths due to resistance to authorities, while the number of fatalities caused by 'common' criminal activity represents the level of Common Violence[12]. We designed these indicators following the suggestions by the World Health Organization and by the literature analyzing violence in the South American region (Neumayer, 2003; Rivera, 2016). Indeed, homicide is the most extreme form of physical violence, and the crime affects the most fear and perception of insecurity in Latin America (Ávila, 2018). As put by Uribe et al. in Martínez Herrera (2020), homicide is the best representation of the type of violence affecting Venezuela, and at the same time the evidence of an extraordinarily complex scenario generated by more than one factor. Furthermore, homicide is a more reliable indicator with respect to other forms of criminal activity such as robbery, theft, and assault. Indeed, while theoretically relevant, these types of crime are less reliable and are missing for many country-year observations (Rivera, 2016).

Table 1 presents the descriptive statistics of our key variables of interest along with the control variables. We report clustered means and standard deviation at the regional level. Figure 5 shows the distribution across space of our main variable of interest, authoritative violence. It shows a large variance across regions, ranging from 13 percent to 47 percent. It is also interesting to notice how the average level of repression is highest in the northern regions close to the Capital District.

3.3 Estimation Strategy

As discussed in section 2, the years 2017 and 2018 provide a unique context for studying the effect of repressive violence by the Venezuelan government. Given the lack of institutional data in the years prior to 2017 and the consequent impossibility to address variation in the level of violence across time, we exploit the (high) heterogeneity across Venezuelan regions.

In particular, as shown in Eq. 1, we want to estimate the impact of an increase in the share of authoritative violence on the probability of an individual leaving the

[12] All the violence-related variables are weighted, per 100.000 inhabitants. Data regarding violent deaths refer to the year 2017 and are aggregated at the regional level.

Country. Given i, h, and j indicating respectively the individual, the household, and the regional level,

$$Mig_{i,h,j} = \alpha_0 + \alpha_1 AV_j + \alpha_2 H_j + \alpha_3 X_i + \alpha_4 V_h + \alpha_5 W_j + \epsilon_{i,h,j} \quad (1)$$

where $Mig_{i,h,j}$ is a dummy variable that has value 1 if the individual has migrated between January 2017 and September 2018, and is currently leaving outside the Venezuelan border[13]. AV_j is the percentage of homicides as a consequence of opposition to security forces (2017). H_j is the logarithm of the homicide rate at the regional level (2017). Vector X_i represents individual characteristics, such as age, gender, and education. Vector V_h represents household characteristics, such as household head education and household size. W_j is a vector that includes regional-level covariates.

To account for those characteristics that vary widely over the years, such as regional education level, employment rate[14] and income per capita, we rely on ENCOVI, which represents the most recent source of information at our availability.
We then draw demographic variables from the 2011 National Census[15]. We include the population density, the percentage of the urban population, the average availability of essential services in the region[16], and the share of the indigenous population. The presence of indigenous communities is indeed an important element in understanding the uniqueness of state violence at the regional level. They often become the object of repression by the central government (Briceño-León and Perdomo, 2019), which acts violently to expropriate their lands. By including the distance to the nearest national border, we are also able to take into account the cost of moving out of the country, such as transportation fees, network, and information availability.
To proxy the access to healthcare, the vector also includes an index of the average

[13]The details of the construction of the dependent variable are outlined in section 3.1

[14]In particular, the regional employment rate is calculated using the percentage of employed people aged 19 to 54, and the education level is based on the average number of years of education.

[15]By considering data from 2011, we aim at excluding the heterogeneous effect of the political and economic crisis across regions.

[16]The average access to running water is represented by the percentage of households with at least weekly access to running water

availability of medicine for each region using the information made available by Encuesta Nacional de Hospitales (ENH, 2017)[17]. By including the number of mines and the Gross National Income (US Dollars, reference year 2011), we account for the local industrial structure. Finally, we try to weigh the political situation including a dummy variable equal to 1 if the governor of a region is an exponent of the political party opposed to Maduro (Ingram and da Costa, 2019).

Although Eq. 1 is based on a complete set of standardized and operationalized variables, as well as on the complete display of households and geographical controls, we set up an IV Linear Regression Model to strengthen our estimations as much as possible, countering potential source of endogeneity that would prevent us from inferring a causal relationship among our main variables of interest. We also put in place a falsification test to deal with exclusion restrictions.

3.3.1 Instrumental Variable: Travel Time from Caracas

To complete our empirical approach, and to address in the best possible way the potential endogeneity issue, we use the logarithm of the *travel time* (expressed in minutes) required to reach every region's most populated city from the Capital District as an instrument for the share of authoritative violence. As we know especially from the media, and as already explained in section 2, we observe a higher concentration of the actions of FAES in the Capital District and immediate bordering regions, with respect to the furthest ones. Starting from such evidence, we consider the potential difficulties for Maduro's loyal armed bodies to travel across the country in battle array. Figure 5 and Figure 6 seem to confirm this pattern, showing more intense state repression in regions closer to Caracas, and along the main traffic routes. We adopt the travel time from Caracas to account for the quality, ease, and security of

[17]The Encuesta Nacional de Hospitales showed that in November 2018, 33 percent of the beds in the country's hospitals were inoperative. Given the inoperability of laboratories, 43 percent of hospitals in Venezuela do not have the capacity to examine medical tests. In addition, about 70 percent of hospitals reported experiencing a lack of electrical service and water shortages. Hospitals also experience a shortage of emergency medicines (50 percent shortage). The ENH is conducted by the "Médicos por la Salud" Observatory and data were collected in the major hospitals in Venezuelan regions during the second week of November 2018

the movements across the Country.

Evidence suggests that political or state-sponsored violence is significantly higher close to the capital city, headquarters of the government, and the national police bodies. From a potential insurgent group perspective, rebellions are more effective when they take place closer to the capital city, based on the principle that "spatial proximity to power increases political influence" (Ades and Glaeser, 1995), and especially when this influence is mediated by the threat of violence. In other words, the variable that influences the extent to which an individual or group poses a danger to an incumbent elite is its distance from the seat of political power. This intuitively leads to the conclusion that the state has the incentive to violently control the political discontent in areas closest to the political seat of the country.

Our assumptions are also consistent with the work of McDoom (2014). Analyzing the evolution of Rwanda's civil conflict, the author found that state violence spread faster in areas with greater state capacity (defined as a shorter distance from the capital). Similar evidence is supported by the literature on the logistics of violence. Physical distance is among the most significant drivers of costs (Boulding and Singh, 1962; Sprout and Sprout, 2015; Starr, 1978; Schutte and Donnay, 2014). As the distance between central logistical bases of the army and conflict zones increases, armies divert more resources to non-combat tasks such as escort and supply chain management (Cederman et al., 2009), and more investment becomes necessary to maintain control. Moreover, Anderton and Brauer (2016), through a district-level analysis of the African context, found that violence against civilians is more intense where logistical costs are low. The author captures logistical costs with two covariates: the road density, or the kilometers of paved primary and secondary roads per square kilometer of area, and the physical distance from the center of each district to the center of political and military power in the country.

Although we do not use a road quality index, and the location of the Capital City in Venezuela should be considered completely exogenous, we are aware that the *travel time* might display potentially endogenous dimensions. For instance, it might be related to the characteristics of the region in which the road has been built such as its wealth, its geographical characteristics, and its economic interests.

However, we account for these relationships by including control variables such as the GNI per capita, the regional education level, the access to services, the shortage of medicines, the distance from the national borders, the presence of mines, the share of the rural population and the population density. Furthermore, the development of the main road network is not exclusively driven by socio-economic dynamics but rather influenced by exogenous geographic and territorial characteristics. To further increase the credibility of our instrument, we perform the analysis using the distance from the Capital expressed in kilometers, as shown in Table A2, and Table A3. Although all the estimations are confirmed and present higher coefficients, we decided to maintain the *travel time* as the main instrument because we consider it more correct and complete from the theoretical perspective.

