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## Crime, remittances, and presidential approval in Mexico

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### ABSTRACT

Previous work on remittances and incumbency support has focused on recipients' (pocketbook and sociotropic) economic assessments. In Mexico, however, crime has become the second (if not the first) concern of voters and security evaluations have become closely linked to the national executive's performance. In this paper we posit that in Mexico remittances can also increase incumbent support through their effect on recipients' security assessments. We attribute this finding to remittances allowing recipients to take crime-preventive measures and alleviate some of the pressure associated with crime and violence, which in turn improves recipients' assessments of the security situation of the country and evaluations of the incumbent. Using individual data from Mexico for the period 2006–2017, we find that remittance recipients have higher levels of perceived personal safety and better national security evaluations than non-recipients, and that security assessments are a significant predictor of presidential approval rates. The evidence thus suggests that in Mexico, where crime is rising, and presidents are increasingly rewarded or blamed for containing violence, the effect of remittances on presidential approval also operates through improved personal safety perceptions and public security assessments.

### KEYWORDS

Political behaviour;  
incumbent support;  
remittances; public security;  
Mexico

## 1. Introduction

Crime fighting commonly falls under the responsibility of local authorities. Since the turn of the century however, levels of criminal violence have risen in the whole of Latin America, which now has the unenviable position of the most violent region in the world.<sup>1</sup> In many countries, levels of crime and violence have worsened to such an extent that crime has become an issue of national concern, and presidents have become the main figures responsible for fighting crime. Latin American presidents have often responded to rising levels of crime by extending the role of the armed forces to domestic security tasks.<sup>2</sup> In public opinion surveys, crime and public security often appear as the most significant concern for voters (LAPOP 2017), regardless as to whether they are on the left or the right of the political spectrum (Wiesehomeier and Doyle 2014). Crime and violence are increasingly discussed in presidential debates across Latin America, with candidates proposing tough action on crime, if elected (O'Boyle 2018). The sharpest increases in criminal violence have largely occurred in the leading remittance-receiving

countries of the region – namely Mexico and the countries of the Northern Triangle in Central America – and presidents in these countries are being rewarded or blamed for security issues: a type of retrospective security vote (Romero, Magaloni, and Díaz-Cayeros 2016).

In this paper, we are interested in exploring the effect of family remittances on perceptions of public security and safety, and how these perceptions might then translate into presidential approval. Building on work that has linked remittances to increased presidential approval, via a misattributed economic vote whereby the income and security effect of these international transfers boost the personal economic situation of recipients (Ahmed 2017; Bravo 2012; Germano 2013, 2018; Tertychnaya et al. 2018), we suggest that where presidents are rewarded or blamed for security issues, remittances may exert a similar effect on presidential approval, but via perceptions of public security.

Remittances not only enable citizens to buy essential items and consumer goods, but they often act as insurance mechanisms in the event of a crisis and provide citizens with increased access to public goods (e.g. Adida and Girod 2011; Duquette-Rury 2014; Yang and Choi 2007, for an overview, see Fajnzylber and López 2008). We suggest that in the case of Mexico, where crime rates and public insecurity are high and rising, one public good that recipients will use their remittances to boost will be personal safety. Remittance recipients, in addition to other crime prevention measures, will use the extra income to access private security and safer neighbourhoods, to avoid the most dangerous forms of public transport, and to send their children to schools where violence problems are not as prevalent.

Given that presidents in Mexico are punished or rewarded for levels of security (e.g. Romero, Magaloni, and Díaz-Cayeros 2016), this increased perception of public security and personal safety provided by remittances will, we contend, lead to higher levels of presidential approval among recipients. In Mexico, before President Felipe Calderón militarised the fight against drugs in 2006, research showed that remittances boosted support for the incumbent through economic evaluations (e.g. Germano 2013, 2018). Where presidents are additionally evaluated in terms of their ability to tackle public insecurity however, as in Mexico since 2006, we argue that the effect of remittances on presidential support will also operate through increased perceived levels of personal and public safety – a type of sociotropic security evaluation (see Romero, Magaloni, and Díaz-Cayeros 2016).

In Mexico, the incidence of crime in the country is high; since the militarisation of the ‘War on Drugs’ in 2006, the homicide rate has almost tripled and over 200,000 people have been murdered in the country (Agren 2017) and as Romero, Magaloni, and Díaz-Cayeros (2016) have argued, security evaluations have become closely linked to the national executive’s performance. To explore our argument, we examine survey data from Mexico from the 2006–2017 waves of the Americas Barometer. Our analysis suggests that remittance recipients have higher levels of perceived personal safety and public security than non-recipients. These perceptions of personal safety are strong predictors of sociotropic security evaluations of government performance, which in turn, are a significant predictor of presidential approval. Overall, we believe our evidence suggests that in the Mexican case since 2006, when crime and violence exploded and presidents became rewarded or blamed for security issues, the effect of remittances on incumbency support also operates

through perceptions of public security, in addition to more traditional economic evaluations.

Our findings make a number of contributions. We think they are relevant for the growing body of work on the political effects of remittances in migrant-sending countries (Abdih et al. 2012; Ahmed 2012; Chaudhry 1997; Diaz-Cayeros, Magaloni, and Weingast 2003 ; Doyle 2015; Duquette-Rury 2014; Easton and Montinola 2017; Escribà-Folch, Meseguer, and Wright 2015, 2018; O'Mahony 2013; Pfitze 2012; Simpser et al. 2016; Singer 2012; Tyburski 2014); for the small number of studies that explore the individual level effect of either social (Careja and Emmenegger 2012; Córdova and Hiskey 2015; Pérez-Armendáriz and Crow 2010, 2018; Rother 2009) or financial remittances (Bravo 2012; Dionne, Inman, and Montinola 2014; Germano 2013, 2018; Goodman and Hiskey 2008; López García 2017; Maydom 2017; Meseguer, Lavezzolo, and Aparicio 2016) on political attitudes and behaviour; and for the handful of papers that have begun to explore the relationship between remittances and crime (Brito, Corbacho, and Osorio 2014; Meseguer, Ley, and Ibarra-Olivo 2017 ; Vargas-Silva 2009 ) together with the political effects of migrant remittances in 'violent settings' (Pérez-Armendáriz 2019; Pérez-Armendáriz and Duquette-Rury 2019; López García and Maydom 2019; Ley, Ibarra-Olivo, and Meseguer 2019). Our findings are also relevant for work on the impact of crime on political behaviour in Mexico (Ley 2017a, 2017b; Trelles and Carreras 2012), and more recent work linking crime to incumbent support (Romero 2017; Romero, Magaloni, and Díaz-Cayeros 2016).

