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Region-Specific Structural Covariates of Homicide Rates in Latin America:**State Legitimacy and Remittances**

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Author Note

This research was supported by a Presidential Doctoral Fellowship for Research Training in Health Disparities, awarded to the first author, with funding from the National Institute on Minority Health and Health Disparities (#MD003373) through the Center for the Elimination of Minority Health Disparities at the University at Albany – SUNY. These findings were presented at the 2021 annual meeting of the American Society of Criminology, Chicago. There is no conflict of interest to disclose. Correspondence should be addressed to Guillermo J. Escaño, School of Criminal Justice, University at Albany – SUNY, gescano@albany.edu. We thank David McDowall, Meghan Rogers, Theodore Wilson, and Matthew Ingram for valuable feedback on earlier drafts, and Miguel Rondon for his assistance with data visualization.

**Region-Specific Structural Covariates of Homicide Rates in Latin America:
State Legitimacy and Remittances**

Abstract

The goal of this study was to examine region-specific structural covariates of homicide rates in Latin America and the Caribbean (LAC). LAC nations possess 8% of the global population but 33% of homicides, yet the region receives limited attention in studies of social structure and violence. Prior literature suggests two separate social forces particularly relevant to the region, state legitimacy and monetary remittances. Theory from multiple fields provides distinct pathways through which each may influence LAC violence rates, suggesting a negative legitimacy-homicide association but competing hypotheses about the remittances-homicide association. Our unit of analysis was the nation-year, and our sample included 16 LAC nations between 2000 and 2018. We obtained homicide data from the World Health Organization and measures of state legitimacy and remittances from the Latinobarómetro, World Bank, and Organization for Economic Co-operation and Development. Controlling for several traditional structural covariates of cross-national homicide rates, results from panel fixed effects models indicated that state legitimacy and remittances are, respectively, negatively and positively associated with LAC within-nation homicide rates over time.

Keywords: state legitimacy, remittances, Latin America and the Caribbean, homicide, violence

Violence rates in Latin America and the Caribbean (LAC) are remarkably higher than in most world regions. Global homicide rates declined in recent years (Rogers & Pridemore, 2018; Tuttle et al., 2018), and while LAC followed suit it is still home to less than 10% of the global population but about one-third of homicides. More than two-thirds of LAC nations have homicide rates greater than 10 per 100,000 residents (World Health Organization, 2022a), and during the 2000-2018 period of our study the mean annual homicide rate in all LAC nations was nearly 18 per 100,000 residents. The Pan American Health Organization deemed LAC violence the social pandemic of the century in the Americas (Imbush et al., 2011). Homicide rates in Brazil, Colombia, El Salvador, Guatemala, Honduras, and Mexico are at or above some nations with active conflicts (Feldmann & Luna, 2022). Beyond harm to individuals, families, and communities, the Inter-American Development Bank reported that crime and violence in the region cost a quarter trillion dollars annually, or 3.5% of GDP (Sonneland, 2017).

Separately, in recent years macro-level explanations of crime like modernization, conflict, and Institutional Anomie theories found only limited support in the cross-national empirical literature (Bjerregaard & Cochran, 2008; LaFree, 2005; LaFree et al., 2015; Rogers & Pridemore, 2018, 2023). Absolute and relative deprivation recently dominated that discussion (Messner et al., 2010; Paré & Felson, 2014; Pridemore, 2008, 2011; Santos et al., 2018), with alternative explanations receiving less attention.

Despite LAC's persistent high violence rates, researchers have only recently begun producing more systematic empirical analyses of the region that appear in English-language journals (Bergman, 2018; Chainey et al., 2021; Elias et al., 2022; Escaño & Pridemore, 2023; Navas & Navas, 2022; Ponce et al., 2021). Although a few criminological studies examined homicide in LAC (Chon, 2011; Concha-Eastman et al., 2020; Fajnzylber et al., 1998; Neapolitan, 1994; Santos et al., 2018; Schargrotsky & Freira, 2021; Soares & Naritomi, 2010; Tuttle et al.,

2018), such studies typically treated LAC monolithically via inclusion of a dummy variable. While this can be reasonable in the context of those studies, LAC possesses distinct experiences and challenges but is only occasionally studied independently with region-specific samples (Crocì & Chainey, 2023; Escaño & Pridemore, 2023; Rivera, 2016). Crocì and Chainey (2023) provide a recent study of institutions and violence in LAC. Using a panel design and examining random effects, they found that greater government effectiveness and stronger controls over corruption were both negatively and significantly associated with homicide rates. Purposive sampling (Abbott, 1997; Stamatel, 2006) allows us to consider LAC-specific structural covariates of homicide, and insights from this high-violence region could inform new general and region-specific explanations. The significant within-region temporal and geographic variation also provides an opportunity for meaningful analyses.

There is a long tradition of examining the structural covariates of national homicide rates due both to the serious nature of the crime and to measurement issues, and the same is true of our study of LAC. Legal definitions of non-lethal violent crimes vary among LAC nations and sometimes even by jurisdiction within nations, and there is considerable non-random variation in unrecorded non-lethal violent events. Scholars employ homicide rates too address these challenges due to similarity in definition and measurement across nations. In LAC, studies indicate that relative to measures of other crimes, homicide is the least unrecorded crime and the most frequently employed indicator of violence (Vilalta, 2020). Employing homicide as an outcome in our study allows us to make more reliable comparisons and to contribute to the growing literature on LAC violence and to the cross-national homicide literature more generally. Similarly, while we do not necessarily make the claim here, recent work by van Breen et al. (2023) suggests national homicide rates may be a proxy for the overall violent crime rate.

The theoretical and empirical literatures from multiple fields provide two social forces that appear especially salient for LAC homicide rates, state legitimacy and remittances. While these two factors may be associated with each other in some way, these literatures suggest distinct mechanisms through which each may operate to influence homicide rates. LAC has faced widespread political instability and dissatisfaction with the quality of governments and criminal justice agencies, and these struggles with legitimacy are consistent themes in modern LAC political history (Latin American Public Opinion Project, 2022; Latinobarómetro, 2022; Pring & Vrushi, 2019; Weyland, 2021). As with homicide, there is considerable between-nation variation in state legitimacy in LAC (Arias & Goldstein, 2010; Nivette, 2016; Ungar, 2009), with Brinks et al. (2019, p. 6) noting “substantial variation on the dimension of institutional strength – across countries, across institutions, and over time.” Ideas about criminal groups and self-help justice theory may help explain any legitimacy-homicide association in LAC.

Remittances are monetary transfers from one person to another person or household, usually an immigrant sending money to relatives in their home country. The transnational flow of remittances to LAC is consistently the highest globally in total volume and per capita. In 2021, approximately \$128 billion in remittances were sent directly to the region, the highest amount ever registered (Maldonado & Harris, 2022). While there is tremendous between-nation variation in remittances in LAC (Fajnzylber & López, 2008), total remittances are roughly one-half that of formal foreign direct investment to the region (Economic Commission for Latin America and the Caribbean, 2019), eight times larger than official development assistance (i.e., foreign aid) (World Bank, 2018), and for most nations are a sizeable portion of Gross Domestic Product. The literatures on poverty, social protection, routine activities, and governance quality provide competing explanations about the remittances-homicide association in LAC.

This study provides three main contributions to the literature. First, we focus on LAC, which has disproportionately high violence rates yet receives limited attention in the criminology literature. Further, any associations between homicide and structural covariates in LAC could be masked in studies with larger and more global samples of nations. Second, we test hypotheses focused on two characteristics—state legitimacy and remittances—that appear relevant to the LAC context but are seldom addressed in cross-national studies. Third, we obtained data on LAC nations over nearly two decades that were a period of sweeping change in the region, including for the three key elements of this study, providing important structural variation and context. While such panel designs are beginning to appear in the cross-national homicide literature, most still employ cross-sectional designs (Rogers & Pridemore, 2023).

Literature Review

What is State Legitimacy?

Definitions of state legitimacy are contested by political scientists and by criminologists (Beetham, 1991; Dawson, 2017; Gilley, 2009; Nivette & Eisner, 2013; Nivette, 2012, 2014; Tankebe, 2013). Weber's (1978, p. 55) definition of the state as "a centralized, administrative apparatus that holds a monopoly over the use of physical force within a given territory" is foundational to legitimacy theorists (Beetham, 1991; Gilley, 2006, 2009; Mann, 1986). Once established, the state offers a path for legitimacy, as "states are able to construct and maintain social order amongst the populace by establishing moral, normative, and legal bases for enforcing wanted behavior and discouraging unwanted behaviors" (Nivette, 2012, p. 155).

There are two major approaches to conceptualizing state legitimacy. The first is that legitimacy is drawn from attitudes dependent on consensus beliefs about what is legitimate (Chamlin & Cochran, 2005, 2006; Tyler, 1990). The second, multidimensional, view believes legitimacy is dependent not only on public opinion and citizens' attitudes but also on the

behaviors and norms of the regime, on how the state complies with norms and values (Beetham, 1991; Gilley, 2006, 2009; Nivette & Eisner, 2013).

