

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

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Abstract

This paper examines the association between the rates of civilians killed by security forces and the likelihood of an individual migrating, drawing on unique georeferenced survey data collected in Venezuela between 2017 and 2018 and providing information on 21,382 Venezuelan citizens. Estimates, which rely on the travel time from the capital city as an instrumental variable, are robust to the inclusion of several households and regional-level characteristics typical of the migration literature, and other types of violence. We find evidence that authoritative violence is a significant non-economic push factor for international migration. Our results also suggest that this type of violence plays a role in shaping the migrants' skill composition, particularly in the case of South-to-South migration flows.

JEL codes: F22, O15, R23

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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 police killings out of the overall level of violence increases, the likelihood that an individual will migrate increases significantly. To investigate this relationship, we first look for trends or patterns among our data using a Linear Regression Model. In addition

¹We use the definition of authoritative violence following the one provided by Morrison and May (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.

to the specific individual and household characteristics, our approach considers *ad hoc* regional controls related to the local economic opportunities, and demographic, political, and geographical characteristics of the Venezuelan regions. Our preliminary results suggest that individuals with greater exposure to authoritative violence in their own or surrounding areas are more likely to abandon the country.

To overcome the endogeneity issue, we turn to an IV strategy using the *travel time from the Capital City* to each region's most populated city to instrument the authoritative violence. Concerning the furthest regions, the Capital District and the closest ones, have experienced a higher level of Maduro's loyal armed body's interventions. 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.

Our main results suggest that the share of violent deaths due to resistance to the authorities is a significant push factor for international migration. The effect is significant only among males and people with a lower level of education. Estimates are robust to the inclusion of several household and regional characteristics usual in the migration literature.

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. However, 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 explana-

²As 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](#))

tion 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, 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 devoted to the outline of the results, by presenting the main estimates regarding the coefficients of the main variable of interest.

In conclusion, we provide, in Section 5, a discussion about the main 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 the region's recent history ³. Contextually the level of violence - measured through the homicide rate⁴ - 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

³So 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.

⁴<https://www.unodc.org/unodc/en/data-and-analysis/global-study-on-homicide.html>

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 to use force to kill, the police are *only to shoot to kill as a last resort*. Therefore, the police militarization process ⁵ occurred in Venezuela, based on the transformation of the civil police into a military body, and 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

⁵ 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](#).

within the new Bolivarian National Police, the Special Action Forces (FAES). FAES became the new form of OLPs, 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 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 Católica Andrés 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 Federales⁶). Our dependent variable is binary and takes value one if an individual has left the Country between 2017 and September 2018⁷.

⁶As 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.

⁷Disaggregated information on migrants, their characteristics, and destination is reported by the household heads and the interview respondents. 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

Moreover, we use ENCOVI to draw information regarding individual and household characteristics. At the individual level, we account for age, education, and gender. We then consider the number of the members of the family, and the level of education of the household head ⁸.

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, we observe that Colombia is the main receiving country: nearly 40 percent of Venezuelans who migrated in 2017 lived in Colombia at the time of the survey, whereas 1 percent lived in Peru. The other main receiving countries are Chile, Ecuador, and the US. Migrants are on average younger than those who remain (29 years old with respect to 41 years old), and the majority of them are male. Furthermore, migrants are positively selected compared to the population which remains in Venezuela: 32 percent has at least a bachelor's degree, whereas only 13 percent of those who have remained at home are college graduates.

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) ⁹. Since 2016, the Observatory has

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.

⁸The 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.

⁹It 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).

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 homicides¹⁰ (per 100.000 inhabitants) as a proxy for the level of *total violence*. The level of *authoritative violence* is proxied by the number of violent deaths due to resistance to authorities (per 100.000 inhabitants), while the number of fatalities (per 100.000 inhabitants) caused by ‘common’ criminal activity represents the level of *common violence*. Data regarding violent deaths refer to the year 2017 and is aggregated at the regional level. We designed these indicators following what was suggested by the World Health Organization (2003) 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, other types of criminal activity such as robbery, theft, and assault are also theoretically relevant, but data on 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 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 provides a unique context for studying the effect of repressive violence by the Venezuelan government. Given the

¹⁰A death is classified as an intentional homicide following the International Statistical Classification of Diseases and Related Health Problems published by the World Health Organization.

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 focus on 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 choosing to leave the 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 border¹¹. 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 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 *region education level*, *employment rate*¹² 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 Census¹³. We include the population density, the percentage of the urban population, the average availability of essential services in the region¹⁴, 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

¹¹The details of the construction of the dependent variable are outlined in Section 3.1

¹²In particular, the region 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.

¹³By considering data from 2011, we aim at excluding the heterogeneous effect of the political and economic crisis across regions.

