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Disappearing dissent? Repression and state consolidation in Mexico

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Disappearing Dissent?
Repression and State Consolidation in Mexico

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Abstract

Does violent repression strengthen the state? In this paper we explore the legacies of repression by the Mexican government on subsequent state consolidation. We investigate how a particular form of state repression, forced disappearances of alleged leftist dissidents, during the 1960s and 1970s in Mexico had path-dependent consequences for different dimensions of state capacity nearly fifty years later. To do so, we rely on data gathered from suppressed Mexican human rights reports of forced disappearances which, to our knowledge, have not been analyzed by social scientists before. Controlling for a rich set of pre-disappearances covariates, we find that forced disappearances are positively correlated with contemporary measures of fiscal and bureaucratic capacity. However, historical forced disappearances do not help the state to provide security, to consolidate its monopoly over the use of force, or to provide welfare-related public goods in the long run. Moreover, disappearances are negatively correlated with various measures of trust in the government.

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Introduction

What are the long-term effects of state repression? Authoritarian states facing organized political challengers frequently resort to violence to maintain their rule, intending to both punish past behavior by challengers and deter future potential threats. While the *short-term* effects of such repression have been amply studied (e.g. Davenport, 2007; Phillips, 2017), the *long-term* effects of state repression have been explored far less.[1] Moreover, research is still in nascent stages regarding the effects of specific repertoires of repression and violence, especially those that are less visible and for which data are difficult to collect (Sullivan & Davenport, 2018).

This paper explores the long-term effects of a particular type of state violence, forced disappearances of alleged dissidents, which constitutes a common mode of repression in authoritarian states. We look specifically at the effects of forced disappearances on state consolidation over the long run in Mexico. We assume that the state's decision to use violence against citizens is likely to persistently affect local communities and their attitudes towards the state on the one hand, and to consolidate other dimensions of state capacity on the other. Drawing on three literatures on state consolidation, political violence, and the legacies of historical events, we argue that forced disappearances likely have negative consequences for long-term security outcomes while consolidating the bureaucratic-rational aspects of state functioning in the long run.

We focus principally on the *long-term* consequences of state repression on different dimensions of state consolidation with an analysis of forced disappearances of dissidents in Mexico during the 1970s and 1980s and their effect on contemporary state strength. In Mexico, the hegemonic party regime of the *Partido Revolucionario Institucional* (PRI) commonly used forced disappearances during the so-called Dirty War.[2] An estimated 800 people were disappeared by Mexican government forces between 1969 and 1988,[3] among them members of peaceful student movements, rural armed insurgents, urban militias, and workers' parties. While in absolute terms 800 victims in a country with 58 million citizens in 1973 (the beginning of the period under study) may seem small, we argue and provide suggestive evidence that the local dynamics of state repression unleashed path-dependent processes of state consolidation that endure today.

The next section develops our argument about how state repression can produce variation in contemporary levels of state consolidation across five core functions: exercising control over

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[1] A few exceptions include Lupu & Peisakhin (2017), Rozenas et al. (2017), Costalli & Ruggeri (2017), Zhukov & Talibova (2018).

[2] On PRI hegemony see, for example, Magaloni (2008).

[3] We describe our data in a subsequent section.

territory; maintaining a monopoly on violence (Weber, 1968); and developing legal, collective, and fiscal capacity to govern (Besley & Persson, 2014). We argue that the impact of forced disappearances is likely to be heterogeneous, affecting different pillars of state capacities in distinct ways. We then discuss the Mexican case, especially the dynamics of contestation that emerged during the 1960s and 1970s and the different forms of repression that the Mexican state employed to counter such mobilizations.[4] The empirical section relies on data gathered from Mexican intelligence reports of forced disappearances during the 1970s and 1980s which, to our knowledge, have not been analyzed by social scientists before. These records were created by the Mexican intelligence, military, and police agencies, thus they offer a number of advantages over more commonly used media-based event data in conflict research. We concur with Balcells & Sullivan (2018) that archives such as these typically contain better and more information than most other systematic collections of material.

Our empirical results indicate that forced disappearances are positively correlated with contemporary measures of fiscal and territorial capacity. However, historical forced disappearances appear to undermine, rather than strengthen, the state's ability to provide security over the long term, and to consolidate its monopoly over the legitimate use of force. Moreover, disappearances are not, or if anything negatively correlated with the contemporary provision of welfare-related public goods. Taken together, these results demonstrate that the legacy of state repression is not homogeneous across distinct spheres of state consolidation, and that locally-applied repression can produce 'schizophrenic' states that demonstrate poor consolidation on some areas while exhibiting symptoms of strength on others.

This paper makes several contributions to the literature, in terms of substance and method. First, we show that forced disappearances during the 1970s and 1980s in Mexico had lasting effects on diverse features of state consolidation in the contemporary period. This indicates that moments of unrest, such as Mexico's Dirty War, have the capacity to transform state functions over the long haul. While we cannot claim causal identification, we include a rich set of pre-disappearances covariates – measuring, for example, prior episodes of violence and different measures of state penetration – many of which we digitized from a diverse set of historical sources. Moreover, Rosenbaum sensitivity analysis indicates that most of our results are robust to moderate to very high levels of unobserved confounding.

Second, while the classical literature on state capacity tends to focus on either 'strong' or 'weak' states, our theoretical arguments unpack state consolidation and approach it as a multidimensional concept. In a similar way, our empirical analysis indicates that state repression has heterogeneous effects on different dimensions of state capacity.[5]

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[4]On earlier dynamics of state consolidation in Mexico, especially fiscal capacity during the colonial period, see Arias (2013).

[5]See Kocher (2010) for an excellent critique of the literature.

Third, we apply these insights to contemporary Mexico, a criminal conflict in which the state faces security challenges emanating principally from drug trafficking organizations. This move broadens the literature's focus on cases of either state-strengthening through external war or state-weakening through civil war. Distinguishing whether long-term effects of state repression travel to non-civil war contexts is important for two reasons: first, because criminal conflicts appear to be increasing in frequency and lethality (Lessing, 2015), and second, because the Mexican case allows us to see whether state repression during an earlier *political* conflict (the 'Dirty War') produced effects many years later amidst a *criminal* conflict. This contribution should help scholars begin to explore the connection between different forms of violence and repression over long stretches of time.

Fourth, we explore a relatively overlooked yet frequently-used repertoire of violence: forced disappearances, which are important because of their global prevalence, the psychological trauma that they inflict on families of the disappeared (Quirk & Casco, 1994), and because they frequently produce important social mobilizations in favor of human rights (Bosco, 2001). To date, only a few rigorous studies of the causes and consequences of forced disappearances exist.[6] In this sense, the paper should be of interest to conflict scholars more broadly, as forced disappearances are frequently used not only by authoritarian regimes, but also in the context of ongoing civil wars. In Colombia, for example, more than 25,000 people have been forcibly disappeared in the context of that country's armed conflict (CNMH, 2013: 33).

Finally, the paper underscores the utility of exploiting historical archival data to study substantively important questions in conflict studies. In particular, our measure of forced disappearances helps overcome common challenges for measuring political violence, which tend to over-represent easily observable acts of violence (Balcells & Sullivan, 2018; Sullivan & Davenport, 2018). At the same time, the particularity of our data and the oddities of the Mexican case make it imperative to explicitly define the universe of events to which our findings speak. We do not imply, nor can we test whether, our findings necessarily apply to other forms of state repression, nor whether they will effectively apply to other countries that have faced state-led repression or to cases of civil war, in which forced disappearances are also common. We assume our findings will likely hold in authoritarian settings, and less so in cases of full-blown civil wars, an issue to which we return in the conclusion. Regardless of the external validity of the substance of our findings, the methods we use for generating novel quantitative measures from existing archival sources are relevant for scholars of conflict studies more broadly, and should motivate the use of cutting-edge methods to digitize archival

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[6]Notable exceptions include Phillips (2017), who studies forced disappearances in Argentina, while Meadowcroft et al. (2017) explore variation in disappearances (and murders) during the Chilean dictatorship.

documents – particularly those produced by individuals who assumed their records would never be released to the public – to study violence and conflict.

Forced disappearances and state consolidation

The classic literature on state formation, principally drawn from historical Europe (e.g. Tilly, 1992),[7] traces variation in state capacity to processes of territorial expansion through war, indicating that war tends to lead to stronger states over the long haul. Yet recent scholarship has rightly qualified the notion that conflict and violence are essential drivers of state consolidation, at least for violence that takes place within the boundaries of a single state. For example, Besley & Persson (2008) argue that in contrast to external wars, internal armed conflicts fail to generate a common interest in strengthening fiscal state capacity, an argument supported by cross-national data. Several studies have investigated potential mechanisms underlying this relationship by looking subnationally at different dimensions of state capacity and political violence. Using data from Colombia, for example, Cardenas et al. (2016) find that violent events that make citizens feel insecure and undermine their willingness to pay taxes, thereby weakening the state's fiscal capacity, while events that signal the strength of illegal armed groups undermine state willingness or ability to provide public goods. Ch et al. (2016) argue that internal conflict often allows competing actors with de facto power to capture local institutions; in Colombia, tax institutions were reshaped by both left-wing and right-wing armed groups in divergent and patterned ways.[8] Steele et al. (2016) look to early modern Japan, showing that peasant-led organized resistance — in particular rebellion and flight — restricted the growth of the state by extracting tax concessions from samurai rulers. Dell (2012) argues that the insurgency during the Mexican Revolution had important long-term effects on public policy and patterns of economic development. Finally, Dell & Querubin (2016a) find that US-led counterinsurgency bombings in Vietnam had a negative effect on local governance,[9] while Dell & Querubin (2016b) show that historical norms of governance — whether a village had a bureaucratic state or a patron-client state more than a hundred years ago — continues to shape living standards today.

A parallel literature on violence offers theoretical arguments and sophisticated empirical tests regarding the long-term effects of violence at both the individual and community levels, showing how violence affects voting behavior (Berrebi & Klor, 2006; Montalvo, 2010;

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[7]An exception is Herbst (2000).