Our study drew from Gilley's (2006, 2009) conceptualization of state legitimacy, which is influenced by Beetham (1991). Gilley (2006, p. 48) suggests "a state is more legitimate the more that it is treated by its citizens as rightfully holding and exercising political power." He argued that legitimacy consists of three dimensions that capture attitudinal and behavioral traits: views of legality, views of justification, and acts of consent. Legality is based on the boundaries of the state's own laws, with legitimacy increasing when the state employs its power within the boundaries of its laws and constitution. Justification reflects society's norms and beliefs about the laws governing authority. Consent is "the action citizens take that conveys agreement with the ruling power" (Nivette & Eisner, 2013, p. 4). A state's ability to maintain social order is not based solely on its ability to display force or enforce a set of socialization norms but also on citizens' perceptions of the state's authority to be just through consent (Nivette, 2014). Research suggests that when the state lacks legitimacy it relies on coercion to produce conformity, which further reduces legitimacy, is unsustainable over the long term, and is a key trait of a weak state (Dawson, 2017; Gilley, 2013; Holsti, 1996; Nivette, 2012; Soifer & Vom Hau, 2008).

Mann (1986) argued that infrastructural power of the state – that is, "its institutional capability to exercise control and implement policy choices within the territory it claims to govern" (Soifer & vom Hau, 2008, p. 220) – is a key contributor to legitimacy and a strong state. A weak state is commonly characterized by having low infrastructural power amongst its citizens (Holsti, 1996; Soifer & van Hau, 2008). Infrastructural power of the state is relational and spatial. The former is the relationship between the state and other its agencies (e.g., criminal justice institutions) and thus the ability to deliver services and implement policy effectively

within its territory. The latter is the state's ability to reach all parts of its territory (e.g., urban, rural, border zones) evenly and to enforce its monopoly of violence (Soifer & van Hau, 2008).

State Legitimacy and Homicide Rates. Consideration of the association between state legitimacy and homicide is not new, though until recently it was mostly theoretical. Only a handful of scholars explored its effects on violence cross-nationally, especially accounting for both space and time (Nivette & Eisner, 2013). Any legitimacy-homicide association may be explained in three main interrelated ways. First, when institutions possess less moral validity they might be less able to control citizen behavior, including crime and violence (Granovetter, 1985; LaFree, 1998). Second, unfair distribution of resources, including unequal justice, may increase homicide via anomie and social stratification (Chamlin & Cochran, 2005; Durkheim, 1893). Third, distrust and lack of faith in state institutions, especially police, may create a feeling that "individuals living in "stateless locations" cannot access formal crime control and so law is in essence unavailable" (Nivette, 2016, p. 145). Among other things, this can result in violent methods of self-help justice (Black, 1983; Cohen & Nisbett, 1994; Eisner, 2009; Eriksson, 2009), "whereby citizens...lapse into violent prestate methods of conflict resolution" (Nivette, 2012, p. 156). In the LAC context the third path appears the most applicable. Research on the region suggests low state legitimacy creates a power vacuum, increasing the chances of (dis)organized self-help justice or of criminal groups monopolizing dispute resolution.

According to Nivette (2016, p. 146), when citizens "cannot access formal, legal methods of dispute resolution, crime control, and punishment, they will favor alternative means to achieve these goals. Law, or security, can be unavailable or absent because formal institutions are ineffective, illegitimate, or both." In this context, violent self-help justice may be exercised by individuals or organized vigilante groups due to their lack of confidence in the state (Caldeira & Holston, 1999; Dawson, 2017; Schuberth, 2013). Nivette (2014) also suggested that low

legitimacy may lead citizens to withdraw commitment to state institutions, weakening control (Messner & Rosenfeld, 2007). Thus, if citizens perceive the state – and by extension the criminal justice apparatus – as illegitimate, we should expect less cooperation with law enforcement, a lower proportion of crimes reported to police, and more crime (Tyler, 2009). Recent evidence suggests an association between weak criminal justice and judicial institutions and homicide in LAC (Chainey et al., 2021; Concha-Eastman et al., 2020; Rivera, 2016).

Conversely, when the state is weak, lacks the trust of citizens, and is unable to enforce a monopoly on violence, organized criminal groups may fill the vacuum. Criminal groups can establish themselves through force or invitation from the community (Gambetta, 1996; Sharbek, 2011; Skaperdas, 2001). Nivette (2014, p. 101) stated that “where criminal justice actors and institutions are seen as unjust, unfair, and ineffective, a vacuum of power may exist, allowing for opposing value systems, illegal markets, and alternative (sometimes violent) forms of social control to move in and fulfill the need for order.” While some predatory groups rule through violence and fear (Arias, 2017; Lessing, 2021; Uribe et al., 2022), others offer quasi-state services to keep citizens content, increase legitimacy and loyalty to the group, and reduce police attention. This led some to consider criminal groups mini or informal states. Yet in filling the vacuum the goal of criminal groups is not to topple or assume the role of the state, but instead to decrease the probability that police intervention and rival group challenges interrupt their flow of income from illegal activities (Blatman et al., 2023a, 2023b; Lessing, 2021; Uribe et al., 2022).

When criminal groups govern within legitimacy gaps (Lessing, 2021) it creates among citizens a bifurcated reality of the shared monopolization of violence between state and criminal groups, which has been referred to as a non-Weberian “duopoly of violence” (Skaperdas & Syropoulos, 1997, p. 61; see also Lessing, 2021; Uribe et al., 2022). This duopoly of violence appears to be the norm across LAC, especially in urban areas (Uribe et al., 2022). The ability of

criminal groups to enforce such control is a phenomenon scholars of LAC and elsewhere refer to as criminal governance (Barnes, 2017; Feldmann & Luna, 2022; Lessing, 2017, 2021; Lessing & Willis, 2019; Mantilla & Feldmann, 2021), which occurs when “the lives, routines, and activities of those governed are impinged on by rules of codes imposed” (Lessing, 2021, p. 856).

High homicide rates are generated not simply by the presence of criminal groups but also when external forces disrupt equilibrium in an illicit market. Because the underground economy is beyond the state’s purview, violence is an inherent part of maintaining control and resolving disputes otherwise addressed via legal mediation (Goldstein, 1985; Ousey & Lee, 2007; Tuttle, 2019). When criminal groups establish complete control over an illicit market, known as *pax monopolista* (peace monopoly), or create a set of terms and agreements between criminal groups, *pax mafiosa* (peace mafia), homicide is lower due to less inter-group competition (Skaperdas, 2001; Skaperdas & Syropoulos, 1997). However, when rival groups challenge the rule of another group or when police intervention eliminates key figures in a criminal network it may trigger inter- or intra-group violence by increasing competition in the underground economy. Studies suggest a chain of events increases the chance of large-scale conflict between groups, whether as retaliation or as a preemptive tactic, “creat[ing] a self-perpetuating cycle of violence” (Katz et al., 2022, p. 3) to protect revenue streams. Unfortunately, civilians are killed in the crossfire, indirectly or directly, in the pursuit of gaining or maintaining control.

Mann’s views on state infrastructural power complement research on organized criminal groups’ ability to usurp control because of spatial and relational features (Soifer & van Hau, 2008). For example, the state’s inability to project power and evenly distribute its monopoly on violence due to geography – whether simply distance or other features like mountainous terrain – allow criminal groups to act as quasi-governments in outlying areas (Skaperdas, 2001; Skaperdas & Syropoulos, 1997; Soifer & van Hau, 2008). Inability to project power can also occur in cities

“where state infrastructural power is severely limited...and city-state power is eclipsed by social monopolies of violence exercised by gangs and drug syndicates” (Soifer & van Hau, 2008, p. 222). The state’s ability to implement policy effectively within its territory can be subject to criminal groups’ permission. A lack of infrastructural state power indicates to citizens ineffectual governance and reduces state legitimacy (Soifer & van Hau, 2008).

Given high but varying rates of political instability and dissatisfaction with governments in LAC and growing evidence that legitimacy is associated with violence, we tested the hypothesis that state legitimacy is negatively associated with national homicide rates in LAC.

Remittances and Homicide Rates

In a region with frail economies, rampant corruption, and institutional ineffectiveness (Pring & Vrushi, 2019), remittances have become lifelines for many LAC families. Official resources designated for social protection, including tax dollars and foreign aid, are insufficient and may not or only partially reach the targeted population. Many remittances are spent on the education and health of individual family members, and they indirectly contribute to institutions like education and the economy. Since poverty, economic opportunities, and education are associated with crime, we might expect remittances to be negatively associated with national homicide rates. The literature on the effects on violence rates of social protection and poverty might suggest a negative association between remittances and homicide rates in LAC nations.

Currie (1997, p. 152) argued societies that “offer few cushions against the impact of disabilities or misfortunes in the labor market and minimal public provision of social services” create a conducive environment for violent crimes. Remittances may be one of those cushions, replacing government social protection and strengthening institutions and stakes in conformity. Remittances support increased educational attainment and employment (Alcazar et al., 2012; Antman, 2012; Dean, 2008; Hassan & Faria, 2015) and the construction of community

organizations (Germano, 2018). The cash flow stimulates the economy by increasing consumption and economic opportunities, aiding the banking sector (Demirgüç-Kunt et al., 2011), increasing investment and profitability (Woodruff & Zenteno, 2007), relieving pressures on the labor market, easing income volatility, and reducing motivation for crime (Brito et al., 2014; Hassan & Faria, 2015; Kagochi & Kiambigi, 2012).