¹⁴The average access to running water is represented by the percentage of households with at least weekly access to running water

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 includes an index of the average availability of medicine for each region using the information made available by Encuesta Nacional de Hospitales (ENH, 2017)¹⁵. 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 is from the political party opposed to Maduro ([Ingram and da Costa, 2019](#)).

However, even if 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 use an IV Linear Regression Model to strengthen our as much as possible our estimations.

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

¹⁵The 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

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 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.

Even if 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 re-

lated 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.

As regards the exclusion restriction related to our identification strategy, we argue that being close to the Capital is not a relevant factor in shaping the probability to migrate because of the following main reasons. First of all, 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^{[16](#)} we analyze left Venezuela by air and by sea. Second, 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 such evidence, we perform a falsification test through which we estimate the effect of the distance from the capital on the probability to migrate before the sudden increase in police violence. The results (Table A5) support the validity of our instrument, and they are robust to the inclusion of the regional controls^{[17](#)}. Furthermore, being aware of the literature demonstrating that the economic development of similar countries is positively related

¹⁶According to our estimations performed thanks to the data provided by the Encuesta Dirigida a la Poblaciòn Venezolana que reside en el País (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.

¹⁷We perform the falsification test by using both travel time and kilometers from the Capital, as well as their logarithmic functional forms.

to the proximity to the Capital City and that such proximity would make easier the access to network and information about possible countries of destination (Sassen, 2013), we account for these factors through the aforementioned control variables in the model.

In light of this, we are confident in saying that, in the context we are analyzing, and regarding the composition of the migration wave we are looking at, the proximity to the Capital City is positively related to the probability for an individual to migrate out of the Country only through a higher level of authoritative violence.

4 Results

Table 2 presents the results of the OLS estimation¹⁸. The coefficient of *authoritative violence* is positive and significant, while the one related to *Total violence* is very small and non-significant. The table shows how these coefficients maintain their stability and consistency with their gradual inclusion (Columns 2 to 5). As a robustness check on the coefficients, following Oster (2019), we looked at the increase of the model fit and the coefficient stability by including individual, household, and regional controls. The results, summarized by the value of δ in Table 2, imply that the significant link between authoritative violence and the probability of migration is unlikely to be driven by hard-to-observe omitted factors.

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. hypothesis is no longer valid and, consequently, we report the appropriate statistics

¹⁸Table 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.

(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 ¹⁹. 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. 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 Error 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 dependent variable *Migration* is 0.023. The coefficient does not change consistently across different specifications.

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

¹⁹Since 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.

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.

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 positive and significant effect on males' decision to migrate²⁰, 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. Column 3 and Column 7 report the coefficients of the 'means equality test', respectively across gender (statistically significant) and skill level (statistically not significant). The discussion of such evidence is presented in Section 5.

²⁰The 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

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 ²¹. 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 to pre-migration violence on their decision-making process²². Column 4 of Table 4 shows the coefficients regarding the new sample, in which we merged the weighted samples from ENCOVI and ENPOVE ²³. 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 authoritative 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

²¹ENPOVE 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

²²While 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.

²³We considered only those Venezuelans who declared not to have any left-behind member of their family.

an instrumental variable, we find evidence that a higher share of homicides committed by security forces increases the likelihood that an individual will emigrate outside of the country. This finding is robust to the gradual inclusion of several socioeconomic 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 when we exclude from the sample the observations related to individuals who migrated out of the LAC continent.

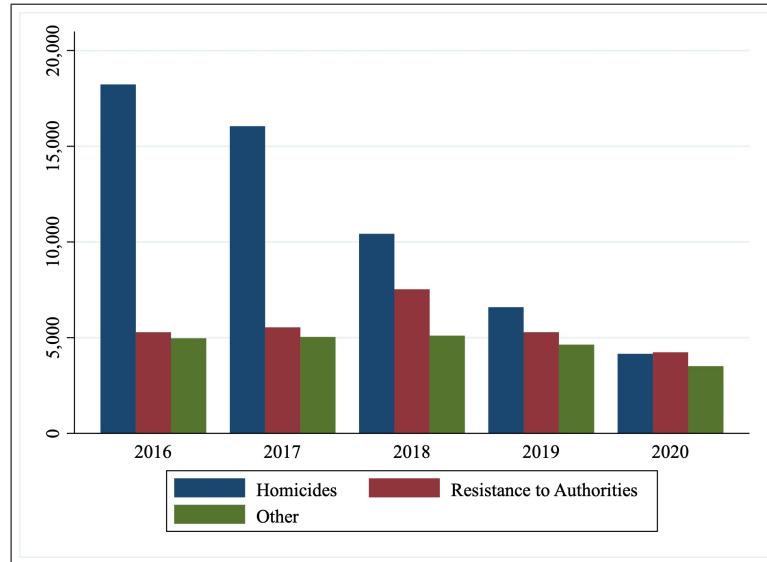
As presented in Section 4, we also find interesting heterogeneous effects across gender and education. In particular, our estimations seem to suggest that the impact of authoritative violence is significant only among people with a lower level of education (Table 5, Column 4). The high *p-value* confirms the role of authoritative violence as a clean push factor for less educated individuals. When it comes to high-skilled migrants, the coefficient of authoritative violence is still positive but no longer significant. However, since the ‘means equality test’ across classes of education confirms that the coefficients are not statistically different, we assume that the estimation of the coefficient related to high-skilled migrants is confounded. This seems to suggest that there may be other socio-economic or migration policy-related factors (both in the country of origin and in the country of destination) interacting with the role of authoritative violence. From this perspective, our results represent a contribution to the debate related to the self-selection of migrants in the context of inter-developing countries, still underdeveloped (see [Clemens and Mendola, 2020](#)). In general, literature on self-selection has been mostly focused on the observable characteristics of the migrant and the attractive elements, without considering the role of ‘domestic’ non-economic circumstances and their role as push factors. However, our results confirm and highlight the relevance of non-economic factors on the skill composition of migrants, especially in a context like Latin America.