We think our argument also raises some normative concerns. Remittance recipients might be prone to vote in violent democracies (Pérez-Armendáriz 2019), as López García and Maydom (2019) show. However, if individual citizens use their remittance income to boost their personal safety by accessing private forms of this public good or alleviating other pressures associated with crime, then in countries with a large amount of remittance recipients, this may reduce pressure on national governments to maintain and provide this most basic form of public good. In larger theoretical and abstract terms, this could have implications for democratic accountability, state capacity and the functioning of the social contract in migrant-sending countries where violence is a key feature of democratic politics (Pérez-Armendáriz 2019).

The paper is structured as follows. First, we discuss the economic consequences of crime and the likely ways in which they affect the relationship between remittances and evaluations of the national government. Second, we describe the case of Mexico. Third, we lay out our data and empirical strategy. Fourth, we present the results of the quantitative exercise. We conclude by discussing the main implications of our findings and suggesting new avenues of research.

## 2. Remittances and crime

Remittances have been associated with reductions in poverty, illiteracy and infant mortality and with improved access to public goods and services (e.g. Adida and Girod 2011; Duquette-Rury 2014, for an overview, see Fajnzylber and López 2008). They also serve as an important buffer against risk and crises for households (e.g. Yang and Choi 2007). Political scientists have also begun exploring the relationship between remittances and political outcomes, such as exchange rate policy (Singer 2010), dual citizenship

requirements (Leblang 2017), levels of public accountability (Abdih et al. 2012; Tyburski 2014), and the survival of autocratic regimes (Ahmed 2012; Escribà-Folch, Meseguer, and Wright 2015; Maydom 2017) together with protest in autocracies (Escribà-Folch, Meseguer, and Wright 2018).

More recently, remittances have been linked with an economic vote – that is, the degree to which incumbent support is a function of how well family finances and the national economy are doing (Fiorina 1981; Key 1966; Kramer 1971). This work argues that remittances, due to the boost in income they provide, together with their insurance effect, ensures that recipients tend to have more positive household and national-level economic evaluations (Ahmed 2017; Bravo 2012; Germano 2013, 2018) and since this income comes from abroad, remittance recipients are also less vulnerable to fluctuations in the national economy. Therefore, this argument suggests, remittance recipients have fewer economic grievances, and are less likely to punish the incumbent government (see Tertychnaya et al. 2018). Thus, relative to non-recipients, remittance recipients are more likely to support (and trust) the incumbent.<sup>3</sup> Of course, remittances originate from migrant destination countries and largely outside the control of incumbents in remittance receiving states, so in many respects this is a form of misattribution (e.g. Bravo 2012).

However, in countries of high crime, violence and widespread perceptions of public insecurity, the economy may not be the only pressing issue driving electoral concerns. Crime affects the lives of ordinary citizens; it functions as a *de facto* tax, not to mention the quality of life issues associated with rising crime. In many countries, crime has worsened to such an extent that national presidents have assumed responsibility for fighting crime (O’Boyle 2018) and recent work has shown that presidential approval in Mexico is influenced by individual assessments of the government’s performance on public security (Romero, Magaloni, and Díaz-Cayeros 2016; Romero 2017). This means that crime and perceptions of crime will have an important effect on government evaluations and concomitant levels of presidential approval. This is the starting point for our argument.

In this paper, we hypothesise that remittances improve the perceptions that recipients have of public security and personal safety by allowing them to access private security goods, better neighbourhoods and take other preventative measures against public insecurity. This in turn will shape their sociotropic security evaluations of government performance, which will feed into increased incumbent support.

There is now a large literature that conclusively demonstrates that remittances not only increase general household income, but also enable recipient households to purchase durable consumer goods and luxuries, together with expenditure on education and health (Barajas et al. 2009; Chami et al. 2008; Córdova 2006). We suggest that when public insecurity is high, then remittance recipients will use some of this income to provide increased safety from crime for them and their families. This extra income can provide recipients with access to private security and safer neighbourhoods, enable them to avoid the most dangerous forms of public transport and to send their children to schools where social problems are not as prevalent.

We expect remittance recipients to be less likely to experience crime because they have the economic resources with which to provide protection for themselves. Although we lack survey data on remittance spending on private security, extant research has shown that as income rises, individuals are more likely to spend money on private security or crime-

preventive measures (Gomes and Paz 2008 ; Jaitman et al. 2017 ; Justus and Kassouf 2013; Muroi and Baumann 2009). These include: moving to safer neighbourhoods (or gated communities), using safer forms of transport (such as private cars or cars equipped with alarm systems), building fences around homes, installing window grilles or stronger door locks at home, getting guard dogs, among other measures.

As crime becomes a salient issue, it is reasonable to expect that the additional income that households receive from abroad through remittances will be spent on security. This idea is consistent with recent evidence showing that Mexican outmigrants sent remittances to be spent on education, housing and transportation (including buying vehicles) (BBVA Bancomer & CONAPO 2017). It also goes in line with previous studies on Mexico, showing that homicides and crime rates in a municipality are negatively related to the percentage of households receiving remittances in each municipality (Brito, Corbacho, and Osorio 2014; Meseguer, Ley, and Ibarra-Olivo 2017). As such, we expect remittance recipients to be less likely to experience crime because they have the economic resources with which to provide protection for themselves against such threats. And more importantly, we expect remittance recipients to have better perceptions of public and personal security, relative to non-recipients.