Remittances can help move a family above subsistence minimum income, buffer unexpected financial shocks, and reduce poverty (Hassan & Faria, 2015). Poverty is a structural covariate of national homicide rates (Pridemore, 2008, 2011), so if remittances reduce poverty and buffer against its adverse effects by supporting family and community institutions (Esping-Andersen, 1990; Messner & Rosenfeld, 2007; Rogers & Pridemore, 2013, 2017), then we would expect remittances to be negatively associated with LAC homicide rates. Remittances may act similarly to Conditional Cash Transfer Programs, which appear to reduce crime (Camacho & Mejía, 2013; Chioda et al., 2016; Ingram & Marchesini da Costa, 2017, 2019; Jacob & Ludwig, 2015).

There is extensive literature on the causes and consequences of remittances in the economics, political science, and public health literatures (Germano, 2018), but few studies on remittances and crime (Brito et al., 2014; Bucheli et al., 2019; Hassan & Faria, 2015; Mahesh, 2020) and none with a LAC sample. Given the role of remittances in the region and their connection to economic and social factors associated with violence, we tested the hypothesis that remittances are negatively associated with national homicide rates in LAC.

A Competing Hypothesis for Remittances and Homicide Rates. There is a competing hypothesis for remittances. Because remittances contribute substantially to many national economies in LAC, mechanisms associated with routine activities and with a reduction in institutional quality suggest a positive remittances-homicide association.

Bergman (2018) pointed out the LAC paradox in recent decades, referring to the region's declining poverty and income inequality but its abnormally high level of violence compared to other world regions. This directly contrasts with the macro-level theoretical and empirical literature on the effects of poverty and inequality on national violence rates. Bergman (2018) focuses on high violent and non-violent property crime, attributing it to the region's rise in prosperity and consumption of durable goods. As with improved economic conditions, the flow of remittances increases consumption of durable goods (Adams & Cuecuechae, 2010; Durand et al., 1996; Massey & Parrado, 1998; Yang, 2008), which are attractive crime targets. Like many other less developed nations, LAC countries have large secondhand markets that individual offenders and criminal groups partially supply through theft and robbery. López García and Maydom (2021a) found that relative to non-recipients, recipients of remittances have a higher probability of being victimized, which the authors partially attributed to using remittance income to purchase durable goods like phones and cars. Galiani et al. (2020) also found a positive association between durable goods and victimization. Although López García and Maydom did not directly examine if recipients of remittances are more likely to be victims of homicide, the theoretical connection is clear. LAC has one of the highest regional robbery rates globally and 60% of LAC robberies involve violence, some of which result in death (Bergman, 2018; Galiani et al., 2020; United Nations Office on Drugs and Crime, 2014).

Hassan and Faria (2015) provide another pathway for a positive remittances-homicide association. A high volume of remittances may not only reflect lower governance quality but reduce it further by lowering civic engagement and expectations (Abdih et al., 2012; Ahmed, 2013; Germano, 2013; Goodman & Hiskey, 2008; Grabel, 2009). Sources of remittances are not dependent on government performance and so play "a buffer role between government and citizens...reducing the incentives for citizens to monitor and hold the government accountable"

(Hassan & Faria, 2015, p. 1310). Economic development scholars make similar claims about the resource curse (Robinson et al., 2006) and the curse of aid (Djankov et al., 2008). As Moyo (2009, p. 49) stated, “with aid’s help, corruption fosters corruption, nations quickly descend into a vicious cycle of aid. Foreign aid props up corrupt governments – providing them with freely usable cash. These corrupt governments interfere with the rule of law, the establishment of transparent, civil institutions, and the protection of civil liberties.” Foreign aid and remittances are not equivalent, but both allow governments to benefit from an external source of income. Remittances alleviate citizen pressure and reduce the penalty on the state for corruption and ineptitude, and thus may reduce civic engagement and the need for the state to provide social protection. As remittances partially or wholly replace the welfare system, citizens may grow indifferent and withdraw from civic matters to attenuate their frustration with the weak state (Abdih et al., 2012; Ahmed, 2013).

We believe the opportunity argument for the competing hypothesis of a positive remittances-homicide association is more salient in the LAC context, and the institutional quality argument provides another justification for examining state legitimacy.

Data and Methods

Sample and Timeframe

Our unit of analysis was the nation-year between 2000 and 2018. We used this timeframe for two reasons. First, Third Wave democracy in LAC began in the mid-to-late 1990s after decades of civil wars and dictatorships, with Chile and Mexico achieving democracy in 1999 and 2000, respectively (Hagopian & Mainwaring, 2005; Shixue, 2010). This also includes a transitional period for many LAC nations, during which changes to state legitimacy may be especially salient. Second, by 2000 many of the informal channels used by senders of remittances had transitioned to more formal channels, resulting in greater data availability and

more accurate measurement of money sent from abroad (Gubert, 2017). The series ends in 2018, the most recent year for which data are available on critical variables.

LAC has 33 nations¹ in four geographic regions: North America (Mexico), Central America, Greater and Lesser Antilles (i.e., the Caribbean), and South America. Nations generally considered part of the region are those with languages rooted in Latin: Spanish, French, and Portuguese. We initially considered English- and Dutch-speaking nations like Belize, Guyana, Jamaica, Suriname, and Trinidad and Tobago, but eventually excluded them due to data quality. We similarly excluded the Lesser Antilles, Honduras, Bolivia, Haiti, and Jamaica due to poor data quality.² Data were missing for more than 50% of years for each of the latter nations except Jamaica, and when official data were available homicide rates were often suspiciously low, including rates less than 1 per 100,000. This is improbable, as nations like Honduras and Jamaica are known to have extremely high homicide rates (Igarapé, 2022; United Nations Office on Drugs and Crime, 2022; World Health Organization, 2022a). In general, we excluded nations due to missing or poor-quality data on homicide, Gini index, and unemployment, and because key measures for state legitimacy come from Latinobarómetro, which includes only Spanish- and Portuguese-speaking nations.³ We excluded Cuba because it did not have data on remittances or survey data from Latinobarómetro. The final sample included 16 nations: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

Missing Data. We initially estimated effects for state legitimacy and remittances separately before combining them in a single model. We used listwise deletion. For the remittances sample, of the total 304 cases (16 nations x 19 years) there were 35 cases with missing observations on at least one of the eight variables in the model. For the state legitimacy sample there were 83 cases with missing observations on at least one of the variables. There are

more missing data for the latter sample because Latinobarómetro data were not reported for 2012 and 2014, the political instability index was not available for 2001, and there were sporadic missing items for some nations, like the Dominican Republic and Venezuela.

Dependent Variable

We obtained data on national homicide rates from the World Health Organization (2022a), using the International Classification of Diseases 10th revision raw data files.⁴ WHO is the most reliable cross-national homicide data source (Rogers & Pridemore, 2023). WHO defines homicide as death due to “injury purposely inflicted by other persons.” It is categorized as X85-Y09 in the ICD-10th revision. These categories do not include killings by law enforcement or deaths due to terrorism (World Health Organization, 2022b). We calculated rates using the nation’s population as the denominator (United Nations, 2022) and then multiplying by 100,000.

Main Independent Variables

State Legitimacy

We used Power and Cyr’s (2010; see also Gilley, 2006) state legitimacy scale because they contextualized the concept to LAC. There are three sub-indexes in this scale: views of legality, views of justification, and acts of consent.⁵ To create these indexes we standardized and summed their items, weighting each equally to create the legitimacy scale,⁶ for which $\alpha = 0.80$, which is above the generally accepted threshold of 0.70 (DeVellis, 2011).

We used Latinobarómetro (2022a, 2022b) to measure views of legality. Two questions gauge confidence in the judiciary and police. The first asks “Would you say you have a lot, some, a little or no confidence in the police?” The second asks “Would you say you have a lot, some, a little or no confidence in the judiciary?” For both, we used the proportion of respondents who answered “a lot” and “some” to measure citizens’ views of legality. Power and Cyr (2010) used a third item that measured enforcement of laws by the state, but we did not use this item due

to a large number of missing observations for these nation-years from Latinobarómetro. There were no suitable substitutes that covered the timeframe of our study.

We used Latinobarómetro and World Bank data to measure views of justification. We used three items to operationalize “the idea that the state has acquired and exercises political power in a way that accords with citizen views about the laws, rules, and customs” (Gilley, 2006, p. 502). Latinobarómetro (2022c) measures regime preference, asking “With which of the following statements do you agree most?” We used the proportion of respondents who answered “Democracy is preferable to any other kind of government.”⁷ A second item gauges satisfaction with democracy, asking “In general, would you say you are very satisfied, quite satisfied, not very satisfied, or not at all satisfied with the working of the democracy in [country]?” We used the proportion of respondents answering “very satisfied” and “quite satisfied” (Latinobarómetro, 2022d). The last item, which addresses political stability and absence of violence and terrorism, was from the World Governance Indicators (2022). This index captures the presence of violent conflict,⁸ ethnic tension, likelihood of volatile change in a nation’s institutions, or unconstitutional changes in government. The index ranges from -2.5 (weak) to 2.5 (strong). The final Power and Cyr item was a rating of public institutions, but we did not use this due to a large number of missing observations on these items from the Latinobarómetro for our nation-years. There were no suitable substitutes that covered the timeframe of our study.