In particular, 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 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

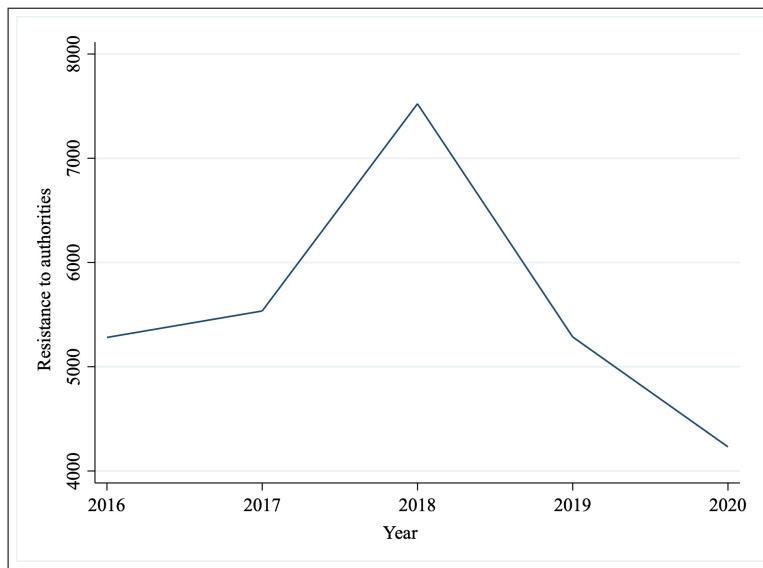
Figure 1: VIOLENT DEATHS TREND (2016-2020)



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.

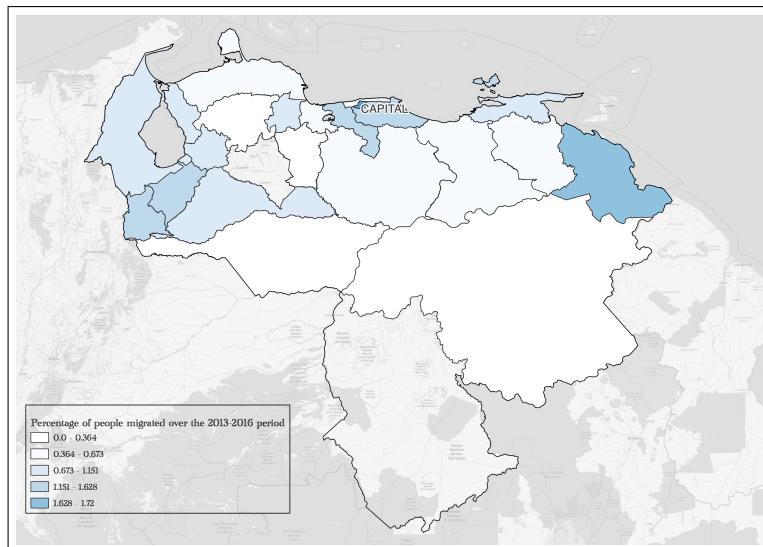
Figure 2: RESISTANCE TO AUTHORITIES (2016-2020)



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.