[8]Left-wing guerrilla violence reduced tax revenue and land formalization, while the opposite was true for high levels of right-wing paramilitary violence.

[9]They also had a positive effect on insurgent activities and a negative effect on non-Communist civic engagement.

Getmansky & Zeitzoff, 2014; Weintraub et al., 2015), community participation (Bateson, 2013), civilian mobilization (Schubiger, 2013; Osorio et al., 2017), and attitudes towards former perpetrators across generations (Balcells, 2012; Lupu & Peisakhin, 2017). We draw on these strands of the literature to motivate a focus on a diverse set of factors related to state consolidation.

We begin with the simple insight that authoritarian governments seek to neutralize political threats, while minimizing the potential costs of doing so. Repressive acts, defined as "actions taken by authorities against individuals and/or groups within their territorial jurisdiction that either restrict the behavior and/ or beliefs of citizens through the imposition of negative sanctions (...) or that physically damage or eliminate citizens through the violation of personal integrity..." (Davenport, 2005: 122), can be employed for these purposes and appear in various forms. It is possible to categorize repressive actions according to whether they are carried out openly or covertly, or a combination of both (e.g. Davenport, 2005; Sullivan, 2016). Overt forms of repression, such as public crack-downs against dissidents, send deterrent signals to allies and opponents alike, while at the same time – if not used selectively and proportionately – also potentially alienate opponent sympathizers and increase their incentives to radicalize and fight back (Mason & Krane, 1989; Goodwin, 2001; Kalyvas & Kocher, 2007). Covert forms of repression such as infiltration via informants or other methods of surveillance are difficult to implement yet may successfully disrupt dissident activities indirectly while delivering key intelligence and, if undisclosed, may help avoid or at least delay costly backlash effects associated with more open state-led repressive acts (Sullivan & Davenport, 2018). Moreover, violence that is executed covertly can send powerful deterrent signals, as when individuals are killed and disappeared for supposedly for engaging in dissident activity and accountability for such repressive acts is avoided.

The use of forced disappearances – here defined as the unlawful detention and/or abduction of an individual by agents of the state, or those working with state authorities, and the subsequent concealment of the whereabouts of the disappeared individual (UN, 2006) – has been extremely prevalent, particularly in Latin America in the twentieth century. The use of forced disappearances spans multiple contexts, including ongoing armed conflicts and repressive regimes that do not face sustained armed challenges. During El Salvador's civil war, for example, between 5,500 and 10,000 people were forcibly disappeared, the vast majority by government forces (Arteaga, 2016). In Peru, over 15,000 cases of forced disappearances from the conflict remain unresolved, many of which were allegedly perpetrated by agents affiliated with the state (Comisión de la Verdad y Reconciliación, 2003; AUWCL, 2010). In authoritarian regimes, forced disappearances have likewise been common: 485 were recorded in Paraguay between 1958 and 1988; 979 in Chile between 1973 and 1990; and nearly 9,000

in Argentina between 1976 and 1983 (CNMH, 2013).

The removal of unwanted elements and the prevalent intimidation of the population are frequently mentioned as primary motives for using this type of violence. For example, according to a secret US Department of State memo from 1986, Guatemalan security forces and right-wing paramilitary groups used disappearances to "intimidate the left and to convince potential guerrilla supporters to remain neutral" (National Security Archive Electronic Briefing Book No. 15, 1986: 1). This may be particularly crucial for vertically organized movements and militant organizations, given their vulnerability to the targeting of critically important members (e.g. Davenport, 2015: 54). Forced disappearances may also be aimed at increasing the state's capacity to induce fear-based compliance among larger segments of the society. Yet to what extent are such aspirations of authoritarian regimes actually met, and what are the effects of forced disappearances in the long run?

Most studies of forced disappearances either take a legal perspective (exploring the international mechanisms for seeking legal redress by victims) or an anthropological one (exploring the lived experience of families of victims of forced disappearances). The only political science study of which we are aware that assesses the consequences of forced disappearances is Phillips (2017), which assesses the *short-term* effects of forced disappearances on terrorism. We contend that violence is likely to have *long-term* consequences for communities that have been targeted, as well as for the individuals and state institutions that wield such violence. We therefore expect that forced disappearances committed by the state are likely to have downstream consequences for state capacity at the local level. In particular, we argue that, while relatively rare, forced disappearances will have a particularly disruptive and long-run effect on social relations and affected networks' relationships to the state. Given that most disappearances remain unresolved for decades, if not permanently, social networks are likewise permanently altered and grievances among those left behind tend to persist.

Of what does state capacity consist? Recent work challenges the unidimensional conception of state capacity and consolidation inherited from Tilly, described above, which is primarily focused on control over the means of violence and how *inter-state* war-making has state-strengthening consequences. A new wave of scholarship instead stresses the multidimensional capacity of the state, divided into legal, collective, and fiscal capacities (e.g. Besley & Persson, 2014: 932f.), each of which we describe below. This literature demonstrates that violence can either undermine or reinforce state capacity, depending upon how it is wielded and by whom. Yet we broaden even further the conceptual scope of state consolidation. We extend the Besley & Persson (2014) approach by incorporating additional components from other scholars (e.g. Gutiérrez et al., 2011), including a monopoly on large-scale violence and

territorial control (Weber, 1978).[10] This decision echoes the seminal work of Mann (1984: 113), who wrote that state infrastructural power is the 'institutional capacity of a central state ... to penetrate its territories and logistically implement decisions' (see, e.g., Soifer, 2008). By building on recent work that studies violence and state consolidation within a single country (e.g. Ch et al., 2016; Cardenas et al., 2016; Steele et al., 2016), we illuminate another dimension of variation in state capacity, namely its subnational reach.

We proceed with a disaggregated analysis of state repression and local state capacity in an effort to develop theoretical arguments and empirical implications about how forced disappearances might produce observable effects upon long-term state consolidation.

Security capacity. We consider security capacity the ability of the state to exert a monopoly on violence, and to deploy sufficient state security agents in the entirety of its territory in order to deter criminal and political armed activity. What is the likely effect of forced disappearances on state security capacity? In the short-term, forced disappearances by the government are likely to produce local resistance to government rule. While the literature on repression shows that in some cases state repression quells resistance and in other cases encourages it (Davenport, 2007), we expect that forced disappearances will increase local dissent by instilling outrage, by eroding trust into the government, and by fostering lasting grievances among targeted groups and affiliates, leading to the formation and consolidation of networks of resistance and new loci of contestation within civil society. Over the medium to long-term, by creating the conditions for alternative political and social orders to form and articulate opposition to government, the state's ability to provide public goods will be reduced, including but not limited to its ability and willingness to provide security.

Two other plausible mechanisms suggest a negative relationship between forced disappearances and state security capacity. In places where forced disappearances occurred, if they are perceived to be successful, state security agents will come to believe in the strategic use and normative acceptability of violence. These values and 'lessons learned' during moments of upheaval – a form of positive feedback – are likely to be passed down through processes of institutional reinforcement, incentivizing human rights abuses in the future (Pierson, 2004). Beyond state-committed human rights abuses, a similar normalization of violence through generations can occur within civil society, convincing members of the community of the utility of using violence as a legitimate conflict resolution tool, given that peaceful means have in the past led to unjust victimization. A final and related mechanism suggests that in places where forced disappearances occurred in the past, citizens in the contemporary period have less faith in the state to arbitrate and equitably resolve disagreements, and to impartially

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[10]Recent literature has called into question whether states are primarily interested in monopolizing force within their borders (e.g. Staniland, 2012).

enforce contracts. The lack of an impartial, third-party enforcer is likely to inefficiently but predictably produce increased levels of violence as citizens rely on private violence – or form and collaborate with non-state armed actors – to guarantee enforcement (e.g. Gambetta, 1996).

Fiscal capacity. The state's ability to raise revenue, principally through the extraction of taxes from the populace, is considered its fiscal capacity. What is the likely effect of forced disappearances on state fiscal capacity? The state's tax collection capacity benefits from citizens who trust authorities. As Levi (1998: 91) argues, citizens who believe the government will act in their interests, with fair and transparent procedures, will cooperate in paying taxes, while those who do not have trust in the government are less likely to pay (Slemrod, 2007). Given that we expect forced disappearances to locally undermine trust in the government over the short-term, and given that attitudes towards repressive governments tend to be passed down even across generations (e.g. Rozenas et al., 2017), we expect that forced disappearances should reduce state capacity to collect taxes.

Collective capacity. The state's ability to provide public goods, including education, health care, and targeted support for the poor, is understood as "collective capacity" (Besley & Persson, 2014). What is the likely effect of forced disappearances on collective capacity? Similar to the negative effect of forced disappearances on security and the fiscal capacity of the state, we expect this type of repression to undermine the capacity and willingness of the government to provide public goods in affected areas in the long run. Where trust in state authorities is low and state-society relations weak, citizens are more likely to rely on informal arrangements for social and financial support, and to be less informed about access to public services, assistance, and support. Moreover, state agents will face higher barriers to providing such services and be less equipped to reach out to those in need.

Legal capacity. The state's capacity to support markets, including but not limited to securing property rights, and its ability to issue and enforce regulations represents its legal capacity. What is the likely effect of forced disappearances on state legal capacity? To stem the growth of effective resistance by challengers, local and national governments need to effectively coordinate to undermine potential challenges to their authority. This is especially true where forced disappearances have occurred, given the potential for the development of alternative political and social orders that could definitively undermine the state's legitimacy. In the short-term, such coordination between the center and periphery should reduce monitoring costs (informational asymmetries) by the central government regarding local government behavior. In the long-term, we expect that such oversight will endure, leading to increased compliance with national-level regulations in the contemporary period when compared to locations where forced disappearances did not occur.