This extra income, which can be used to finance increased protection, and this perception of increased personal safety, will also affect the sociotropic security evaluations of recipients. Remittances will not only allow recipients access to private security goods, but they will also alleviate some of the pressure associated with crime and the economic costs of crime, and even the likelihood of experiencing crime. So, remittance recipients feel safer and more secure than non-recipients. Given this, we expect that in the contemporary Mexican context of public insecurity and widespread crime, where recipients experience improved feelings of personal safety, they will be more likely to think positively about government performance with regards crime and public insecurity. This is what Romero, Magaloni, and Díaz-Cayeros (2016) call 'sociotropic security performance evaluations'.

In other words, where presidents are responsible for fighting crime, remittances will encourage recipients to misattribute positive sociotropic security performance evaluations to the national incumbent. This is not to suggest that the effect of remittances on economic evaluations will become less salient or irrelevant: we still expect that remittances will cause recipients to attribute positive economic evaluations to the incumbent (see Ahmed 2012 ; Bravo 2012; Germano 2013), but in environments of increasing crime and public insecurity, as in Mexico since 2006, we expect that the effect of remittances on incumbent support will also operate through improved sociotropic security evaluations.

Indeed, previous research from Romero, Magaloni, and Díaz-Cayeros (2016) has demonstrated that sociotropic security evaluations are associated with increased levels of presidential approval. In this paper, we expect that remittance recipients will be more likely to approve of the incumbent, relative to non-recipients, an effect that will operate (in addition to economic evaluations) through improved sociotropic security evaluations. We contend here that where security is a salient issue at the national level and presidents are the main figure responsible for fighting crime, the positive relationship between remittances and support for the incumbent will partly be driven by heightened perceived levels of personal and public safety.

All of this suggests that economic assessments might not be the only channel through which remittances affect accountability in migrant-sending countries. The incumbency

effects of remittances will operate via personal safety perceptions and national security evaluations, especially in settings where crime is pervasive, and presidents are being rewarded (or punished) for public security issues.

### 3. The case of Mexico

Mexico presents an excellent setting to explore the above insights. On the one hand, remittances to Mexico are large in both magnitude and economic importance. The country is the world's fourth-largest recipient of remittances, and the largest in Latin America (BBVA Bancomer & CONAPO 2017). On the other hand, security evaluations have become closely linked to approval of the national executive since 2006. Upon taking office, President Felipe Calderón (2006–2012) declared organised-crime groups were a direct threat to national security (Shirk and Wallman 2015) and launched the 'War on Drugs', sending the army first to Michoacán, one of the largest remittance-receiving states in Mexico and eventually, to all states in the country. Ever since, Mexico's military has been tasked with traditional police work. Subnational police forces have been disarmed in 50 per cent of the country's municipalities (Ángel 2016). And, presidents have been rewarded or blamed for security issues and anti-crime efforts (Romero 2017; Romero, Magaloni, and Díaz-Cayeros 2016). More interestingly, this trend has held independent of the political orientation of presidents. Calderón's successor, President Enrique Peña Nieto (2012–2018) employed a similar militarised strategy towards combatting drug trafficking organisations, albeit he belonged to a different political party.

As Mexican presidents have taken up the fight against organised crime, violence has reached unprecedented levels in the country (Escalante Gonzalbo 2011; Merino 2011). Although murder rates are still lower than those in Central American countries, between 2006 and 2012 the annual number of deaths increased by 112 percent, with 2017 being the deadliest year on record at 24 deaths per 100,000 people (Agren 2017). The kingpin strategy pursued by the federal government has resulted in the fragmentation and multiplication of drug cartels into many cells across the country (Guerrero 2016; Phillips 2015). Furthermore, to finance their wars against the Mexican state and other cartels, drug-trafficking organisations have increasingly resorted to other criminal activities – such as extortion, kidnapping, car theft, robberies, human trafficking, and oil theft.

According to Mexico's National Victimization Survey (ENVIPE 2016), the proportion of people who reported feeling unsafe in the state they live in rose from 49% to 80% percent between the years of 2004 and 2016. In 2016, 75% of Mexicans thought they would be victims of a crime. At the individual level, the economic impact of violence is equivalent to 4 times the average monthly salary of a Mexican worker or 2 times the average monthly income of a Mexican household (IEP 2018). The IEP (2018) finds that in 2017 the economic impact of violence was equivalent to 21% of Mexico's GDP, an amount eight times higher than the national health budget, and seven times higher than public spending on education. Crime has placed a heavy human and financial burden on Mexican citizens.<sup>4</sup>

Unsurprisingly, crime has become a highly salient issue for the Mexican public. As of 2017, 60–84% of Mexicans identified crime as the country's most pressing problem (ENSU 2017; Vice and Chwe 2017). Recent work on Mexico shows that security issues have now a larger effect than economic performance on presidential approval (Romero, Magaloni, and



Díaz-Cayeros 2016). However, as security conditions have worsened in the country, incumbent support levels have reached record lows. In 2006, only 26% of Mexicans disapproved of the performance of the national executive. By 2017, that figure had risen to 70–80% (Consulta Mitofsky 2018; Parametría 2018).

## 4. Empirics

### 4.1. Data and empirical strategy

To explore the relationship between the receipt of remittances, experience of crime and perceptions of public safety, together with approval for the president, we draw on six waves of the LAPOP public opinion survey, between 2006 and 2017, run by Vanderbilt University.<sup>5</sup> In a first step, we are interested in examining the difference between those who receive remittances and those who do not receive such payments with regard their personal perception of public safety.

