

The Geography of Repression and Opposition to Autocracy

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Abstract: *State repression is a prominent feature of nondemocracies, but its effectiveness in quieting dissent and fostering regime survival remains unclear. We exploit the location of military bases before the coup that brought Augusto Pinochet to power in Chile in 1973, which is uncorrelated to precoup electoral outcomes, and show that counties near these bases experienced more killings and forced disappearances at the hands of the government during the dictatorship. Our main result is that residents of counties close to military bases both registered to vote and voted “No” to Pinochet’s continuation in power at higher rates in the crucial 1988 plebiscite that bolstered the democratic transition. Potential mechanisms include informational frictions on the intensity of repression in counties far from bases and shifts in preferences caused by increased proximity to the events. Election outcomes after democratization show no lasting change in political preferences.*

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State repression is a prominent feature of non-democracies (Davenport and Armstrong 2004; Davenport 2007b). However, the effectiveness of repression in quieting dissent and fostering regime survival remains unclear (Lichbach 1987; Wintrobe 1998). Evidence is scant on whether repression leads to long-lasting fear and submissiveness or whether it bolsters political opposition. This is a difficult ques-

tion to answer empirically because repression is not randomly assigned and responds to a strategic calculation (Klor, Saiegh, and Satyanath 2020; Ritter and Conrad 2016). Naïve comparisons across areas or periods with varying levels of repression are thus likely to be confounded by unobserved differences in underlying factors such as political attitudes or social capital.

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In this article, we study the effects of increased exposure to repression on political opposition to an authoritarian regime. The setting is the dictatorship of Augusto Pinochet in Chile. Pinochet presided a military junta that governed the country until 1990, having overthrown socialist president Salvador Allende in a coup in 1973. Our main object of interest is the 1988 plebiscite that asked voters to decide whether Pinochet should continue in power. This was a high-stakes election and the first free one to take place in the country since 1973: 55% voted “No,” bolstering the democratic transition. During Pinochet’s dictatorship, the state was responsible for over 3,000 deaths or forced disappearances, while more than 38,000 people were imprisoned or tortured for political reasons (Comisión Rettig 1996; Comisión Valech 2004). We seek to establish whether there is a causal link between repression at the hands of the regime over the previous years and regime opposition in the 1988 plebiscite. Answering this question involves surmounting a substantial empirical challenge, as repression was highly targeted toward supporters of the previous government and left-wing sympathizers, making it difficult to separate the effect of repression from preexisting differences in political preferences.

We employ a novel empirical strategy that leverages variation in the location of military bases at the time of the military coup. This strategy is grounded on three ideas. First, the bases we study were built throughout Chile during the many decades of democratic rule before the coup. Though bases are naturally not built at random, we can control for predetermined characteristics that potentially correlate with base location. Importantly, we show that the location of the bases was not a strategic choice of the incoming dictatorship. Second, proximity to these bases facilitated logistics (i.e., patrols and raids) and eased the flow of information, exposing local residents to a higher intensity of repression after the coup. Hence, by comparing counties with varying proximity to military bases, we harness variation in exposure to repression that is unrelated to the strategic targeting of violence by the military regime. Third, higher exposure to repression affects political behavior either by providing voters with additional information or by shifting their political preferences. A simple framework illustrates these mechanisms.

Our analysis uses original data on the universe of military bases built in Chile since independence and compares counties that housed or were nearby a base in 1970 (when Allende came to power) to those that did not. This comparison takes place within provinces and controls for predetermined economic, political, and geographic factors. Our identification strategy assumes that

the geographic distribution of military bases before the coup did not respond to future political opposition to the Pinochet regime. We provide historical evidence in support of these claims and validate our strategy using data on electoral outcomes in the two decades before the coup.

We then combine the information on location of bases with administrative data on the universe of documented victims of the dictatorship (i.e., killings or forced disappearances). Our measure of local exposure to repression is the number of victims of the regime between 1973 and 1990 per county, divided by population in 1970. This measure captures the intensity of state violence against civilians that residents of a county were indirectly exposed to. We show that counties with military bases had substantially higher rates of civilian victimization at the hands of the Pinochet regime. On average, military presence increases the number of victims per 10,000 inhabitants (inh.) by 2.1, corresponding to a 91% increase over the sample mean.