Territorial capacity. The state's territorial capacity is its ability to establish and sustain government presence, including the ability to navigate and assert its physical presence throughout a given locale. What is the likely effect of forced disappearances on state territorial capacity? From state agents' perspective, forced disappearances might effectively remove unwanted elements, physically eliminating dissidents and deterring or displacing those left behind.[11] Such actions give state actors and their allies room for local capture, paving the way for the implementation of forms of local governance that these actors desire (e.g. Ch et al., 2016; Steele, 2011). This, in turn, is likely to result in increased state willingness and ability to expand and consolidate its physical presence and visibility in areas to be 'cleaned' of rebellious elements. Disappearances therefore are one form of organized violence that state agents employ to neutralize rivals as a form of 'state making' from within (Tilly, 1985: 181), which should strengthen state territorial capacity.

A number of caveats are due. The effect of forced disappearances may depend on the selectiveness with which disappearances are carried out; which social groups are targeted; and the other forms of repression and accommodation deployed by the state. Moreover, the type and level of state repression may well be a function of local state capacity itself, as disorganized and poorly informed authorities are unlikely to be able to infiltrate challenger organizations to effectively disrupt them from within (Sullivan, 2015). Finally, different dimensions of state capacity are interrelated, further complicating theoretical and empirical investigations of the causal chain (Besley & Persson, 2014). While we will not be able to respond to each of these theoretical and empirical challenges, below we provide what is to our knowledge the first effort to investigate the long-term legacies of forced disappearances on state capacity, and the first study of the long-term effects of forced disappearances in Mexico.

Empirics

To test our hypotheses, we draw on cross-sectional municipal-level data from Mexico. To build the majority of our measures we rely on archival sources and repositories of old information, employing cutting-edge techniques for creating actionable research data from these sources. These strategies include digitizing maps from the early part of the 20th century and converting them into quantitative data. Our research therefore modernizes archival research by processing a treasure trove of information and rendering it more accessible for quantitative

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[11]Organizational structure should play an important role in determining whether organized movements and militant organizations collapse when critically important members are eliminated (e.g. Phillips, 2015; Davenport, 2015).

researchers.

State repression during Mexico's Dirty War

We focus on the case of Mexico, and specifically forced disappearances committed by the Mexican state in the 1970s and 1980s. During this period PRI single-party rule, once comfortably sustained by electoral fraud, targeted assassinations, and cooptation of workers and civic organizations, began to falter, leading to increasing popular contestation from a broad sector of Mexican society. Student marches, worker strikes, and road blockades became the order of the day, constantly met by repression by the government. The bandwagon of dissent peaked in 1968 with the student movement and the notorious massacre of Tlatelolco. Official reports indicate that 300 students were killed by Mexican armed forces in this single event, but the actual number remains unknown. The so-called Corpus Christi massacre ('El Halconazo') in Mexico City in 1971, in which US-trained special forces killed 25 students and injured scores more, inaugurated a period of violent crackdowns against organized opposition to the PRI — known as 'the Dirty War' (*la Guerra Sucia*) — and a concomitant rise in the use of forced disappearances and kidnapping (e.g. Castellanos & del Campo, 2007; Aviña, 2014). Arrest without trial, torture, and indefinite imprisonment, in addition to targeted killings, were common in both rural and urban areas. While large counterinsurgency operations were mounted against emerging guerrilla forces in the highlands of Guerrero, to defeat Lucio Cabañas and his *El Partido de los Pobres* guerrilla group, the state used other covert tactics in cities, including the infiltration of both peaceful social organizations and armed groups, while also surreptitiously inciting violence to justify state repression (Pensado, 2013).

Throughout this period, the leftist movement remained fragmented. Castellanos & del Campo (2007) find no fewer than thirty armed groups in Mexico, to say nothing of the many peaceful groups advocating for change. Electrical workers, railroad workers, teachers, miners, farmers, doctors, Communists, and many others each had their own organizational vehicles for articulating claims and mobilizing supporters, making it easier for the Mexican government to contain these 'threats' via repression and cooptation. The PRI commonly used forced disappearances to impose social and political control. It ultimately ended in success — the defeat of the leftist challenge to PRI hegemony — albeit at tremendous cost to human rights and political freedom.

What, then, is the long-term effect of forced disappearances on the consolidation of state authority? We face a number of inferential challenges in responding to this question. State repression is itself partially a function of state strength, affected by many potential determinants of state capacity that remain unobserved. Given the absence of a real or natural experiment, or even time-series data allowing us to alleviate some obvious concerns, our em-

pirical strategy relies on selection on observables: we include as many covariates as possible that could plausibly explain both local 'selection' into disappearances and variation in state consolidation. As it would be implausible to claim that not a single confounding variable remains unobserved, the estimates we provide cannot be interpreted as *causal* effects. Importantly, though, Rosenbaum sensitivity analysis (Rosenbaum, 2002; Keele, 2010) based on genetic matching Diamond & Sekhon (2013) shows that for many of our outcomes, and specifically with regards to unobserved confounding, the results are robust.

Forced Disappearances

Our core independent variable is a measure of forced disappearances at the municipal level, taken from a report prepared by Mexico's Office of the Special Prosecutor, Ignacio Carrillo Prieto, named by President Vicente Fox in 2002 to investigate historical human rights crimes.[12] The report, the culmination of four years of intense archival investigation by independent historians and researchers, details the history of state repression and human rights abuses committed by three successive Mexican administrations: Presidents Gustavo Díaz Ordaz (1964-1970), Luis Echeverría Álvarez (1970-1976), and José López Portillo (1976-1982). Meticulously detailing a history of peaceful resistance and armed insurrection by leftist groups during this period and violence visited upon them by the Mexican government, the report also reviews prisoner files from Mexico's *Dirección Federal de Seguridad* (DFS) to catalog who was forcibly disappeared and held extrajudicially in clandestine security facilities. The report was leaked to journalists and subsequently to the National Security Archive at George Washington University.

We use these detainee registries to develop our disappearances data, coded as follows:

> detainee registries included many individuals who were detained extra judicially, and held in clandestine security facilities where they were subject to torture [...] When an individual was detained by security officials, a DFS official filled out a biographical sketch. The document included socio-economic information such as the prisoner's religion, languages, political affiliation, and ideological affinity. The back of the document contained general observations, as well as the date and motivation of detention (Doyle, 2006).

An advantage of this measure is that it reflects how the security apparatus of the state understood its own strategic environment, which is not common in existing measures of political violence (Balcells & Sullivan, 2018). Drawn from this data source, *Disappearances* is the number of forced disappearances in a given municipality conducted between 1972 and

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[12]*Fiscalía Especial para Movimientos Sociales y Políticos del Pasado* (FEMOSPP).

Figure 1: Geographic distribution of forced disappearances in Mexico, 1972-1988
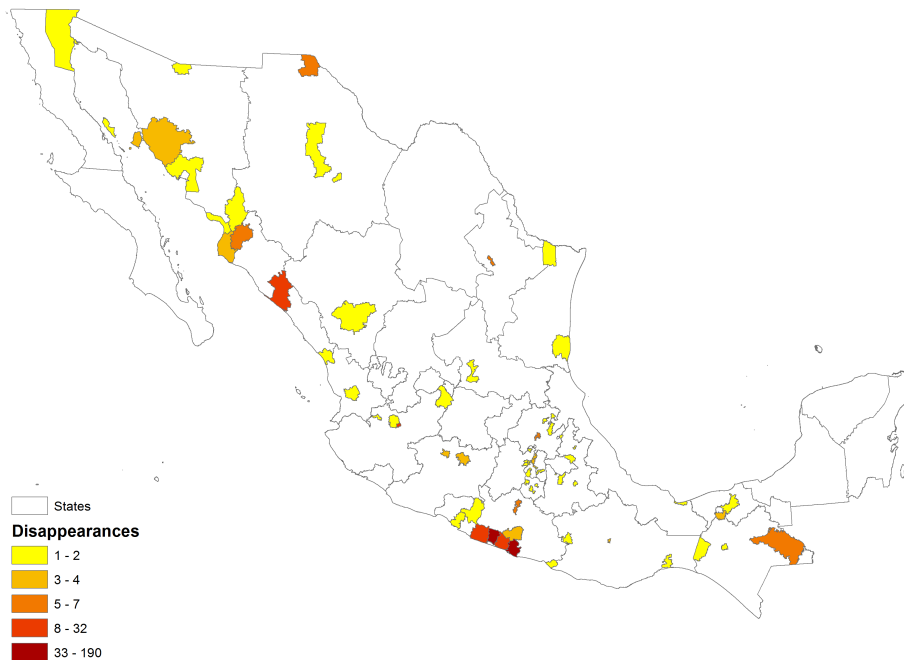
1988.[13] In total, we have close to 800 forced disappearances included in our dataset. The geographic distribution of disappearances indicates that state repression was both widespread, occurring across a broad swath of Mexican territory, while also experiencing significant geographic clustering. As Figure 1 shows, more than half of the forced disappearances in our dataset occurred in the state of Guerrero, with Mexico City accounting for the second largest number of disappearances. Due to the skewed distribution of the data, we use a logged transformation of *Disappearances* to improve the fit of the model. The temporal evolution of forced disappearances is displayed in Figure 2.

We acknowledge that these data are not without problems.[14] It is impossible to know if these data represent the true population of individuals who were forcibly disappeared, and very likely that our measure represents a lower bound on disappearances carried out by the DFS. By their very nature, forced disappearances are difficult to observe and catalog. Moreover, while we have no reason to believe that the data are systematically biased — that is, that some areas of the country did not report disappearances while others did —

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[13]We excluded 9 disappearances that occurred prior to 1972 given that these were few when compared to what became a common tactic beginning in 1972, and to be sure that a number of our control variables are measured prior to the start of the period when our disappearances variable is measured.

[14]Because we are interested in the long-term effects of *state* repression, the disappearances data exclude similar actions carried out by leftist groups, which did occur.

Figure 2: Temporal Distribution of Forced Disappearances in Mexico, 1972-1988

missingness cannot safely be assumed to be completely random. Moreover, it is impossible to know how our measure of forced disappearances correlates with other forms of state repression used during the same time period. There are simply no other systematic databases on state repression from Mexico during this period that are publicly available. Unfortunately, after returning to the presidency, the 'new' generation of PRI government officials covered the tracks of their 'old' partisans by closing in 2015 the country's national archives on the Dirty War (Orozco, 2015). It is unclear when, if ever, researchers will be able to accurately assess other metrics of state-perpetrated violence during Mexico's Dirty War.