To that end, we use six different dependent variables to examine individual perceptions of public safety. To capture perceptions of safety, and fear of crime victimisation, we create two variables based on the question: ‘Thinking about the neighbourhood where you live and the possibility of being a victim of assault or robbery, do you feel very secure, a little secure, a little insecure or very insecure?’ The first of these is simply an ordinal variable based on the responses to this question and ranges from 4 (very secure) to 1 (very insecure).<sup>6</sup> Secondly, we created a dichotomous variable, where all those who chose very secure or a little secure were coded as 1, while those who chose a little insecure or very insecure were coded as 0. This question has also been asked in every wave of the LAPOP survey. We also created a dichotomous variable in response to the question: ‘In your opinion, what is the more serious problem facing Mexico?’ where all those who choose crime, delinquency, lack of security or violence were coded as 1, and all other responses as 0.

We also draw on three questions that were only asked in the 2014 wave. The first of these asks respondents whether, in the last twelve months, they have taken any measures, such as walking through certain parts of the neighbourhood, to avoid crime, and all those who answered yes to this question were coded as 1, and all those who answer no, were coded as 0. The second of these questions is similar, and asks: ‘In general, how worried are you that anyone in your family will be assaulted on public transport?’ although the responses here are ordinal and run from (1) very worried, (2) a little worried, (3) not that worried, to (4) not at all worried. Our final perceptual measure of public security adopts the same ordinal scale, but in response to the question: ‘How worried are you about the security of children in school?’

Our main independent variable is a simple binary measure, where all those who stated that they received remittances from abroad were coded as 1, and all those who answered no to this question, were coded as 0. This question has also been asked in every wave of the LAPOP survey. We also included a range of control variables. These include measures of ideological self-identification, which are split into three groups, Left, Center and Right (the reference group here is Right); measures of educational attainment based on responses to the question: ‘What was the final year of education that you completed?’ (reference group is primary/no schooling); a measure of gender; of age, split into old age and young adult,



where the reference category is middle age; and finally, a wealth index, constructed from responses to a series of questions about which possessions or consumer goods respondents possess. A full description of all the variables used in the models is available in the Appendix.

Since remittance recipients are likely to reside in the safest areas of the country, models include state dummies. Region dummies also indicate whether the respondent lives in a state located along the U.S.-Mexico Border or along the Pacific Coast.<sup>7</sup> Ideally, we would have included dummies at the municipal level. However, there is no consistency in the name and identification of Mexican municipalities across the different waves of the LAPOP survey. To control for further heteroskedasticity, models include robust standard errors, which are clustered on LAPOP's primary geographical indicator (e.g. North, South, etc.).

#### 4.2. Remittances and security assessments

In Table 1, we begin by examining the divergence between remittance recipients and non-recipients, in self-reported perceptions of safety and the likely personal and family threat from crime. Given that some of our dependent variables are dichotomous, we report the estimations from logit models in columns 1, 3 and 4, and ordered probit models in columns 2, 5 and 6 to deal with the ordinal nature of our second set of dependent variables.

**Table 1.** Remittances and perceptions of personal and public security.

	(1)	(2)	(3)	(4)	(5)	(6)
	Feel safe	Feel safe	Crime as problem	Measures to avoid crime	Fear of assault	Security of children
Remittances	0.176** (0.0800)	0.133** (0.0580)	-0.324*** (0.0917)	-0.541* (0.285)	0.00483 (0.203)	0.181 (0.219)
Left	-0.251*** (0.0424)	-0.170*** (0.0211)	-0.0681 (0.0531)	0.188*** (0.0339)	0.0549 (0.101)	-0.0459 (0.150)
Center	-0.0602 (0.0466)	-0.0640*** (0.0248)	0.0460 (0.0628)	-0.0750 (0.0493)	0.102 (0.0846)	0.0231 (0.105)
University	0.0997 (0.0897)	-0.0125 (0.0705)	0.0301 (0.0785)	0.353 (0.274)	0.0685 (0.0770)	-0.00621 (0.0931)
High school	-0.0334 (0.0444)	-0.0574 (0.0388)	-0.0115 (0.0579)	0.153 (0.156)	0.108 (0.0743)	-0.00172 (0.0375)
Female	-0.275*** (0.0361)	-0.182*** (0.0207)	0.246*** (0.0603)	0.185** (0.0738)	-0.130 (0.0825)	-0.151*** (0.0513)
Old age	0.0320 (0.0815)	0.0802 (0.0563)	-0.152 (0.136)	-0.545* (0.325)	0.381** (0.149)	0.178 (0.148)
Young adult	0.0542 (0.0718)	0.0381 (0.0262)	-0.129*** (0.0250)	0.110 (0.121)	0.0101 (0.0738)	0.148* (0.0849)
Wealth index	0.0193* (0.0117)	0.00826 (0.00956)	0.0533*** (0.00724)	0.0643*** (0.0204)	-0.0180 (0.0237)	-0.0404*** (0.0130)
Border region	-0.641*** (0.00930)	-0.342*** (0.00718)	0.984*** (0.0101)	2.458*** (0.0712)	-2.060*** (0.0523)	-5.371*** (0.214)
Pacific region	-0.112*** (0.0150)	-0.121*** (0.00956)	1.112*** (0.00805)	-0.202*** (0.0541)	0.290*** (0.0972)	0.491*** (0.0783)
Constant	0.564*** (0.0704)		-2.365*** (0.159)	-1.579*** (0.173)		
Observations	7,848	7,848	7,880	1,182	1,167	1,114
State effects	YES	YES	YES	YES	YES	YES

Notes: Models 1, 3 and 4 are logit models with survey year dummies (not reported here for sake of presentation); models 2, 5 and 6 are ordered probit models, again with survey year dummies in model 2. State (or province) dummies are also included in all models, but again are not reported for the sake of presentation. Robust standard errors in parentheses, clustered on LAPOP's primary geographical indicator (estratopri); Coefficient significant at \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

The picture here is quite clear. Remittance recipients are much more likely to report feeling safer in their neighbourhood (from both logit and ordered probit estimations in columns 1 and 2); are less likely than non-remittance recipients to have selected crime, violence or a lack of security as the most pressing problems to face Mexico today (column 3); and are less likely to have taken measures in their local area to avoid or minimise the likelihood of becoming crime victims (column 4). For example, remittance recipients have a 63 per cent probability of reporting feeling secure in their neighbourhood, compared to 59 per cent for non-recipients. Similarly, the probability of remittance recipients choosing crime or a lack security as the main problem facing Mexico today is 19 per cent compared to 24 per cent for non-recipients. And the probability of remittance recipients stating that they took measures to avoid crime in their local area is 36 per cent, compared to 48 per cent for non-recipients.