Our two main outcomes of interest are the county-level rate of voter registration for the 1988 plebiscite and the share of votes for the “No” option. We find a robust, positive effect of military presence on both of these outcomes. On average, housing a military base is associated with a 9.3 percentage point (pp) increase in voter registration and a 6.2 pp increase in the “No” vote share (both normalized by 1970 population). These are quantitatively meaningful effects corresponding to 13% and 16% of the respective sample means. We provide evidence against alternative mechanisms connecting military presence with attitudes toward the regime, including differences in government spending and differential migration.

We next examine whether the difference in electoral outcomes in counties with military presence persists in the first two decades after democratization. We focus on voters’ support in national elections for the prodemocracy “Concertación” coalition that led the “No” campaign in 1988. We find suggestive evidence that Concertación candidates initially had a larger vote share in counties with military bases. However, this electoral advantage systematically decreases and converges to zero, indicating that the results for 1988 do not reflect a persistent change in political preferences.

This article contributes to a growing literature on the effects of state repression. Existing evidence mostly comes from surveys and has often struggled to overcome the problem of endogeneity. Results are somewhat mixed. Some studies find that repression increases hostility toward the perpetrator (Balcells 2012; Lawrence 2017; Lupu and Peisakhin 2017; Wang 2019), whereas others show that it generates fear and disengagement (Bautista 2014; Garcia-Ponce and Pasquale 2015). Only a handful

of papers have analyzed the effects of plausibly exogenous exposure to repression on more reliable measures of actual political behavior (Rozenas, Schutte, and Zhukov 2017; Rozenas and Zhukov 2019; Zhukov and Talibova 2018). However, the latter all focus on indiscriminate violence in the former Soviet Union, which may limit their external validity. Unlike these papers, we study a setting with *targeted* violence and show that *indirect* exposure to repression increases opposition to the perpetrating government. Importantly, although most previous studies measure their outcomes following regime change, when opposition is less costly, we document heightened opposition to a government that is still in power. Contrary to the previous literature, we fail to find evidence of persistent effects, arguably as a result of differences in the nature of the violence.

Our article also relates to the vast literature on democratization. Boix and Stokes (2003) show that episodes before 1950 are largely consistent with *modernization* theory (Lipset 1959). However, the third wave of democratization that took place at the end of the twentieth century appears to be substantially different (Geddes 2009). In this regard, Chile's experience was similar to that of many other countries that transitioned to dictatorship at the peak of the Cold War and transitioned back to democracy as it came to an end. We contribute to this literature by providing within-country evidence that the repression that helped prop up authoritarian regimes during this period also contributed to their demise when a democratic window of opportunity arose. Treisman (2020) argues that democratization often occurs as a result of a miscalculation by the ruler. Our findings suggest that misperception about the lasting toll of repression may be one mechanism through which dictators like Pinochet overestimate their chances of winning elections.

Finally, our article also sheds light on the functioning of repression within nondemocracies. Prominent theories award an important role to repression as part of the strategies that autocrats use to remain in power (Acemoglu and Robinson 2006; Boix 2003), but our understanding of the mechanics of repression remains limited. Theoretical papers have largely focused on the agency problem that arises between the dictator and the repressive apparatus (e.g., Dragu and Przeworski 2019). Previous empirical work has focused on cronyism and reliance on the state's bureaucratic apparatus (Gregory 2009; Klor, Saiegh, and Satyanath 2020). A growing body of work has also shown the importance of logistical constraints (Zhukov 2016). We complement this line of research by highlighting a potential dark side of state capacity (Acemoglu and Robinson 2019; Besley and Persson 2011). In particular, our finding of a positive

relationship between the location of military bases and the intensity of repression indicates that the presence of the state may have a different impact on the welfare of the population depending on the political regime.