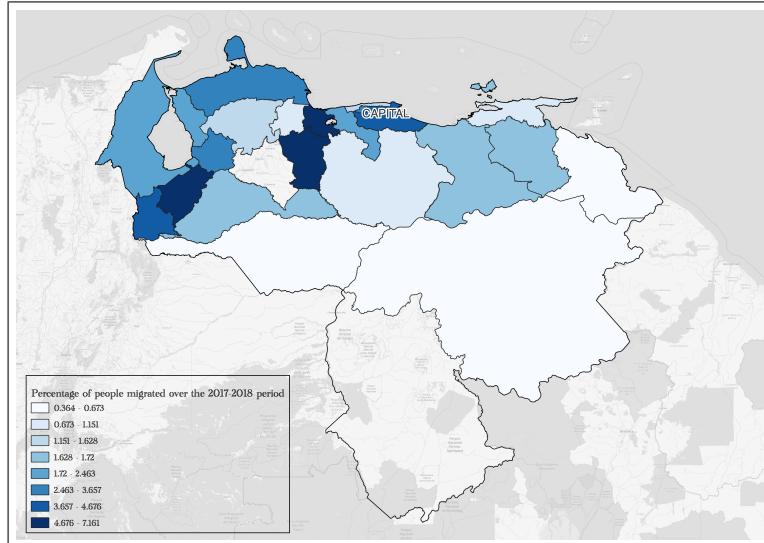
Figure 3: AVERAGE REGIONAL LEVEL MIGRATION RATES (2013-2016)



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).

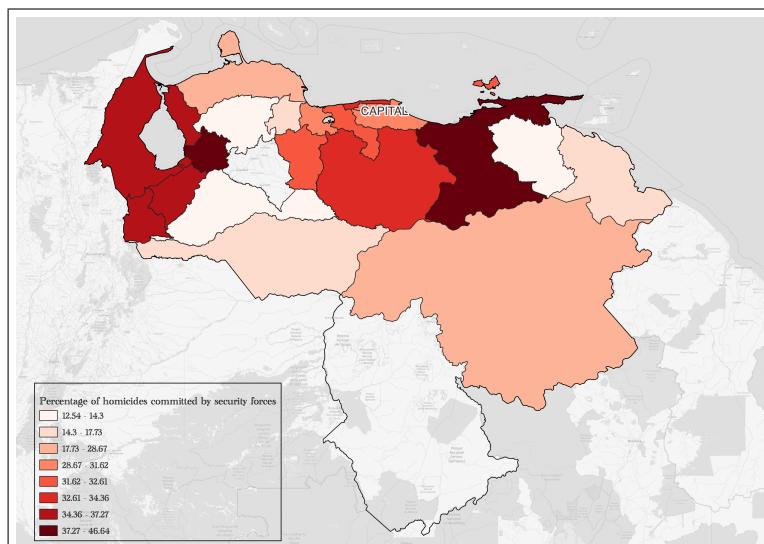
Figure 4: AVERAGE REGIONAL LEVEL MIGRATION RATES (2017-2018)



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).

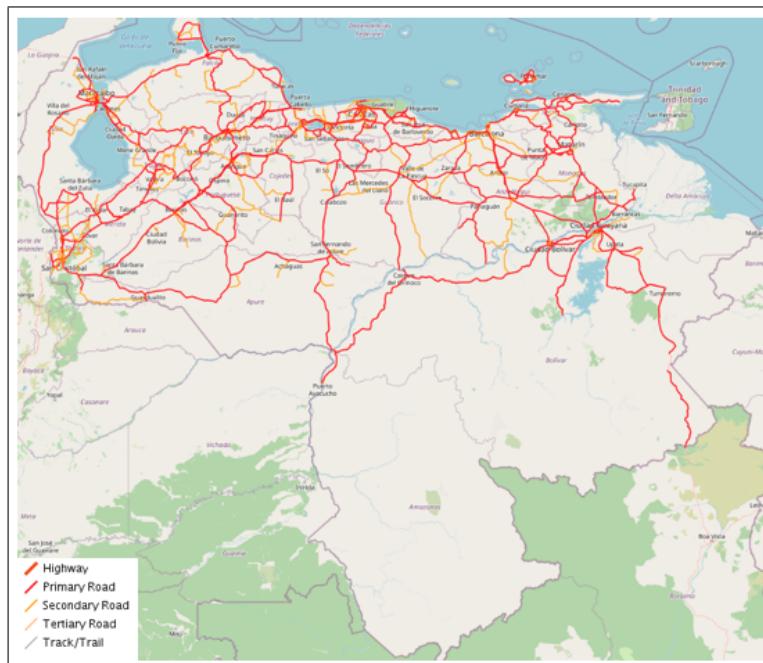
Figure 5: AUTHORITATIVE VIOLENCE (2017)