A picture is beginning to emerge. Those who receive remittances are far more likely to perceive that they are safer in their neighbourhoods, relative to Mexican citizens who do not receive remittances. It is very difficult at this stage for us to make a definitive claim as to why this is so, but we believe that part of the explanation lies in the fact that remittance recipients have the extra income to provide private security, to live in buildings and neighbourhoods that enable them to reduce the likelihood of experiencing crime, and even to send their children to schools where social problems are not so prevalent. Unfortunately, we do not have any data where we can examine whether remittance recipients *actually* spend more on private security measures and as such, it is very difficult to test this mechanism. The self-selection effect of remittances however, raises important issues about the group who receive these payments.

It could be the case that the likelihood of receiving remittances is conditioned on a host of covariates, such as wealth, age, gender or education that might also explain divergent perceptions of public security. To address this possibility, we also use nearest neighbour matching (NNM). This allows us to isolate the effect of receiving remittances by matching respondents on a set of pre-treatment demographic variables, which include wealth, education, gender, age, ideological self-placement and whether they live in the violence-prone border or pacific states. This technique allows us to find the most similar ‘treated and non-treated’ individuals and to compare them (Rubin, 1973 ). The results, presented in Table 2 below, show that even when we account for plausible (and highly likely selection effects) and compare individuals who are otherwise similar with regard to political, demographic variables and residence in border or pacific states, except for the receipt of remittances or not, then remittances still exert an independent (although weaker) effect on perceptions of personal safety.<sup>8</sup>

**Table 2.** Nearest neighbour matching.

	(1) Feel safe (binary)	(2) Feel safe (ordinal)	(3) Crime as problem	(4) Measures to avoid crime	(5) Fear of assault	(6) Security of children
Remittances (0 vs. 1)	0.0219 (0.0251)	0.0780* (0.0452)	-0.0620*** (0.0182)	-0.144* (0.0745)	0.126 (0.155)	0.328* (0.172)
Observations	9,121	9,121	9,162	1,185	1,167	1,114

Notes: Standard errors in parentheses. As we do not include state dummies here, we can also use the 2004 wave of the LAPOP survey. When we re-run the analysis without the 2004 wave, the results are very similar (if slightly stronger); \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

As such, those who receive remittances report more favourable perceptions of public safety, even after allowing for pre-treatment confounders, suggesting that remittances can still exert some independent effect, which we believe is *probably* a product of this income enabling recipients to access increased personal security and safer neighbourhoods.<sup>9</sup>

### 4.3. Sociotropic assessments of security performance

Thus far, we have attempted to ascertain the relationship between remittances and perceptions of public security. We have suggested that remittances, even taking into account likely selection effects, can enable citizens, for reasons we cannot fully uncover, to feel more secure in Mexico. In this next step, we are interested in exploring how remittances and these perceptions, might then translate into what Romero, Magaloni, and Díaz-Cayeros (2016) have called ‘sociotropic security performance evaluations’. For Romero, Magaloni, and Díaz-Cayeros (2016, 104), these sociotropic security evaluations are no different from evaluations of government performance in other policy areas such as the economy but in this instance, sociotropic evaluations are based on government performance with regards public security. These sociotropic security evaluations in turn, will be crucial for shaping presidential approval.

We follow Romero, Magaloni, and Díaz-Cayeros (2016) and use responses to the question: ‘On a scale of 1–7, where 1 represents not at all, and 7 represents a lot, to what extent would you say that the current government improves citizen security?’ as our measure of sociotropic security performance evaluations. Table 3 reports a series of OLS models where we explore the effect of the receipt of remittances on sociotropic security evaluations. All models include sociotropic and egotropic economic evaluations. Column 1 includes remittances, column 2 includes the continuous measure of perceptions of safety described above, while column 3 adds partisan affiliation. Partisan affiliation takes the form of two dummy variables, the first captures all those who identified with the PRI, while the second captures all those who identify with the PAN. The reference category here is the remaining Mexican political parties.

As can clearly be seen, remittances have a positive and statistically significant effect on sociotropic security evaluations. For example, on the 1–7 scale of security evaluations, remittance recipients, all else equal, choose a mean score of 4.05, compared to 3.81 for non-recipients. In column 2, when we add perceptions of personal safety, we can see that this variable is positive and statistically significant. The difference in security evaluations between those who feel very secure and those who feel very insecure (on the 1–7 scale) is nearly 0.8. Interestingly, when we add perceptions of personal safety, while remittances remain positively signed (and no longer significant in model 2), the size of the coefficient is reduced. This suggests that the positive effect of remittances on sociotropic security evaluations might be mediated through perceptions of personal safety.

To test this, we performed causal mediation analysis using the approach developed by Imai, Keele and Tingley (2010) and the Stata package *medeff* developed by Hicks and Tingley (2011). We fit two models; the first is for the mediator, representing perceptions of personal safety, and captures the effect of the treatment, remittances, on this continuous outcome variable. The second model is for the outcome variable we are interested in, sociotropic evaluations of government security performance. Causal mediation analysis allows us to estimate if, and how much of the overall effect of remittances (the treatment)