Institutional Background

In 1969, the main left-wing parties in Chile joined a coalition called “*Unidad Popular*” (UP).¹ This coalition chose Salvador Allende, a member of the Socialist party, as its candidate for the 1970 presidential election. Allende won with 36.6% of the votes, having lost in the previous four elections. His time in office was characterized by redistributive policies, a deterioration of economic conditions, and a sharp increase in political polarization. Allende was overthrown on September 11, 1973, by a military coup. A junta presided by General Augusto Pinochet, the commander-in-chief of the army, immediately suspended the Constitution and declared itself the supreme executive and legislative body of the country. It would govern Chile until 1990.

The junta established as one of its main objectives to “struggle against Marxism and extirpate it to the last consequences” (Constable and Valenzuela 1991, p. 36). In the first months after the coup, army and police units engaged in the detention, torture, and execution of supporters of the deposed Allende government, including members of left-wing parties and trade unions. Repression against political opponents remained very intense for over a year and would continue, albeit at a lower intensity, until the end of the dictatorship (see Online Appendix Figure C1 on p. x). According to administrative records, 3,216 people were either killed or forcibly disappeared by the military government (Comisión Rettig 1996). Records also indicate that 38,254 people were imprisoned for political reasons and 94% were tortured (Comisión Valech 2004).

Pinochet begun consolidating power shortly after the coup and was appointed president, with sole control over the executive, in late 1974. He also retained a vote in the junta, which was required to reach unanimity on all decisions. A new constitution, drafted under tight military control in 1980, formally extended his term as president for 8 years (Barros 2002). At the end of this term, the junta would propose a presidential candidate for the following 8-year period, who would have to be ratified through a plebiscite. If this candidate failed to get

¹Online Appendix A (p. iii) provides a more detailed discussion of the institutional background.

a majority of votes, an open presidential election would take place.

Domestic and foreign opposition to the military regime intensified throughout the 1980s, leaving Pinochet little option but to adhere to the rules in the constitution.² Aided by an economic crisis, political groups and student organizations advocating for the return to democracy became increasingly organized and there were a series of national strikes beginning in 1983. International pressure for democratization also mounted, with the UN issuing a U.S.-backed resolution condemning Chile for human rights abuses in 1986. Five weeks before the day of the plebiscite, Pinochet was confirmed as the regime's candidate. On October 5, 1988, voters were faced with a simple choice: "Plebiscite for President of the Republic: Augusto Pinochet Ugarte — YES — NO."

Political parties, outlawed in 1973, were legalized in 1987 and a center-left coalition campaigning for the "No" option ("*Concertación de Partidos por el No*") was formed. Voter registration for the plebiscite began in early 1987, as the dictatorship had declared the previous electoral census void in 1973 (Navia 2004). Most parties and social organizations encouraged participation in the plebiscite (El País 1987). By September 1988, 7.5 million people had registered to vote, corresponding to more than 90% of the estimated voting-age population.

Until 1987, the country lacked an independent institution in charge of electoral organization, allowing Pinochet to fraudulently enjoy comfortable victories in two previous plebiscites in 1978 and 1980 (Fuentes 2013). To enhance the legitimacy of the 1988 plebiscite, the junta awarded independence and objectivity to the organizations involved in its preparation (Engel and Venetoulis 1992; Santa-Cruz 2005). As a result, the 1988 plebiscite was the first free election in Chile since 1973.

The vote took place without major disturbances. The Concertación coalition called for an orderly process whereas Pinochet threatened to use force at the first sign of disorder (El País 1988). After some delays, it was officially declared that the "No" option had won with 55% of the votes. Chile's transition to democracy was under way. Following the plebiscite, Pinochet's term was extended for an extra year, in which time a presidential election was held. Concertación won this election and would go on to

win the presidency uninterrupted until 2005. After leaving office, Pinochet remained as commander-in-chief of the army until 1998 and held a lifetime seat in congress until 2002, when he had to resign to face judicial prosecution for human rights violations and corruption. He died under house arrest in 2006.

Conceptual Framework

This section offers insights into three interrelated questions that drive the empirical analysis below. First, how can proximity to military bases affect exposure to repression? Second, how can exposure to repression affect voting? Third, why should exposure to repression disproportionately affect political behavior at the local level?