Regarding the exclusion restrictions related to our identification strategy, we argue that being close to the Capital is not a relevant factor in shaping the probability of migrating because of the following main reasons. Aware of the literature demonstrating that the economic development of similar countries is positively related to the proximity to the Capital City and that such proximity would make easier access to the network and information about possible countries of destination (Sassen, 2013), we account for these factors through the aforementioned control variables in the model.

Second, even if the area of Caracas is on the coast and shows a higher concentration of airports in the country, only a negligible part of the migrants[18] we analyze left Venezuela by air and by sea. Finally, there is no evidence of historical migratory patterns concentrated in the regions closest to the Capital. On the contrary, as shown in Figure 3 and Figure 4, regional-level migration rates between 2013 and 2016 are consistently different from those registered between 2017 and 2018. To corroborate our assumption, we perform a falsification test through which we estimate the effect of the distance from the capital on the individual probability to migrate before the sudden increase in police violence[19].

[18] According to our estimations performed thanks to the data provided by the Encuesta Dirigida a la Poblaciòn Venezolana que reside en el Pais (see section 4.1), only the 0,09% of the migrants abandon Venezuela are by sea, the 3,85% by air, and the 1,47% by foot. The high majority of them (94,59%), leave the Country by bus.

[19] The dependent variable used in the test is a dummy variable that takes value 1 if the individual

4 Results

Table 2 presents the results of the OLS estimation[20]. As shown, the coefficient of Authoritative Violence is positive and significant, while the one related to Total Violence is very small and non-significant. A relevant concern is that the estimation of the impact of authoritative violence on the probability of migration might be driven by omitted variable bias. A commonly recognized approach to tackle this type of endogeneity is the sensitivity analysis proposed by Oster (2019), which is based on the earlier work of Altonji et al. (2005). Table 2 shows how the coefficients maintain their stability and consistency and how the R-square constantly increases with the gradual inclusion of the control variables (Columns 2 to 5)[21]. In addition, we report the estimates of δ[22], which is a measure of the correlation between the stability of the coefficient and the R-square. The value of δ ranges from 1.544 to 1.997. Since both Oster (2019) and Altonji et al. (2005) suggest value 1 as a reasonable upper-bound for δ, our values indicate that a very strong unobservable selection might be needed for our non-zero estimates to represent a spurious correlation.

Table 3 summarizes the statistical tests we adopted in the first-stage estimation to assess the appropriateness of our identification strategy. It includes a set of statistics for the under-identification and weak identification tests. The first is intended to ensure that the excluded instrument is relevant, i.e., that it is correlated with the endogenous variable. The aim of the second is to test the strength of the correlation between the instrument and the endogenous regressor, i.e., whether the IV estimator performs poorly. Since our model includes regional-level standard errors, the i.i.d.

migrated during the period of 2014-2016. Conversely, it takes value 0 if the individual continued to reside in Venezuela until 2016. For individuals who migrated during 2017-2018, the migration variable was set to 0. As a result, these individuals were designated as non-migrants in this particular sample.

[20]Table A4, in the Appendix, reports the coefficients of the Logistic estimation and the related marginal values, performed as a robustness check to support the stability and the consistency of the main linear empirical assumptions.

[21]The R-squared greatly increases from 0.001 to 0.074, while the coefficient of Authoritative Violence ranges from 0.054 to 0.056, also considering the inclusion of the ENPOVE sample as a robustness check.

[22]As suggested by Oster (2019), we choose a Rmax = 1.3R cutoff and we report the values of δ for which $\beta = 0$.

hypothesis is no longer valid and, consequently, we report the appropriate statistics (Ascani et al., 2020) for these cases: the LM and Wald versions of Kleibergen and Paap (2006). The 5 percent statistical significance of the Kleibergen-Paap LM statistic suggests that we can largely reject the null hypothesis that the equation is under-identified thus corroborating the relevance of our instrument (Table 3). For the identification of weak instruments, we adopt the dimension method (Stock and Yogo, 2005). The Kleibergen-Paap rk statistic F exceeds the critical values for the maximum desired bias of 10 percent in all three specifications, thus allowing us to reject the null hypothesis that our instrument is weak[23]. Table 3 also reports the estimated coefficients for the first-stage regressions. It shows a statistically strong and negative correlation between our instrument with the percentage of authoritative violence. In line with our previous discussion, this means that regions closer to the Capital City experience a higher percentage of homicides committed by authorities, i.e., a more repressive response by the state.

Table 4 presents the second-stage estimates for the IV specification[24]. In Column 2 we consider only migration towards other Latin American countries, excluding those households whose members are migrated outside South America. In Column 3, we report the specification without considering households residing in the Capital District. The coefficient of the main variable of interest does not change significantly, showing robustness to both sample restrictions. All our estimations are performed with standard errors clustered at the regional level. Such evidence supports our main hypothesis regarding the effect of authoritative violence on migration. The estimates show that, for a 10 percent increase in the share of authoritative violence, the probability of migration increases by approximately 0.5 percent. The magnitude of this result should be interpreted considering that the mean of the dependent variable *Migration* is 0.023. The coefficient does not change consistently across different specifications.

[23]Since heteroscedasticity, serial correlation, and data clustering can affect instrument strength we also compute F-statistic of Montiel Olea-Pflueger and we report the TSLS critical values (Olea and Pflueger, 2013). Again, the F statistic exceeds the critical TSLS value at 5 percent, thus confirming the result of the Stock and Yogo under-identification test.

[24]We performed a Durbin-Wu-Hausman test to prove the consistency of both OLS and instrumental variable approach (Baum et al., 2003). The non-significant chi-square statistic (0.60853) suggests that both the estimators are consistent, although the OLS is the more efficient. Despite such evidence, we perform them both to see if their results are comparable.

Table 4 also reports the coefficients related to individual and household characteristics. In particular, at both levels, we observe a positive and significant effect on the level of education. This confirms that, in the decision-making process, economic and non-economic factors may coexist. Furthermore, it is interesting to notice that coefficients related to the level of education are lower when we consider only migrants who move to neighboring countries.

According to the literature, one would expect to find a negative relationship between employment and the regional-level out-migration rate. However, as also shown by the OLS estimates in Table 2, the employment rate is positively related to the probability of migration (Table 4). Moreover, while education at the individual level has a positive effect on migration, the coefficient of the regional average education level is negative. Such peculiar evidence may be due to a misalignment in the local labor market between low-skill demand and high-skill supply. This would imply that, especially in regions where there is a prevalence of labor-intensive employment and low average education, the higher educated individuals are driven to leave in search of better opportunities (Brown et al., 1989; Brown and Goetz, 1987). Having said that, even if the results are robust to the inclusion or exclusion of the other control variables (Table 2), the interpretation of such controls should be taken with caution, as some may suffer from endogeneity issues, and addressing all of them simultaneously is beyond the scope of this paper.

Table A5 shows the results of the falsification test introduced in section 3.3.1. The coefficients suggest that, before the militarization process, the distance from the Capital district[25] did not have any effect on the individual probability of migration. Therefore, based on these results, and despite the structural limitations associated with the lack of panel data, we have a high level of confidence in affirming the existence of a causal relationship between authoritative violence and the likelihood of an individual migrating from the Country.

