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Remittances and Protest against Crime in Mexico

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Introduction

In this paper, we seek to build a bridge between the literature on the determinants of protest and the literature on migrant transnational engagement, with a focus on the vibrant research agenda looking at the political impact of remittances in origin countries. In particular, we seek to understand whether migrant remittances explain the incidence of protest against the surge of crime at the state level in Mexico.

The resource mobilization theory is one of the approaches that research on the determinants of protests has identified as a facilitator of anti-incumbent mobilization. Without resources, aggrieved audiences may be left without options for manifesting their discontent (McCarthy and Zald 2002). Resource availability, on the other hand, can facilitate collective organisation by freeing time to devote to civilian protests, enhancing the sense of perceived efficiency and facilitating coordination and organisation efforts (Gurr 1970; Brady et al. 1995; White et al. 2015). In the particular case of protests against crime and insecurity in violent democracies, recent research has shown that besides financial commitment, the existence of local networks of solidarity in the form of a vibrant civil society facilitates anti-incumbent mobilization. As we explain below, these networks help give visibility to victims' grief and demands, creating solidarity between victims and non-victims (Ley 2014; Rojo-Mendoza 2014; Durán-Martínez 2016; Dorff 2017).

In this article, we argue that workers' remittances should also be considered as determinants of anti-incumbent protest. Emigrants keep a host of relationships with their relatives left behind, and in particular, they send financial support. We argue that these flows provide extra resources for the collective mobilization of those left behind. In hypothesising about the relationship between remittances and anti-incumbent protest, we rely on the thriving

literature on the consequences of remittances for political behaviour. Often, this literature reports contradictory effects, with remittances being associated with both political engagement and disengagement (Goodman and Hiskey 2008; Bravo 2009; Pfutze 2014; Córdova and Hiskey 2015; Escribà-Folch et al. 2018). In the particular case of anti-incumbent mobilization against crime, we argue that remittances can cause both an increase and a decrease in the likelihood of protesting, and that these effects are evident at different levels of remittance penetration. In other words, we argue that there is a non-linear effect of remittances on protests, by which higher volumes of remittances, while still increasing the probability of protesting, do so at a declining rate. We attribute this slowdown to lessened economic and security grievances as well as greater economic autonomy of recipients in settings where remittances flow in abundance (Adams and Page 2005; Doyle 2015; Escribà-Folch et al. 2018; López and Doyle 2019).

Our paper contributes to several literatures: first, we focus on remittances as a disregarded factor when it comes to explaining civic mobilization; second, we reconcile seemingly contradictory findings on the political engagement vs. disengagement effect of remittances, thereby contributing to a better understanding of the multifaceted consequences that family remittances have in out-migration communities.

We proceed as follows. First, we give some background on crime and the correlates of protest against crime in Mexico, the epitome of a "violent democracy", namely, a polity "in which competitive elections, civil freedoms, and inclusive participation have taken root yet the state does not control sub-state violence" (Pérez-Armendáriz 2019). Second, we discuss the literature on remittances and political engagement and derive our working hypothesis. Next, we present our data and our empirical strategy, which consists in estimating the effect of remittances on the probability of protesting against crime at the subnational level. We use an original dataset

coding over one thousand instances of protest against crime in Mexico in the period 2006–2012 (Ley 2014). We account for the endogenous nature of remittances and use an instrumental variable approach to claim a *non-linear* relationship between remittances and protest against crime at the subnational level. We conclude with some reflections on the relevance of our findings and with suggestions for the research agenda ahead.

1. Crime and Protest Against Crime in Mexico

Until the late 1980s, drug trafficking organizations exhibited a relatively peaceful behaviour (Snyder and Durán-Martínez, 2009). However, in the mid-1990s, criminal wars among Mexican cartels broke out and violence steadily began to rise (Trejo and Ley 2018). After the transition to democracy, criminal violence continued to spread, becoming both frequent and visible. On December 2006, President Felipe Calderón declared a war against drugs and began a militarised strategy to fight organised crime. However, rather than reducing violence, intervention by the Mexican government generated increased competition within the criminal markets, multiplying both the number of criminal organizations and their use of violence (Guerrero 2012).

By the end of Calderón administration, more than 70,000 people had been killed (Shirk and Wallman 2015) and over 22,000 had gone missing (Merino et al. 2015). In an effort to finance their criminal wars, organized criminal groups began to diversify their activities and quickly moved into extortion, kidnapping for ransom, human smuggling, and looting of natural resources. The deployment of more than 50,000 soldiers to conduct counter-narcotics operations has been associated with increasing human rights violations, particularly forced disappearances and extrajudicial executions (HRW 2011; Gracida 2016).

The Mexican judicial institutions have been both unable and unwilling to keep pace with rising criminal activity and punish it accordingly (Martínez 2017). As public authorities have also become targets of criminal violence (Trejo and Ley forthcoming), the judiciary has attempted to shield itself from organised crime, altering the exercise of justice in the long run (Cárdenas 2016). In the face of such low judicial effectiveness and prevailing impunity, Mexican citizens lack incentives to report crime through formal institutions.

When the traditional institutional channels for reporting crime and achieving justice are weak, civil society can take action to hold governments accountable, expose governmental wrongdoing or activate horizontal checks (Smulovitz and Peruzzotti 2009). Such has been the case in Mexico. In the face of rising violence, Mexican citizens have made an effort to keep government authorities accountable for the issue of insecurity through diverse non-electoral mechanisms, among which protest has been a recurring tool. According to Ley (2014), between 2006 and 2012 – precisely the peak period of criminal violence during the Calderón administration – more than a thousand events of protest against crime and insecurity were voluntarily organized by civilians across Mexico. Through these actions, victims and their relatives have told of the violence they have experienced, revealed information on the collusion between public authorities and criminal groups, and denounced the many obstacles they have faced when attempting to report and prosecute their cases through judicial institutions.

As protest scholars have argued, grievances are not enough for mobilization to take place. Specifically, as the resource mobilization theory has put forward, participation in social movements involves spending time, energy, and money. Consequently, those groups with "few resources are less able to act on grievances or perceived injustices" (McCarthy and Zald 2002: 535). The availability of community resources – broadly defined as actual wealth coming from

contributions, transfer payments, and per capita income, together with organisational skills, and local associations and groups – has been found to be crucial for the likelihood that social movement organizations can mobilise (McCarthy et al. 1988; Khawaja 1994).