Dependent variables: measuring state capacity

We propose a variety of contemporary indicators that capture our conceptual categories of state capacity: collective, legal, fiscal, territorial and security.[15] Since we test our hypotheses about the impact of disappearances on distinct types of state capacity with multiple measures for most outcome types, we also note where our results are stable to adjustments for multiple testing using the Bonferroni correction.[16]

Collective capacity: We consider three indicators. First, following Lee & Zhang (2013), *Myers* is an indicator of state capacity based on the prevalence of incorrect age reporting (Myers, 1940), using municipal-level population data from the 2010 census (INEGI, 2010).[17]

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[15]Please see Appendix 3 for details on coding procedures for these variables.

[16]Note that the Bonferroni correction is very conservative. See, for example, Anderson (2008).

[17]The code for our calculations is based on Mueller (2015).

The Myers score indicates deviations from the naturally occurring smooth age distribution, which are detectable in data clustering for ages that end with the digits 0 and 5. The assumption is that these digit preferences arise from a lack of knowledge about one's true age, indicative of poor public goods provision, in particular of schooling (Lee & Zhang, 2013). Deviations from the natural smooth age distribution indicate that government authorities do not have the ability to measure the population's age accurately. A high Myers score indicates low collective state capacity, while a low score suggests strong collective state capacity. Second, *Welfare* is an indicator of collective capacity that measures the percentage of the population living in poverty in each municipality who receive any welfare assistance from the federal government, with data taken from Mexico's Development Ministry, *Secretaría de Desarrollo Social* (SEDESOL 2016) and measured in 2015-2016. High values indicate strong state capacity to deliver welfare goods, while low values indicate feeble capacity. The third indicator of collective capacity is *PROSPERA*, a specific measure of municipal coverage of Mexico's prime conditional cash transfer program (Levy, 2006). This variable measures the percentage of a municipal population living in poverty that benefits from this cash transfer program. Similar to *Welfare*, high values are indicative of high state capacity with government authorities able to deliver benefits to vulnerable sectors of the population, while low values reflect poor capacity.

Legal capacity: We use two measures to assess the state's legal capacity. First, *Regulation* (abbreviated 'Reg.' in regression tables) captures the extent of development of local legal frameworks. These data come from a 2012 study by the Mexican Ministry of the Interior, *Secretaría de Gobernación* (SEGOB 2014) measuring how many of the 17 regulations mandated by the Mexican Constitution each municipality has in place, which include public works, street cleaning, waste disposal, public security and safety, and so forth. High values are indicative of a strong legal capacity of municipal institutions, while low values reflect weak legal capacity.

The second measure of legal capacity is captured in *Plans*. This metric captures the extent to which the municipal public administration operates according to strategic planning and evaluation elements as part of its regular activities, with data from the National Census of Municipal and Delegation Governments, created in 2012 by the Mexican census bureau (INEGI 2013). *Plans* is a weighted index of strategic planning. High scores indicate strong planning capacity, while low scores indicate weak planning capacity.

Fiscal capacity: Our operationalization for tributary capabilities depends on a single measure of *Taxes*. Municipalities in Mexico have very limited tax collection authority, which is mainly restricted to levying property taxes and charging for the provision of water. *Taxes* captures the percentage of total municipal income that comes from the sum of property and

water taxes in 2014, using data from INEGI (2016). A high percentage indicates strong fiscal capacity, while a small percentage indicates weak fiscal capacity.

Territorial capacity: We rely on three measures to assess territorial reach of the state. First, *Roads* indicates the density of the paved road network at the municipal level as kilometers per square kilometers of territory, measured in 2015. High values indicate a location with strong state territorial capacity, while low values indicate weak state territorial capacity. We consider two additional measures for this concept. *Federal Offices* and *Municipal Offices* (respectively abbreviated as 'Fed. O.' and 'Mun. O.' in the tables) refer to the number of buildings that host the office of a federal or municipal government agency, measured in 2014, using data from INEGI (2014). The catalog of federal and municipal government offices cover the full range of government activities, ranging from public theaters to fire stations to the National Archive building and military barracks. A high value on the government offices variables is indicative of strong territorial capacity, while a low score corresponds to low state territorial presence.

Security capacity: In order to assess the capacity of the state to provide security we consider four different measures. The first, *Police*, reflects the number of municipal police officers per capita on active duty at the municipal level in 2012, drawn from INEGI (2013). We advise caution when interpreting the measure of police officers, as a large number of police officers need not mean high capacity of the state to provide security. This is the case in violence-ridden locations such as Acapulco, Guerrero or Ciudad Juárez, Chihuahua, both of which concentrate a large number of police officers without necessarily providing much security. For this reason, we interpret the number of officers simply as the capacity of municipal governments to engage in or threaten coercion.

The second measure refers to the number of alleged *Human rights violations* per capita (abbreviated as 'HR' in the tables) conducted by security forces — including the Army, Navy, Police, and Prosecutor's Office — in 2015, with municipal data taken from the *Comisión Nacional de Derechos Humanos* (Mexican Human Rights Commission, in English) (CNDH 2016). High values indicate the state use of coercive violence, while low values reflect the absence of such violence.

The third measure relates to the number of drug trafficking organizations (*DTOs*) active in the municipality in 2010, with data from Osorio (2015). We interpret this variable in a Weberian manner, as a failure to monopolize the use of legitimate violence. In other words, it reflects poor state capacity to provide security. High values on this metric are indicative of municipalities ravaged by multiple criminal groups, while low values indicate a monopoly on violence.

Finally, *Homicides* captures the number of intentional homicides per 100,000 inhabitants

at the municipal level, measured in 2013 using data from Mexico's *Sistema Nacional de Seguridad Pública* (SNSP 2015). We interpret this measure as a lack of security provision. High values refer to municipalities in which government authorities are not capable of providing public security, whereas low values indicate strong state security capacity.

Control Variables

The analysis below includes several pre-disappearances variables.[18] We use these variables to control for factors that could influence both the occurrence of forced disappearances and state capacity in the long run, hence biasing our results if left out. We refrain from including post-disappearances data to prevent post-treatment bias (Gelman & Hill, 2006; Montgomery & Torres, 2016).[19] As noted above, many of our control measures were built by applying modern research techniques to process archival information, or were excavated from old databases.

We group pre-disappearances variables into six categories. First, to control for the 'supply' of dissident groups, we include a measure of *leftist organizations*, both peaceful and armed, that were active prior to 1972. Because state repression may have been endogenous to the supply of local contestation by leftist groups — who were the principal challengers to state authority during this period — it is important to control for such activity. To our knowledge, ours is the first attempt to construct a quantitative dataset of leftist activity in Mexico during this period.

Second, to capture legacies of violence that might affect both dissent and state repression on the one hand and local state capacity on the other, we include a set of dummy variables at the municipal level indicating the presence of prior rebellions and external invasions, as receptacles of collective action may persist for generations or longer (Daly, 2012). Overlaying old maps from García de Miranda & Falcón de Gyves (1972) and Vanderwood (1992: 123) onto municipal shapefiles, we include data on the principal independence campaigns of the early nineteenth century: Hidalgo and Allende (1810-1811), Morelos (1810-1815), Mina (1817), and Guerrero insurgencies (1816-1821). We also include activities of various armies during the War of the French Intervention and the presence of rural police forces (*Los Rurales*) in 1910, the latter at the beginning of the Mexican Revolution.

Third, we include data on infrastructure, which proxies for historical patterns of state

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[18]Detailed coding procedures for these control variables are described in Appendix 3.

[19]One might argue that our dependent variables are likely to be affected by a multitude of other factors that occurred in the intervening years between Dirty War-era disappearances and contemporary outcomes of state consolidation, between the 1970s and 2010s. We do not deny that temporally proximate factors drive contemporary outcomes, but if our interest is estimating the effect of forced disappearances on contemporary state consolidation, including intervening factors could introduce post-treatment bias by 'controlling away' the consequences of disappearances (e.g. Gelman & Hill, 2006; Montgomery & Torres, 2016).

reach, likely to confound the relationship between forced disappearances and state capacity. We include *Railways*, a dichotomous variable measuring municipalities crossed by railroads in 1919, and *Telegraphs*, coding municipalities that had telegraph lines in 1919, both drawn from Great Britain Naval Intelligence Division maps that we digitized and geo-referenced (Division, 1919). Digitizing a map from Research Bureau of Business (1975), we also create a measure of *Road Density in 1972* at the municipal level, providing another measure of the state's ability to reach populations outside of state capitals.

Fourth, we include socio-demographic data at the municipal level in 1960, prior to the Dirty War. These variables include *Population* size, percentage of *Youth* (ages 18-35), percentage of *Rural* population, percentage of *Illiteracy*, and *Unemployment* rates with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

Fifth, we include disaggregated Gross Domestic Product (GDP) in 1970 from a variety of economic sectors, with data from INEGI (1970), helping to capture demographic and economic characteristics that might shape the propensity for armed contestation, state willingness to repress, and state capacity in the long run.

Finally, we include geographic information such as *Elevation* and *Distance to Mexico City*, which help express the state's ability to reach individual municipalities, as well as regional dummy variables, with data from INEGI (2011), to accommodate heterogeneity between regions of the country.

Results

Table I shows the relationship between past forced disappearances and current state capacity using an Ordinary Least Squares (OLS) estimator on municipal-level cross-sectional data. To facilitate interpretation, we discuss the findings in terms of marginal effects. First, Models 1-3 explore the effects of disappearances on state collective capacity. After controlling for confounders, forced disappearances are associated with fewer PROGRESA disbursements, the country's largest poverty assistance program. According to estimates from Model 3, increasing *Disappearances* from its minimum (0) to its maximum (5.25) reduces PROGRESA coverage by 16.6%. In contrast, there appears to be no effect on either state collective capacity as measured by the Myers' score (Model 1), or the overall welfare measure (Model 2). In line with the theoretical expectations, the analysis suggests that historical forced disappearances undermine the provision of some public goods in the present. While the sign on the *Myers* variable indicates a *positive* effect of disappearances on state collective capacity – which runs against our expectations – the lack of a statistically significant relationship between *Disappearances* on that variable, as well as on *Welfare*, renders these results incon-

clusive. Moreover, the results for the collective security measures are not significant once the Bonferroni correction for multiple testing is applied.