We also explore the effect of authoritative violence on migrants' gender and skills composition. Columns 1 and 2 of Table 5 show that our variable of interest has a

[25]We perform the falsification test by using both the logarithmic functional forms of travel time and kilometers from the Capital.

positive and significant effect on males' decision to migrate[26], while the migration of females appears to be driven by educational attainment. Columns 4 to 6 show that authoritative violence is a push factor only for low-educated Venezuelans, suggesting that the high-educated decide to migrate for factors other than state violence. Taking a look at the sample's skills composition, as already mentioned in section 3.1, we observe a relevant number of low-educated migrants[27]. Column 3 and Column 7 report the coefficients of the 'means equality test', respectively across gender (statistically significant) and skill level (statistically not significant). Our hypothesis is that this kind of violence has reshaped the selection process, towards a higher representativeness of the less educated ones. In absence of violence, therefore, we would expect an even higher presence of high-educated migrants[28].

4.1 Robustness Check to Whole Household Migration

ENCOVI only accounts for those migrants who have at least a household member left behind. This could imply a loss of representativity of the sample, limiting the validity of our estimations. To overcome such a limitation, we use the Encuesta Dirigida a la Poblaciòn Venezolana que reside en el Pais (hereafter, ENPOVE). The survey, performed at the end of 2018, collects information about 9.847 Venezuelan migrants residing in Peru, which is the second-largest receiving country[29]. In particular, unlike other surveys on Venezuelan migrants residing in foreign countries, ENPOVE provides their city of origin. This allows us to assess the effect of exposure

[26]The Venezuelan Observatory Monitor de Victimas shows that in the Capital District and in the governorate of Miranda between 2017 and 2018, 92 percent of victims of police violence were male

[27]In Table 1 we report the descriptive statistics of our migrants' sample. 44 percent of migrants have a high-school diploma, and 24 percent do not have formal education at all.

[28]An in-depth discussion related to these findings is presented in section 5

[29]ENPOVE was carried out by the Peruvian National Institute for Statistics (INEI) between November and December 2018. It is 'representative by design' of the Venezuelan population residing in Peru. In particular, it was conducted in the five largest cities in the country, where reside 85 percent of Venezuelans. According to IOM estimates, Peru is the second-largest receiving country for Venezuelan migrants; currently about 1 million out of 5.2 million of them live there. Therefore the ENPOVE sample can be largely representative of Venezuelan households that have entirely migrated

to pre-migration violence on their decision-making process[30]. Column 4 of Table 4 shows the coefficients regarding the new sample, in which we merged the weighted samples from ENCOVI and ENPOVE[31]. The stability of the estimations, confirms the robustness of our results to the inclusion of households that entirely migrated.

5 Discussion and Conclusions

This paper investigates the significance of police violence as one of the push factors behind international migration and considers how it might help to explain migration patterns and the distribution of skills among migrants. We address these issues by analyzing the Venezuelan exodus taking place between 2017 and 2018. Relying on the distance from the Capital to each region's most populated city as an instrumental variable, we find evidence that the rise of homicides committed by security forces causes an increase in the likelihood that an individual will migrate outside the Country. This finding is robust to the gradual inclusion of several socio-economic controls at the individual, household, and regional levels. This represents a step forward with respect to the literature finding that political violence alone is not a push factor for international migration, but rather for internal displacement. In this regard, it's interesting to notice how, as shown by the estimations performed excluding individuals who migrated outside Latin America, the coefficient of Authoritative Violence is higher. As presented in section 4, we also find interesting heterogeneous effects across gender and education. In particular, our estimations seem to suggest that the impact of Authoritative Violence is significant only among people with a lower level of education (Table 5, Column 4). The high *p-value* confirms the role of Authoritative Violence as a clean push factor for less educated individuals. Although the coefficient for high-skilled migrants remains positive, it is no longer statistically significant. Nonetheless, the 'means equality test' indicates that the coefficients for

[30]While ENCOVI is representative of the whole Venezuelan population (25 to 28 million people estimated), ENPOVE is representative of approximately 550,000 Venezuelan migrants. The merge has been performed by applying the appropriate sample weights.

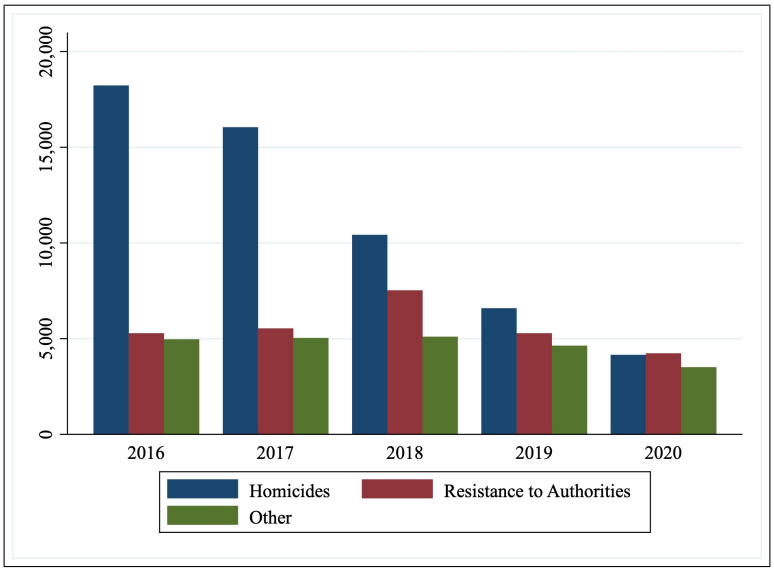
[31]We considered only those Venezuelans who declared not to have any left-behind member of their family.

different education levels are not statistically different, suggesting that the estimation of the coefficient for high-skilled migrants may lack precision. This implies that other socio-economic or migration policy-related factors, both in the country of origin and destination, may be interacting with the impact of Authoritative Violence. This finding implies that our results make a valuable contribution to the ongoing debate surrounding the self-selection of migrants, particularly in inter-developing and underdeveloped countries (see Clemens and Mendola, 2020). Whereas previous literature has focused mainly on observable migrant characteristics and attractive elements, ignoring the role of 'domestic' non-economic circumstances as push factors, our study confirms and emphasizes the significance of non-economic factors in shaping the skill composition of migrants, particularly in the Latin American context.

In conclusion, with respect to the analysis of violence and its role in individual decision-making, the aim of this paper is to stress the importance of discriminating between different possible violent stimuli. The total level of violence, here intended as the (common) homicide rate, might fail to explain with an acceptable level of approximation the mechanism related to perception and fear. As written by Galavís (2020), "[v]iolence in Venezuela is a multifaceted phenomenon that authorities have not only been unable to reduce but have also aggravated". The militarization of the citizens' security represents the failure of a policy whose main outcome is to deprive the Country of a whole generation of the young male labor force, and this represents a severe long-term cost. Furthermore, especially in the case of South-to-South migration, it is worth considering how such an intense low-skilled migration wave in such a small time window could strain both the local labor market and the socio-cultural dynamics of the receiving country (Anatol and Kangalee, 2021; Bahar et al., 2021).