For the case at hand, protests occurring amid criminal violence and in reaction to crime also require a diverse set of resources. As we explain below, local networks of support have been shown to be crucial for the development of organised responses to crime. However, monetary funds are also fundamental for the mobilization of victims and their relatives, who, facing widespread impunity and corruption, must devote themselves to the quest for justice and search for their missing loved ones – often using their own resources – frequently having to put aside their work and basic needs (Ahmed 2017).

Besides resources, and consistent with the classical works on the relationship between collective action and networks of solidarity (McAdam 1986; Loveman 1998), the extant explanations on the logic of protest and participation amid criminal violence emphasise the role of *local* networks of victims and non-victims as crucial resources through which collective action can take place. Ley (2014) argues that protest against crime in Mexico has been enabled by mobilising networks of victims and non-victims that make it possible for them to transform emotion into potential for action, as well as to reshape and redefine their perceptions about the risks and benefits that such collective action implies. First, through networks, individuals can share their feelings of fear in response to violent experiences and environments. As they become more engaged with each other, such fear can be reframed from self-regarding to other-regarding (Shesternina 2016) and even be transformed into moral indignation and anger (Loveman 1998; Wood 2003), which, unlike fear, are associated with risk acceptance and efficacy – crucial elements for political participation (Pearlman 2013). Second, dense interpersonal networks can

insulate communities and raise the cost of outside actors using violence against them, ultimately reducing the perceptions of risk that collective action against violence can imply (Berg and Carranza 2018). Durán-Martínez (2016) further examines the conditions under which victims and non-victims may come together to develop organized responses to crime. The author finds that when criminals claim responsibility for acts or when these attacks by criminals are publicly exposed, it helps mobilise non-victims by making them more sympathetic to victims and creating a sense of victimization among wider segments of the population. Finally, Dorff (2017) has shown the relevance of kinship ties in transforming victimization into political activation. In view of the relevance of both financial resources and strong civilian networks in fostering protests, it is surprising that the role of emigrant connections and the money flows these connections send back home have remained unexplored in efforts to understand protest against crime in Mexican states.[1]

2. Remittances and Protest

We claim that the role of relatives abroad in supporting protest against crime at home should be given systematic attention: anecdotal and systematic evidence reveals that different types of local mobilization against crime, notably vigilantism, have relied on the individual and collective resources that migrants send back to their families (Pérez-Armendáriz and Duquette-Rury, 2019; Authors 2019). Moreover, instances of collective mobilization have often been led by individuals

[1] Of course, there is no shortage of literature looking at the impact of remittances and diasporas in conflict and post-conflict contexts, post-conflict reconstruction, and peace-making (Carling et al., 2012, 284-285; Kapur 2014; Koinova 2018).

with migrant backgrounds.[2] We study the role of family remittances as one of the international factors that may have facilitated domestic protest in the specific case of *non-violent* mobilization against crime.

Research on transnationalism has shown that migrants become involved in their communities of origin in multiple ways after they leave. Migrants participate in local politics through extraterritorial voting (Østergaard-Nielsen 2003; Guarnizo, Portes, and Haller 200; Ahmadov and Sasse 2016). They may occasionally take office in home countries to represent the interests of the migrant constituency (Collyer 2014). Finally, they may potentially become vocal proponents of home country policies in the host country (Délano 2011). Recent research shows that remittances appear to follow the electoral cycle, increasing as elections approach, especially when elections are anticipated to be tight (O'Mahony 2013; Nyblade and O'Mahony 2014). Migrants' money is thus sent in pursuit of political goals, and recipients use it for political purposes, as we discuss below.

But, through which mechanisms may remittances affect the likelihood of recipients and their communities engaging in protest against crime? On one hand, according to the resource mobilization theory mentioned above (Brady et al. 1995; White et al. 2015), remittances provide extra income for households, increasing the resources available for gathering information, coordinating, and making more time available to be politically active. Extant research has shown that the reception of remittances is positively associated with participation in various forms of non-electoral political activities, such as persuading others to vote, joining civic organizations, and participating in protests (Goodman and Hiskey 2008; Pérez-Armendáriz and Crow 2010;

[2] "Quiénes son los líderes de los autodefensas", Milenio 12 February 2014 http://www.milenio.com/policia/quienes-son-los-lideres-de-las-autodefensas (accessed 1 October 2018).

Dionne et al. 2014). By facilitating the creation of tighter social networks (Gallego and Mendola 2013; Mendola 2017), remittances improve local social capital, facilitating collective organization that makes protest events more likely in high out-migration settings. Some authors have found that remittances enable the formation of rebel groups (Miller and Ritter 2014), while other authors argue that remittances increase the probability of protesting against autocrats in opposition regions (Escribà-Folch et. al. 2018). Overall, resource availability facilitates collective action and shapes mobilization repertoires and technologies, from the types of protest activity the movement can organize and carry out, to the level of engagement by participants, possibly transforming from simple sympathizers to avid adherents. The expectation under the resource mobilization theory is straightforward: the income effect of migrants' remittances should *increase* the likelihood of collective mobilization against crime.

Grievances are regarded as a major cause of anti-incumbent contentious mobilization (Gurr 1970; Brancati 2014). Remittances have an impact on *economic* grievances through different channels. First, many scholars have found that the rise in income caused by remittances improves the living conditions of those left behind, reduces poverty, and provides insurance against different types of risks (Chami et al. 2008; Adams and Page 2010; Yang and Choi 2007).[3] This income effect of remittances improves the perception that recipients have of their own economic situation. According to the predictions of pocketbook models, recipients misattribute the betterment of their economic circumstances to incumbents, boosting their approval (Germano 2013; Tertychnaya et al. 2018). Better access to welfare associated with

[3] In their research, these authors show that remittances mitigate the risk of civil war onset. In contrast, as found by Barry et al. (2014), when the economic conditions in emigrants' destination countries deteriorate, anti-incumbent protests in home countries increase as a result of rising economic grievances. These authors do not, however, explicitly test the role of remittances.

remittances, particularly in times of economic hardship, reduces grievances, in turn lowering the probability of civil conflict (Regan and Frank 2014).

New research on Mexico surmises that besides impacting economic grievances, receiving remittances is positively associated with recipients' improved perceptions of their security situation or, in other words, with lower *security* grievances. Those receiving remittances exhibit better perceptions of safety in their neighbourhoods. In the same vein, remittance recipients evaluate their personal and family exposure to crime more positively than those who do not receive remittances (Doyle and López 2019). In other words, receiving remittances makes recipients feel safer in comparison to non-recipient peers. Less economic and security grievance leads to the expectation that remittances should be associated with *less* protest against crime.