[Insert Table I here]

Focusing on the legal dimension of state strength (Models 4 and 5), the results suggest that forced disappearances enhance the government's regulatory capacity and increase the use of strategic planning and program evaluation. According to the results, increasing *Disappearances* from its minimum (0) to its maximum (5.25) increases the extent of municipal compliance with constitutional regulations by 48.2%, and increases the adoption of strategic planning in local government activities by 23.7%. Consistent with theoretical expectations, these results indicate that past forced disappearances strengthen the bureaucratic structure of government agencies. These results are robust if we apply the Bonferroni correction for multiple testing.

Contrary to our expectations, results from Model 6 indicate that disappearances tend to increase the government extractive capacity: increasing forced disappearances from its minimum to maximum is associated with an increase of 9.6% in the share of municipal income derived from local taxes. This is surprising: we anticipated that lower levels of trust would inhibit tax collection. While the magnitude of the effect seems small, due to the centralized character of the Mexican fiscal system, municipalities are only allowed to collect taxes from property and water provision, which constitute a comparatively small fraction of municipal income.

Models 7-9 assess different aspects of territorial control. According to the results, forced disappearances do not have an effect on contemporary road density.[20] In contrast, repressive campaigns tend to have a positive effect on the number of both federal and municipal offices in a given municipality. According to Model 8, increasing *Disappearances* from its minimum (0) to its maximum (5.25) is associated with 21.8% more federal government offices; and according to Model 9, the same increase of state repression produces an increase of 59.4% more municipal government offices. These results are robust to Bonferroni adjustments and consistent with previously discussed findings about state legal and fiscal characteristics.

Finally, the analysis of security capabilities in Models 10-13 indicates that forced disappearances do not improve state capacity to provide security in the long run. Model 11 suggest that historical forced disappearances have no meaningful effect on the rate of state human rights violations. In contrast, Model 10 indicates that past disappearances seem to reduce the number of police officers per capita at the municipal level. Increasing *Disappearances* from its minimum to its maximum is related with a reduction of 0.0018 in the number

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[20]Recall that we control for road density in 1972 in all models.

of police officers per capita, a drop of about three standard deviations in police presence. Model 12 indicates that forced disappearances tend to increase the number of drug trafficking organizations (DTOs) at the municipal level. Moving *Disappearances* from its minimum to its maximum is associated with an increase of 3.5 DTOs in a given municipality in the long run. In addition, Model 13 shows that locations that suffered intense state repression tend to experience more homicides in the present. Increasing *Disappearances* from its minimum to its maximum is related to an increase of 53 homicides per 100,000 inhabitants. This is substantively an extremely large effect. Our results for the DTO and homicide outcomes are robust to Bonferroni adjustments as well.

Matching and Sensitivity Analysis

One concern with our main results is unobserved confounding: What if some variables influencing both disappearances and state consolidation have been left out? We address this issue by conducting Rosenbaum sensitivity analysis (Rosenbaum, 2002; Keele, 2010) based on 1:1 genetic matching without replacement, using a binary indicator of the disappearances variable and the same covariates as listed above (Sekhon, 2011; Diamond & Sekhon, 2013).[21] Sensitivity analysis allows us to assess the impact a near perfect unobserved predictor of the dependent variables would need to have on the odds of a unit being assigned to forced disappearances in order to explain away our results in terms of statistical significance. The results of both the genetic matching and the sensitivity analysis can be found in the Appendix. To summarize, our main substantive findings are reasonably robust to non-parametric estimation with a binary indicator, as well as moderate to very high levels of unobserved confounding.

Survey Evidence on Trust and Political Participation

An observable implication of our argument is that forced disappearances undermine individual's trust in the government and political participation, thereby hobbling the state's ability to improve its capacity across different dimensions. Using the *Encuesta Nacional sobre Cultura Política y Prácticas Ciudadanas*, ENCUP (Secretaría de Gobernación, 2012), we look for indications that respondents living in municipalities that experienced forced disappearances tend to have less trust in state institutions and lower social mobilization capacities. The results, which can be found in the Appendix, suggest that levels of trust in the president, the police, and political parties are significantly lower in municipalities where the state forcibly disappeared alleged dissidents compared to municipalities where the state did not carry out

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[21]We use the R packages Matching (Mebane, 2011; Sekhon, 2011; Diamond & Sekhon, 2013) and rbounds (Keele, 2010).

this form of repression. Results also suggest that respondents living in areas affected by forced disappearances consider that it is more difficult for citizens to self-organize in order to solve common a problem than respondents living in localities that were not affected by disappearances. This evidence suggests that forced disappearances undermine citizens' trust in the government and social mobilization capacity over the long term.

Conclusion

This paper has argued that state repression, and forced disappearances in particular, has lasting effects on state consolidation. In contrast to the traditional literature on state-building, and in line with more recent studies that disaggregate by types of violence, we contend that repression is not likely to have purely positive nor negative effects on state consolidation. Our results suggest that forced disappearances of alleged leftist dissidents is positively correlated with various forms of state consolidation in Mexico over the long term, yet we also find that this partial consolidation comes at the cost of undermining the contemporary provision of security and potentially also welfare-related public goods. Such a nuanced approach to understanding the historical roots of contemporary state consolidation is necessary: approaches that interrogate the *conditional* role and *heterogeneous* effects of state repression — buttressing some aspects of state consolidation while eroding others — will help scholars understand the contentious legacies of human rights abuses perpetrated by repressive governments.

Our study is the first to examine the long-run effects of disappearances in Mexico, and we rely on historical data not accessed by social scientists before. More research is needed, however, to assess the internal and external validity of our findings. In terms of internal validity, our results may not be indicative of *causal* effects. Future efforts should be dedicated to research designs that enable researchers to make strong causal claims. The same holds true for causal mechanisms. For example, while we suggested that reduced trust in state authorities represents one key mechanism through which forced disappearances weaken state capacity, weak state capacity itself is likely to undermine trust; future research should explore these dynamics in greater depth. In terms of external validity, we assume our findings are potentially generalizable to other episodes of forced disappearances and their aftermath in authoritarian states, but more research is needed to evaluate the generalizability of our claims.

We envision a number of specific additional paths for future research. Because of data scarcity, we are unable to conclude to what extent other forms of state repression used alongside forced disappearances are responsible for the correlations we demonstrate. While it is unlikely that data on targeted killings, forced displacements, sexual violence, and other forms of repression from this period in Mexico's history will be released, and while we have been

prevented from accessing data in Mexico that could potentially help to answer such questions, looking to other cases could help clarify whether the results we present here are driven primarily by forced disappearances and/or other forms of state repression that accompanied disappearances.

Our measures of state capacity could be further scrutinized, expanded, and refined, as well. Legal capacity as measured here, for example, does not necessarily imply strong rule of law or low levels of corruption, which would be important outcomes to explore.

It is also worth acknowledging that the Mexican case is a strange one, given the hegemonic role of the PRI during the period of the Dirty War, and for many years thereafter, until transitioning to democratic rule. Do our findings travel to other countries and, more pointedly, to states with different trajectories of authoritarian and/or democratic politics that may better discipline the repressive behavior of state forces? Are the findings likely to be similar in countries facing outright civil war, where a well-organized opposition actively contests for territorial control? We doubt it, given the more generalized destruction of lives and livelihoods in civil war, which has the potential to rapidly transform state capacities in ways orthogonal to forced disappearances. Many such questions remain.

Finally, our study adds to a growing literature that relies on the quantitative analysis of data initially presented in cartographic or qualitative form, demonstrating that archival research need not mean exclusively relying on traditional approaches. We encourage a combination of 'new' and 'old' techniques such as machine-coding, manual coding of human rights reports, and digitizing cartographic depictions of political and economic phenomena, as fruitful avenues for gathering, analyzing and interpreting existing archival data. Like all careful social scientific work, however, it is incumbent upon researchers to engage in source criticism, to triangulate data sources, and to understand the latent or overt biases reflected in such sources. We have begun that process here, but more steps are necessary, beyond providing access to source documents, allowing others to judge for themselves whether coding decisions were appropriate and the original documents sufficiently trustworthy (in our case, making available the underlying shape files for our maps, as well as all relevant replication data used to produce the results discussed in this paper). Researchers ought to hew to what we hope will become an accepted set of best practices for archival research (Balcells & Sullivan, 2018), including collecting information using sampling techniques that reflect the characteristics of the broader population of interest; coding phenomena using the most unambiguous categories possible; and, whenever possible, seeking to verify the veracity of archival data with other available sources. We are confident that social science, and in particular peace and conflict studies, will be better off with the incorporation of cutting-edge technological methods to archival work on violence, increasing our knowledge of complex political phenomena such as

the legacies of state repression.

Table I: Effect of disappearances on state capabilities

	Collective			Legal		Fiscal		Territorial			Security		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Myers	Welfare	Progresa	Reg.	Plans	Taxes	Roads	Fed. O.	Mun. O.	Police	HR	DTOs	Homicides
Disappearances	-0.0	-0.0	-0.0*	9.6***	4.7*	0.0***	0.0	4.3**	11.9***	-0.0*	0.0	0.7**	10.6**
	(0.0)	(0.0)	(0.0)	(2.3)	(2.1)	(0.0)	(0.0)	(1.5)	(2.3)	(0.0)	(0.0)	(0.2)	(3.6)
Armed groups	-0.1***	-0.0**	-0.0*	1.3***	-2.2***	0.0	0.0*	-0.3**	0.7***	-0.0***	0.0	-0.0*	0.9
	(0.0)	(0.0)	(0.0)	(0.3)	(0.4)	(0.0)	(0.0)	(0.1)	(0.2)	(0.0)	(0.0)	(0.0)	(2.5)
Constant	-1.7	0.0	-1.1	30.1	-263.4***	0.4**	1.0***	-31.2	179.1***	-0.1***	-0.0	-5.2	158.0
	(2.4)	(0.8)	(0.7)	(65.6)	(79.9)	(0.1)	(0.2)	(34.8)	(35.8)	(0.0)	(0.0)	(3.8)	(294.1)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.35	0.19	0.27	0.21	0.06	0.28	0.40	0.09	0.27	0.21	0.03	0.18	0.02
N	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456

* $p<0.05$, ** $p<0.01$, *** $p<0.001$. Standard errors in parentheses. Bold indicates robustness to Bonferroni correction.