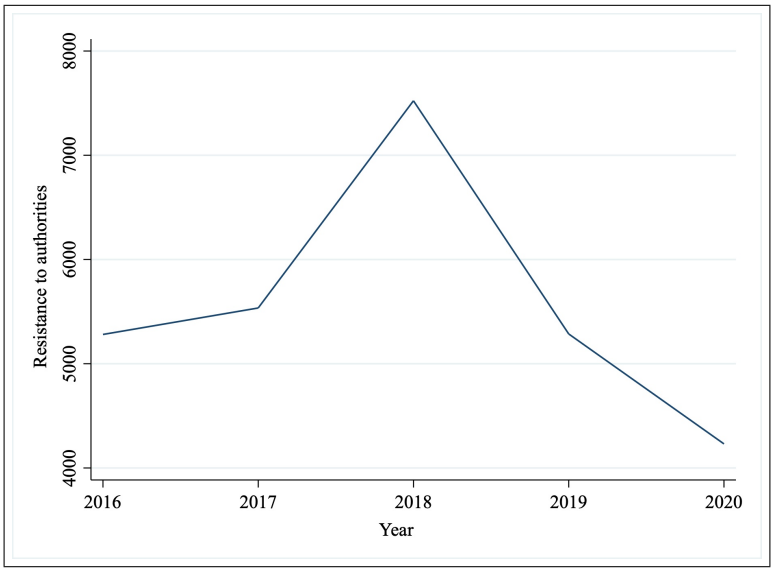
Figures and Tables

Figure 1: Violent deaths trend (2016-2020)



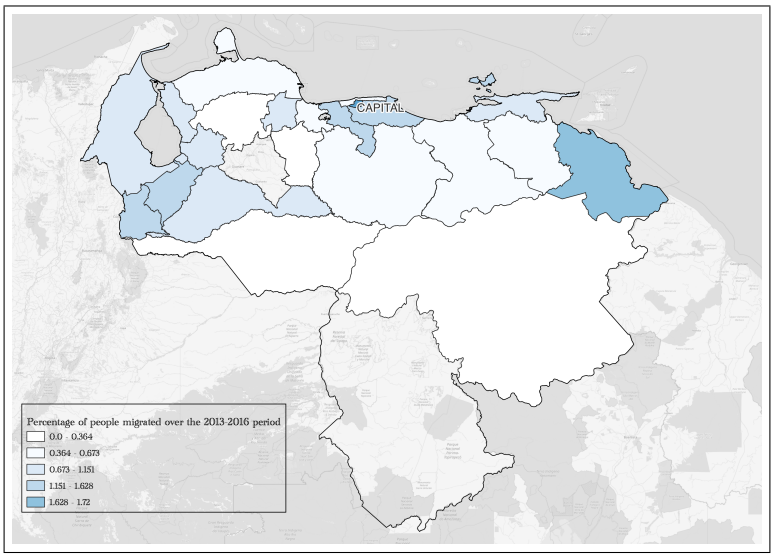
Note: The plot in the figure shows the trend of violent deaths in Venezuela by the three main categories.
Source: Authors' calculations using data from Observatorio Venezolano de Violencia - OVV.

Figure 2: Resistance to authorities (2016-2020)



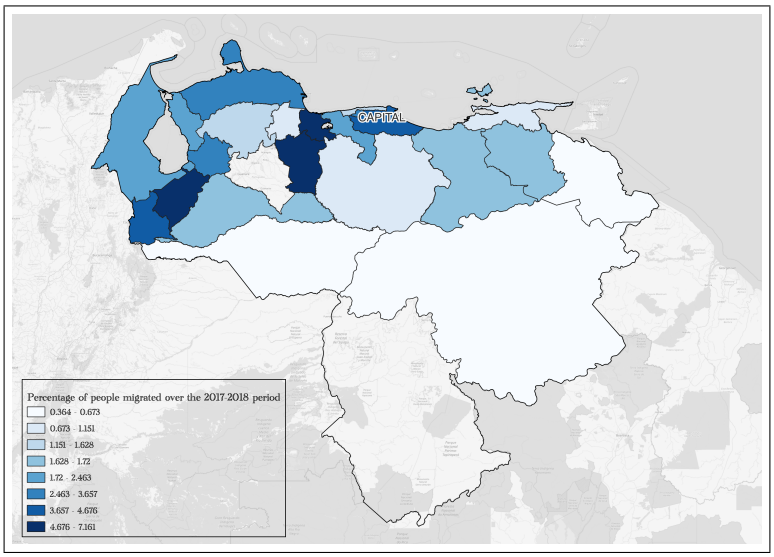
Note: The plot in the figure shows the trend of the violent deaths caused by 'resistance to authorities'.
Source: Authors' calculations using data from Observatorio Venezolano de Violencia - OVV.

Figure 3: Average regional level migration rates (2013-2016)



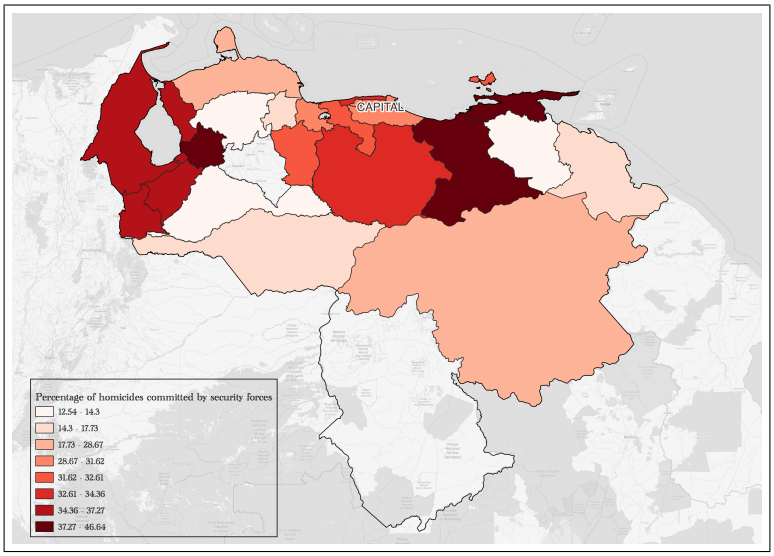
Note: The map shows the migration rates for each region from the beginning of the Maduro *regime* to 2016, right before the implementation of the national police militarization.
Source: Authors' calculations using data from ENCOVI (2018).

Figure 4: Average regional level migration rates (2017-2018)



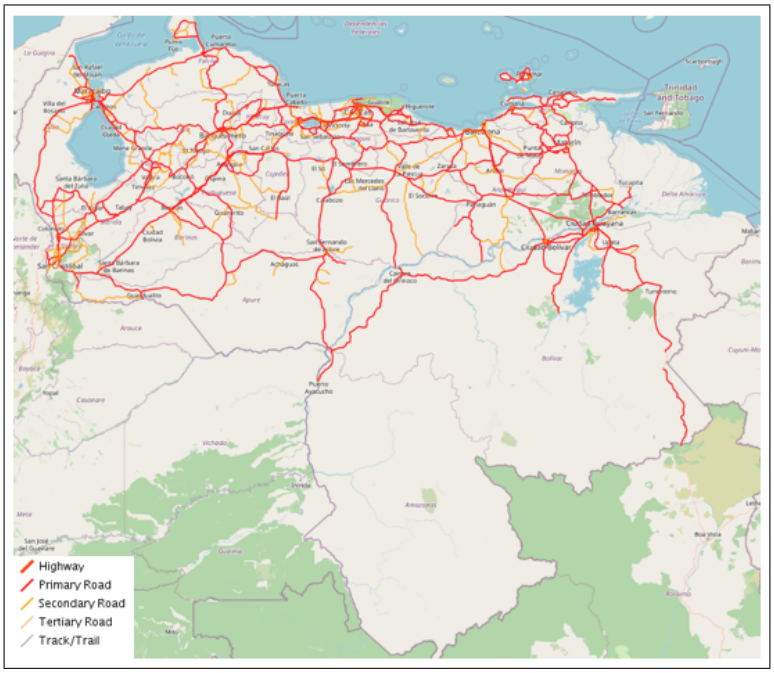
Note: The map shows the migration rates for each region from the year of the implementation of the national police militarization (2017) to the end of 2018.
Source: Authors' calculations using data from ENCOVI (2018).

Figure 5: Authoritative violence (2017)



Note: The map shows for each Venezuelan region the percentage of homicides as a consequence of opposition to security forces out of the overall homicide rate in 2017.
Source: Informe Anual de Violencia 2017 - Observatorio Venezolano de Violencia.

Figure 6: Main roads distribution



Note: The red lines in the map show the distributions of the main roads in Venezuela.
Source: Geographical Data Repository - World Food Programme.