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		
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Individual Level						
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 (monthly/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)
Governor 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)	
Indigenous		-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*** (0.0316)	-0.199*** (0.0316)	-0.212*** (0.0283)
Regional controls			
Total violence (Log)	0.133*** (0.0445)	0.133*** (0.0445)	0.107*** (0.0411)
Governor is an opponent of Maduro	0.325*** (0.0394)	0.325*** (0.0394)	0.329*** (0.0388)
Education level (Log)	0.345*** (0.1327)	0.345*** (0.1327)	0.428*** (0.1238)
Employment	3.320*** (0.8122)	3.325*** (0.8121)	3.231*** (0.7151)
Average income <i>per capita</i> (Log)	-0.080*** (0.0205)	-0.080*** (0.0205)	-0.092*** (0.0192)
Population density (Log)	-0.215*** (0.0376)	-0.215*** (0.0376)	-0.039 (0.1007)
Access to water	-0.326*** (0.1025)	-0.326*** (0.1025)	-0.292*** (0.0974)
Shortage of medicines	0.420*** (0.0918)	0.426*** (0.0917)	0.416*** (0.0829)
Indigenous	0.088 (0.4128)	0.087 (0.4125)	0.094 (0.4132)
Rural Population	0.199*** (0.0707)	0.199*** (0.0707)	0.235*** (0.0726)
Distance from national borders (Log)	-0.059*** (0.0122)	-0.059*** (0.0122)	-0.070*** (0.0143)
Number of mines (Log)	0.015 (0.0104)	0.015 (0.0104)	0.017* (0.0090)
GNI	-0.252*** (0.0794)	-0.252*** (0.0794)	-0.300*** (0.0828)
Under-identification	5.28**	5.28**	5.61**
<i>Weak-identification:</i>			
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** (0.0215)	0.048** (0.0202)	0.046** (0.0214)	0.068* (0.0349)
Individual characteristics				
High School	0.010*** (0.0034)	0.008*** (0.0028)	0.010*** (0.0036)	0.012*** (0.0033)
College graduated	0.022*** (0.0040)	0.014*** (0.0038)	0.021*** (0.0042)	0.033*** (0.0039)
Age	-0.009*** (0.0014)	-0.008*** (0.0013)	-0.009*** (0.0015)	-0.011*** (0.0012)
Age Squared	0.000*** (0.0000)	0.000*** (0.0000)	0.000*** (0.0000)	0.000*** (0.0000)
Female	-0.016*** (0.0052)	-0.016*** (0.0049)	-0.016*** (0.0055)	-0.027*** (0.0051)
Household characteristics				
Education household of the head	0.046*** (0.0066)	0.042*** (0.0062)	0.045*** (0.0070)	0.055*** (0.0070)
Household size (Log)	0.017*** (0.0038)	0.014*** (0.0035)	0.016*** (0.0042)	0.149*** (0.0021)
Regional controls				
Total violence (Log)	-0.008 (0.0084)	-0.006 (0.0069)	-0.008 (0.0091)	-0.023 (0.0140)
Governors is an opponent of Maduro	-0.006 (0.0037)	-0.003 (0.0031)	-0.006 (0.0039)	-0.018** (0.0089)
Education level (Log)	-0.055** (0.0215)	-0.045** (0.0183)	-0.054** (0.0233)	-0.076** (0.0384)
Employment	0.321*** (0.1102)	0.359*** (0.1078)	0.317*** (0.1146)	0.448*** (0.1298)
Average income <i>per capita</i> (Log)	0.001 (0.0049)	0.001 (0.0046)	0.001 (0.0050)	0.024*** (0.0080)
Population density (Log)	-0.005*** (0.0012)	-0.005*** (0.0010)	-0.003 (0.0159)	-0.003 (0.0025)
Access to water	0.040** (0.0174)	0.035** (0.0145)	0.041** (0.0181)	0.060* (0.0335)
Shortage of medicines	0.038*** (0.0137)	0.042*** (0.0128)	0.038*** (0.0140)	0.042** (0.0167)
Indigenous	-0.032 (0.0640)	-0.026 (0.0632)	-0.031 (0.0642)	-0.035 (0.1441)
Rural Population	-0.012 (0.0128)	-0.006 (0.0121)	-0.011 (0.0130)	-0.001 (0.0183)
Distance from national borders (Log)	0.001 (0.0022)	-0.000 (0.0022)	0.000 (0.0024)	0.007 (0.0044)
Number of mines (Log)	-0.001 (0.0011)	-0.002 (0.0011)	-0.001 (0.0012)	0.004** (0.0015)
GNI	0.022** (0.0094)	0.016* (0.0093)	0.021** (0.0093)	0.030** (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 slightly negative value (-0.61), which confirms that the IV estimator is an efficient (and consistent) estimator of the true parameter.