Others have used two items to measure acts of consent. One is voter turnout, but data on this for our sample were overwhelmingly missing, so we did not use this measure. The other measure is total taxation revenues as a percentage of the nation’s Gross Domestic Product. We obtained these data from the Organization for Economic Co-operation and Development (2022).

Remittances

We obtained data on remittances from the World Bank (2022a), whose definition includes two parts, personal transfer and compensation. The former is a cash transfer to another resident or nonresident household. The latter refers to payment to a migrant worker or employee working abroad for an international organization, embassy, or transnational corporation. The former more closely aligns with our theoretical concept and thus we used it. Scholars standardize remittances across nations in two ways. The first is remittances as a percentage of the nation's GDP, and the second is remittances per capita. The latter is most common and we used it here.

Control Variables

We included several controls based on the cross-national homicide literature. The first was poverty, for which we employed the commonly used proxy of infant mortality (World Bank, 2020b). We obtained data on income inequality from the Standardized World Income Inequality Database (SWIID) (2022). SWIID estimates the Gini coefficient of income inequality in two ways, disposable income and market-income inequality. We used the latter because Solt's (2020) analyses suggested it is a better estimate across countries and over time. We controlled for general economic well-being using GDP per capita in current US\$ (World Bank, 2022c). We controlled for urbanism using the proportion of a nation's population living in urban areas (World Bank, 2022d). We included controls for the proportion of the male population between the ages of 15 and 24 (World Bank, 2022e, 2022f) and for the percentage of the labor force unemployed (World Bank, 2022g). Finally, we controlled for education using information from the Human Development Index, which combines adult literacy rates with primary, secondary, and tertiary gross enrollment rates (United Nations Development Program, 2022).

Empirical Model

We used panel two-way fixed effects models to test the three main hypotheses. We first estimated effects separately for state legitimacy and for remittances, controlling for the other structural covariates, and then included both in the same model. The models were as follows:

$$\text{Ln}(\text{homicide}_{it}) = \beta_0 + \beta_1 \text{State Legitimacy}_{it} + \beta_3 \mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

$$\text{Ln}(\text{homicide}_{it}) = \beta_0 + \beta_1 \text{Remittances}_{it} + \beta_3 \mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

$$\text{Ln}(\text{homicide}_{it}) = \beta_0 + \beta_1 \text{State Legitimacy}_{it} + \beta_2 \text{Remittances}_{it} + \beta_3 \mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

$\text{Ln}(\text{homicide}_{it})$ is the natural logarithm of the homicide rate for nation i and year t . A series of tests (e.g., Tukey's Ladder, QQ plot, Quantile-Normal plots by transformation, skewness and kurtosis tests, and Shapiro–Wilk W test) indicated the distribution of homicide rates was highly skewed and that the natural logarithm was the best transformation for normalizing the distribution. β parameters represent the main independent variables, state legitimacy and remittances. \mathbf{X}_{it} is the vector of time-varying nation-level variables, α_i and γ_t are unit and time fixed effects, which account for unit-specific (time-invariant) and time-specific (unit invariant) unobserved confounders. ε_{it} is the error term. Heteroscedasticity and serial correlation are common with these types of data and designs, and they were present in all our models. Thus, as per Stock and Watson (2008), we used heteroscedasticity-robust standard errors. Our model was overfitted when a time-fixed effect was included. To resolve this we shortened the time interval to 2000-2016 and used 4-year averages for the periods 2000-2003, 2004-2007, 2008-2012, and 2013-2016. When creating these averages, we ignored any years with missing data.

Results

Descriptive Statistics

Table 1 shows mean annual values for homicide, state legitimacy, and remittances by nation between 2000 and 2018 for 33 nations in the LAC region. This is for illustrative purposes

only as we did not include all these nations in our analyses as we described above. Peru had the lowest mean homicide rate at 1.1 per 100,000 residents, and El Salvador the highest at 48.5. The highest mean legitimacy score (range of 1-10) was 8.9 in Uruguay, and the lowest was 2.1 in Guatemala.⁹ El Salvador had the highest mean remittances as a proportion of GDP at 18.7%, and Chile the lowest at 0.02%. Table 2 shows descriptive statistics for the 16 nations we used in our models for all variables at the beginning, midpoint, and end of our time series. The mean national homicide rate nearly halved between 2009 and 2018, though remained above 10 per 100,000 in 2018. Bivariate correlations for homicide with legitimacy and remittances were -0.24 and 0.48, respectively. The bivariate correlation for legitimacy and remittances was -0.23. Figures 1a-c provide choropleth maps of homicide, state legitimacy, and remittances for the midpoint of our time series.

Panel Fixed Effects Models

Table 3 provides results for models with state legitimacy and remittances separately and then together, holding all other variables constant and accounting for unit and time fixed effect unobserved heterogeneity. Model 1 shows a significant negative association between state legitimacy and homicide, with a one-unit increase in legitimacy associated with a 0.07 unit within-nation decline in the natural logarithm of the homicide rate ($p = .0001$). Model 2 shows a significant positive association between remittances and homicide, with a one percent increase in remittances associated with a 0.12 unit within-nation increase in the natural logarithm of the homicide rate ($p = .001$). Model 3 includes both main variables, controlling for all other covariates. Results show that both legitimacy ($\beta = -0.04$, $p = .006$) and remittances ($\beta = 0.10$, $p = .001$) remain significant and their effects sizes remain similar to those in Models 1 and 2.¹⁰

Discussion

This study provides key contributions to the theoretical and empirical literatures on regional and cross-national homicide rates. We focused on Latin America and the Caribbean, a region with distinct structural and cultural characteristics, disproportionately high interpersonal violence rates, and yet limited space in the criminological literature (Escaño & Pridemore, 2023; Nivette, 2016; Rivera, 2016). We employed panel models for the first two decades of the 21st century – a critical period of change and development in LAC – to examine effects on homicide of social forces that appear particularly relevant to the region. This purposive sampling allows us to contextualize our findings within the region’s historical, economic, and political landscape over time. Our results have implications for understanding variation of homicide rates in LAC nations, for the cross-national homicide literature more generally, and for moving beyond the usual suspects of traditional theories and oft-tested variables.

State Legitimacy

We found that state legitimacy is inversely associated with homicide rates in LAC nations over time. Thus, the state’s actions, the quality of its services, and citizens’ confidence in its institutions are important for maintaining social order. Although many scholars argued for the centrality of state legitimacy in understanding social order and its relation to interpersonal violence (Bottoms & Tankebe, 2012; LaFree, 1998; Tyler, 1990), only in recent years has cross-national empirical research addressed this systematically. Our results support prior theorizing and findings on the legitimacy-violence association (Dawson, 2017; Nivette, 2012, 2014, 2016; Nivette & Eisner, 2013; Yasar, 2018). Creating and nurturing effective state institutions bolsters the instruments of social control (Nivette & Eisner, 2013). There are multiple pathways through which this association may operate that seem relevant to LAC nations.

In the context or perception of a weak state unable to respond justly or effectively to victims of crime, citizens and organized vigilante groups may utilize violence as a form of self-

help justice to respond to transgression (Nivette, 2016). Due to state inaction, for example, cartel violence in Mexico led to the rise of self-organized armed groups – classified as indigenous policing by some (Goldstein, 2012) – willing to use violence against criminal groups. There are many examples in other LAC nations (Feldmann & Luna, 2022; Lessing, 2021; Lessing & Willis, 2019; Ley et al., 2019; Mantilla & Feldmann, 2021; Moncada, 2022; Nivette, 2016; Phillips, 2017; Wolff, 2020). These vigilante groups, sometimes referred to as death squads, are often far from righteous and can include the practice of *limpieza social*, or social cleansing, which is the systematic killing of “undesirable” members of society like members of criminal groups, individuals experiencing substance addiction, and rapists (Mazzei, 2009; Nivette, 2016).

Following the democratization of LAC in the 1990s, violence shifted from an old school (e.g., civil war, dictatorship, insurgency) to a new school pattern of violence dominated by criminal groups. This new pattern of insecurity identifies the role of criminal non-state actors and the illicit market as the main drivers of homicide in the region (Schultze-Kraft et al., 2018; Vilata, 2020). Political scientists and LAC specialists have more carefully conceptualized criminal governance in the past decade to understand how criminal groups operate in this region. While not a monolithic phenomenon (Arias, 2017), these groups regulate “social order, including informal or illegal economies through the establishment of formal and informal institutions that replace, complement, or compete with the state and distribute public goods such as social services, justice, and security” (Mantilla & Feldmann, 2021, p. 2). According to research, 12-16% of LAC residents live under criminal governance and more than half reported criminal group presence (Uribe et al., 2022).