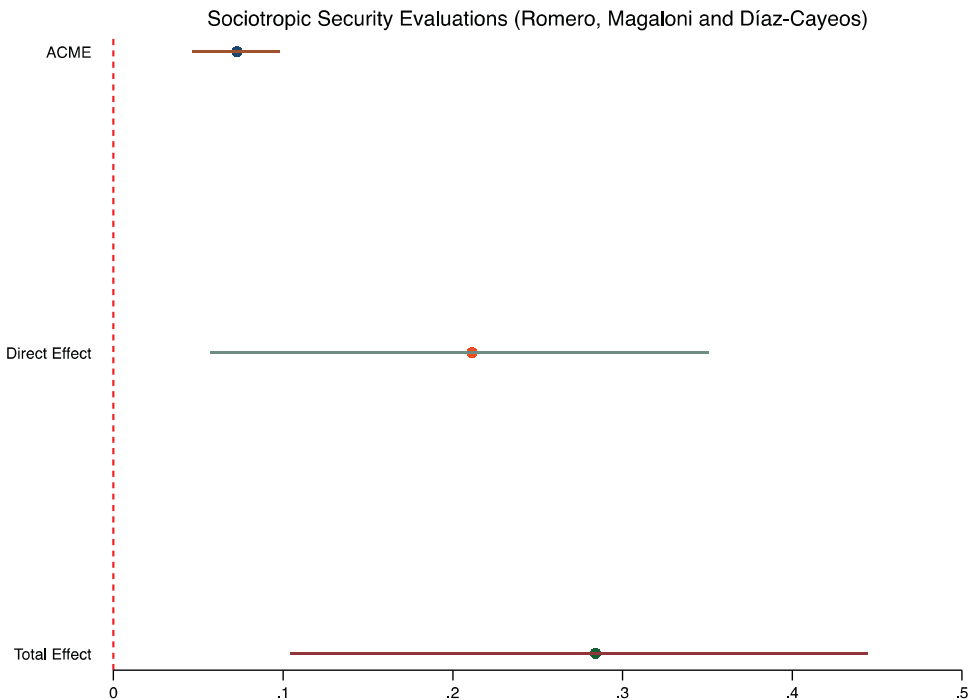
**Table 3.** Sociotropic security evaluations.

	(1) Sociotropic security	(2) Sociotropic security	(3) Sociotropic security
Remittances	0.244* (0.121)	0.199 (0.123)	0.236* (0.112)
Feel safe		0.261*** (0.0153)	0.233*** (0.0481)
Left	-0.686*** (0.0860)	-0.646*** (0.0923)	
Center	-0.544*** (0.0518)	-0.528*** (0.0562)	
University	-0.370** (0.131)	-0.361** (0.123)	-0.214 (0.195)
High school	-0.171*** (0.0444)	-0.155** (0.0445)	-0.137 (0.0866)
Female	0.00699 (0.0545)	0.0465 (0.0521)	0.00414 (0.0877)
Old age	0.0537 (0.0999)	0.0360 (0.104)	0.0112 (0.103)
Young adult	-0.0563* (0.0286)	-0.0632* (0.0293)	-0.0117 (0.0458)
Wealth index	-0.0563*** (0.00387)	-0.0591*** (0.00610)	-0.0704*** (0.0181)
Egotropic	0.246*** (0.0665)	0.226** (0.0695)	0.281*** (0.0625)
Sociotropic	0.447*** (0.108)	0.436*** (0.102)	0.583*** (0.156)
Border region	0.0882*** (0.0173)	0.131*** (0.0174)	-0.284*** (0.0213)
Pacific region	-0.226*** (0.0280)	-0.252*** (0.0275)	-0.307*** (0.0396)
PRI supporter			0.544*** (0.0916)
PAN supporter			0.712*** (0.116)
Constant	4.508*** (0.0809)	3.877*** (0.0834)	3.652*** (0.213)
Observations	6,283	6,260	2,359
State effects	YES	YES	YES
R-squared	0.117	0.133	0.144

Notes: Ordinary Least Squares Models with robust standard errors in parentheses, clustered by LAPOP's primary geographical unit (estratopri). Survey year and state (province) dummies are included but not reported for sake of presentation. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

on sociotropic security evaluations (the outcome) flows through improved perceptions of personal safety (the mediator). We can then decompose the total effect of remittances into two parts, an indirect effect and a direct effect. The average causal mediation effect (ACME), represents the average change in sociotropic security evaluations, which is driven through perceptions of personal safety, when the value of remittances moves from 0 (no remittances) to 1 (receives remittances). The average direct effect (ADE) captures the effect of remittances on sociotropic security evaluations that does not occur through improved perceptions of personal safety. Figure 1 displays the results from this causal mediation analysis.<sup>10</sup>

The total effect of remittances on sociotropic security evaluations is 0.28 (ATE) and statistically significant. The average direct effect of remittances on sociotropic security evaluations is also positive and statistically significant. The effect of remittances that flows through perceptions of personal safety is positive, statistically significant and



**Figure 1.** Casual mediation analysis – sociotropic security evaluations. Notes: Horizontal bars represent 90 per cent confidence intervals.

reasonably substantive. Perceptions of personal safety account for nearly a quarter of the effect of remittances on sociographic security evaluations. In this instance, the effect of remittances appears to be mediated by improved perceptions of safety and security.

#### 4.4. Presidential approval

Romero, Magaloni, and Díaz-Cayeros (2016) have conclusively demonstrated that in Mexico, sociotropic evaluations of public security increased presidential approval. In a final step here then, we wish to evaluate whether remittances, via their positive effect on sociotropic security evaluations of the Mexican government, have led to a concomitant increase in presidential approval. Respondents to the LAPOP have been consistently asked what they thought of the job that the current incumbent (during that survey wave) was doing and responses range, on a 1–5 ordinal scale, from very bad (1) to very good (5).<sup>11</sup> We use this variable as our main dependent variable in models 1–3 of Table 4, where we report the results from a series of ordered probit models. Column 1 includes remittances, column 2 includes sociotropic evaluations of public security, while column 3 includes controls for partisanship. In column 4, we repeat the analysis in column 2, except here we construct a binary dependent variable, where all those who chose very good or good were coded as 1, and all others as 0, and which we analyse with a logit model.