The controls include the following sets of variables:

Geographic: elevation, distance to the center, Northwest, Northeast, West, East, Southcentral, Southwest, and Southeast regional dummies.

Insurgencies: Hidalgo & Allende (1810-1811), Morelos (1810-1815), Mina (1817), Guerrero (1816-1821), and the French intervention (1862-1867).

Infrastructure: telegraphs in 1919, railways in 1919, road density in 1972.

Demographics in 1960: population size (log), youth (age 18 - 35), rural, illiterate, and unemployed.

GDP in 1970

Data replication

The dataset and do-files for the article's empirical analysis can be found at:

http : *//www.prio.no/jpr/datasets.*

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Appendix 1

In the article we briefly mention the results of an exercise to evaluate differing levels of trust in state institutions and political organization capacity between individuals who live in municipalities where during the Dirty War the Mexican state forcibly disappeared citizens and those municipalities where the state did not engage in such abuses.

Table A1 shows the regression results of disappearances on different types of trust and political participation. The unit of analysis is the individual survey respondent, and the database includes variables at the individual and municipality level. The survey data come from the latest version of the *Encuesta Nacional sobre Cultura Política y Prácticas Ciudadanas*, ENCUP (Secretaría de Gobernación, 2012), a nationally representative public opinion survey conducted by the Mexican Government to assess different characteristics of political culture. Data at the municipal level are drawn from the same sources as discussed in the main paper.

The dependent variables in this survey analysis consist of different measures of trust in the president, police, army, military, and political parties, as well as an index of political participation and membership in organizations, and a measure of how easily can citizens organize. The key independent variable of interest is *disappearances*, and the main control variable is *armed groups*, as measured at the municipal level and discussed in the "Forced Disappearances" section in the manuscript. The analysis also considers a set of additional controls at the individual and municipal levels.[22] Individual variables come from the ENCUP survey and include the level of *education*, a dummy variable for *young* people (ages 18-35), a dummy for individuals living in *rural* areas, the level of *socioeconomic* status (as calculated by ENCUP), and *unemployment*. In addition, we include a variety of pre-disappearances controls at the municipal level considering the same variables of geography, insurgencies, infrastructure, demographics, and GDP, as indicated in the main article. Considering historical

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[22]For a similar approach, see following Nunn & Wantchekon (2011).

Table A1: Relationship between forced disappearances and political attitudes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Trust in			Participate	Member	Easy to
	President	Police	Army	Military	Parties	in orgs.	of orgs.	organize
Disappearances†	-0.23*	**-0.41*****	-0.11	-0.14	**-0.44*****	0.00	-0.04	-0.97**
	(0.13)	(0.14)	(0.11)	(0.12)	(0.16)	(0.09)	(0.12)	(0.45)
Armed groups†	0.03	0.18***	0.08**	0.05	0.13***	-0.03	-0.03	0.09
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.02)	(0.03)	(0.12)
Young‡	-0.10	-0.03	-0.06	-0.10	0.12	-0.48***	-0.38***	-0.01
	(0.09)	(0.10)	(0.09)	(0.09)	(0.10)	(0.06)	(0.07)	(0.33)
Rural‡	0.15	-0.17	0.01	0.03	-0.04	0.36***	0.04	0.83
	(0.18)	(0.19)	(0.18)	(0.18)	(0.19)	(0.11)	(0.13)	(0.88)
Education‡	-0.06***	-0.03	-0.02	-0.01	-0.06***	0.03**	0.11***	-0.17**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.08)
Socioeconomic‡	0.01	-0.06	-0.03	-0.06	-0.00	0.13**	0.34***	-0.24
	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.06)	(0.07)	(0.28)
Unemployment‡	0.08	0.14	0.19	0.25	0.27	0.12	0.08	0.74
	(0.23)	(0.23)	(0.22)	(0.21)	(0.24)	(0.16)	(0.16)	(1.20)
Municipal controls								
Geographic†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insurgencies†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Infrastructure†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics 1960†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GDP 1970†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.05	0.04	0.05	0.07	0.05	0.10	0.10	0.02
N	3716	3721	3709	3708	3655	3740	3740	3740

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Bold indicates robustness to Bonferroni correction.

† refers to variables at the municipal level.

‡ refers to variables at the individual level.

The controls include the following sets of variables:

Geographic: elevation, distance to the center, Northwest, Northeast, West, East, Southcentral, Southwest, and Southeast regional dummies.

Insurgencies: Hidalgo & Allende (1810-1811), Morelos (1810-1815), Mina (1817), Guerrero (1816-1821), and the French intervention (1862-1867).

Infrastructure: telegraphs in 1919, railways in 1919, road density in 1972.

Demographics in 1960: population size (log), youth (age 18 - 35), rural, illiterate, and unemployed.

GDP in 1970

variables at the municipal level addresses problems of omitted variable bias by accounting for subnational variation in pre-disappearances characteristics.

As the results of Table A1 indicate, individuals who live in municipalities that suffered forced disappearances during the repressive spell of the Dirty War show lower levels of trust in the president (Model 1), police (Model 2), and in political parties (Model 5) than individuals living in locations that did not experience disappearances. There does not seem to be a relationship between living in areas that suffered from forced disappearances and levels of trust in the army or the military (Models 3 and 4). In a similar way, the analysis does not find an effect on the levels of participation in a variety of social activities (Model 6) nor membership in political organizations (Model 7) in municipalities affected by forced disappearances when compared to those that did not suffer this type of state repression. In contrast, individuals who live in municipalities affected by forced disappearances seem to perceive that it is more difficult for citizens to organize themselves to work for a common cause when compared to people who do not live in such municipalities areas (Model 8). The direction of the coefficients and the levels of statistically significance align with the theoretical expectations and suggest an association between the legacy of disappearances and levels of political trust and social capacity.

The following list reproduces the wording of the ENCUP questions used in the survey analysis. The original is in Spanish, the translation here is our own.

- **Trust in the President**

    - Spanish: *¿Qué tanto confía en el Presidente?*
    - English: To what extent do you trust the police?

- **Trust in Police**

    - Spanish: *¿Qué tanto confía en la Policía?*
    - English: To what extent do you trust the police?

- **Trust in Army**

- Spanish: *¿Qué tanto confía en el Ejército?*
- English: To what extent do you trust the army?

- **Trust in Military**

  - Spanish: *¿Qué tanto confía en los Militares?*
  - English: To what extent do you trust the military?

- **Trust in Parties**

  - Spanish: *¿Qué tanto confía en los Partidos Políticos?*
  - English: To what extent do you trust political parties?

- **Participation in organizations**

  This question is the sum of all positive answers to 9 different questions about political participation.

  - Spanish: *Durante el último año, ¿asistió a alguna reunión de las siguientes organizaciones?*

    * *Juntas de vecinos*
    * *Junta de colonos*
    * *Reunión de condóminos*
    * *Agrupación u organización de ciudadanos*
    * *Asambleas de la comunidad*
    * *Asociación de padres de familia*
    * *Algún partido o agrupación política*
    * *Sindicato*
    * *De cooperativas o asamblea ejidal*

  - English: During the past year, how many meetings organized by the following entities did you attend?

    * Block group
    * Neighborhood community group
    * Condo board
    * Citizens' organization
    * Community assemblies

* Parents' group
* Political party or group
* Union
* Land cooperative

- **Membership in organizations**

  This question is the sum of all positive answers to 16 different questions about participating in political organizations.

  – Spanish: *Usted es o ha sido miembro de alguna de las siguientes organizaciones que le voy a mencionar:*

    * *Organización estudiantil*
    * *Voluntariado o beneficencia*
    * *Asociación de padres de familia*
    * *Sindicato*
    * *Partido político*
    * *Agrupación profesional*
    * *Agrupación política*
    * *Agrupación religiosa*
    * *Organización de ciudadanos*
    * *Asociación de la industria del comercio o similar*
    * *De vecinos, colonos, condóminos*
    * *De pensionados y jubilados*
    * *De arte y cultura*
    * *Deportiva*
    * *De defensa del medio ambiente*
    * *Otro grupo organizado*

  – English: Are you or have you been a member of any of the following organizations that I will now mention?

    * Student organization
    * Volunteer organization or charity
    * Parents' association
    * Union
    * Political party

* Professional association or guild
* Political group
* Religious group
* Citizens' group
* Business association
* Organization of neighborhood, community, or condo
* Retiree association
* Arts or cultural organization
* Sports association
* Environmental group
* Other organized group

- **Easy to organize**

  - Spanish: ¿Qué tan fácil o difícil cree usted que es organizarse con otros ciudadanos para trabajar en una causa común?
  - English: How difficult or easy do you think it is for citizens to organize themselves to work on a common cause?