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 (0.0140)	0.119** (0.0533)	0.0285	0.056*** (0.0124)	0.016 (0.0449)	0.089 (0.0601)	0.5405
Individual characteristics							
High School	0.018*** (0.0048)	-0.002 (0.0039)					
College graduated	0.028*** (0.0040)	0.014** (0.0064)					
Age	-0.009*** (0.0014)	-0.010*** (0.0023)		-0.004*** (0.0009)	-0.016*** (0.0033)	-0.015*** (0.0032)	
Age Squared	0.000*** (0.0000)	0.000*** (0.0000)		0.000*** (0.0000)	0.000*** (0.0000)	0.000*** (0.0000)	
Female				-0.015*** (0.0036)	-0.013* (0.0072)	-0.022* (0.0118)	
Household characteristics							
Education of the household head	0.033*** (0.0052)	0.060*** (0.0097)		0.037*** (0.0063)	0.062*** (0.0096)	0.076*** (0.0091)	
Household size (Log)	0.014*** (0.0039)	0.019*** (0.0057)		0.002	0.048*** (0.0102)	0.054*** (0.0133)	
Regional controls							
Total violence (Log)	-0.001 (0.0057)	-0.028 (0.0251)		-0.016*** (0.0051)	0.014 (0.0163)	-0.030 (0.0245)	
Governor is an oppent of Maduro	-0.001 (0.0030)	-0.018 (0.0111)		-0.010*** (0.0020)	0.015 (0.0102)	-0.026 (0.0183)	
Education level (Log)	-0.018 (0.0136)	-0.156** (0.0683)		-0.025* (0.0150)	-0.088** (0.0450)	-0.175*** (0.0430)	
Employment	0.164*** (0.0580)	0.611** (0.2423)		0.147** (0.0604)	0.485** (0.2278)	0.758*** (0.2205)	
Average income <i>per capita</i> (Log)	-0.001 (0.0036)	-0.002 (0.0101)		0.000	0.011 (0.0106)	0.014 (0.0101)	
Population density (Log)	-0.005*** (0.0011)	-0.005 (0.0040)		-0.004*** (0.0008)	-0.007*** (0.0023)	-0.005 (0.0039)	
Access to water	0.046*** (0.0124)	0.048 (0.0549)		0.045*** (0.0109)	0.037 (0.0371)	0.057 (0.0601)	
Shortage of medicines	0.006 (0.0072)	0.085** (0.0337)		0.010 (0.0083)	0.080*** (0.0304)	0.089*** (0.0232)	
Indigenous	-0.007 (0.0356)	-0.032 (0.1375)		0.013 (0.0276)	-0.014 (0.1456)	0.085 (0.0905)	
Rural Population	-0.011* (0.0060)	-0.007 (0.0338)		-0.011 (0.0084)	-0.018 (0.0260)	-0.020 (0.0256)	
Distance from national borders (Log)	-0.002* (0.0012)	0.005 (0.0049)		0.000 (0.0011)	0.002 (0.0048)	0.014*** (0.0043)	
Number of mines (Log)	-0.002*** (0.0007)	0.000 (0.0025)		-0.001 (0.0007)	-0.000 (0.0021)	0.003 (0.0025)	
GNI	0.030*** (0.0086)	0.020 (0.0196)		0.015*** (0.0050)	0.039* (0.0212)	0.014 (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** (0.0043)	0.008*** (0.0029)	0.007** (0.0033)	0.008** (0.0033)	0.008** (0.0032)
Individual characteristics.					
High School			0.028*** (0.0055)	0.010** (0.0035)	
College graduated			0.046*** (0.0056)	0.022*** (0.0041)	
Age			-0.009*** (0.0014)	-0.009*** (0.0014)	
Age Squared			0.000*** (0.0000)	0.000*** (0.0000)	
Female			-0.015** (0.0054)	-0.016*** (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 (0.0117)	-0.011 (0.0091)	-0.019** (0.0078)	-0.017** (0.0076)	-0.018** (0.0075)
Governorn is an opponent of Maduro		0.001 (0.0060)	-0.005 (0.0043)	-0.006 (0.0038)	-0.008** (0.0035)
Education level (Log)		-0.050*** (0.0164)	-0.032 (0.0229)	-0.048** (0.0214)	-0.057** (0.0212)
Employment		0.325*** (0.0609)	0.285** (0.1041)	0.312*** (0.1091)	0.333*** (0.1056)
Average income \textit{per capita} (Log)	0.002 (0.0029)	-0.001 (0.0055)	-0.001 (0.0057)	0.002 (0.0053)	
Population density (Log)			-0.004** (0.0014)	-0.005*** (0.0013)	-0.005*** (0.0013)
Access to running water	0.027* (0.0140)	0.051** (0.0185)	0.048*** (0.0162)	0.044** (0.0161)	