As we can see from Table 4, remittances, although it is positively associated with presidential approval, does not have a statistically significant effect. Sociotropic evaluations of

**Table 4.** Remittances, sociotropic security and presidential approval.

	(1) O Probit	(2) O Probit	(3) O Probit	(4) Logit
Remittances	0.0354 (0.0671)	0.0242 (0.0570)	0.0341 (0.0386)	0.0706 (0.142)
Sociotropic security		0.263*** (0.0178)	0.272*** (0.0277)	0.406*** (0.0275)
Left	-0.412*** (0.0460)	-0.313*** (0.0452)		-0.475*** (0.0710)
Center	-0.273*** (0.0467)	-0.164*** (0.0407)		-0.346*** (0.0731)
University	-0.0917** (0.0394)	0.0450 (0.0456)	0.107 (0.114)	0.268** (0.105)
High school	-0.0187** (0.00770)	0.0421*** (0.0160)	-0.00119 (0.0130)	0.0879*** (0.0204)
Female	0.0493** (0.0240)	0.0637*** (0.0187)	0.120*** (0.0357)	0.153** (0.0699)
Old age	0.133*** (0.0356)	0.129*** (0.0423)	0.150** (0.0720)	0.140 (0.0994)
Young adult	-0.00596 (0.0228)	0.0692*** (0.0142)	0.0886 (0.0647)	0.185** (0.0746)
Wealth index	-0.0211*** (0.00530)	-0.00580 (0.00538)	0.00482 (0.00680)	0.0128 (0.0106)
Egotropic	0.191*** (0.0480)	0.151*** (0.0534)	0.198*** (0.0317)	0.307** (0.144)
Sociotropic	0.493*** (0.0548)	0.390*** (0.0330)	0.433*** (0.0897)	0.547*** (0.0893)
Border region	-0.0140 (0.0107)	0.0266* (0.0142)	0.274*** (0.0214)	0.195*** (0.0242)
Pacific region	-0.319*** (0.00610)	-0.209*** (0.00474)	0.00344 (0.0403)	-0.00220 (0.0227)
PRI supporter			0.330*** (0.0641)	
PAN supporter			0.854*** (0.0366)	
Constant	-1.284*** (0.0674)	-0.741*** (0.132)	0.0186 (0.212)	-2.358*** (0.256)
Observations	7,658	6,240	2,355	6,240
State effects	YES	YES	YES	YES

Notes: Robust standard errors, clustered on LAPOP's primary geographical indicator (estratopri), in parentheses. Year and state (province) dummies not reported for sake of presentation. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

public security however, and as has been previously demonstrated by Romero, Magaloni, and Díaz-Cayeros (2016), have a strong positive and significant effect on approval levels. To explore how these evaluations might mediate the effect of remittances on presidential approval, once again we turn to causal mediation analysis (Imai, Keele and Tingley 2010; Hicks and Tingley 2011). Again, we fit two models; the first is for the mediator, representing sociotropic evaluations of public security, and captures the effect of the treatment, remittances, on this continuous outcome variable. The second model is for the outcome variable we are interested in, which is presidential approval (again considered as a continuous variable for implementation).<sup>12</sup> Our analysis allows us to estimate if, and how much of the overall effect of remittances (the treatment) on presidential approval (the outcome) flows through improved sociotropic security evaluations. We can then decompose the total effect of remittances into two parts, an indirect effect and a direct effect. The average causal mediation effect (ACME), represents the average change in presidential approval, which is driven through sociotropic security evaluations, when the value of remittances moves from 0 (no remittances) to 1 (receives remittances). The average

direct effect (ADE) captures the effect of remittances on presidential approval that does not occur through sociotropic security evaluations.

Figure 2 displays the results from this causal mediation analysis. The left-hand pane presents results from this two-step model that does not include economic evaluations, while the right-hand pane includes both egotropic and sociotropic economic evaluations. As we can see from this figure, the total effect of remittances on presidential approval is 0.13 (ATE) and statistically significant at the 90 per cent level. The average direct effect of remittances on approval is also positive and but it is not statistically significant. And most importantly, the effect of remittances that flows through sociotropic evaluations of public security is positive, statistically significant and quite substantive. This means that part of the effect of remittances on approval is driven by improved sociotropic evaluations. According to these models, nearly a half of the total effect of remittances on approval flows through sociotropic security evaluations.<sup>13</sup>

Taken as a whole, our results appear to suggest that remittances condition perceptions of personal safety, which in turn shape sociotropic security evaluations. These evaluations have important implications for presidential approval (see also Romero, Magaloni, and Díaz-Cayeros 2016). And in the Mexican context, at least since the eruption of widespread violence, the effect of remittances on presidential approval seems to be partly channelled through these sociotropic security evaluations (although these results should be considered with caution). Furthermore, the effect of remittances on security evaluations and on presidential approval holds independent of the geographic location of the individual.

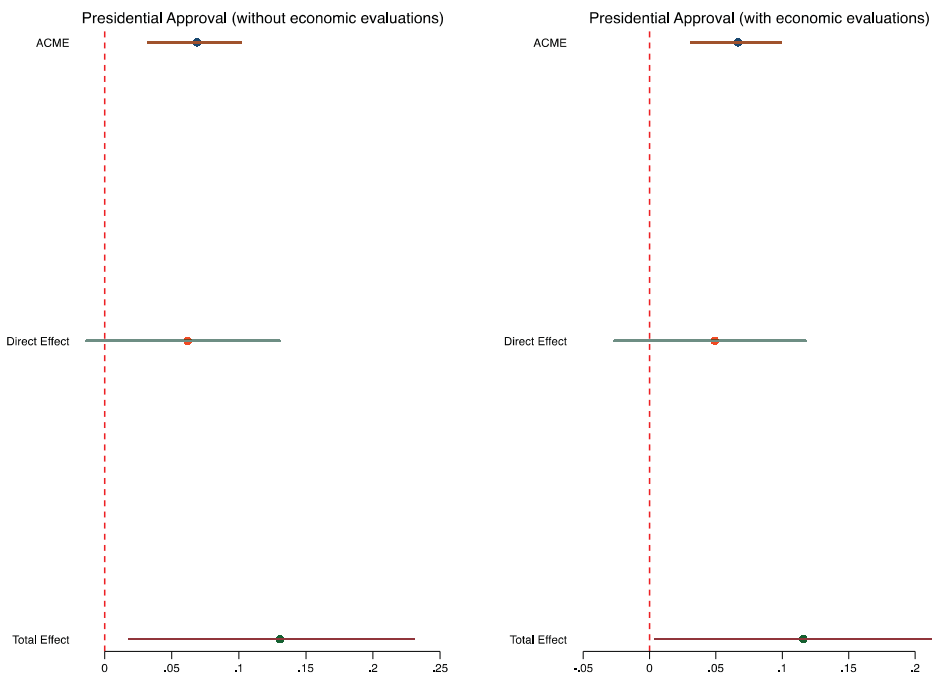


Figure 2 – Causal mediation analysis – presidential approval. Notes: Horizontal bars represent 90 per cent confidence intervals.