Criminal groups’ main motive is to maintain revenue streams from the underground economy. Since the illicit economy is outside of the state’s regulation and absence of any legal mediation, violence is a common mode of addressing territorial disputes, expansion, and

maintaining power (Durán-Martínez, 2015; Lessing, 2015; Sydner & Durán-Martínez, 2009). Given the influence, presence, and power of criminal groups in the region, many LAC governments have adopted a tough-on-crime approach, colloquially known as *mano dura* (iron fist), to respond to the rise of crime and criminal organizations. Research suggests that this policy has been counterproductive and produced adverse consequences in multiple ways, including increasing violence in nations like Brazil, Colombia, El Salvador, Honduras, and Mexico (Cruz, 2011, 2022; Durán-Martínez, 2018; Escaño et al., 2023; Hume, 2007; Katz et al., 2016; Katz et al., 2022; Lessing, 2017; Rodgers & Muggah, 2009; Rosen & Cutrona, 2023). Scholars argue that the fragmentation of large criminal groups – as a result of large-scale get-tough state interventions – increases the chances of escalating competition due to inter- and intra-group clashes to seize, maintain, and expand their sphere of influence over revenue sources like trafficking routes (Durán-Martínez, 2015, 2018; Escaño et al., 2023; Lessing, 2015). This phenomenon is referred to as the more civil government-more violence paradox (Vilata, 2020).

Research also shows that a symbiotic relationship between the government and criminal groups reduces the chances of large-scale conflict between groups and against the state. In Mexico, for instance, as the single-party rule of the Institutional Revolutionary Party (PRI) began to crumble in the late 1990s and early 2000s, “so too did this state-sponsored protection racket and the highly conditional repression that supported it” (Lessing, 2017, p. 203). By 2006, President Calderon began to use brute force against the groups, disrupting the “*pax mafiaso*,” also referred to as “*pax prista*,” leading to criminal group fragmentation, heightened competition, and greater violence (Trejo & Ley, 2020). Researchers have also found major homicide reductions in places like Medellín, Colombia, and El Salvador due to *pax mafiaso* and state-brokered gang truces. In some cases, the decline in violence may be due to a set of norms and chain of communication to de-escalate potential conflict (Cruz & Durán-Martínez, 2016;

Escaño et al., 2023). In other cases, some criminal groups have gained total dominance over the underground economy through force, creating a *pax monopolista*. One example of this is the gang First Capital Command in São Paulo, Brazil, and research found the gang's *monopolista* contributed to the "Great São Paulo Homicide Drop" (Biderman et al., 2019).

In the context of low state legitimacy, weak institutions that are ineffective, act unfairly, and do not abide by rule of law create a generalized disregard for law and criminal justice institutions. Citizens are more likely to obey the law if they perceive the state's use of authority as just (LaFree, 1998; Nivette, 2014; Tyler, 1990, 2009). In LAC, "systematic failure of newly formed democracies to secure citizens' rights means that statelessness is disproportionately felt among the poor" (Nivette, 2016, p. 146) and marginalized communities, increasing the likelihood that these populations employ violence as self-help and recognize the legitimacy of criminal governance in the face of ineffective state governance (Caldeira & Holston, 1999; Godoy, 2004; Goldstein, 2007; Schubert, 2013).

Many parts of LAC have transformed into lawless areas, what O'Donnell (1993) referred to early on as the 'brown area,' with a very low or no degree of functional and territorial state presence and where violence is common. O'Donnell's observations mesh with the key spatial and relational elements of state infrastructure power (Soifer & van Hau, 2008). Spatially, LAC contains challenging terrains, from the Amazon rain forest, large deserts, jungles, the mountainous terrains of the Andes, major river basins, and the notorious Darién Gap. As with insurgency groups, these tough terrains prolong aid criminal groups (Ingram, 2014). In urban areas, state security must deal with a different type of tough terrain, large swathes of informal settlements. Up to 25%, or 160 million people, live in informal settlements in LAC (Muggah, 2018). It is dangerous for law enforcement to enter these rural and urban spaces, and when they do clashes with criminal groups often occur, reducing the likelihood of arrest and prosecution of

criminal group members (Chainey et al., 2019; Chainey & Muggah, 2019; Rivera, 2016). Thus, the lack of cohesion in the state security apparatus decreases its ability to effectively implement policies and services within its own territory, raising the chances of violence between criminal groups when competition increases (Durán-Martínez, 2015, 2017; Vilalta, 2020).

Finally, there are a few methodological aspects that strengthen our analysis of the legitimacy-homicide association in the LAC context. One is its longitudinal design. Nivette and Eisner (2013) argued for greater use of longitudinal designs to strengthen inferences about state legitimacy in cross-national analyses. This is critical in LAC because several nations experienced key transitions over the last three decades, since the third wave of democratization, that affected state and institutional legitimacy perceptions. This includes multiple unsuccessful and successful coups. Many nations that indicated early signs of a promising democracy became hybrid or autocratic regimes. Many nations have endured economic collapses like loan defaults to international banks, high inflation, and capital flight. The negative economic impact has been blamed on poor leadership, institutions, and neo-liberal economics. An additional adverse consequence of this is the rise of leftist populism, known as the pink tide, and tough-on-crime right-wing populism. Another consequence was high levels of emigration, especially of citizens with greater human capital. Luckily some LAC nations like Chile, Uruguay, and Costa Rica experienced relative stability (Ellner, 2019; Franko, 2018; Kehoe & Nicolini, 2022; Rodríguez, 2021; Weyland, 2019, 2021).

Another strength is our focus on nations. How self-help justice or criminal governance is manifested in LAC varies widely throughout the region. Uneven state infrastructural power, for example, can allow non-state actors to emerge and solidify territorial control through a shared duopoly of violence. The many variations is why Feldmann and Luna (2022) stressed the importance of national-level analyses of crime in the region. Most studies are at the urban level,

but this overshadows the broader implications of the various forms of criminal governance and groups in other geographic settings like rural and border zones.

Third, we believe our measures of state legitimacy – drawing on Power and Cyr (2010), who in turn drew on Gilley (2006, 2009) – are better indicators of this theoretical concept in the region compared to the single measures of legitimacy used by others and to other data types. Still other studies focused directly on weak justice systems in LAC but did not account for temporal change or the multiple dimensions of state legitimacy. We measured those multiple dimensions – legality, justification, and consent – with several attitudinal and behavioral indicators.

Remittances

The theoretical literature offers competing hypotheses about the effects of remittances on violence rates, and the few studies in the empirical literature similarly reveal contradictory results. Mahesh (2020) found a positive association with robbery in India, but Brito et al. (2014) found a negative association with robbery in Mexico. Brito et al. found a negative effect, but Bucheli et al. (2019) a positive effect, on homicide in Mexico, with the latter attributing it to remittances increasing inequality. Other research suggests simultaneous effects, with higher homicide rates possibly reducing remittances to Mexico and Colombia (Meseguer et al., 2017; Vargas-Silva, 2009). We are among the first to test the remittances-homicide association with a longitudinal design. Our results contribute to multiple theoretical and contextual issues like social protection and poverty reduction (Cullen, 1994; Rogers & Pridemore, 2013) and to competing hypotheses about the effects of remittances from the economic development, political science, and LAC area studies literatures.

We found a positive association between remittances and homicide rates. This runs contrary to the main hypothesis about this relationship. Hassan and Faria (2015), for example, found a negative association in a cross-national analysis with a broader set of nations. Although

the authors provided a well-suited argument, some differences and limitations may explain their results. First, the authors employed a cross-sectional design and were unable to capture temporal variation. Second, their sample included a mix of least to highly developed nations, but it is unclear how remittances might influence violence in the latter. Third, they used a global sample of nations, while we focused on LAC. Large global samples are important but can mask regional homicide trends and causes that depart from global patterns. Fourth, Hassan and Faria included several control variables uncommon in cross-national homicide research, and they omitted covariates commonly found to be associated with homicide rates. Lastly, the authors appear to have used the imputed homicide estimates from WHO's *Global Burden of Disease*, which presents serious limitations to these models (Kanis et al., 2017; Rogers & Pridemore, 2023).

Conversely, Hassan and Faria also discussed Abdih et al.'s (2012) ideas about remittances and corruption to provide an alternative hypothesis relevant to the positive remittances-homicide association we found. Like foreign aid and resource curse theories, the authors argued remittances may present unintended consequences. This is part of a more general public moral hazard problem. Evidence shows remittances can produce a range of negative outcomes for recipient nations (Ebeke, 2012; Grabel, 2009). If remittances reduce institutional quality and produce less effective social services because the state faces less pressure from and is held less accountable by citizens, then remittances may increase crime via mechanisms like those responsible for the legitimacy-homicide association. While we did not fully test this indirect association because it would require a different set of institutional measures than we used here, in preliminary models we found no effect of remittances on legitimacy in our sample, and an interaction term with the two revealed a non-significant association with homicide. Similarly, this would not seem to be the only explanation because our remittances-homicide association held when controlling for legitimacy. Prior results also suggested this theoretical framework may

not be applicable in the LAC context. For example, while López García and Maydom (2021a, 2021b) pointed out how remittances may reduce civic engagement, they found that security and criminal victimization are major concerns for citizens in LAC nations and that citizens are heavily involved in political processes related to such security. Among other things, the authors found that recipients of remittances were more supportive than non-recipients of vigilantism, military intervention, and police bending the law to apprehend criminals. Still, given the global literature on this topic, future research should employ measures of corruption and effective government (Crocì & Chainey, 2023) and similar to more formally test this hypothesis.