Second, the extra income of remittances and the subsequent reduction in poverty provide recipient households with the access to goods often provided by states, such as education and health, as well as housing, public infrastructure, water, and sanitation. This is the so-called substitution effect of remittances. Remittances (individual and collective) enable recipients to become public providers of social and public goods (Yang and Choi 2007; Adams and Page 2010; Adida and Girod 2011; Duquette and Rury 2016; Ambrosius 2019) making them less dependent on publicly provided services. The bulk of research on the substitution effect has focused on policies such as housing, education, and health; but interestingly, preliminary evidence suggests that remittances could allow recipients to have greater and better access to public and private security, and to afford legal assistance. As Brito et al. (2014, 8) state, "the family abroad can send extra money to pay for private security". Anecdotal evidence suggests that emigrants have sent money home to facilitate their relatives' protection (Authors 2019). As a result of this substitution effect, if recipients can afford to become their own providers of security

and, in general, feel safer than non-remittance recipients, remittance inflows could well reduce the incentives for recipients to organize collectively with others in reaction to rising crime and instead produce politically and socially disengaged citizens. In sum, the substitution effect of remittances also anticipates *less* likelihood of engaging in anti-incumbent protests against insecurity, although for different reasons. Overall, under the grievance theory of political protest, we expect remittances to be associated with *no effect or a decreasing impact* of remittances on the likelihood of protesting against crime.

Note that different theoretical approaches to explaining protest lead to different predictions regarding the relationship between remittance inflows and the likelihood of engaging in collective action against crime. Remittances provide the aggrieved with the resources to protest; but at the same time, remittances lower grievances, and consequently the likelihood of protesting. Rather than adjudicating between these two alternative observable implications, we postulate that these effects are prevalent at different degrees of local penetration of remittances. Controlling for local levels of wealth and development and for a host of other determinants of protest against crime, we contend that the reduction in economic and security grievances will be evident at high levels of remittance presence. Taking into account that remittances are primarily spent on covering basic needs, it may take sizable transfers for recipients to be able to afford private means of protection and have better access to justice, as well as to perceive a clear reduction in economic hardship; for poor households, however, the best hope of attracting public attention and secure their own protection may well be by devoting resources and time to organizing with other victims and non-victims (Phillips 2017), with the option to disengage from collective action being only available in settings of high remittance presence. Therefore, our working hypothesis is the following.

H_0: There is a non-linear relationship between the inflow of remittances and the probability of engagement in anti-incumbent protests against crime: Remittances increase the likelihood of protesting at low to moderate levels; but decrease it at high levels of local remittance penetration.

3. Data and Empirical Strategy

3.1. Data

Our dataset at the state level comprises a balanced panel of 31 states (excluding Mexico City) and 22 time periods spanning from the first quarter of 2006 to the second quarter of 2011, yielding a total sample size of 682 state–quarter observations. Socioeconomic and political data were collected from various sources: National Statistical Institute (INEGI), Central Bank of Mexico (Banxico), Mexican Protest against Crime Dataset (MPC, Ley 2014), and Nyblade and O'Mahony (2014). The summary statistics of all the variables are reported in Table 1.

Table 1. Protests against Crime and Remittances: Summary Statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	SD	Min	max
Protest					
Number of protests	682	1.078	2.604	0	29
Remittances					
Remittances	682	1,618	1,486	61.97	6,277
Log remittances	682	6.923	1.051	4.127	8.745
Controls					
Emigration	682	3.834	2.908	0.446	12.18
Log population	682	14.68	0.744	13.15	16.54
Average years of schooling	682	6.900	0.962	4.992	9.020
Share of indigenous population	682	0.104	0.136	0.002	0.542
Opposition party in state government	682	0.756	0.428	0	1
Homicide rate	682	4.148	5.912	0.0466	58.54
Unions	682	112.5	82.27	33	530.7
Civil associations	682	224.6	161.6	40	1,025
Churches	682	1,736	1,171	272.0	5,873
Log GDP per capita	682	12.40	0.732	11.05	13.91
Instrument					
Weighted US unemployment rates	682	7.420	2.512	4.082	11.72

Protest against Crime

The dependent variable, protest against crime, is a count variable recording the number of protests in state i and quarter t. These are original data collected at the state level, taken from the Mexican Protest Against Crime (MPC) Dataset (Ley, 2014). This new database provides detailed information on 1,014 protest events against crime and insecurity that occurred during the 2006–2012 period across the 31 Mexican states.[4] It focuses exclusively on *non-violent* mobilization events organised by *citizens* as a means of *freely expressing their opposition* to a particularly

[4] While the dataset could potentially be disaggregated at the municipal level, doing so would naturally generate a major urban bias, as victims and their relatives tend to organize protests in capital cities in order to have more impact and generate more pressure. Such disaggregation would assign protest events incorrectly and given that news reports generally do not provide detailed information on the places of origin of the different participants and their organizations, it is impossible to correctly disaggregate data at the municipal level.

violent event or general insecurity, as well as a way to demand specific changes to security policies. As such, the MPC Dataset excludes protest events organized by criminal organizations against a particular branch of government or security force, as well as public forms of protests by police forces demanding greater security for their working conditions.[5] The acts of citizen protest considered in this dataset include: marches, demonstrations, road blockages, community meetings with authorities, labour strikes, collective public prayers, sit-ins, collective press conferences and press releases, hunger strikes, distributing flyers, collecting signatures, and occupying government buildings. The information is derived from a systematic review of fifty local newspapers and one national newspaper, listed in Appendix A1.[6]

Our objective is to explain the variation in the mobilization of civil society against crime as a function of received remittances across Mexican states using quarterly data. As shown in Figure 1, there is significant variation in the spatial distribution of protests across Mexico. Two northern states, Chihuahua and Nuevo León, along with Guerrero in the south saw the highest number of protests during the almost six-year period of study. Baja California, Sinaloa, and Veracruz followed closely and experienced between 49 and 60 protests during the same period.