Following regime change, the responsibility for repression usually falls on preexisting state agencies and only later transitions to more specialized units (Geddes, Frantz, and Wright 2018). This was the case in Chile, where most of the victims of the Pinochet dictatorship were arrested, tortured, or killed by members of the armed forces in the first months after the coup. Like other government policies, repression is limited by existing state capacity (Besley and Persson 2011). In its most basic form, state capacity is defined by the actual territorial presence of the state (Migdal 1989). In our setting, the military government's initial ability to repress was arguably determined by the preexisting network of military bases. For example, out of the 16 counties visited by the military death squad known as the "Caravan of Death" in October 1973, all but one were home to a military base. It seems plausible that greater distance to a military base increases the cost of patrolling, weakens informant networks, and creates a protective buffer for the civilian population.³

The effect of exposure to repression on political behavior is theoretically ambiguous (Davenport 2007a) and empirically heterogeneous (Young 2020). On the one hand, exposure to repression may lead to fear, which in turn causes political disengagement (Young 2019). Survey evidence by Garcia-Ponce and Pasquale (2015) and Bautista (2014) lends support to this mechanism. On the other hand, repression may naturally generate hostility toward the perpetrator and foster political resistance (Lupu and Peisakhin 2017; Rozenas, Schutte, and Zhukov 2017).

²This decision was made easier by the fact that the resulting democratic system provided economic rents to the armed forces and electoral advantages to right-wing parties (Acemoglu and Robinson 2006; Albertus and Menaldo 2018; Londregan 2007). The use of democratic institutions by authoritarian regimes to address social discontent has been documented in other settings (Reuter and Robertson 2015).

³Dube and Naidu (2015) and Martínez (2017), respectively, show that proximity to military bases or insurgent safe havens increases local measures of conflict intensity in Colombia.

A crucial factor likely to affect the direction of the effect is the perceived risk (Tarrow 1998). In this regard, Rozenas and Zhukov (2019) show that Soviet repression increased opposition in Ukraine only when the risk of retaliation was low. In our setting, most of the repression occurred in the initial years of the dictatorship, but the regime resorted to violence to address budding opposition throughout its existence. Repression was certainly a salient factor in voters' minds at the time of the 1988 plebiscite, but several factors arguably helped to reduce fear and foster opposition. First, the years of most intense repression were not the most recent, but were close enough to be remembered. Second, Pinochet could not count on U.S. support to the same extent as before, following the 1986 UN resolution condemning Chile for human rights abuses. Perhaps as a result, no major episodes of voter harassment by the military were reported in the run-up to the plebiscite. Finally, the transparency of the election (i.e., secret ballot and international monitoring) hindered retaliation against opponents (e.g., Hsieh et al. 2011).

Conceptually, we can think of the problem faced by voters using a simple framework along the lines of Fearon (1999). Assume a one-dimensional policy x corresponding to the intensity of repression. The voter has ideal point $x_0 \geq 0$, but only gets to observe a noisy measure of welfare $z = -(x - x_0)^2 + \epsilon$, where ϵ is a random noise term. The voter uses a cut-off rule on z to determine whether to reelect the incumbent. In this environment, proximity to military bases can increase opposition (i.e., make it harder for the incumbent to get reelected) through two mechanisms: better information or changes in preferences (Aytaç, Schiumerini, and Stokes 2018).

Regarding information, all media channels in Chile were censored from the day of the coup and the military regime went to great lengths to keep the population uninformed about the repression.⁴ But it is likely that the dictatorship was more successful at keeping people uninformed in areas farther away from the events. Residents of counties with higher victimization rates could have more easily observed an arrest or seen relatives queuing at the entrance to military bases demanding information. They were also somewhat more likely to be arrested themselves, though exposure was mostly indirect

given the scale and targeted nature of the violence. In the model, proximity to bases reduces the noise in the signal (variance of ϵ) and allows for increased accountability (i.e., less tolerance to deviations from the bliss point x_0 in the voting rule).⁵

Alternatively, knowledge about abuses closer to home plausibly had a heightened psychological impact. Previous work has shown that other forms of violence, like terrorist attacks, have a stronger effect on people close to the victims or in the cities in which they occur (Hersh 2013; Schlenger et al. 2002). For instance, exposure to repression could lead to more prosociality, as has been documented in the study of civil conflict (Bauer et al. 2016). In the model, this corresponds to a case in which exposure to repression changes the preferences of the voter (i.e., a shift in the ideal point x_0 away from the incumbent's). Another possibility is a heightened sense of collective injustice that leads to an expressive benefit in regime opposition or "pleasure in agency" (Wood 2003), which would correspond to an additional source of utility $v > 0$ when voting against the incumbent.