We believe López García and Maydom (2021a) provide a more salient lens for the positive remittances-homicide association we found in LAC. Recipients of remittances have a higher probability of robbery victimization, due partially to their ability to afford durable goods. Greater availability of durable goods via by the secondhand market creates opportunities for robberies, which is heightened due to poor citizen security and active black markets in LAC. Similarly, cash remains the modal form of payment for LAC consumers relative to digital payments, and research revealed an inverse relationship between cashlessness and crime, including for theft, burglary, and assault in the U.S. (Wright et al., 2017) and robbery cross-nationally (Pridemore et al., 2018). Thus, to the extent remittances are held and spent in cash it may increase national crime rates. The effect on homicide in LAC can be meaningful, as research showed the incidence of homicide during robbery is 15-20 times higher in LAC than in developed nations (United Nations Office on Drugs and Crime, 2019) and the proportion of robberies leading to homicide is two-thirds higher than the world average (Galiani et al., 2020). Bergman's (2018) more money more crime LAC paradox is relevant here, so that even when remittances reduce poverty (a covariate of national violence rates) it does not necessarily translate to a homicide rate reduction.

Despite our findings, the positive effects of remittances on poverty reduction and other social and economic outcomes for families and communities in LAC nations should not be discounted. Remittances were also a vital income source in LAC during the COVID-19 pandemic. Although there was a dip in remittances in the first quarter of 2020, they rebounded by the second quarter. The importance of remittances in this region during the global pandemic was evident in 2021, which broke the record for most remittances received in a year. Most of the motivation was to mitigate the socioeconomic impacts of the pandemic by acting as a substitute for many nations' inadequate welfare systems and a series of natural disasters (Orozco & Martin, 2022). While often a key resource in LAC economies, remittances are not unique to the region and a better understanding of their effects here will help criminologists, economists, development scholars, and others understand the phenomenon in other parts of the world.¹¹

Limitations

We were unable to include all LAC nations, and included only one Caribbean nation, due to missing data. A common official definition of LAC includes only 21 nations, however, and our models included 16 of those core nations. Further, several missing nations possess (1) ineffective institutions unable to provide consistent and reliable population data (and are thus likely low on state legitimacy) and (2) high homicide rates (e.g. Honduras, Jamaica, Panama, Trinidad and Tobago). Thus, given the inverse association between legitimacy and homicide in our sample, excluding these nations from our sample likely makes our estimates conservative. Even with complete data this analysis would not have been possible with a traditional cross-sectional design due to the small number of nations in the region, but our longitudinal design allowed us to test these important hypotheses in this understudied region. Second, our results are generalizable only to the LAC region. It is likely, however, that many less developed nations worldwide share similarities with LAC on issues related to state legitimacy and remittances, so

our findings suggest testing the association elsewhere. Third, any within-nation geographic variation on homicide rates and on our primary independent variables is masked in our national-level analyses. Sub-national studies could be informative for both hypotheses, though data on the sub-national distribution of remittance flows and local perceptions of legitimacy are sparse.

While fixed effects models remove omitted variable bias, potential endogeneity remains due to simultaneity.¹² The level of violence in a nation could influence both perceptions of legitimacy (Dawson, 2017) and the desire or necessity to work abroad (McKenzie & Sasin, 2007). Instrumental variables can sometimes be used to address these issues, but we lack readily available instruments in this case and encourage further examination of this issue in the future.

There are limitations with defining, operationalizing, and measuring state legitimacy, and within criminology there is debate about how to measure institutional legitimacy (Bottoms & Tankebe, 2012; Eisner & Nivette, 2013; Tankebe, 2013). As we stated above, we believe our multiple-dimension multiple-indicator measures of legitimacy are superior to single indicators used in other studies, though we were still only able to use six of the nine items from the original state legitimacy scale due to missing data and lack of a suitable substitutes for missing items.

Measurement error is a common concern for scholars studying remittances (Gubert, 2017; de Luna Martinez, 2005; McKenzie & Sasin, 2007). National capacity to track remittances may be positively correlated with more generalized institutional capacity. In fact, due to missing data we dropped a handful of nations (e.g., Honduras, Jamaica, and Trinidad and Tobago) known to have high remittances and low state legitimacy (and high homicide rates). However, means of tracking remittances began to transition from informal to formal channels by 2000 due to technological advancements. Moreover, the ability to track remittances significantly increased following the 9/11 terrorist attacks in the US as law enforcement agencies began to target informal remittances transactions to disrupt funding and operations of terrorist and criminal

groups (Gubert, 2017). And as de Luna Martinez (2005) pointed out, relative to other parts of the world LAC central banks have the greatest ability to track data sources on remittance inflow.

Finally, LAC is not a monolith. Although we are not treating LAC as a dummy variable, there are clear differences between and often within these nations culturally, economically, politically, and historically. LAC nations do share many characteristics along these dimensions, however, and it is reasonable and important to examine the region independently, especially given the high violence rates and the limited literature on LAC within criminology.

Conclusion

There has been a proliferation of cross-national homicide studies in the last decade (Rogers & Pridemore, 2023). The literature on Latin America and the Caribbean, however, remains relatively scarce even though several of its cities, nations, and the region itself exhibit some of the highest violence rates in the world. During the 2000-2018 period of our study the mean annual homicide rate in all LAC nations was nearly 18 per 100,000 residents. We need more research to understand both region-specific and more general structural covariates of violence and to overcome the recent critiques by LaFree (2021) and Messner (2021) that we have made only modest progress in developing comprehensive explanations of crime from what we have learned from cross-national and comparative research.

Our study provides important contributions by examining effects of state legitimacy and monetary remittances on national homicide rates in LAC. While these structural covariates are seldom tested in the cross-national literature, both social forces are salient in the region for many reasons, including potentially for violence. Employing a longitudinal design with nearly two decades of data during a period of sweeping changes in LAC, our results are clear. State legitimacy is negatively and remittances positively associated with LAC within-nation homicide rates over time. The effect of state legitimacy is likely due to (1) less respect for the law and for

criminal justice institutions due to their ineffective and arbitrary actions, (2) the use of violence by citizens as a response to transgressions because they cannot count on the justice system, and (3) the proliferation of organized criminal groups, and even criminal governance, in the face of a weak state with low legitimacy. The effect of remittances could be due to multiple factors, but a key reason is opportunity. More remittances create greater demand for valuable durable and other goods. In a vicious cycle, these goods are attractive targets for robbery and burglary, especially by those who help supply secondhand markets where such goods are bought and sold, sometimes in dangerous circumstances. This is exacerbated in what are still largely cash economies.

LAC deserve greater research focus in criminology, and purposive sampling provides a rich theoretical and interpretive lens by considering sociocultural, geographic, political, economic, and historical conditions. The cross-national literature on crime and violence requires more consideration of new ideas beyond those related to traditional theories, which have received limited support, and to poverty and inequality, which have dominated the discussion in recent years. Our study begins to address both gaps. Our findings provide compelling contributions for multiple fields and theories, and for future research on LAC, cross-national violence, other nations and regions facing similar circumstances, and the causes and consequences of state legitimacy and monetary remittances.

Endnotes

¹ The definition of LAC is contested by area specialists. Some argue that non-Spanish- or non-Portuguese-speaking nations should be excluded due to linguistic, cultural, and political differences. While French-speaking, Haiti is sometimes excluded. English-speaking nations in the Caribbean – Belize, Guyana, Jamaica, and Trinidad and Tobago – are sometimes defined as the West Indies and not part of LAC due to their similarities in language, culture, politics, and overwhelmingly African diaspora (Colburn, 2002).

² Sovereign nations of the Lesser Antilles are Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines. Other islands are not sovereign nations or are territories of other nations.

³ An initial remittances-only model contained 19 nations because it was not dependent on Latinobarómetro data. Due to missing data, however, the additional nations added only 24 nation-year observations. Results for that model were substantively the same as with 16 nations, so we present the latter for the remittances-only model to remain consistent with the other two models.

⁴ Our homicide estimates are the raw data from the WHO Mortality Database, not those from WHO's Global Health Observatory, for which WHO imputes estimates (Kanis et al., 2017; Rogers & Pridemore, 2023).

⁵ We believe we are the first to analyze each of these three dimensions separately. We did so because of the immense variation in legitimacy in the LAC region between and within nations over time, and because each dimension could plausibly exhibit independent effects on homicide rates. These results, available from the authors, revealed no significant effects on homicide rates of these individual subtypes.

⁶ Gilley (2006) produced three state legitimacy scores: unweighted, weighted, and attitudinal. Unweighted scores treat each subtype equally. Gilley (2006, p. 510) argued, however, that views of justification should be overweighted because it “underwrites the laws and rules that govern so much of the rest of social and economic life.” For his legitimacy scale he weighted justification 50% and legality and consent 25% each. We agree with this assessment in principle, but also believe arguments about weighting, especially the exact 50-25-25 weights, require more evidence and thus we weighted each index equally. For our attitudinal scale, $\alpha = 0.75$, but we did not use it because, as others noted (Nivette & Eisner, 2013; Gilley, 2006), it does not contain an item for views of consent to complete the legitimacy scale.

⁷ The other responses are “In some circumstances, an authoritarian government may be preferable,” “To people as one, we do not care about a democratic regime or an undemocratic one,” “Does not know,” and “Does not answer” (Latinobarómetro, 2022c).