Table 1: Descriptive statistics

	Migrants		Non Migrants	
Individual Level	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Less than High School Diploma	0.24	0.42	0.63	0.48
High School Diploma	0.44	0.50	0.24	0.43
College Graduated	0.32	0.47	0.13	0.34
Age	29.45	9.62	41.70	12.87
Female	0.45	0.50	0.56	0.50
	Full Sample			
Household Level	**Mean**		**Std. Dev.**	
Education of the household head	0.42		0.49	
Household size	3.29		2.12	
Regional Level				
Homicide rate (2017)	61.52		25.62	
Percentage of homicide committed by authorities (2017)	0.28		0.10	
Education Level (2017)	10.45		1.24	
Employment rate (2017)	0.64		0.05	
Average Income per capita (montlhy/BS) (2017)	755.65		485.83	
Population density (2011)	316.35		942.29	
Percentage of indigenous (2011)	0.02		0.05	
Travel time from Caracas	359.00		183.00	
Percentage of Rural Population (2011)	0.32		0.28	
Shortage medicine in the main hospitals (2017)	0.41		0.21	
Households with access to running water (2011)	0.60		0.17	
Distance from national borders	358.45		183.66	
Governor opponent of Maduro	0.18		0.39	
Presence of Mines (2011)	24.773		92.01	
Gross National Income (1,000 US Dollars, 2011)	9.77		0.23	

Source: Author's elaboration on ENCOVI 2018.

Notes: Distance from Caracas is represented by the Minutes of travel time under normal traffic conditions from the Capital District; Household size is measured pre-migration.

Table 2: The effect of authoritative violence on the probability to migrate (OLS)

	(1)	(2)	(3)	(4)	(5)
	Probability to Migrate				
Variable of interest					
Authoritative violence (%)	0.054*	0.047**	0.055***	0.053***	0.056***
	(0.0311)	(0.0185)	(0.0162)	(0.0172)	(0.0167)
Individual characteristics					
High School				0.028***	0.010**
				(0.0055)	(0.0035)
College graduated				0.046***	0.022***
				(0.0056)	(0.0041)
Age				-0.009***	-0.009***
				(0.0014)	(0.0014)
Age Squared				0.000***	0.000***
				(0.0000)	(0.0000)
Female				-0.015**	-0.016***
				(0.0054)	(0.0053)
Household characteristics					
Education of the household head					0.046***
					(0.0068)
Household size (Log)					0.017***
					(0.0039)
Regional controls					
Total violence (Log)	-0.001	-0.002	-0.012	-0.010	-0.010
	(0.0103)	(0.0092)	(0.0089)	(0.0085)	(0.0082)
Governorn is an opponent of Maduro		0.000	-0.005	-0.006*	-0.008**
		(0.0059)	(0.0041)	(0.0036)	(0.0034)
Education level (Log)		-0.052***	-0.031	-0.047**	-0.056**
		(0.0173)	(0.0234)	(0.0218)	(0.0217)
Employment		0.323***	0.273**	0.299**	0.321***
		(0.0615)	(0.1046)	(0.1105)	(0.1072)
Average income *per capita* (Log)		0.002	-0.001	-0.002	0.002
		(0.0029)	(0.0055)	(0.0057)	(0.0053)
Population density (Log)			-0.004**	-0.005***	-0.005***
			(0.0014)	(0.0013)	(0.0013)
Access to running water		0.027*	0.052**	0.049***	0.046**
		(0.0140)	(0.0187)	(0.0166)	(0.0165)
Shortage of medicines		0.042***	0.029**	0.033**	0.037***
		(0.0074)	(0.0137)	(0.0139)	(0.0128)
Indigeneous			-0.019	-0.019	-0.024
			(0.0728)	(0.0664)	(0.0636)
Rural Population			-0.010	-0.011	-0.012
			(0.0130)	(0.0125)	(0.0124)
Distance from national borders (Log)			-0.001	0.000	0.001
			(0.0024)	(0.0023)	(0.0022)
Number of mines (Log)			-0.001	-0.001	-0.001
			(0.0011)	(0.0012)	(0.0011)
GNI		0.012	0.023**	0.022*	0.023**
		(0.0104)	(0.0105)	(0.0117)	(0.0104)
δ		1.544	1.357	1.800	1.997
R-square	0.001	0.007	0.008	0.055	0.074
Observations	21,382	21,382	21,382	19,776	19,776
Capital District observations	Yes	Yes	Yes	Yes	Yes
Migration outside LAC	Yes	Yes	Yes	Yes	Yes
Households migrated	No	No	No	No	No

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The mean of Dependent Variable *migration* is 0.023. *Authoritative violence (%)* is represented by the percentage of violent deaths due to resistance to authority out of total homicides (per 100.000 inhabitants). We report the value of δ for which $\beta = 0$ with $R_{max} = 1.3R$ and it exceeds 1. It suggests that the results are not driven by unobservables (Oster, 2019).

Table 3: First-stage: estimates of the authoritative violence

	(1)	(2)	(2)
	Authoritative violence (%)		
Instrumental variable			
Travel time from Caracas (Log)	-0.199***	-0.199***	-0.212***
	(0.0316)	(0.0316)	(0.0283)
Regional controls			
Total violence (Log)	0.133***	0.133***	0.107***
	(0.0445)	(0.0445)	(0.0411)
Governorn is an opponent of Maduro	0.325***	0.325***	0.329***
	(0.0394)	(0.0394)	(0.0388)
Education level (Log)	0.345***	0.345***	0.428***
	(0.1327)	(0.1327)	(0.1238)
Employment	3.326***	3.325***	3.231***
	(0.8122)	(0.8121)	(0.7151)
Average income *per capita* (Log)	-0.080***	-0.080***	-0.092***
	(0.0205)	(0.0205)	(0.0192)
Population density (Log)	-0.215***	-0.215***	-0.039
	(0.0376)	(0.0376)	(0.1007)
Access to water	-0.326***	-0.326***	-0.292***
	(0.1025)	(0.1025)	(0.0974)
Shortage of medicines	0.426***	0.426***	0.416***
	(0.0918)	(0.0917)	(0.0829)
Indigenous	0.088	0.087	0.094
	(0.4128)	(0.4125)	(0.4132)
Rural Population	0.199***	0.199***	0.235***
	(0.0707)	(0.0707)	(0.0726)
Distance from national borders (Log)	-0.059***	-0.059***	-0.070***
	(0.0122)	(0.0122)	(0.0143)
Number of mines (Log)	0.015	0.015	0.017*
	(0.0104)	(0.0104)	(0.0090)
GNI	-0.252***	-0.252***	-0.300***
	(0.0794)	(0.0794)	(0.0828)
Under-indentification	5.28**	5.28**	5.61**
Weak-identification:			
Kleibergen-Paap Wald F-stat	39.56	39.57	56.44
Stock-Yogo 10%	16.38	16.38	16.38
Stock-Yogo 15%	8.96	8.96	8.96
Montiel Olea-Pflueger F-stat	39.56	39.57	56.44
TSLS 5%	37.42	37.42	37.42
TSLS 10%	23.11	23.11	23.11
Observations	19,776	19,716	18,607
Capital District observations	Yes	Yes	No
Migration outside LAC	Yes	No	Yes
Households migrated	No	No	No

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. We report the Kleibergen-Paap LM statistic to test whether the model suffers from Under-Identification. It suggests that we can largely reject the null hypothesis that the equation is under-identified thus corroborating the relevance of our instrument. For the identification of weak instruments, we report The Kleibergen-Paap rk statistic F, which exceeds the critical values for the maximum desired bias of 10 per cent in all three specifications. We also compute F-statistic of Montiel Olea-Pflueger. Again, the F statistic exceeds the critical TSLS value at 5 per cent, thus confirming the result of the Stock and Yogo under-identification test.