## 5. Conclusion

This paper has shown that in Mexico – a violent democracy, where crime has become a salient issue for national authorities and where voters also evaluate presidents in terms of their ability to address public insecurity – remittances increase presidential approval rates through their effect on recipients' public security assessments, in addition to evaluations of the national economy. Using survey data from Mexico for the period 2006–2017, we find that remittance recipients have higher levels of perceived personal safety and public security than non-recipients, and that security assessments are significantly correlated with presidential approval rates. We attribute this finding to remittances allowing recipients to access to private security, better neighbourhoods, safer means of transport, and other preventing measures against public insecurity, although admittedly, we are unable to directly test this implication of our argument. To the extent that remittances help recipients to weather some of the pressure associated with experiencing crime and the economic costs of crime, they improve recipients' assessments of the security situation of the country and evaluations of the incumbent's work.

Our analysis suggests that in the Mexican case, the effect of remittances on incumbency support partly operates through safety perceptions. This is an important contribution to the existing literature on remittances and incumbency support in migrant-sending countries, which has focused on recipients' economic assessments. Our results reveal that economic assessments might not be the only channel through which remittances affect accountability in migrant-sending countries. In countries where crime is rising, and presidents are responsible for public security, the incumbency effects of remittances might also operate via safety perceptions. Our findings suggest a need to take into account issues of violence, when investigating the effects of remittances on incumbency support in 'violent democracies' (Pérez-Arméndariz 2019). López García and Maydom (2019) show that remittance-receiving individuals in violent contexts are more likely to vote in that those living in non-violent contexts. However, we should be cautious about assuming that migrant remittances will induce democratic accountability in violent democracies. Our paper on Mexico shows that remittance recipients are less likely to put pressure on the national government to address public security concerns. This finding raises important normative concerns on the influence of migrant remittances on democratic development in Mexico and beyond.

Future research should continue exploring the intersections between family remittances, safety perceptions and incumbent support. Of importance here would be identifying the mechanism through which remittances affect perceptions of personal safety and public security. Unfortunately, data limitations prevented us from doing so in this paper. The propositions of this paper should be verified using alternative data at the individual (or household) level. Ethnographic accounts could also shed further light on the claims of this study. Scholars should examine the intersections between family remittances, safety perceptions and incumbent support in other violent democracies (Pérez-Arméndariz 2019), where presidents have declared public safety emergencies and are being rewarded on their performance on public security issues. These include: Argentina, Brazil, Dominican Republic, Honduras, El Salvador and Venezuela. All of these future undertakings will improve our understanding of the mechanisms through which migrant remittances give meaning and motivate all aspects of voting, including vote

choices in democracies where violence underpins electoral competition and outcomes (Pérez-Arméndariz 2019).

## Notes

1. As of 2017, Latin America accounted for 38% of the world's criminal killing (Clavel 2018).
2. It should be noted however, that the militarisation of anti-crime efforts in the region has also been influenced by the US anti-narcotics policy.
3. That said, there is an ongoing scholarly debate on the effects of remittances on incumbent support. Various studies show that the additional income of remittances lowers the incentives of recipients to engage in clientelist practices. In other words, where votes are commonly induced through clientelist practices, remittances may have a negative effect on incumbent support (Díaz-Cayeros, Magaloni, and Weingast 2003; Pfütze 2012; Escribà-Folch, Meseguer, and Wright 2015). This is the case of Mexico, where electoral support has long been procured through clientelist tactics.
4. Although the military still registers high levels of confidence in the country, the number of cases of torture, forced disappearances, extrajudicial assassinations and other human rights violations have also gone up since 2006 (HRW 2018).
5. These waves are 2006, 2008, 2010, 2012, 2014 and 2017. The 2004 wave is also included in the dataset, but it does not cover all countries and many questions are missing.
6. We flipped the ordinal scale for the sake of interpretation.
7. In Mexico, criminal activity is driven by the drug market. Drugs come from Colombia and are smuggled illegally into the United States. Therefore, criminal organisations compete for, and have a stronger presence in the states located along the U.S-Mexico border and the Pacific Coast. In our models, the border region includes the states of Baja California, Chihuahua, Coahuila, Nuevo León, Sonora, and Tamaulipas, whereas the Pacific region include the states of Baja California Sur, Chiapas, Colima, Guerrero, Jalisco, Michoacán, Nayarit, Oaxaca, and Sinaloa.
8. These models exclude survey and state dummies.
9. For example, based on a simple logit with no controls, remittance recipients are more likely to report trusting the police – 34 per cent probability – compared to those who do not receive remittances – 28 per cent probability.
10. The results should be treated with caution, as they are estimated without year or state dummies. Furthermore, we certainly cannot rule out that the results are robust to unmeasured confounding – sensitivity tests suggest  $\rho = .1677$ .
11. Which again we flipped for ease of interpretation.
12. These are OLS models as the medeff package does not support ordered probit models. Also estimated without state or year effects.
13. Again, these results should be considered with caution, given the need to run OLS models and lack of fixed effects. Nor can we rule out that the results are robust to unmeasured confounding – sensitivity tests suggest  $\rho = .434$  (for left-hand model with economic evaluations).

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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