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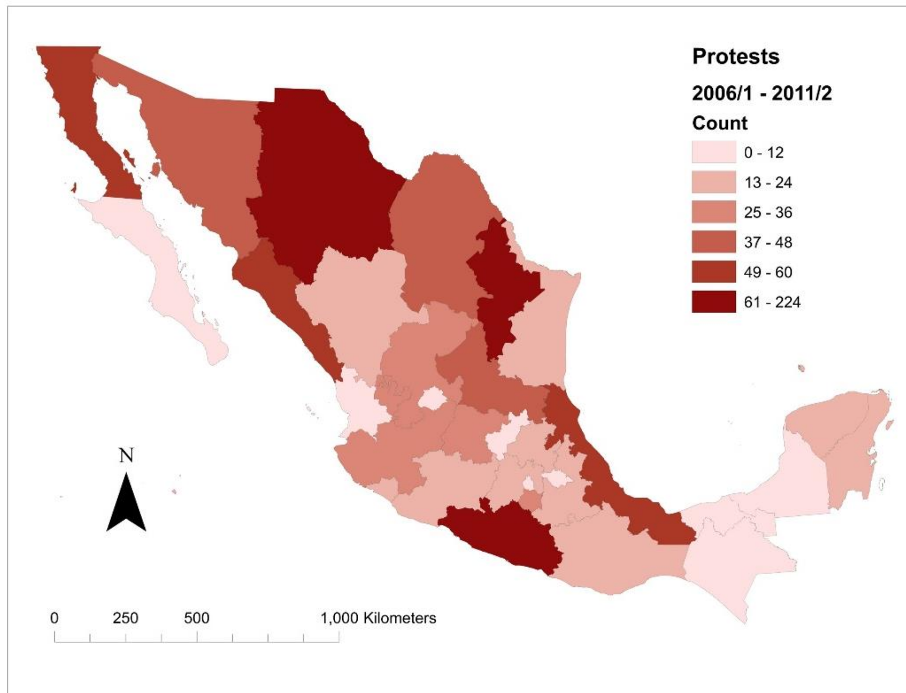
[5] The MPC Dataset excludes protests that explicitly supported specific criminal organizations as part of their goals or such public expressions during the protest event, as in the case of demonstrations organized in 2010 and 2011 in Michoacán to show support for La Familia.

[6] The national daily newspaper was *Reforma*, which has extensive coverage of northern Mexico, one of the regions most affected by violence. Most importantly, it has covered news on marches for peace since as early as 1999. The sample of fifty local dailies includes two newspapers for twelve states, one newspaper in nine states and three newspapers in five states. Ley (2014) did not have access to news sources in the states of Campeche, Chiapas, Nayarit, Oaxaca or Quintana Roo, but this limitation was partially overcome through the use of multiple regional newspaper sources.

Figure 1. Protest Against Crime, Count by State, 2006/1–2011/2



Source: Authors, with data from Mexican Protest Against Crime (MPC) Dataset (Ley, 2014).

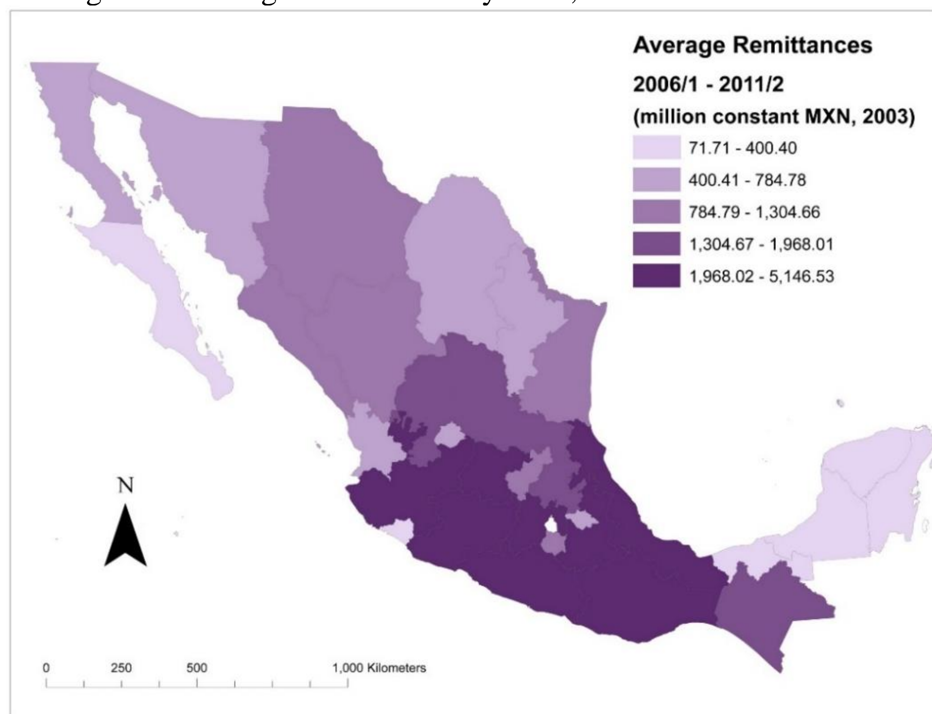
Remittances

Our main explanatory variable is *remittances* for each state–quarter in its logarithmic form. This variable is measured in constant 2003 pesos (Nyblade and O'Mahony, 2014). Throughout the period, the average state level of remittances was 1,618 million Mexican pesos.[7] Figure 2 shows the spatial distribution of average remittances across states during our period of study. Southern and central states have the highest volume of remittances, as they are historically also the areas of higher emigration (particularly the central states). Our goal is to explore whether the posited contradictory effect of remittances on protests varies with the size of the inflows, with

[7] In Table S1, Online Appendix, we show that our results are robust to normalizing remittances by state population. We nonetheless prefer the measure that we use to one of normalizing by state wealth, which is not exogenous to remittances.

remittances having an activation effect at moderate levels of remittance inflows. Thus, in our estimations, we include the quadratic term of remittances to investigate the possibility that remittances increase the probability of engaging in protests against crime, but at a declining rate after a certain amount of remittance inflows.

Figure 2. Average Remittances by State, 2006/1–2011/2



Controls

The control variables are mostly collected from census data. Unless otherwise specified, socio-economic and demographic characteristics change only twice throughout our period of analysis. We used information from *Encuesta Intercensal* in 2005 and *Censo de Población y Vivienda* in

2010. Therefore, these variables are relatively constant in the resulting dataset.[8] Because we are explaining protests against crime, we need to control for the *homicide rate*. The average number of homicides per 100,000 inhabitants is 4.1.