Table 4: IV-REG second stage: the effect of authoritative violence on the probability to migrate

	(1)	(2)	(3)	(4)
	Probability to Migrate			
Variable of interest				
Authoritative violence (%)	0.045**	0.048**	0.046**	0.068*
	(0.0215)	(0.0202)	(0.0214)	(0.0349)
Individual characteristics				
High School	0.010***	0.008***	0.010***	0.012***
	(0.0034)	(0.0028)	(0.0036)	(0.0033)
College graduated	0.022***	0.014***	0.021***	0.033***
	(0.0040)	(0.0038)	(0.0042)	(0.0039)
Age	-0.009***	-0.008***	-0.009***	-0.011***
	(0.0014)	(0.0013)	(0.0015)	(0.0012)
Age Squared	0.000***	0.000***	0.000***	0.000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Female	-0.016***	-0.016***	-0.016***	-0.027***
	(0.0052)	(0.0049)	(0.0055)	(0.0051)
Household characteristics				
Education household of the head	0.046***	0.042***	0.045***	0.055***
	(0.0066)	(0.0062)	(0.0070)	(0.0070)
Household size (Log)	0.017***	0.014***	0.016***	0.149***
	(0.0038)	(0.0035)	(0.0042)	(0.0021)
Regional controls				
Total violence (Log)	-0.008	-0.006	-0.008	-0.023
	(0.0084)	(0.0069)	(0.0091)	(0.0140)
Governors is an opponent of Maduro	-0.006	-0.003	-0.006	-0.018**
	(0.0037)	(0.0031)	(0.0039)	(0.0089)
Education level (Log)	-0.055**	-0.045**	-0.054**	-0.076**
	(0.0215)	(0.0183)	(0.0233)	(0.0384)
Employment	0.321***	0.359***	0.317***	0.448***
	(0.1102)	(0.1078)	(0.1146)	(0.1298)
Average income *per capita* (Log)	0.001	0.001	0.001	0.024***
	(0.0049)	(0.0046)	(0.0050)	(0.0080)
Population density (Log)	-0.005***	-0.005***	-0.003	-0.003
	(0.0012)	(0.0010)	(0.0159)	(0.0025)
Access to water	0.040**	0.035**	0.041**	0.060*
	(0.0174)	(0.0145)	(0.0181)	(0.0335)
Shortage of medicines	0.038***	0.042***	0.038***	0.042**
	(0.0137)	(0.0128)	(0.0140)	(0.0167)
Indigenous	-0.032	-0.026	-0.031	-0.035
	(0.0640)	(0.0632)	(0.0642)	(0.1441)
Rural Population	-0.012	-0.006	-0.011	-0.001
	(0.0128)	(0.0121)	(0.0130)	(0.0183)
Distance from national borders (Log)	0.001	-0.000	0.000	0.007
	(0.0022)	(0.0022)	(0.0024)	(0.0044)
Number of mines (Log)	-0.001	-0.002	-0.001	0.004**
	(0.0011)	(0.0011)	(0.0012)	(0.0015)
GNI	0.022**	0.016*	0.021**	0.030**
	(0.0094)	(0.0093)	(0.0093)	(0.0150)
Observations	19,776	19,716	18,607	20,868
Capital District observations	Yes	Yes	No	Yes
Migration outside LAC	Yes	No	Yes	Yes
Households migrated	No	No	No	Yes

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. The mean of Dependent Variable *migration* is 0.023. *Authoritative violence (%)* is represented by the percentage of violent deaths due to resistance to authority out of total homicides (per 100.000 inhabitants). *Total violence (Log)* is the logarithm of the total homicides (per 100.000 inhabitants). We also perform a Durbin-Wu-Hausman test. The chi2 statistic shows a value of 0.60853, which suggests that we cannot reject the null hypothesis that both the OLS and IV estimators are consistent, and therefore the OLS estimator is preferred because it is more efficient.

Table 5: Heterogeneous effects

	(1) Female	(2) Male	(3) t-test (p-value)	(4) Low-skilled	(5) Medium-skilled (Diploma)	(6) High-skilled (College)	(7) t-test (p-value)
Variable of interest							
Authoritative violence (%)	0.014	0.119**	0.0285	0.056***	0.016	0.089	0.5405
	(0.0140)	(0.0533)		(0.0124)	(0.0449)	(0.0601)	
Individual characteristics							
High School	0.018***	-0.002					
	(0.0048)	(0.0039)					
College graduated	0.028***	0.014**					
	(0.0040)	(0.0064)					
Age	-0.009***	-0.010***		-0.004***	-0.016***	-0.015***	
	(0.0014)	(0.0023)		(0.0009)	(0.0033)	(0.0032)	
Age Squared	0.000***	0.000***		0.000***	0.000***	0.000***	
	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	
Female				-0.015***	-0.013*	-0.022*	
				(0.0036)	(0.0072)	(0.0118)	
Household characteristics							
Education of the household head	0.033***	0.060***		0.037***	0.062***	0.076***	
	(0.0052)	(0.0097)		(0.0063)	(0.0096)	(0.0091)	
Household size (Log)	0.014***	0.019***		0.002	0.048***	0.054***	
	(0.0039)	(0.0057)		(0.0018)	(0.0102)	(0.0133)	
Regional controls							
Total violence (Log)	-0.001	-0.028		-0.016***	0.014	-0.030	
	(0.0057)	(0.0251)		(0.0051)	(0.0163)	(0.0245)	
Governor is an oppent of Maduro	-0.001	-0.018		-0.010***	0.015	-0.026	
	(0.0030)	(0.0111)		(0.0020)	(0.0102)	(0.0183)	
Education level (Log)	-0.018	-0.156**		-0.025*	-0.088**	-0.175***	
	(0.0136)	(0.0683)		(0.0150)	(0.0450)	(0.0430)	
Employment	0.164***	0.611**		0.147**	0.485**	0.758***	
	(0.0580)	(0.2423)		(0.0604)	(0.2278)	(0.2205)	
Average income *per capita* (Log)	-0.001	-0.002		0.000	0.011	0.014	
	(0.0036)	(0.0101)		(0.0026)	(0.0106)	(0.0101)	
Population density (Log)	-0.005***	-0.005		-0.004***	-0.007***	-0.005	
	(0.0011)	(0.0040)		(0.0008)	(0.0023)	(0.0039)	
Access to water	0.046***	0.048		0.045***	0.037	0.057	
	(0.0124)	(0.0549)		(0.0109)	(0.0371)	(0.0601)	
Shortage of medicines	0.006	0.085**		0.010	0.080***	0.089***	
	(0.0072)	(0.0337)		(0.0083)	(0.0304)	(0.0232)	
Indigenous	-0.007	-0.032		0.013	-0.014	0.085	
	(0.0356)	(0.1375)		(0.0276)	(0.1456)	(0.0905)	
Rural Population	-0.011*	-0.007		-0.011	-0.018	-0.020	
	(0.0060)	(0.0338)		(0.0084)	(0.0260)	(0.0256)	
Distance from national borders (Log)	-0.002*	0.005		0.000	0.002	0.014***	
	(0.0012)	(0.0049)		(0.0011)	(0.0048)	(0.0043)	
Number of mines (Log)	-0.002***	0.000		-0.001	-0.000	0.003	
	(0.0007)	(0.0025)		(0.0007)	(0.0021)	(0.0025)	
GNI	0.030***	0.020		0.015***	0.039*	0.014	
	(0.0086)	(0.0196)		(0.0050)	(0.0212)	(0.0194)	
Observations	10,973	8,803		12,020	5,095	2,661	
Regional Controls	Yes	Yes		Yes	Yes	Yes	
Capital District observations	Yes	Yes		Yes	Yes	Yes	
Migration outside LAC	Yes	Yes		Yes	Yes	Yes	
Households migrated	No	No		No	No	No	

Notes: Robust standard errors in parentheses and they allow for Education Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. Column 3 presents the 'means equality t-test' across samples by gender, and Column 7 presents the 'means equality t-test' across samples by class of education.