Shortage of medicines	0.042*** (0.0073)	0.031** (0.0136)	0.035** (0.0137)	0.038*** (0.0126)	
Indigeneous		-0.018 (0.0719)	-0.017 (0.0652)	-0.022 (0.0624)	
Rural Population		-0.008 (0.0129)	-0.009 (0.0122)	-0.010 (0.0121)	
Distance from national borders (Log)		-0.001 (0.0024)	0.000 (0.0022)	0.001 (0.0021)	
Number of mines (Log)		-0.001 (0.0011)	-0.002 (0.0012)	-0.002 (0.0011)	
GNI	0.011 (0.0104)	0.022* (0.0107)	0.021* (0.0119)	0.022* (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*** (0.0281)	-0.196*** (0.0281)	-0.196*** (0.0283)
Regional controls			
Total violence (Log)	0.182*** (0.0409)	0.182*** (0.0409)	0.185*** (0.0412)
Governor is an opponent of Maduro	0.375*** (0.0319)	0.375*** (0.0318)	0.375*** (0.0324)
Education level (Log)	0.389*** (0.1373)	0.389*** (0.1373)	0.380*** (0.1405)
Employment	3.723*** (0.9019)	3.722*** (0.9025)	3.771*** (0.9677)
Average income <i>per capita</i> (Log)	-0.191*** (0.0299)	-0.191*** (0.0299)	-0.189*** (0.0295)
Population density (Log)	-0.187*** (0.0303)	-0.187*** (0.0303)	-0.216*** (0.0723)
Access to water	-0.593*** (0.1172)	-0.593*** (0.1171)	-0.597*** (0.1193)
Shortage of medicines	0.418*** (0.0774)	0.418*** (0.0774)	0.423*** (0.0794)
Indigenous	-0.438** (0.2063)	-0.438** (0.2061)	-0.431** (0.2032)
Rural Population	0.145 (0.0909)	0.145 (0.0909)	0.141 (0.0889)
Distance from national borders (Log)	-0.104*** (0.0137)	-0.104*** (0.0137)	-0.102*** (0.0134)
Number of mines (Log)	0.010 (0.0064)	0.010 (0.0064)	0.010 (0.0065)
GINI	-0.534*** (0.0938)	-0.534*** (0.0937)	-0.529*** (0.0912)
Under-identification	5.63**	5.66**	5.68**
<i>Weak-identification:</i>			
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*** (0.0197)	0.061*** (0.0201)	0.060*** (0.0197)
Individual characteristics			
High School	0.010*** (0.0034)	0.008*** (0.0028)	0.010*** (0.0036)
College graduated	0.022*** (0.0040)	0.014*** (0.0038)	0.021*** (0.0041)
Age	-0.009*** (0.0014)	-0.008*** (0.0013)	-0.009*** (0.0015)
Age Squared	0.000*** (0.0000)	0.000*** (0.0000)	0.000*** (0.0000)
Female	-0.016*** (0.0052)	-0.016*** (0.0049)	-0.016*** (0.0055)
Household characteristics			
Education of the household head	0.046*** (0.0066)	0.042*** (0.0062)	0.045*** (0.0070)
Household size (Log)	0.017*** (0.0038)	0.014*** (0.0035)	0.016*** (0.0042)
Regional controls			
Total violence (Log)	-0.011 (0.0089)	-0.009 (0.0081)	-0.011 (0.0096)
Governor is an opponent of Maduro	-0.009* (0.0046)	-0.006 (0.0046)	-0.009* (0.0047)
Education level (Log)	-0.056*** (0.0208)	-0.045*** (0.0176)	-0.055** (0.0227)
Employment	0.321*** (0.1031)	0.359*** (0.1026)	0.316*** (0.1082)
Average income <i>per capita</i> (Log)	0.002 (0.0053)	0.001 (0.0050)	0.002 (0.0053)
Population density (Log)	-0.005*** (0.0013)	-0.005*** (0.0011)	-0.003 (0.0164)
Access to water	0.047*** (0.0173)	0.041** (0.0161)	0.048*** (0.0182)
Shortage of medicines	0.036*** (0.0126)	0.040*** (0.0119)	0.036*** (0.0130)
Indigenous	-0.021 (0.0614)	-0.018 (0.0619)	-0.022 (0.0614)
Rural Population	-0.012 (0.0119)	-0.006 (0.0114)	-0.011 (0.0122)
Distance from national borders (Log)	0.001 (0.0022)	0.000 (0.0021)	0.001 (0.0023)
Number of mines (Log)	-0.001 (0.0011)	-0.002 (0.0011)	-0.001 (0.0011)
GINI	0.023** (0.0108)	0.018 (0.0107)	0.022** (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)