We claimed that both new and historical migration and particularly the resources migrants send to their families should be considered among the international correlates of protest. While discontent with the security situation is a factor motivating individuals to move mostly internally, but also internationally (Atuesta and Paredes 2015; Rios 2014; Basu and Pearlman 2017), likely depriving sending countries of an active mass of protesters (Pfaff and Kim, 2003; Hiskey et al. 2018; Kapur 2014), the resources emigrants send back home should be fully acknowledged. This is why we control for *emigration* as well as remittances.[9] This variable measures the percentage of households with emigrants in the five years previous to the survey collection period (INEGI).

As explained, the literature on contentious mobilization has widely considered social networks to be an important determinant of participation in social protests (Diani 1995; Friedman and McAdam 1992; Fujii 2008; Gould 1993; McAdam 1982, 1988; McAdam and Paulsen 1993; Passy 2001, 2002). To account for *local* social networks, we include the *number of civil society associations* per 100,000 inhabitants. Because of the centrality of church associations in building tight local networks, we control for the number of these groups. Finally, *trade unions* have also played an important role in social and political movements (Chenoweth and Ulfelder 2017, 305). We include as a control the number of labour *unions* and professional

[8] This does not present a problem for our estimations since socio-economic and demographic characteristics can be assumed to be relatively time-invariant, at least during our time period of analysis.

[9] The correlation between the two variables is high, but lower than what might be expected (0.53).

associations per 100,000 inhabitants. These variables are taken from Mexico's economic census data (Ley 2014) and are expected to correlate positively with the likelihood of protesting.

We control for the *incumbent party* in the state government. On the one hand, in states governed by the national incumbent party during our period of analysis (*Partido de Acción Nacional*, PAN), voters may be better able to assign responsibility for growing insecurity (Ley 2017). On the other hand, criminal violence was higher in states governed by opposition parties – particularly by the *Partido de la Revolución Democrática*, PRD – during the Calderón administration (Trejo and Ley 2016). Thus, it may be the case that in states led by the opposition, citizens are more likely to organize in response to higher levels of insecurity. We control for this factor by including a dummy variable that equals 1 if the ruling party is from the opposition and 0 if the state is governed by the federal incumbent party (PAN).

Since we are using the level of remittances (logged), we control for two variables that may affect these flows. We control for the *population* (logged) of the state (INEGI); and we control for *gross domestic product* in constant 2008 pesos (logged) to distinguish the income effect of remittances from the income effect of initial wealth. We include a control for *education* using years of schooling as a measure of the stock of human capital in the state at a given time. Additionally, we include the *percentage of indigenous population* in the state because these communities have had long traditions of strong formal and informal networks as well as know-how for social collaboration, shared identities, solidarity, and resolution of collective action problems (Trejo 2009). Finally, we include the lag of the dependent variable to control for possible inertia in protest activities.

3.2. Empirical Strategy

Our empirical strategy at the state level exploits the quarter-to-quarter variation in remittances by state to estimate their association with protests against crime. Our specification takes the following form:

$$Protest_{it} = \beta_0 + \alpha_i + \beta_1 \ln(remitt_{it}) + \beta_2[\ln(remitt_{it})]^2 + \gamma_1 X_{it} + \varepsilon_{it} \qquad \text{Eq (1)}$$

for state i and quarter t. The dependent variable, $protest_{it}$, is a count variable measuring the number of protests that took place. The main independent variable, $remitt_{it}$, records remittances in the recipient state (logged), in both linear and quadratic forms, in line with our argument. X_{it} is a vector of socioeconomic, demographic, and political determinants of protests, α_i is a state-specific effect; ε_{it} is the error term.

Estimating Eq. (1) by means of a pooled OLS would pose several problems for identification of the effect of remittances on protests. First, the dependent variable is a count, hence it exhibits overdispersion (variance greater than the mean) and the protest events are not independent. The most appropriate estimation technique is a negative binomial (NB) regression. Second, ignoring the temporal variation of the data would yield less precise estimates. To tackle this type of omitted variable bias, we test for random effects on a panel of states. Given that some of the explanatory variables change slowly over time and that the period under study is relatively short, the use of fixed effects is less viable (Allison and Waterman 2002; Ley 2014). For these two reasons, our preferred model for estimating the effect of remittances on the expected count of protests against crime is a negative binomial regression with random effects.

Finally, further endogeneity issues may arise from reverse causality between protest and remittances. Protests could explain remittance flows. For instance, states with a larger number of

protests and more social unrest could potentially experience a decline in remittance flows coming from abroad due to uncertainty about financial security caused by the occurrence of social unrest (Meseguer et. al. 2017). We exploit an instrumental variable approach to address this endogeneity concern. The instrumental variable is constructed using two distinct data sources: i) quarterly U.S. state unemployment rates (seasonally adjusted, end of period – U.S. Bureau of Labour Statistics 2006–2014); ii) shares of the diaspora in the top 3 U.S. states from each Mexican state as of 2008 – based on *matrículas emitidas* (Institute for Mexicans Abroad, IME).

Formally, the instrumental variable $Z_{i,t}$ for Mexican state *i* in quarter *t* can be written as

$$Z_{i,t} = \sum_{j=1}^{4} \frac{Unemployment\ rate_{j,t}}{Weight\ diaspora_{i,j}}$$

where $Weight\ diaspora_{i,j}$ refers to the share of Mexican state *i*'s *diaspora residing in U.S. state j*, and $Unemployment\ rate_{j,t}$ measures the seasonally adjusted quarterly unemployment rate in U.S. destination state *j* at time *t*, *j*=[1,…,4] with *j* being the top three U.S. destination states and the U.S. as a whole (residual weight so that sum of weights = 1). This variable is strongly and negatively correlated with flows of remittances: increases in unemployment in the destination have a *negative* impact on remittances sent back home. As far as the exogeneity condition goes, it is unlikely that the unemployment rate at the migrants' destination will have a relationship with protests against crime other than through its effect on remittances.[10] Our potentially

[10] There could be some concern about *matrículas* being impacted by crime-induced emigration. However, by using 2008 information, early in the period, we can be confident that matrículas are minimally affected by crime.

endogenous variable of interest appears in the equation both in linear and quadratic terms. This particular specification is the so-called *nonlinear in endogenous variables* system of equations (Wooldridge 2010), which we explain in the robustness section.

4. Results

Table 2 reports the panel of NB estimates of the expected effects of the independent variables on the count of protests. To control for more populated states being at higher risk of experiencing more protest activity, we use (log) population as the exposure variable in the model. Table 3 contains the instrumental variable approach results that provide evidence of the robustness of the estimated relationship.