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Appendix

Table A1: The effect of authoritative violence on the probability to migrate

	(1)	(2)	(3)	(4)	(5)
Variable of interest					
Authoritative violence (Log)	0.010**	0.008***	0.007**	0.008**	0.008**
	(0.0043)	(0.0029)	(0.0033)	(0.0033)	(0.0032)
Individual characteristics.					
High School				0.028***	0.010**
				(0.0055)	(0.0035)
College graduated				0.046***	0.022***
				(0.0056)	(0.0041)
Age				-0.009***	-0.009***
				(0.0014)	(0.0014)
Age Squared				0.000***	0.000***
				(0.0000)	(0.0000)
Female				-0.015**	-0.016***
				(0.0054)	(0.0053)
Household characteristics					
Education of the household head					0.046***
					(0.0068)
Household size (Log)					0.017***
					(0.0039)
Regional controls					
Common violence (Log)	-0.012	-0.011	-0.019**	-0.017**	-0.018**
	(0.0117)	(0.0091)	(0.0078)	(0.0076)	(0.0075)
Governorn is an opponent of Maduro		0.001	-0.005	-0.006	-0.008**
		(0.0060)	(0.0043)	(0.0038)	(0.0035)
Education level (Log)		-0.050***	-0.032	-0.048**	-0.057**
		(0.0164)	(0.0229)	(0.0214)	(0.0212)
Employment		0.325***	0.285**	0.312***	0.333***
		(0.0609)	(0.1041)	(0.1091)	(0.1056)
Average income \textit{per capita} (Log)		0.002	-0.001	-0.001	0.002
		(0.0029)	(0.0055)	(0.0057)	(0.0053)
Population density (Log)			-0.004**	-0.005***	-0.005***
			(0.0014)	(0.0013)	(0.0013)
Access to running water		0.027*	0.051**	0.048***	0.044**
		(0.0140)	(0.0185)	(0.0162)	(0.0161)
Shortage of medicines		0.042***	0.031**	0.035**	0.038***
		(0.0073)	(0.0136)	(0.0137)	(0.0126)
Indigeneous			-0.018	-0.017	-0.022
			(0.0719)	(0.0652)	(0.0624)
Rural Population			-0.008	-0.009	-0.010
			(0.0129)	(0.0122)	(0.0121)
Distance from national borders (Log)			-0.001	0.000	0.001
			(0.0024)	(0.0022)	(0.0021)
Number of mines (Log)			-0.001	-0.002	-0.002
			(0.0011)	(0.0012)	(0.0011)
GNI		0.011	0.022*	0.021*	0.022*
		(0.0104)	(0.0107)	(0.0119)	(0.0105)
R-square	0.001	0.007	0.008	0.055	0.075
Observations	21,382	21,382	21,382	19,776	19,776
Capital District observations	Yes	Yes	Yes	Yes	Yes
Migration outside LAC	Yes	Yes	Yes	Yes	Yes
Households migrated	No	No	No	No	No

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. *Authoritative violence (Log)* is represented by the logarithm of the total violent deaths due to resistance to authority (per 100.000 inhabitants). *Common violence (Log)* is the number of fatalities (per 100.000 inhabitants) caused by 'common' criminal activity.

Table A2: First stage: estimates of the authoritative violence (robustness check)

	(1)	(2)	(3)
	Authoritative Violence (%)		
Instruments			
Kilometers from Caracas	-0.196***	-0.196***	-0.196***
	(0.0281)	(0.0281)	(0.0283)
Regional controls			
Total violence (Log)	0.182***	0.182***	0.185***
	(0.0409)	(0.0409)	(0.0412)
Governor is an opponent of Maduro	0.375***	0.375***	0.375***
	(0.0319)	(0.0318)	(0.0324)
Education level (Log)	0.389***	0.389***	0.380***
	(0.1373)	(0.1373)	(0.1405)
Employment	3.723***	3.722***	3.771***
	(0.9019)	(0.9025)	(0.9677)
Average income *per capita* (Log)	-0.191***	-0.191***	-0.189***
	(0.0299)	(0.0299)	(0.0295)
Population density (Log)	-0.187***	-0.187***	-0.216***
	(0.0303)	(0.0303)	(0.0723)
Access to water	-0.593***	-0.593***	-0.597***
	(0.1172)	(0.1171)	(0.1193)
Shortage of medicines	0.418***	0.418***	0.423***
	(0.0774)	(0.0774)	(0.0794)
Indigenous	-0.438**	-0.438**	-0.431**
	(0.2063)	(0.2061)	(0.2032)
Rural Population	0.145	0.145	0.141
	(0.0909)	(0.0909)	(0.0889)
Distance from national borders (Log)	-0.104***	-0.104***	-0.102***
	(0.0137)	(0.0137)	(0.0134)
Number of mines (Log)	0.010	0.010	0.010
	(0.0064)	(0.0064)	(0.0065)
GNI	-0.534***	-0.534***	-0.529***
	(0.0938)	(0.0937)	(0.0912)
Under-indentification	5.65**	5.66**	5.68**
Weak-identification:			
Kleibergen-Paap Wald F-stat	48.54	48.49	47.95
Stock-Yogo 10%	16.38	16.38	16.38
Stock-Yogo 15%	8.96	8.96	8.96
Montiel Olea-Pflueger F-stat	48.54	48.49	47.95
TSLS 5%	37.42	37.42	37.42
TSLS 10%	23.11	23.11	23.11
Observations	19,776	19,716	18,607
Capital District observations	Yes	Yes	No
Migration outside LAC	Yes	No	Yes
Households migrated	No	No	No

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. We report the Kleibergen-Paap LM statistic to test whether the model suffers from Under-Identification. It suggests that we can largely reject the null hypothesis that the equation is under-identified thus corroborating the relevance of our instrument. For the identification of weak instruments, we report The Kleibergen-Paap rk statistic F, which exceeds the critical values for the maximum desired bias of 10 per cent in all three specifications. We also compute F-statistic of Montiel Olea-Pflueger. Again, the F statistic exceeds the critical TSLS value at 5 per cent, thus confirming the result of the Stock and Yogo under-identification test.

Table A3: The effect of authoritative violence on the probability to migrate

	(1)	(2)	(3)
	IV Kilometers from Caracas		
Variable of interest			
Authoritative violence (%)	0.060***	0.061***	0.060***
	(0.0197)	(0.0201)	(0.0197)
Individual characteristics			
High School	0.010***	0.008***	0.010***
	(0.0034)	(0.0028)	(0.0036)
College graduated	0.022***	0.014***	0.021***
	(0.0040)	(0.0038)	(0.0041)
Age	-0.009***	-0.008***	-0.009***
	(0.0014)	(0.0013)	(0.0015)
Age Squared	0.000***	0.000***	0.000***
	(0.0000)	(0.0000)	(0.0000)
Female	-0.016***	-0.016***	-0.016***
	(0.0052)	(0.0049)	(0.0055)
Household characteristics			
Education of the household head	0.046***	0.042***	0.045***
	(0.0066)	(0.0062)	(0.0070)
Household size (Log)	0.017***	0.014***	0.016***
	(0.0038)	(0.0035)	(0.0042)
Regional controls			
Total violence (Log)	-0.011	-0.009	-0.011
	(0.0089)	(0.0081)	(0.0096)
Governor is an opponent of Maduro	-0.009*	-0.006	-0.009*
	(0.0046)	(0.0046)	(0.0047)
Education level (Log)	-0.056***	-0.045***	-0.055**
	(0.0208)	(0.0176)	(0.0227)
Employment	0.321***	0.359***	0.316***
	(0.1031)	(0.1026)	(0.1082)
Average income *per capita* (Log)	0.002	0.001	0.002
	(0.0053)	(0.0050)	(0.0053)
Population density (Log)	-0.005***	-0.005***	-0.003
	(0.0013)	(0.0011)	(0.0164)
Access to water	0.047***	0.041**	0.048***
	(0.0173)	(0.0161)	(0.0182)
Shortage of medicines	0.036***	0.040***	0.036***
	(0.0126)	(0.0119)	(0.0130)
Indigenous	-0.021	-0.018	-0.022
	(0.0614)	(0.0619)	(0.0614)
Rural Population	-0.012	-0.006	-0.011
	(0.0119)	(0.0114)	(0.0122)
Distance from national borders (Log)	0.001	0.000	0.001
	(0.0022)	(0.0021)	(0.0023)
Number of mines (Log)	-0.001	-0.002	-0.001
	(0.0011)	(0.0011)	(0.0011)
GNI	0.023**	0.018	0.022**
	(0.0108)	(0.0107)	(0.0105)
Observations	19,776	19,716	18,607
Capital District observations	Yes	Yes	No
Migration outside LAC	Yes	No	Yes
Households migrated	No	No	No