Data Construction

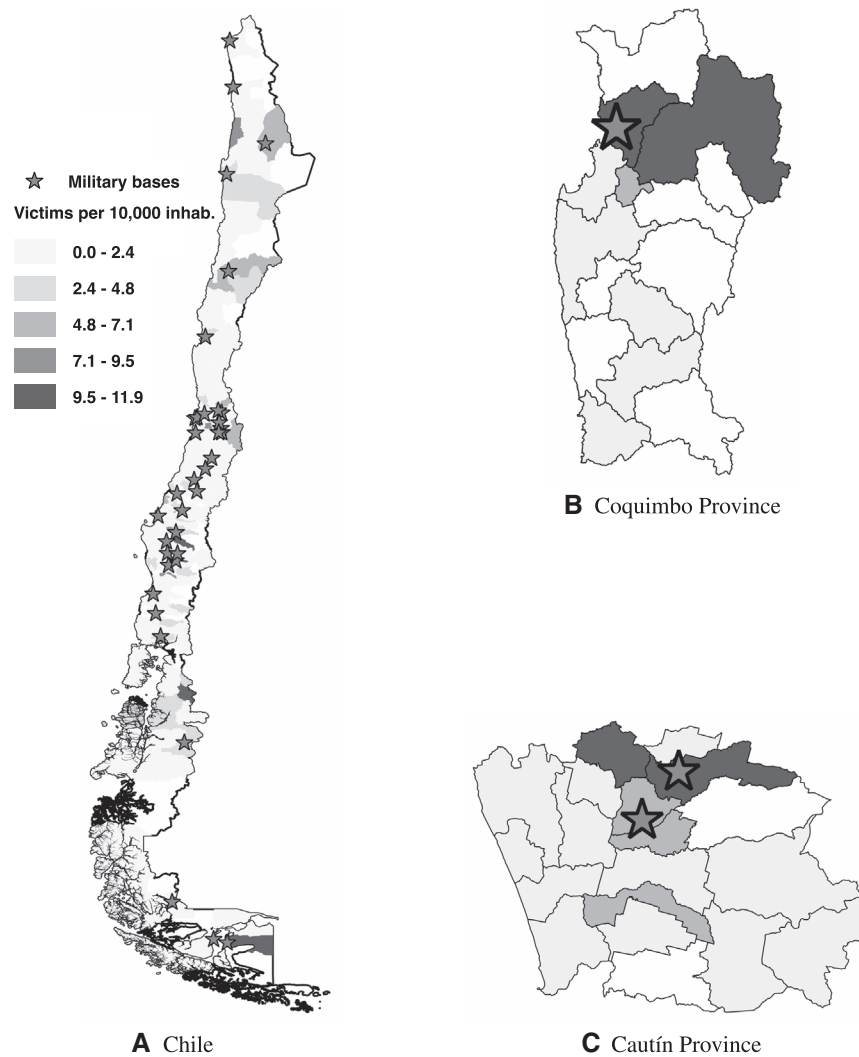
We use administrative electoral data from the National Electoral Service (NES), some of which we digitized for this study.⁶ Our main outcomes of interest are county-level measures of voter registration and support for the "No" option in the 1988 plebiscite. We define voter registration as the number of people who registered to vote for the plebiscite divided by county population in the census of 1970, which was the last population census before the military coup. Aggregate registration amounts to 71% of the 1970 population. Registration was voluntary, but voting was mandatory once registered. Hence, voter turnout was almost universal at 97.5%. Similarly, we measure support for the "No" option using the share of valid votes in support of this option. The NES is also the data source for elections in the period 1952–2017.