Our first step in exploring this relationship is estimating the effect of remittances on the expected count of protests against crime while holding the other predictors constant. Estimates of the explanatory variables are given in Table 2. The first key result can be seen in Columns 1 and 2. In the first model, protests are only a linear function of remittances, while in the second a quadratic term is included. In order to verify whether the full model including the quadratic term of remittances is a better fit than the simple linear function, we conducted a likelihood ratio (LR) test. The LR statistic for Models 1 and 2 is 15.73 and we are able to reject the null hypothesis that the additional term equals zero at the 1 percent level of significance.[11] We can be confident that a non-linear relationship between protests and remittances provides a better fit.

[11] The likelihood ratio test is also conducted for the full specification (Column 8), with and without the squared term of remittances. With an LR statistic of 6.71, we are still able to reject the null at the 1 percent level of significance.

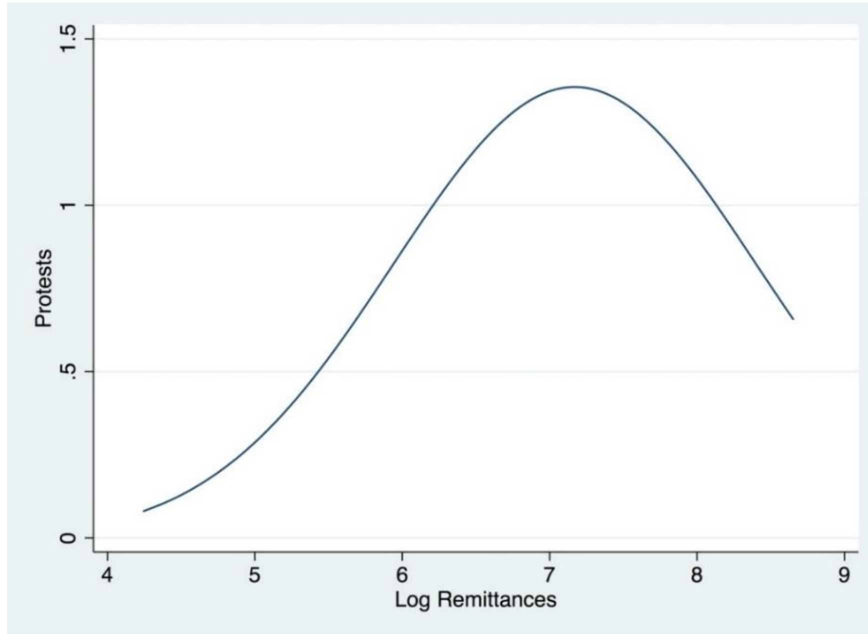
Table 2: Protest and Remittances: Negative Binomial Random Effects by Quarter

Dep. Var. Protests	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(remittances)	-0.3205***	4.5368***	4.5247***	4.2227***	3.4262***	3.4735***	4.3534***	4.2970***
	(0.119)	(1.285)	(1.366)	(1.294)	(1.323)	(1.333)	(1.533)	(1.518)
Log(remittances)^2		−0.3493***	−0.3344***	−0.3198***	−0.2444**	−0.2462**	−0.2881***	−0.2880***
		(0.092)	(0.098)	(0.092)	(0.096)	(0.097)	(0.110)	(0.108)
Emigration			−0.0991***	−0.0393	−0.0899**	−0.0926**	−0.0189	−0.0147
			(0.037)	(0.036)	(0.041)	(0.041)	(0.052)	(0.051)
Homicide rate				0.0450***	0.0408***	0.0405***	0.0413***	0.0397***
				(0.006)	(0.007)	(0.007)	(0.007)	(0.008)
Civil associations					0.0026***	0.0027***	0.0022***	0.0018**
					(0.001)	(0.001)	(0.001)	(0.001)
Unions					0.0004	0.0003	0.0012	0.0014
					(0.002)	(0.002)	(0.002)	(0.002)
Church associations					−0.0006***	−0.0007***	−0.0007***	−0.0007***
					(0.000)	(0.000)	(0.000)	(0.000)
Opposition party						0.1614	0.3876*	0.2837
						(0.190)	(0.219)	(0.218)
Average schooling							0.6697**	0.5940**
							(0.266)	(0.256)
Indigenous population							0.0320*	0.0295*
							(0.017)	(0.016)
Log (GDP)							0.1332	0.1252
							(0.255)	(0.250)
Lagged protest								0.0120
								(0.014)
Observations	682	682	682	682	682	682	682	651
Number of states	31	31	31	31	31	31	31	31
Log likelihood	−851.3	−843.4	−839.7	−823.4	−813.7	−813.3	−809.6	−787.3

Robust standard errors (observed information matrix, OIM) in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As we expected, remittances have a positive effect on the expected count of protests up to a certain level of remittance penetration, past which the impact decreases. We calculated different specifications and introduced controls progressively in Columns 3–8. In the full specification in Column 8, increases in quarterly remittances, holding other predictors constant, are associated with increases in the difference in the log of expected counts of mobilizations against crime, with a decreasing effect after an inflexion point at about 1,737 million pesos. This figure happens to be slightly above the mean of state–quarterly remittances (Table 1). Thus, remittances sent from abroad produce both an engagement and a disengagement effect when it comes to mobilizing citizens to collective action against crime. This finding demonstrates that there is a false dichotomy when we theorize about the effect of remittances on protest. The effect of remittances on protest is not monotonic. Remittances can have either effect depending on the largesse of the inflows. Only moderate to high levels are "demobilizing". Figure 3 shows the predicted effect of remittances on the expected count of protests (based on Model 2). As anticipated, the relationship follows an inverted U-shape.

Figure 3. Predicted non-linear effect of remittances on expected count of protests



The results concerning the control variables are also interesting. We posited that emigration was more likely to deprive Mexican states of those most unsatisfied with the state of affairs, thus depressing protest. We find this significant negative effect (Column 3), but it becomes insignificant as we include further controls. Not surprisingly, higher levels of crime proxied by crime rates increase the likelihood of protests at the state level consistently throughout all specifications.[12] In line with extant research, local networks have explanatory power even after we consider international financing of protests via remittances. This is more evident in the case of civic associations, confirming previous findings (Ley 2014). Surprisingly, the number of church associations is negatively associated with protest counts, albeit with a very small effect. Having an opposition party ruling the state does not increase the expected incidence of contentious activities against crime. Finally, states with higher average years of education exhibit

[12] We test the sensitivity of our results to different crime measures. In Table S2, Online Appendix we show the NB full specification but including the rate of disappearances per 100,000 inhabitants instead.

higher expected numbers of protests and, for the reasons mentioned above, large shares of indigenous population are also associated with more protests. State wealth, whilst not being statistically significant, does modify the size of the estimated effect of remittances, suggesting that we need to control for subnational income levels. Finally, as Column 8 shows, the number of previous protests is positively, albeit not significantly, associated with contemporaneous protests after the rest of covariates are controlled for.