Appendix 2

One potential concern with the results reported in the paper is confounding. We address this by conducting Rosenbaum sensitivity analysis (Rosenbaum, 2002; Keele, 2010) based on 1:1 genetic matching without replacement, using the same covariates as listed above (Sekhon, 2011; Diamond & Sekhon, 2013).[23] The results of both the genetic matching and the sensitivity analysis can be found in Table A2. Intuitively, we can think of Γ as the extent of departure from random assignment (Keele, 2010; Rosenbaum, 2002), where $\Gamma = 1$ implies that the treatment and control observations have the same probability of being assigned to the treatment. Sensitivity analysis allows us to assess the impact an excellent unobserved predictor of the dependent variables would need to have on the odds of a unit being assigned to forced disappearances in order to explain away our results in terms of statistical significance. What degree of unobserved confounding, Γ, could our results handle? For observational studies in the social sciences, the expected answer is a Γ between 1 and 2 (Keele, 2010). We report Γ values for those results that pass a p-value of 0.05 based on genetic matching. Shown in bold are those estimates that remain significant once Bonferroni adjustments for multiple testing within each state capacity type are applied.[24]

The matching estimates of the average treatment effect on the treated (ATT) for the Myers (column 1) and welfare scores (column 2), our first two measures of collective state capacity are negative but not statistically significant (mirroring the findings of the main regression analysis). The ATT matching estimate for the welfare program PROGRESA in column 3 is negative and significant, again as in the main analysis, and remains robust once the Bonferroni correction is applied. Moreover, the Wilcoxon Signed Rank p-value is still below 0.05 at a Γ of 2.8, indicating a level of robustness that surpasses standard values in

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[23] We use the R packages Matching (Mebane, 2011; Sekhon, 2011; Diamond & Sekhon, 2013) and rbounds (Keele, 2010).

[24] Note that we keep the 0.05 level for the Rosenbaum sensitivity analysis, thus separating the multiple testing correction from the sensitivity analysis that focuses on unobserved confounding. However, the reported Γ levels remain quite similar if the adjusted p-values are considered.

the social sciences.

Turning to the legal measures, while the matching estimate for municipal regulations is as expected – positive, significant, and very robust (column 4, $\Gamma = 3.8$) – the one for strategic planning is not (column 5). As in the main regression analysis, we find a positive effect of forced disappearances on contemporary taxation, with a Wilcoxon Signed Rank p-value below 0.05 at a Γ of 4.7 (column 6), indicating a high level of robustness to hidden bias.

When it comes to our measures of territorial state capacity (columns 7-9), the matching estimates again mirror our main regression results, in that we find no effect of disappearances on road density, while the ATT estimates for the Federal and Municipal offices variables are positive and significant (and remain so with Bonferroni adjustment). The ATT estimates are also exceptionally robust, with the Rosenbaum sensitivity tests indicating very high levels of robustness to unobserved confounding (Γ values of 12.6 and 10.2).

Finally, turning to the security measures, we find again that disappearances have a negative effect on the presence of police forces (column 10), yet are not significantly related to contemporary human rights violations (column 11). The ATT estimate is positive for the drug trafficking organizations (DTO) (column 12) and homicide outcomes (columns 13). While for the DTO estimate we find very high levels of robustness to hidden bias ($\Gamma = 9.0$), the findings are at more conventional levels when it comes to the police and homicide outcomes (Γ values of 2.1 and 2.9).

Table A2: Genetic matching and sensitivity analysis

	Collective			Legal		Fiscal		Territorial		Security			
	(1) Myers	(2) Welfare	(3) Progresa	(4) Reg.	(5) Plans	(6) Taxes	(7) Roads	(8) Fed. O.	(9) Mun. O.	(10) Police	(11) HR	(12) DTOs	(13) Homic.
ATT	-0.14	-0.05	**-0.11**	**18.98**	5.19	**0.03**	0.03	**9.64**	**20.42**	**-0.00**	0.00	**1.18**	14.44
SE	0.10	0.04	0.03	4.5	4.06	0.01	0.02	3.17	3.75	0.00	0.00	0.27	6.37
p-val	0.185	0.198	0.002	0.000	0.201	0.000	0.097	0.002	0.000	0.003	0.812	0.000	0.024
Γ	–	–	2.8	3.8	–	4.7	–	12.6	10.2	2.1	–	9.0	2.9
N total	2456												
N treated	68												
Replace.	No												

* $p<0.05$, ** $p<0.01$, *** $p<0.001$. ATT estimates that remain significant with Bonferroni correction in bold. Impact of disappearances on state capacity measures. ATT and Abadie-Imbens Standard Errors. Distance tolerance for ties = 1e-05; population size = 1000. Matching is performed on the full set of covariates with no replacement. Γ refers to the highest value at which the Wilcoxon Signed Rank test still turns significant ($p < 0.05$).

Appendix 3

In the body of the manuscript we did not have space to provide complete details regarding how our dependent and control variables are coded. We use this appendix to do so.

Dependent variables

The dependent variables in the empirical examination are grouped in five main categories of state capabilities:

Collective capacity

- *Myers*: following Lee & Zhang (2013), we rely on an indicator of state capacity based on the prevalence of incorrect age reporting (Myers, 1940), using population data from the 2010 census at the municipal level (INEGI, 2010). The Myers score indicates deviations from the naturally occurring smooth age distribution, which are detectable in data clustering ages that end with the digits 0 and 5. The assumption is that these digit preferences arise from a lack of knowledge about one's true age, indicative of poor public goods provision, in particular of schooling (Lee & Zhang, 2013). Deviations from the natural smooth age distribution indicate that government authorities do not have the ability to measure the population's age accurately. A high Myers score indicates low collective state capacity, as in Santiago Tepetlapa, Oaxaca, while a low Myers score suggests strong collective state capacity, as in Sabinas Hidalgo, Nuevo León. Note that while we follow Lee & Zhang (2013) in proxying state capacity through age heaping, we do not eliminate the wealth component from the Myers' index, as they do. The Myers' blended index measures the deviation from a smooth age distribution by taking into account mortality, which – due to its increase with age – leads to an overstatement of certain digit preferences if not taken into account (Myers, 1940). Our calculations are based on code by Christian Mueller (2015).

- *Welfare*: an indicator of collective capacity that measures the percentage of the population living in poverty in each municipality who receive any welfare assistance from the federal government, with data taken from Mexico's Development Ministry, *Secretaría de Desarrollo Social* (SEDESOL 2016) and measured in 2015-2016. This measure comprises 18 different welfare programs including PROSPERA, PROSPERA-EASC, LICONSA, PAM, PDZP, PEI-MPT, PEI-Resp, Mig 3x1, PET, PAJA, FONART, POP, SEVJF, COMEDORES, INAPAM, IMJUVE 1, IMJUVE 2, and FES. The data do not allow identification of beneficiaries of more than one welfare program and, as such, there may be instances of over-counting. For specific information about temporal coverage of each program, see SEDESOL (2016). A high value on *Welfare* indicates strong state capacity to deliver welfare goods, as in Coyotepec, Puebla, while a low value indicates feeble capacity, as in Buenaventura, Chihuahua.

- *PROSPERA*: a measure of municipal coverage of Mexico's prime conditional cash transfer program. This program was previously known as *Oportunidades* (Levy, 2006). The variable measures the percentage of a municipal population living in poverty that benefits from this cash transfer program. Similar to *Welfare*, high values of PROSPERA are indicative of high state capacity as government authorities are able to deliver benefits to vulnerable sectors of the population, as in Eloxochitlán, Puebla, while low *PROSPERA* values reflect poor collective state capacity, as in Azcapotzalco, Mexico City.

Legal capacity

- *Regulation*: captures the extent of development of local legal frameworks. These data come from a study conducted in 2012 by the Mexican Ministry of the Interior, *Secretaría de Gobernación* (SEGOB 2014) measuring how many of the 17 different regulations mandated by the Mexican Constitution each municipality has in place. Article 115 of the Constitution sketches the main functions of municipalities as political and administrative units. Municipalities are required to have a set of legal frameworks to

regulate diverse activities such as governance mechanisms, internal operations, public administration, freedom of information, citizen participation, public works, street cleaning and waste disposal, public security and safety, street lighting, cemeteries, markets, slaughterhouses, roads and transportation, zoning and land use, environmental protections, and construction regulations. High values of regulation are indicative of a strong legal capacity of municipal institutions as in Cuahutémoc, Mexico City, a municipality that fulfills 100% of its constitutional regulatory obligations, in contrast to Ciudad del Carmen, Campeche, which meets only 10% of its requirements. The 17 different regulations mentioned in the Mexican Constitution used in this metric are: *Bando de policía y buen gobierno* (Art. 115 frac. II); *Reglamento interior del Ayuntamiento* (Art. 115 frac. II); *Administración pública municipal o delegacional* (Art. 115 frac. II); *Transparencia y acceso a la información* (Art. 6); *Participación ciudadana* (Art. 115 frac. II); *Reglamento de obras públicas* (Art. 115 frac. II); *Limpia y/o recolección de residuos sólidos urbanos* (Art. 115 frac. III par. c); *Seguridad pública* (Art. 115 frac. III par. h); *Reglamento de protección civil* (Art. 73 frac. XXIX-I); *Reglamento de alumbrado público* (Art. 115 frac. III par. b); *Reglamento de cementerios* (Art. 115 frac. III par. e); *Reglamento de Mercados* (Art. 115 frac. III par. d); *Reglamento de Rastro* (Art. 115 frac. III par. f); *Reglamento de Vialidad y transporte* (Art. 115 frac. V par. h); *Zonificación y uso de suelo* (Art. 115 frac. V par. a); *Ordenamiento ecológico* (Art. 115 frac. V par. g); *Reglamento de la construcción* (Art. 115 par. f).

- *Plans*: reflects the extent to which the municipal public administration operates according to strategic planning and evaluation elements as part of its regular activities. The data come from the National Census of Municipal and Delegation Governments created in 2012 by the Mexican census bureau (INEGI 2013). *Plans* is a weighted index of strategic planning that includes the following eight elements: mission, vision, objectives and goals; strategic programs; performance and impact indicators; a control and performance dashboard for objectives, goals, indicators, and results; customer

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service and complaints system; mechanisms for measuring user satisfaction; manuals and quality standards for costumer service; and others. In the index of strategic planning, a municipality with a high score, such as San Nicolás de los Garza, Nuevo León, with more than 95% compliance, is indicative of strong planning capacity, in contrast to Yuriria, Guanajuato, which uses strategic planning in less than 10% of its regular governmental activities.