We constructed a data set with the location of all major military facilities since independence, based on information from multiple sources. Our data include the headquarters of all army units and military academies. They allow us to trace the creation of new units and the

⁴In 1975, government agents falsely identified burned corpses as alleged victims of forced disappearance and claimed they had died as a result of fighting among extremist groups (Kornbluh 2013, p. 330). A progovernment newspaper famously printed in its front page that "There is no such thing as 'The Disappeared'" in 1977. In the run-up to the plebiscite, content on repression was not allowed to be broadcast during the "No" campaign's allotted television slot (La Tercera 1988).

⁵This idea is also consistent with models in which information about the quality of the regime is dispersed among the population and varies depending on individual experiences (Lohmann 1993, 1994).

⁶Online Appendix B (p. vii) provides more information.

FIGURE 1 Military Presence and Repression

Note: In panels (B) and (C), white denotes zero victims. Other shades represent terciles of the within-province distribution.

redeployment of existing ones to new locations. Our preferred measure of military presence is a dummy variable for counties with a military base in 1970. We also show results using the continuous distance to the nearest base. These predetermined measures of military presence shut down concerns about the potentially endogenous placement of military units in later years. Military bases are present in 36 different counties (13%), housing 34% of the population in 1970. Panel (a) in Figure 1 shows that these bases are spread throughout the country.

Information on the victims of the dictatorship comes from the final report produced by the “*National Commission for Truth and Reconciliation*” (Comisión Rettig 1996). This document provides detailed information on 3,216 documented victims who were forcibly disap-

peared (1,093) or killed (2,123) between 1973 and 1990, including the county in which they were detained or died. We manually verified and complemented the information on each victim. We define our main measure of exposure to repression, the civilian victimization rate, as the total number of documented fatal victims of the Pinochet dictatorship per 10,000 inh. in the 1970 census. This variable is a proxy for the local intensity of repression in a county, but does not take into account surviving political prisoners, exiles, or victims of torture. After dropping a dozen outliers and counties with missing data, our estimating sample includes 276 counties.⁷ The nationwide civilian victimization rate was 2.3 victims per

⁷The 13 outliers are mostly small counties that housed improvised detention centers and experienced large massacres. The civilian

10,000 inh., but the most affected county in the sample had as many as 11 victims per 10,000 inh.⁸

Empirical Strategy

Our research design exploits the predetermined location of military bases before 1970 to study the effects of military presence on repression after 1973 and political opposition in 1988. In this section, we provide historical and quantitative evidence to argue that proximity to military bases was largely uncorrelated to local political conditions before the coup. We also explore how other observable county characteristics correlate with the location of bases and introduce our baseline specification based on this analysis.

Until 1973, Chile had a long-standing tradition of military subordination to democratic government. In a span of over 140 years since independence, the country had only been under military rule for 13 months (Constable and Valenzuela 1991). Despite rising levels of political polarization after 1950, there is no evidence that the military high command engaged in politics before the immediate run-up to the 1973 coup. Augusto Pinochet only became commander-in-chief of the army a few weeks before the coup and his two most immediate predecessors stood out in their defence of the democratic order. Even the CIA acknowledged that a coup was unlikely to succeed “because of the apolitical history of the military in Chile” (Kornbluh 2013, p. 9).

The historical record indicates that the size and organization of the military throughout the nineteenth and twentieth centuries were mainly driven by national security concerns (i.e., securing the country’s borders and ensuring military presence throughout the territory). The oldest infantry regiments were created in the early years of the republic to defend the country from a possible invasion from Spain (González Salinas 1987, p. 19). In later years, technological innovations in weaponry, transportation, and telecommunications played an important role in the creation of new military units.⁹ Online Ap-

victimization rate averages 25.82 among the outliers, compared to 1.38 (0.58) in our sample. Online Appendix Table D5 (p. xxiv) shows that the results are robust to the inclusion of the outliers under three scenarios: (i) unmodified, (ii) winsorization of the civilian victimization rate at 95th percentile, (iii) adding a dummy for the outliers as control.

⁸A homicide rate above 2 per 10,000 inh. is classified as high by the United Nations.

⁹International conflicts, such as the War of the Pacific against Perú and Bolivia in 1879–83, only had a temporary effect as units created amid conflict were usually disbanded soon afterward.

pendix Figure C2 (p. x) shows the earliest decade in which counties with bases in 1970 had a military unit assigned to them. We observe a roughly uniform distribution in the timing of military arrival throughout the twentieth century. Military expansion was not a partisan policy, as 48% of bases were created under center-right governments and 52% under center-left or independent ones.