Robustness

To address possible endogeneity issues stemming from our potentially endogenous variable of interest entering the equation in both linear and quadratic terms, we adopt an instrumental variable approach (Wooldridge 2010). This approach is akin to a three-stage least squares estimation.[13] We restrict our instrumental variable estimation to an OLS with random effects, as opposed to the negative binomial, to avoid incurring additional assumptions. The estimates for the three–stepwise instrumental variable approach are reported in Table 3.

In the first stage, column (1), we regress the exogenous instrument of diaspora-weighted unemployment in the U.S. and the other exogenous covariates on remittances. The Wald chi2-statistic indicates that we can reject the null hypothesis that the coefficients of the joint instruments in the reduced form equal zero. Moreover, the instrument is significantly associated with remittances: in line with theoretical expectations, rates of unemployment in migrants'

[13] See Authors (2019) for an application of the same technique to the case of remittances and vigilantism in Mexico. McKenzie and Rapoport (2007) also model an endogenous variable (migration) in quadratic form.

destinations are negatively associated with remittances received. For this regression, we estimate the fitted values for remittances.

Table 3. Protest and remittances: Instrumental variables

Dep. Var. Protests	*first stage* (1)	second stage Remittances (2)	second stage Remittances^2 (3)	third stage Protest (4)
Log(remittances)				9.0438**
				(4.547)
Log(remittances)^2				−0.2802**
				(0.138)
Emigration	−0.0190***	0.1042***	1.4502***	−0.5097*
	(0.007)	(0.007)	(0.101)	(0.298)
Homicide rate	0.0031*	−0.0000	−0.0174	0.2248***
	(0.002)	(0.003)	(0.041)	(0.060)
Civil associations	0.0001	0.0007***	0.0099***	−0.0030
	(0.000)	(0.000)	(0.002)	(0.002)
Unions	−0.0013	0.0015***	0.0213***	−0.0039
	(0.001)	(0.000)	(0.004)	(0.003)
Churche associations	−0.0000	−0.0002***	−0.0023***	0.0009
	(0.000)	(0.000)	(0.000)	(0.001)
Opposition party	−0.0729**	−0.0607*	-0.9063**	0.3518
	(0.028)	(0.031)	(0.429)	(0.341)
Average schooling	−0.3181***	−0.1244**	−1.8428***	1.3951*
	(0.042)	(0.054)	(0.700)	(0.805)
Indigenous population	−0.0222***	-0.0020	−0.0310	0.0679*
	(0.008)	(0.004)	(0.051)	(0.039)
Log (population)	1.3244***	0.7236***	10.9862***	−7.1600*
	(0.157)	(0.230)	(2.877)	(4.198)
Log (GDP)	−0.3449	−0.3258***	−4.8733***	2.7278*
	(0.222)	(0.073)	(0.912)	(1.536)
Lagged protest	−0.0020	−0.0120**	−0.1456*	0.2824**
	(0.002)	(0.006)	(0.080)	(0.110)
IV Unemployment	−0.0416***			
	(0.006)			
Pr[*Log(remittances)*]		−0.1026	−17.0580***	
		(0.246)	(2.893)	
Pr[*Log(remittances)^2*]		0.0415***	1.6569***	
		(0.015)	(0.161)	
R-squared	0.798	0.917	0.921	0.050
Wald Chi2	700.3	-	-	-
F	-	7.38	55.15	-
Sanderson-Windmeijer F	-	9.70	17.24	-
Sanderson-Windmeijer Chi2	-	9.92	17.62	-
Kleibergen-Paap rk LM	-	-	-	8.429
Kleibergen-Paap rk Wald F	-	-	-	5.360
Observations	651	651	651	651

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.

The linear prediction and its squared term from the previous stage are used as the excluded instruments in a 'two-stage least squares' estimation with two endogenous variables. We then have two additional first-stage regressions, one for each of the endogenous variables, and two instruments.[14] Columns (2) and (3) in Table 3 have been labeled as 'second stage'. Note that they include the first-stage regressions of the two endogenous variables, namely remittances and remittances squared. The linear predictions obtained in column (1) are the excluded instruments (Pr[Remittances] and Pr[Remittances^2]).[15] We confirm their relevance separately in the equations for each endogenous regressor and jointly for the last stage.

The third step of the procedure is shown in the last column (4) of Table 3, which gives the estimates of the second-stage regression (labeled as third stage) for the linear and quadratic effects of remittances on protests. The inverted U-shaped association between remittances and the count of protests is robust to instrumenting the endogenous terms of remittances and remittances squared.[16] This being a linear-in-parameters model, the interpretation of these estimates is more straightforward: a 10 percent increase in remittances is associated with an

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[14] The equation is exactly identified, and thus we are unable to test for exogeneity.

[15] The F tests of excluded instruments are reasonably high, reassuring us of the relevance of our instruments. We further test for under- and weak identification of the endogenous parameters separately for each equation. The Sanderson-Windmeijer chi-squared Wald statistics allow us, in both cases, to reject the null hypothesis that the endogenous parameter is under-identified. The Sanderson-Windmeijer F statistic is a test of excluded instruments, and it confirms that the parameters are not weakly identified. Finally, we test the null hypothesis that our two excluded instruments are redundant, and we reject the null hypothesis at the 1 percent level of significance.

[16] Since we assume heteroskedasticity-robust standard errors, we are compelled to use more appropriate tests for under-identification and weak identification of the reduced form equations jointly (Column 4). The Kleibergen-Paap LM statistic allows us to reject the null that the model is under-identified. Moreover, the Kleibergen-Paap rk Wald F tells us that the equation is not weakly identified.

increase of 0.831 in the expected number of protests, holding everything else constant.[17] The inverted U-shape can be illustrated by calculating the predictive margins for specific values of the remittance distribution, keeping the rest of the covariates constant (Table 4).