Fiscal capacity

- *Taxes*: measures tributary capabilities. Mexico has a highly centralized fiscal system in which a substantial source of tax income comes from oil revenues — about 29% of the national total income stemmed from oil in 2015 — that are collected at the national level and then redistributed to cover expenditures of federal, state, and municipal governments (Auditoría Superior de la Federación, 2016). Municipalities have very limited tax collection authority, which is mainly restricted to levying property taxes and charging for the provision of water. *Taxes* captures the percentage of total municipal income that comes from the sum of property and water taxes in 2014, using data from INEGI (2016). Municipalities with a high percentage of municipal tax collection indicate strong fiscal capacity, as is the case with Ramos Arizpe, Chihuahaua, which collects 32% of its total municipal income from local taxes, while the municipality of Tila, Chiapas, collects less than 1% of its income from property and water taxes.

Territorial capacity

- *Roads*: indicates the density of the paved road network at the municipal level as kilometers per square kilometers of territory, measured in 2015. High values of road density indicate a location with strong state territorial capacity, such as Benito Juárez in Mexico City, with 1.3 kilometers of roads per square kilometer of territory, in direct contrast with Topia, Durango, which has less than 0.1 kilometers of paved roads per square kilometers of territory. We consider two additional measures of state territorial capacity.

- *Federal Offices* and *Municipal Offices*: the number of buildings that host the office of a federal or municipal government agency, measured in 2014, using data from INEGI (2014). The catalog of federal and municipal government offices cover the full range of government activities, ranging from public theaters to fire stations to the National Archive building and military barracks. A high value on the government offices variables is indicative of strong territorial capacity, as in Toluca, Mexico, while a low score corresponds to low state territorial presence, as in Huamuxtitlán, Guerrero.

Security capacity

- *Police*: reflects the number of municipal police officers per capita on active duty at the municipal level in 2012, drawn from INEGI (2013). We advise caution when interpreting the measure of police officers, as a large number of police officers need not mean high capacity of the state to provide security. This is the case in violence-ridden locations such as Acapulco, Guerrero or Ciudad Juárez, Chihuahua, both of which concentrate a large number of police officers without necessarily providing much security. For this reason, we interpret the number of officers simply as the capacity of municipal governments to engage in or threaten coercion. Note that this measure does not include federal or state police officers: Mexico has a highly decentralized security system, with hundreds of uncoordinated police forces that span across federal, state, and municipal levels.

- *Human rights violations*: captures alleged human rights violations per capita conducted by security forces — including the Army, Navy, Police, and Prosecutor's Office — in 2015, with municipal data taken from the *Comisión Nacional de Derechos Humanos* (Mexican Human Rights Commission, in English) (CNDH 2016). High values indicate the state use of coercive violence in locations such as Reynosa, Tamaulipas, which experienced 34 human rights violations in 2015, while low values reflect the absence of such violence, as in Tlaola, Puebla.

- *DTOs*: the number of active drug trafficking organizations (DTOs) in the municipality in 2010, with data from Osorio (2015). We interpret this variable in a Weberian manner, as a failure to monopolize the use of legitimate violence. In other words, it reflects poor state capacity to provide security. High values on this metric are indicative of municipalities ravaged by multiple criminal groups, in places like Ciudad Juárez, Chihuahua, as opposed to Tixkokob, Yucatán, where there are no indications of DTO presence. The criminal organizations included in this measure are the Tijuana Cartel, Sinaloa Cartel, Juarez Cartel, Golfo Cartel, La Familia Michoacana, Los Zetas, Cartel de Jalisco Nueva Generación, La Barbie, Cartel de los Beltrán Leyva, Cartel del Milenio, Cartel de Jalisco, Nuevo Cartel de Acapulco, La Resistencia, Los Caballeros Templarios, Cartel de Colima, Cartel de Oaxaca, La Empresa, La Mano con Ojos, Limpia Mazateca, Los Cachines, and other minor criminal groups.

- *Homicides*: refers to the number of intentional homicides per 100,000 inhabitants at the municipal level, measured in 2013 using data from Mexico's *Sistema Nacional de Seguridad Pública* (SNSP 2015). We interpret this measure as a lack of security provision. High values on this variable refer to municipalities in which government authorities are not capable of providing public security, as in Acapulco, Guerrero, or Culiacán, Sinaloa.

Control variables

Armed groups: this variable is a measure of armed leftist groups that were active prior to 1972. To code this variable we gathered the names of radical organizations mentioned in the Special Prosecutor's report, then tracked their areas of operations and the period of activities from a variety of secondary sources. Because state repression may have been endogenous to the supply of local contestation by leftist groups — who were the principal challengers to state authority during this period — it is important to control for such activity. For some small groups active during this period details are spotty, likely resulting in undercounting;

other smaller groups may be entirely absent from our coding. Because the state was likely to use forced disappearances where leftist groups were most pronounced, we anticipate limited bias for this measure.

In addition to the measure of armed gropus, the empirical analysis considers a broader set of control variables grouped into five categories.

Geography

- *Northwest*, *Northeast*, *West*, *East*, *South Central*, *Southwest*, and *Southeast* regions: dummy variable for each, indicating whether a given municipality belongs to that region, with data from INEGI (2011).

- *Elevation*: meters above sea level for each municipality, with data from INEGI (2011).

- *Distance to Mexico City*: kilometers between each municipality's center and Mexico City, with data from INEGI (2011).

Insurgencies

- *Hidalgo and Allende* (1810-1811), *Morelos* (1810-1815), *Mina* (1817), and *Guerrero* (1816-1821): code the principal independence campaigns of the early nineteenth century, drawn from maps in García de Miranda & Falcón de Gyves (1972), which we digitized and geo-referenced. We overlaid old maps onto municipal shapefiles and assigned a value of 1 to each municipal polygon overlapping with an area of armed activity indicated in the maps, and assigned a value of 0 otherwise.

- *French Intervention* (1862-1867): codes the operations of the French Army, the Imperialist Mexican Army, and the Republican Army during the War of the French Intervention, drawn from maps in García de Miranda & Falcón de Gyves (1972). We overlaid old maps onto municipal shapefiles and assigned a value of 1 to each municipal polygon

overlapping with an area of armed activity indicated in the maps, and assigned a value of 0 otherwise.

- *Los Rurales*: reflects the presence of rural police forces in 1910, which we created from a map published in Vanderwood (1992: 123). This helps code incipient state capacity to repress, measured at the beginning of the Mexican Revolution. We overlaid old maps onto municipal shapefiles and assigned a value of 1 to each municipal polygon overlapping with an area of armed activity indicated in the maps, and assigned a value of 0 otherwise.

Infrastructure

- *Railways*: a dichotomous variable measuring municipalities crossed by railroads in 1919, drawn from Great Britain Naval Intelligence Division maps that we digitized and geo-referenced (Division, 1919). More specifically, we overlaid digitized maps with municipal shapefiles and marked as 1 each municipality that contained a line segment of railway. It is possible that the map may be less accurate as one moves inland, although it is difficult to assess whether this is the case.

- *Telegraphs*: a dummy variable indicating municipalities that had telegraph lines in 1919, drawn from Great Britain Naval Intelligence Division maps that we digitized and geo-referenced (Division, 1919). More specifically, we overlaid digitized maps with municipal shapefiles and marked as 1 each municipality that contained a line segment of telegraph. Note that this variable excludes telegraph lines that are located along railway lines. It is possible that the map may be less accurate as one moves inland, although it is difficult to assess whether this is the case

- *Road Density in 1972*: measure of road density in each municipality in 1972, drawn from maps that we digitized and geo-referenced Research Bureau of Business (1975). To create these variables we overlaid digitized maps with municipal shapefiles and marked

as 1 each municipality that contained a line segment of road networks. This provides another measure of the ability of the state to reach populations outside of state capitals.

Demographics in 1960

- *Population* size: measured at the municipal level in 1960, with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

- Percentage of *Youth* (ages 18-35): measured at the municipal level in 1960, with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

- Percentage of *Rural* population: measured at the municipal level in 1960, with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

- Percentage of *Illiteracy*: measured at the municipal level in 1960, with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

- *Unemployment* rates with data from the Mexican census bureau, *Instituto Nacional de Estadística y Geografía* (INEGI 1960).

Gross Domestic Product (GDP) in 1970

- *Gross Domestic Product (GDP)* represents the total domestic product of the country in 1970. This measure includes productivity in all main sectors of the economy at the time: agricultural, banking, commerce, electricity, finance, manufacturing, mining, services, transportation, Data comes from INEGI (2011).

Appendix 4

Table A3 shows the multicollinearity analysis using variance inflation factor (VIF) test. A VIF score larger than 10 suggests presence of multicollinearity. The average VIF is 4.15, thus indicating that the model does not suffer from severe problems of multicollinearity. As the results show, there seems to be collinearity between levels of literacy and rural population in 1960. However, we consider that these variables capture different characteristics of the population, so we decided to maintain them both. Most importantly, our main variable of interests, *Disappearances*, does not indicate problems of multicollinearity.

Table A3: Variance inflation factor

Variable	VIF	1/VIF
Illiterate 1960	12.99	0.077001
Rural 1960	9.88	0.101259
Center-south	7.22	0.138483
PIB 1970 (total)	7.08	0.141244
Southwest	6.8	0.14706
Northwest	6.36	0.157141
East	6.16	0.162226
Distance to the center	5.83	0.171548
Armed groups	5.51	0.18148
Southeast	4.88	0.204771
West	4.63	0.21598
Northeast	4.29	0.232879
Age 18-35 1960	4.06	0.24634
Population 1960	3.63	0.275655
Unemployment 1960	2.69	0.371717
Railways	1.29	0.775811
Elevation	1.27	0.788822
Road density 1972	1.22	0.822461
Morelos insurgency	1.2	0.831781
Telegraphs	1.17	0.856635
Guerrero insurgency	1.14	0.876063
Hidalgo and Allende indurgency	1.13	0.883629
Disappearances	1.09	0.913289
French Intervention	1.09	0.915274
Mina insurgency	1.08	0.92793
Mean VIF	4.15	