Variable of interest	(1) Coeff.	(2) DY/DX	(3) Coeff.	(4) DY/DX	(5) Coeff.	(6) DY/DX	(7) Coeff.	(8) DY/DX	(9) Coeff.	(10) DY/DX
Authoritative violence (%)	2.494* (1.3471)	0.057 (0.034)*	1.613* (0.9177)	0.036 (0.020)*	2.013*** (0.6510)	0.045 (0.015)***	1.838*** (0.6652)	0.037 (0.013)***	1.459** (0.7197)	0.063 (0.030)**
Individual characteristics										
High School							1.415*** (0.1532)	0.028 (0.004)***	0.588*** (0.1584)	0.025 (0.007)***
College graduated							1.954*** (0.1120)	0.039 (0.003)***	1.010*** (0.1515)	0.043 (0.007)***
Age							-0.163*** (0.0511)	-0.003 (0.001)***	-0.172*** (0.0507)	-0.007 (0.002)***
Age Squared							0.001 (0.0007)	0 (0.0007)	0.001 (0.0007)	0 (0.0007)
Female							-0.683*** (0.2350)	-0.014 (0.005)***	-0.710*** (0.2235)	-0.03 (0.010)***
Household characteristics										
Education of the household head									-	0
Household size (Log)										0
									1.345*** (0.1719)	0.058 (0.008)***
Regional controls										
Total violence (Log)	-0.032 (0.4522)	-0.001 -0.01	0.207 (0.3999)	0.005 -0.009	-0.389 (0.3936)	-0.009 -0.009	-0.222 (0.3696)	-0.004 -0.007	-0.029 (0.4245)	-0.001 -0.018
Governorn is an opponent of Maduro			0.166 (0.2549)	0.004 -0.006	-0.254 (0.2188)	-0.006 -0.005	-0.278 (0.1889)	-0.006 -0.004	-0.312* (0.1705)	-0.013 (0.007)*
Education level (Log)			-1.710** (0.7065)	-0.039 (0.016)**	0.238 (0.9189)	0.005 -0.021	-0.919 (0.7354)	-0.018 -0.015	-1.819* (1.0305)	-0.078 (0.044)*
Employment			16.547*** (2.7407)	0.373 (0.068)***	13.107*** (3.8825)	0.295 (0.089)***	16.886*** (3.7077)	0.339 (0.075)***	15.623*** (4.6310)	0.67 (0.198)***
Average income \textit{per capita} (Log)			0.201** (0.0889)	0.005 (0.002)**	-0.359* (0.008)	-0.008 (0.005)*	-0.269 (0.1962)	-0.005 -0.004	-0.170 (0.2567)	-0.007 -0.011
Population density (Log)					-0.208*** (0.0673)	-0.005 (0.002)***	-0.240*** (0.0602)	-0.005 (0.001)***	-0.219*** (0.0735)	-0.009 (0.003)***
Access to running water			0.370 (0.6282)	0.008 -0.014	1.339 (0.8422)	0.03 -0.019	1.112 (0.7407)	0.022 -0.015	0.179 (0.9208)	0.008 -0.039
Shortage of medicines			2.598*** (0.4018)	0.059 (0.009)***	1.639*** (0.4686)	0.037 (0.010)***	2.207*** (0.4840)	0.044 (0.009)***	2.119*** (0.4671)	0.091 (0.020)***
Indigeneous					-7.922*** (2.8998)	-0.178 (0.065)***	-8.610*** (2.9783)	-0.173 (0.061)***	-11.781*** (3.8579)	-0.505 (0.169)***
Rural Population					-0.549 (0.4822)	-0.012 -0.011	-0.342 (0.3955)	-0.007 -0.008	-0.355 (0.5310)	-0.015 -0.023
Distance from national borders (Log)					-0.256*** (0.0885)	-0.006 (0.002)***	-0.212** (0.0837)	-0.004 (0.002)**	-0.261** (0.1085)	-0.011 (0.005)**
Number of mines (Log)					-0.136** (0.0565)	-0.003 (0.001)**	-0.135** (0.0562)	-0.003 (0.001)**	-0.118** (0.0570)	-0.005 (0.002)**
GNI			0.730* (0.4295)	0.016 (0.010)*	1.430*** (0.4236)	0.032 (0.010)***	1.604*** (0.4515)	0.032 (0.009)***	1.591*** (0.4226)	0.068 (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 REGIONAL MIGRATION RATE AND DISTANCE FROM CARACAS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pre-Militarization Regional Migration Rate (2013-2016)							
Kilometers from Caracas	0.000 (-0.000)	0.000 (0.001)						
Travel Time from Caracas			0.000 (0.000)	-0.000 (0.001)				
Kilometers from Caracas (Log)					0.094 (0.146)	-0.064 (0.257)		
Travel Time from Caracas (Log)							-0.008 (0.179)	-0.278 (0.233)
Regional Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	22	22	22	22	22	22	22	22

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 indigenous, distance to the border and number of mines.