⁸ This index does not include homicide and thus does not share information with our outcome variable.

⁹ We transformed the data here to a 1-10 scale for conceptual ease of understanding. We used the original scale values for our analyses.

¹⁰ We conducted a series of post-estimation tests on the normality of residuals. In all three models, residuals were normally distributed. The HDI variance inflation factor was elevated, but results were substantively the same for all variables whether HDI was included or excluded, and thus we retained it in the model.

¹¹ As an aside, our results show that poverty and income equality, structural factors commonly associated with national homicide rates, were non-significant. These results may tap into two themes. Substantively, this may be indicative of the so-called LAC paradox for income inequality and poverty (Bergman, 2018) that we mentioned earlier. Other scholars also found

these two variables were not associated with homicide in the region (Chainey et al., 2021; Elias et al., 2022; Navas & Navas, 2022; Ponce et al., 2021; Rivera, 2016). Methodologically, we used panel fixed effects models, and many structural variables - including poverty and income inequality - are often unassociated with homicide rates within nations in longitudinal models.

¹² Omitted variable bias could occur in remittances when migrants self-select based on unobservable characteristics like crop failure, sound economic policy, etc. (McKenzie & Sasin, 2007). Selection bias on remittances may result from differences in who is likely to migrate. Healthier, more educated, and wealthier households, for example, may be more likely to migrate (McKenzie & Sasin, 2007). In the LAC region, however, there is large variation between nations and types of migrants in terms of education and socioeconomic background (Fajnzylber & López, 2008).

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Table 1 Mean Annual Homicide Rate, State Legitimacy, and Remittances in 33 LAC Nations, 2000-2018

Nation	Homicide Rate	State Legitimacy	Remittances
Antigua & Barbuda	3.22	—	1.92%
Argentina	4.67	5.31	0.14%
The Bahamas	24.68	—	
Barbados	8.64	—	3.14%
Belize	25.10	—	4.61%
Bolivia	9.09*	4.29	3.89%
Brazil	29.84	4.60	0.21%
Chile	3.90	6.61	0.01%
Colombia	43.20	3.54	1.90%
Costa Rica	7.78	6.71	1.43%
Cuba	5.16	—	—
Dominica	7.58	—	5.86%
Dominican Republic	7.18	5.01	7.87%
Ecuador	12.10	3.81	4.30%
El Salvador	48.54	4.42	18.65%
Grenada	3.17	—	4.26%
Guatemala	27.37	2.08	10.62%
Guyana	11.97	—	9.68%
Haiti	20.77*	—	13.54%
Honduras	63.85*	4.14	16.05%

Nation	Homicide Rate	State Legitimacy	Remittances
Jamaica	47.28*	—	15.07%
Mexico	13.00	2.61	2.19%
Nicaragua	6.99	4.16	9.17%
Panama	13.96	4.37	1.01%
Paraguay	9.89	2.14	1.64%
Peru	1.10	2.88	1.61%
Saint Kitts & Nevis	24.81	—	4.69%
Saint Lucia	15.52	—	2.19%
Saint Vincent & the Grenadines	17.98	—	4.43%
Suriname	4.82	—	0.55%
Trinidad and Tobago	26.77	—	0.56%
Uruguay	5.08	8.91	0.28%
Venezuela	31.05	4.81	0.26%

Nations with * did not have non-imputed homicide data from the WHO Mortality Database, so in this table we show the average annual homicide rate using the imputed data from WHO's Global Health Observatory. This is solely to provide information about their level of violence. In all analyses we used only nations with non-imputed homicide values from the WHO Mortality Database.

Table 2 Descriptive Statistics for 16 Nations in Analysis in 2000, 2009, and 2018

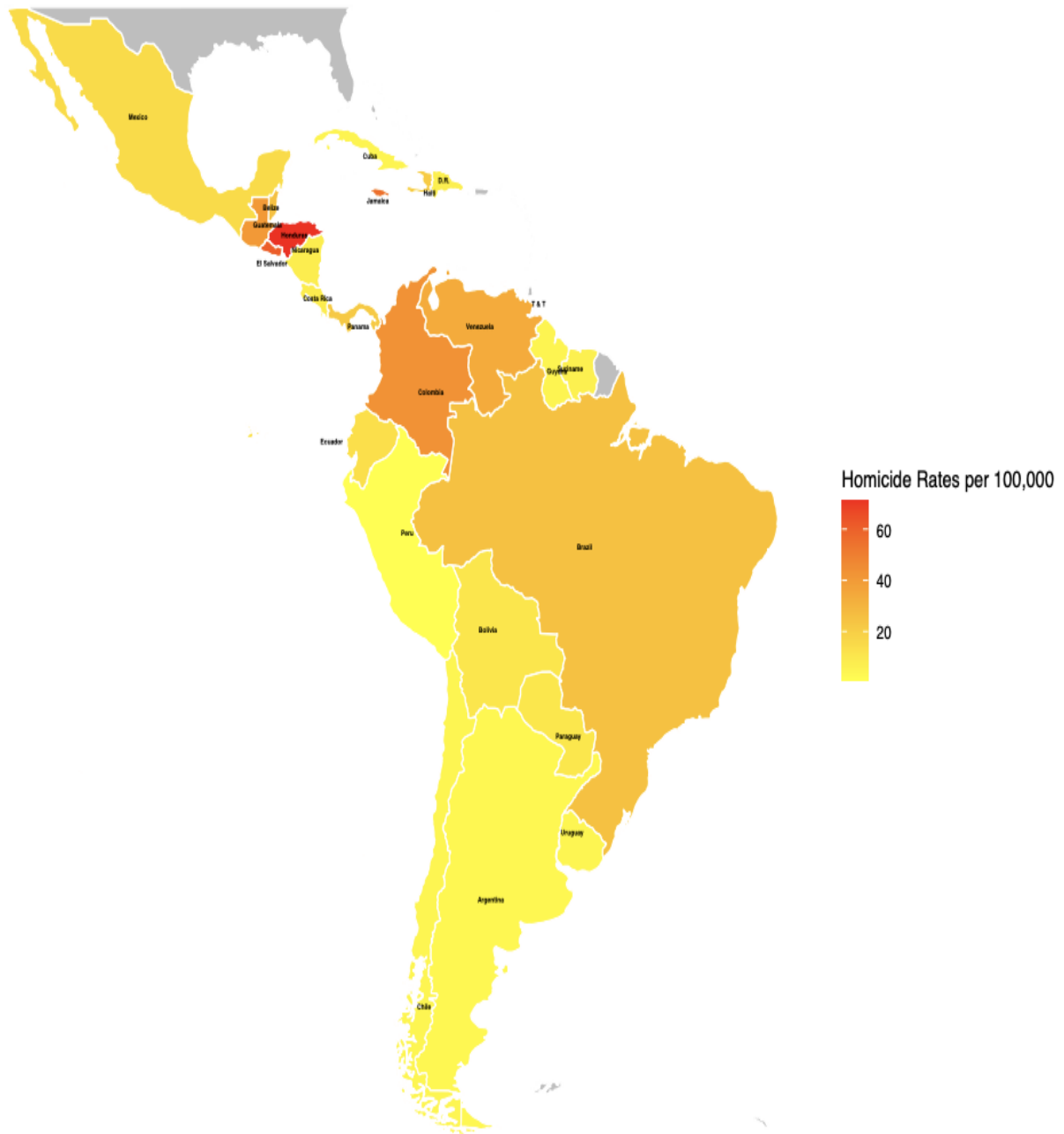
Variable	2000		2009		2018	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Homicide rate	17.29	19.25	19.00	17.40	10.17	8.52
Log homicide rate	2.34	1.04	2.49	1.06	2.00	0.90
State legitimacy	0.27	4.08	0.83	4.33	1.40	3.82
Legality	0.31	1.53	0.001	1.47	1.74	1.88
Justification	0.55	2.55	0.94	2.57	-0.88	1.98
Consent	-0.57	0.73	-0.10	0.92	0.26	1.02
Remittances	3.07	4.20	3.90	5.30	4.41	6.13
Infant mortality	23.83	8.43	17.15	6.11	13.31	5.30
Gini index	48.00	3.44	44.91	3.21	42.72	4.17
Percent urban	69.73	14.37	73.38	13.40	76.46	12.82
Percent young male	19.41	1.37	19.16	1.53	17.75	1.89
GDP per capita	3649.03	2160.69	6241.94	3013.16	9174.55	4825.92
Unemployment	9.45	5.13	7.21	2.19	6.24	2.95
Education	0.68	0.06	0.72	0.06	0.76	0.05

Note: State legitimacy, legality, justification, and consent are displayed as Z-scores.