To better understand the geographic and economic factors that predict the location of bases in 1970, we estimate a series of regressions that project several variables on the dummy for military presence.¹⁰ With a couple of exceptions, all the variables we consider are measured before the military coup to ensure that they are not affected by the dictatorship.¹¹ We examine basic demographic and geographic characteristics (e.g., population, distance to Santiago), proxies for social and human capital accumulation (e.g., number of churches, share of population with 12+ years of education), exposure to important policies (e.g., agrarian reform begun by President Frei in 1964), and voter turnout and election results from 1970.

Table 1 shows the results. Column 1 displays the average and standard deviation of each variable in counties without bases as reference. Column 2 shows that the average is significantly different in counties with military presence for several variables. Importantly, even this raw mean comparison reveals no significant differences in electoral outcomes in 1970. Column 3 shows that many of the previous differences are no longer significant once we include province fixed effects.¹² Some significant differences remain, though, as is to be expected given that military bases are not built at random. In particular, counties housing bases tend to be closer to the regional capital, have larger population, be less rural, and are also more educated than counties without bases in the same province. In column 4, we include the parsimonious set of controls that we use in our baseline specification to follow. We observe that all but one of the other differences become insignificant. This indicates that counties with and without military bases are highly comparable,

¹⁰Results are similar if we instead use the distance to the closest military base.

¹¹Posttreatment variables include the exposure to trade liberalization under Pinochet and the share of the population with TV in 1987 (González and Prem 2018).

¹²The country was divided into 25 provinces at the time of the coup. In 1975, the military regime introduced 13 regions as the first level of subnational government. The results below are robust to the use of region fixed effects instead.

TABLE 1 Differences by Military Presence before the Dictatorship

	Avg. w/o military (1)	Projection on military presence		
		(2)	(3)	(4)
Political characteristics				
Vote share Salvador Allende in 1970	37.76 (12.13)	−1.73 (1.91)	−1.64 (2.16)	—
Vote share Jorge Alessandri in 1970	33.42 (9.46)	1.97 (1.81)	3.03 (1.90)	—
Turnout 1970	29.17 (44.13)	4.95* (2.49)	2.35 (3.13)	1.02 (2.58)
Vote share UP municipal election in 1971	51.35 (12.48)	−1.36 (2.34)	−1.71 (2.74)	0.68 (1.17)
UP mayor indicator 1971	0.39 (0.49)	−0.16 (0.10)	−0.13 (0.10)	−0.01 (0.11)
Vote share UP legislative election 1973	45.64 (11.54)	−3.75* (1.82)	−3.60 (2.27)	−0.96 (0.61)
Geographic characteristics				
ln distance to Santiago	4.28 (1.98)	1.27** (0.43)	0.16 (0.11)	—
ln distance to regional capital	3.13 (1.28)	−0.95* (0.46)	−1.39** (0.34)	—
Landlocked indicator	0.76 (0.43)	−0.25* (0.11)	−0.09 (0.07)	0.07 (0.07)
Demographic characteristics				
Population (Pop.) in 1970	0.96 (1.05)	0.18 (0.26)	0.44* (0.19)	—
Houses per capita in 1970	0.20 (0.04)	0.01 (0.00)	−0.00 (0.00)	−0.01* (0.01)
Community organizations 1970	4.91 (14.29)	7.13* (2.84)	6.29* (2.71)	1.56 (2.45)
Churches per capita 1962	0.07 (0.08)	−0.00 (0.01)	−0.02* (0.01)	−0.01 (0.01)
Pop. share w/12+ years of education 1970	0.02 (0.03)	0.01 (0.01)	0.02* (0.01)	0.00 (0.01)
Pop. density 1970	27.30 (47.89)	−21.51* (10.31)	−7.50 (6.72)	−7.96 (7.41)
Pop. share rural 1970	0.32 (0.33)	−0.19** (0.05)	−0.24** (0.04)	—
Pop. share economically active 1970	0.29 (0.03)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Pop. share female 1970	0.51 (0.03)	0.01 (0.01)	0.02** (0.01)	0.00 (0.00)
Pop. share w/TV ownership 1987	0.85 (0.13)	−0.01 (0.02)	0.04* (0.02)	−0.01 (0.02)
Policy characteristics				
Agr. land share expropriated before 1973	0.23 (0.25)	−0.07 (0.05)	−0.02 (0.03)	−0.05 (0.04)
Exposure to trade liberalization	−0.20 (0.18)	0.02 (0.06)	0.01 (0.02)	−0.02 (0.03)
N	240	276	276	276