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$.

Table A4: The effect of authoritative violence on the probability to migrate (logistic specification)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variable of interest	Coeff.	DY/DX	Coeff.	DY/DX	Coeff.	DY/DX	Coeff.	DY/DX	Coeff.	DY/DX
Authoritative violence (%)	2.494*	0.057	1.613*	0.036	2.013***	0.045	1.838***	0.037	1.459**	0.063
	(1.3471)	(0.034)*	(0.9177)	(0.020)*	(0.6510)	(0.015)***	(0.6652)	(0.013)***	(0.7197)	(0.030)**
Individual characteristics										
High School							1.415***	0.028	0.588***	0.025
							(0.1532)	(0.004)***	(0.1584)	(0.007)***
College graduated							1.954***	0.039	1.010***	0.043
							(0.1120)	(0.003)***	(0.1515)	(0.007)***
Age							-0.163***	-0.003	-0.172***	-0.007
							(0.0511)	(0.001)***	(0.0507)	(0.002)***
Age Squared							0.001	0	0.001	0
							(0.0007)	0	(0.0007)	0
Female							-0.683***	-0.014	-0.710***	-0.03
							(0.2350)	(0.005)***	(0.2235)	(0.010)***
Household characteristics										
Education of the household head									-	0
										0
Household size (Log)									1.345***	0.058
									(0.1719)	(0.008)***
Regional controls										
Total violence (Log)	-0.032	-0.001	0.207	0.005	-0.389	-0.009	-0.222	-0.004	-0.029	-0.001
	(0.4522)	-0.01	(0.3999)	-0.009	(0.3936)	-0.009	(0.3696)	-0.007	(0.4245)	-0.018
Governorn is an opponent of Maduro			0.166	0.004	-0.254	-0.006	-0.278	-0.006	-0.312*	-0.013
			(0.2549)	-0.006	(0.2188)	-0.005	(0.1889)	-0.004	(0.1705)	(0.007)*
Education level (Log)			-1.710**	-0.039	0.238	0.005	-0.919	-0.018	-1.819*	-0.078
			(0.7065)	(0.016)**	(0.9189)	-0.021	(0.7354)	-0.015	(1.0305)	(0.044)*
Employment			16.547***	0.373	13.107***	0.295	16.886***	0.339	15.623***	0.67
			(2.7407)	(0.068)***	(3.8825)	(0.089)***	(3.7077)	(0.075)***	(4.6310)	(0.198)***
Average income \textit{per capita} (Log)			0.201**	0.005	-0.359*	-0.008	-0.269	-0.005	-0.170	-0.007
			(0.0889)	(0.002)**	(0.2008)	(0.005)*	(0.1962)	-0.004	(0.2567)	-0.011
Population density (Log)					-0.208***	-0.005	-0.240***	-0.005	-0.219***	-0.009
					(0.0673)	(0.002)***	(0.0602)	(0.001)***	(0.0735)	(0.003)***
Access to running water			0.370	0.008	1.339	0.03	1.112	0.022	0.179	0.008
			(0.6282)	-0.014	(0.8422)	-0.019	(0.7407)	-0.015	(0.9208)	-0.039
Shortage of medicines			2.598***	0.059	1.639***	0.037	2.207***	0.044	2.119***	0.091
			(0.4018)	(0.009)***	(0.4686)	(0.010)***	(0.4840)	(0.009)***	(0.4671)	(0.020)***
Indigeneous					-7.922***	-0.178	-8.610***	-0.173	-11.781***	-0.505
					(2.8998)	(0.065)***	(2.9783)	(0.061)***	(3.8579)	(0.169)***
Rural Population					-0.549	-0.012	-0.342	-0.007	-0.355	-0.015
					(0.4822)	-0.011	(0.3955)	-0.008	(0.5310)	-0.023
Distance from national borders (Log)					-0.256***	-0.006	-0.212**	-0.004	-0.261**	-0.011
					(0.0885)	(0.002)***	(0.0837)	(0.002)**	(0.1085)	(0.005)**
Number of mines (Log)					-0.136**	-0.003	-0.135**	-0.003	-0.118**	-0.005
					(0.0565)	(0.001)**	(0.0562)	(0.001)**	(0.0570)	(0.002)**
GNI			0.730*	0.016	1.430***	0.032	1.604***	0.032	1.591***	0.068
			(0.4295)	(0.010)*	(0.4236)	(0.010)***	(0.4515)	(0.009)***	(0.4226)	(0.019)***
R-square	0.001		0.007		0.008		0.055		0.074	
Observations	21,382		21,382		21,382		19,776		19,776	
Capital District observations	Yes		Yes		Yes		Yes		Yes	
Migration outside LAC	Yes		Yes		Yes		Yes		Yes	
Households migrated	No		No		No		No		No	

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The odd-numbered columns show the coefficients of the Logit estimate, while the even-numbered columns show the marginal effects.

Table A5: Falsification test: correlation between pre-militarization individual probability to migrate and distance from Caracas

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre-Militarization Probability to Migrate					
Travel Time from Caracas (Log)	-0.002	-0.002	-0.002			
	(0.0019)	(0.0015)	(0.0021)			
Kilometers from Caracas (Log)				0.003	0.002	0.003
				(0.0021)	(0.0016)	(0.0021)
Age	-0.005***	-0.003***	-0.005***	-0.005***	-0.003***	-0.005***
	(0.0010)	(0.0009)	(0.0010)	(0.0010)	(0.0009)	(0.0010)
Age Squared	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
High School	0.013***	0.008***	0.012***	0.013***	0.008***	0.012***
	(0.0031)	(0.0018)	(0.0032)	(0.0031)	(0.0018)	(0.0032)
College Graduated	0.022***	0.010***	0.020***	0.022***	0.010***	0.020***
	(0.0043)	(0.0030)	(0.0042)	(0.0043)	(0.0030)	(0.0041)
Female	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.0014)	(0.0010)	(0.0015)	(0.0014)	(0.0009)	(0.0015)
Regional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Capital District	Yes	Yes	No	Yes	Yes	No
Internation migration	Yes	No	Yes	Yes	No	Yes
Observations	19,959	19,818	18,770	19,959	19,818	18,770
R-squared	0.030	0.018	0.028	0.030	0.018	0.028

Notes: Robust standard errors in parentheses and they allow for Regional Level clustering. Asterisks denote statistical significance:$^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. The regional controls include employment rate, educational level, Gross National Income, Shortage of Medicine, Access to water Index, dummy variable opposition to Maduro, Population density, percentage of rural population, percentage of indigeneous, distance to the border and number of mines.