Table 3 Two-Way Fixed Effects Models for Natural Logarithm of Homicide Rate Regressed on State Legitimacy and Remittances in LAC Nations

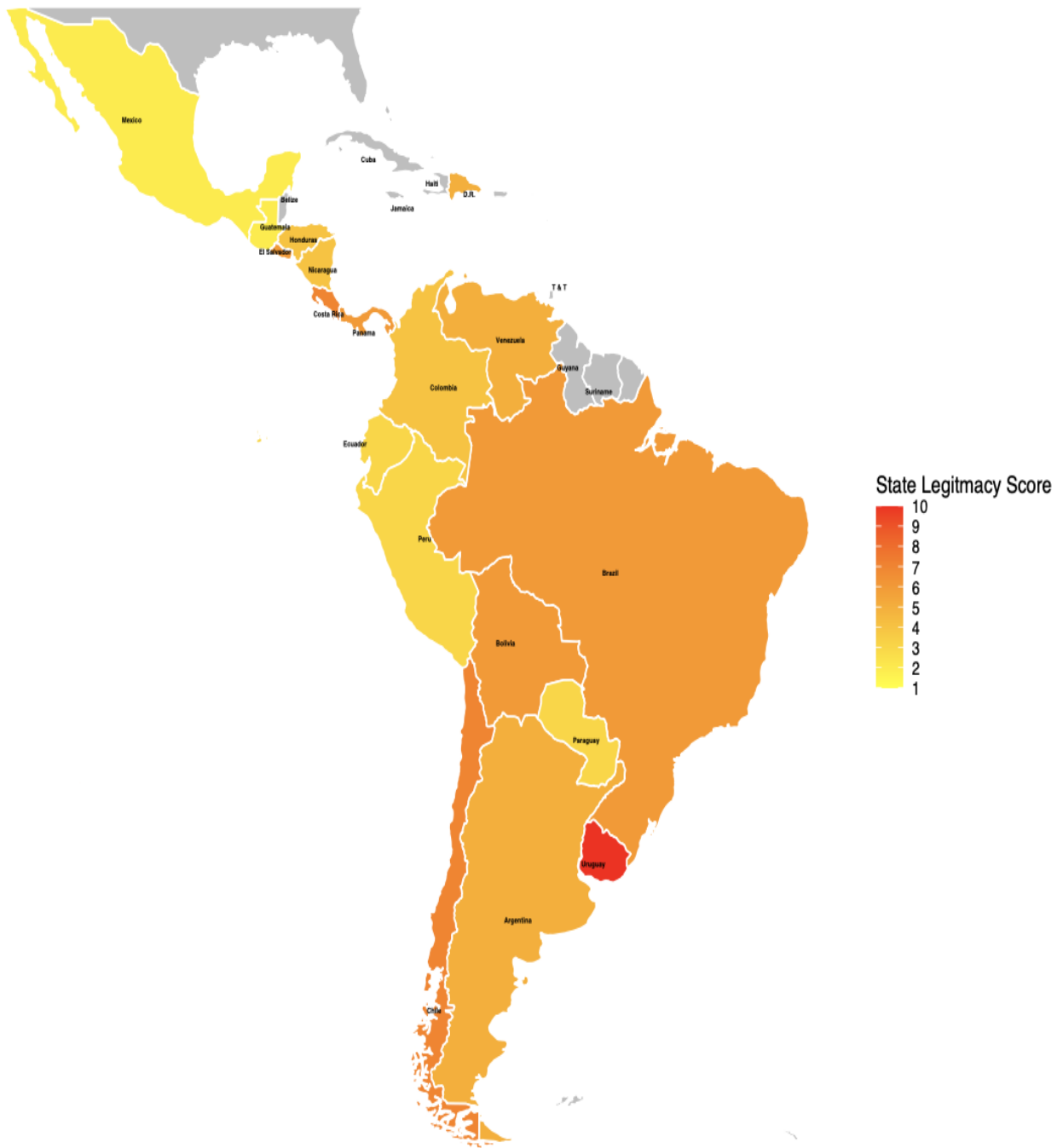
	Model 1: State Legitimacy			Model 2: Remittances			Model 3: State Legitimacy and Remittances		
	FE (n = 77 periods, 16 nations)			FE (n = 76 periods, 16 nations)			FE (n = 76 periods, 16 nations)		
	B	SE	P	B	SE	P	B	SE	P
State legitimacy	-0.07	0.01	0.0001	—	—	—	-0.04	0.01	0.006
Remittances	—	—	—	0.12	.03	0.001	0.10	0.02	0.001
Infant mortality	0.04	0.03	0.26	0.06	.03	0.10	0.05	0.03	0.17
Gini index	-0.04	0.03	0.25	-0.03	.04	0.51	-0.03	0.04	0.38
Percent urban	0.06	0.03	0.33	0.06	0.03	0.09	0.04	0.03	0.26
Percent young males	0.03	0.09	0.80	-0.03	.09	0.73	-0.03	0.08	0.71
GDP per capita	6.08	0.00005	0.91	0.00002	0.00005	0.68	0.00001	0.00005	0.79
Unemployment	0.005	0.03	0.31	0.04	.03	0.26	0.03	0.03	0.29
Education	-9.30	7.60	0.24	-9.47	8.05	0.26	-8.70	7.43	0.26
Constant	7.88	6.65	0.25	4.55	7.16	0.54	6.23	6.50	0.35
R ² (within-nations)	0.40	—	—	0.46	—	—	0.45	—	—
R ² (between-nations)	0.22	—	—	0.18	—	—	0.24	—	—

Figure 1a Homicide Rate per 100,000 Residents in LAC Nations, 2009



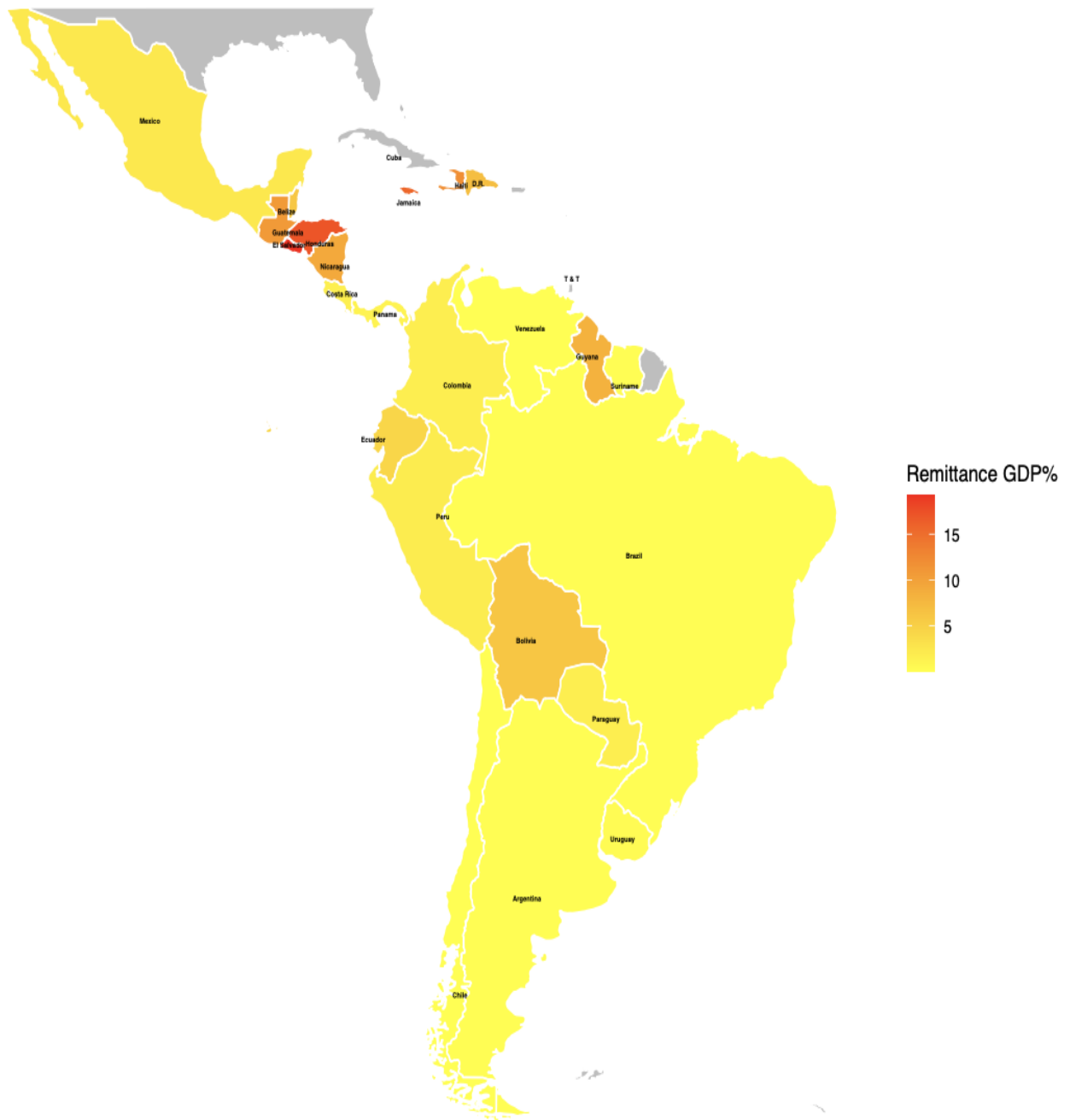
*T&T = Trinidad & Tobago
*D.R. = Dominican Republic

Figure 1b State Legitimacy in LAC Nations, 2009



*T&T = Trinidad & Tobago
*D.R. = Dominican Republic

Figure 1c Remittances as Percentage of GDP in LAC Nations, 2009



*T&T = Trinidad & Tobago
*D.R. = Dominican Republic