Table 4. Predicted number of protest

Percentile of remittances	Fitted value of protests
5th	0.448
25th	1.031
Median	1.073
75th	0.919
95th	0.646

The predicted values of protests for different levels of remittances show a positive but decreasing effect. The expected number of protests increases from 0.448 protests at the 5th percentile to 1.073 at the median value of remittances. After this level of quarterly state remittances, the predicted number of protests decreases to 0.919 (for the 75th percentile) and drops further to 0.646 for states in the 95th percentile of remittances. Thus, remittances increase the probability of protesting, but at a declining rate, which provides robust evidence that remittances sent from abroad produce both an engagement and a disengagement effect.[18]

[17] The estimated effect of a 10 percent increase in the logarithmic transformation of remittances is calculated as $0.095 \times (7.038 - .226) = 0.831$.

[18] Another approach for instrument selection is to include higher-order terms of exogenous variables appearing in the system (Online Appendix Table S3). The intuition is that nonlinear functions of the endogenous variable have a linear projection that depends on new functions of the exogenous variables. In our case we use the exogenous unemployment IV, plus the quadratic and cubic terms of GDP per capita. These two additional instruments are in fact correlated with remittances, and they can arguably be excluded from the main equation. The end result is a system of equations with three excluded instruments.

5. Discussion

Workers' remittances do help those left behind to organize and protest against crime. But because they also improve the living conditions of recipients, reduce economic risks, and improve perceptions of the security situation, remittances finance protests against crime at a declining rate. In other words, remittances provide resources to protest; but they also reduce the reasons to do so. This finding is relevant to several literatures. First, research on the international determinants of protests is only starting to pay attention to emigration and financial remittances as determinants of anti-incumbent mobilization (Barry et al. 2014; Miller and Ritter 2014; Escribà et al. 2018; Pérez-Armendáriz and Duquette-Rury 2019; Authors 2019). In the literature on protests, resources are deemed essential for grievances to be transformed into collective action. Remittances are international resources, but they are a particular instance of international finance. They are sent by relatives abroad to their families left behind; that is, by an international network of family connections. Remittances provide resources to the senders' families and communities, which can then engage in collective action to mobilise against crime and insecurity. As such, this source of international finance should be systematically taken into consideration in future research on the international determinants of contentious politics.

Second, we contribute to the thriving literature on the political consequences of remittances. This literature has so far treated remittances as either causing political engagement or causing disengagement (Goodman and Hiskey 2008; Bravo 2009; Germano 2013; Pfutze 2014; Dionne et al. 2014). We have added an important nuance to this finding by arguing and showing that family remittances can cause both. As we showed, the impact of remittances on protests is not linear, and the positive effect of remittances on protest against crime declines in settings where remittances are slightly over average. Relying on recent scholarship, we argued

that this finding has to do with the income and substitution effects of remittances, which grant recipients more autonomy from the state and reduce grievances. Interestingly, a similar non-linear effect of remittances on the probability of financing self-defense organizations at the municipal level in Mexico has been found (Authors 2019); but in the case of vigilantism, the tipping point after which remittances impacted the formation of self-defense organizations at a declining rate was situated at a much higher level of remittance penetration at the municipal level. In other words, it takes large inflows of remittances to slow down the formation of grass-root *vigilante* organizations. For us, this is indicative that in comparison to non-violent protests, vigilantism is a more resource-intensive form of collective mobilization that requires sustained financial support for its emergence and endurance (Phillips 2017; Moncada 2017).

Future research should explore the role of remittances in financing different types of violent and non-violent protests, as well as to explore whether remittances impact other types of political behaviour in other violent democracies in a similar non-linear fashion. Finally, researchers should also explore whether other types of migrant connectivity in the form of social remittances (Levitt 1998) or collective migrant organizations in the form of hometown associations also help those left behind to mobilise to demand better protection and access to justice, and to protest against crime and impunity. All in all, this research calls attention to family remittances as determinants of protest against crime and helps us advance our understanding of how remittances impact this particular example of non-electoral political behaviour. International networks of migrant solidarity with those left behind matter, as do the financial resources they send back home.

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Appendix: Remittances and Protest Against Crime in Mexico

Table A1. List of newspapers used for the MSD dataset

State	Newspaper	Years
Aguascalientes	El Sol de Aguascalientes	2008-2012
Baja California	Frontera	2006-2008
	Crónica	2009
	El Vigía	2010-2012
Baja California Sur	El Sudcaliforniano	2006-2012
Coahuila	El Siglo de Torreón	2006-2012
	El Zócalo de Saltillo	2006-2012
Colima	Diario de Colima	2006-2012
Chihuahua	The Chihuahua News Database, provided by Información Procesada(INPRO)	2006-2012
Durango	El Siglo de Durango	2006-2012
	El Sol de Durango	2008-2012
Guanajuato	Periódico AM	2006-2012
	Milenio León	2006-2012
Guerrero	El Sur	2006-2012
	El Sol de Acapulco	2008-2012
Hidalgo	El Sol de Hidalgo	2006-2012
	Milenio Pachuca	2006-2012
Jalisco	El Mural	2006-2012
	El Informador	2006-2012
México	Milenio Estado de México	2006-2012
Michoacán	El Sol de Morelia	2008-2012
	Cambio	2009-2012
Morelos	El Sol de Cuernavaca	2008-2012
	La Unión	2007-2012
Nuevo León	El Norte	2006-2012
	El Porvenir	2006-2012
Puebla	El Sol de Puebla	2006-2012
	Milenio Puebla	2006-2012
Querétaro	Diario de Querétaro	2006-2012
San Luis Potosí	El Sol de San Luis	2006-2012
	La Jornada de San Luis	2006-2012
Sinaloa	El Sol de Sinaloa	2008-2012
	Noroeste	2008-2012
Sonora	El Imparcial	2006-2012
Tabasco	Milenio Villahermosa	2006-2012
Tamaulipas	El Sol de Tamaulipas	2008-2012
	El Mañana	2009-2012
	Milenio Tampico	2006-2012
Tlaxcala	El Sol de Tlaxcala	2008-2012
Veracruz	El Sol de Orizaba	2008-2012
	El Sol de Córdoba	2008-2012
	Milenio Xalapa	2006-2012
	Liberal	2008-2012
	La Jornada Veracruz	2011-2012
Yucatán	Diario de Yucatán	2006-2012
Zacatecas	El Sol de Zacatecas	2008-2012
	Imagen	2006-2007
	NTR	2008-2012
National newspaper	Reforma	2006-2012