Note: Standard deviation in parenthesis in column 1. Robust standard errors in parenthesis in columns 2–4. Columns 3–4 include province fixed effects. Column 4 further controls for distance to Santiago and regional capital, 1970 population and rural share, vote shares for Allende and Alessandri in 1970. Weights: 1970 population.

Significance level: ** $p < 0.01$, * $p < 0.05$.

conditional on the province fixed effects and the baseline controls.¹³

Our baseline regression equation has the following form:

$$Y_{c,p} = \beta f(\text{Military presence})_{c,p} + \tau X_{c,p} + \lambda_p + \varepsilon_{c,p}, \quad (1)$$

where $Y_{c,p}$ is an outcome in county c from province p . f is a function of proximity to a military base in 1970. Our baseline specification uses a binary indicator equal to one in counties with a base, but we verify that the results hold for a continuous measure of proximity (log distance to the nearest base). λ_p is a fixed effect for each of the 25 provinces in the country, meaning that our estimation only compares counties located in the same province. The vector $X_{c,p}$ contains our baseline controls. Based on the evidence on the correlates of military presence in Table 1, we include as controls total population and rural share in 1970, distance to Santiago and to the regional capital, and the vote shares for Salvador Allende and Arturo Alessandri in 1970 (winner and runner-up). The latter capture potentially persistent differences in political preferences (Valenzuela and Scully 1997). Finally, $\varepsilon_{c,p}$ corresponds to a robust error term, though we also present p -values based on heteroskedastic and autocorrelation consistent (HAC) standard errors that account for spatial autocorrelation, following Conley (1999). Because our main outcomes of interest, voter registration and support for “No” in the 1988 plebiscite, correspond to individual behaviors, we weight our estimates by population in 1970. This way we ensure that we give equal importance to all voters, irrespective of the size of the county in which they reside. Hence, our estimates capture empirical relationships in the population rather than across counties.

The coefficient of interest is β , which measures the reduced-form relationship between military presence in 1970 and our outcomes of interest in 1988. A causal interpretation of the ordinary least squares (OLS) estimate of β requires military presence to be uncorrelated with the error term, conditional on the included controls. This corresponds to a conditional independence assumption (CIA) stating that the location of military bases in 1970 is as-good-as-random, conditional on the province fixed effects and the parsimonious set of baseline controls (Angrist and Pischke 2009). As a result of the inclusion of the 1970 vote shares among the controls, we can interpret β as the differential effect of military presence in political behavior in 1988 among counties with similar

past political preferences. We hypothesize that this relationship is mediated by increased exposure to repression near military bases and present evidence in support of this claim below.

To validate our empirical strategy, we estimate a series of placebo regressions examining the performance of Salvador Allende in elections taking place in the two decades before the military coup. If, as we claim, differences in the 1988 outcomes in counties with military presence are to be attributed to increased exposure to repression after the 1973 coup, we should not observe systematic differences in electoral outcomes before the coup. Figure 2 shows point estimates and 95% confidence intervals of β in separate regressions using the Allende vote share in each presidential election between 1952 and 1970 as dependent variable.¹⁴ We also consider the vote share for Allende’s UP coalition in the local council elections of 1971 and the legislative election of 1973, the last election before the coup. The round markers correspond to a specification without any controls, except for the province fixed effects (i.e., equivalent to column 3 in Table 1). If anything, we find that within-province support for Allende is somewhat weaker in counties with bases, though the β estimate is only significant in 1964. Once we control for economic characteristics (population, rurality, distances), the coefficients stabilize at around -5 pp, all statistically insignificant (triangular markers). Finally, the squared markers show estimates from regressions that additionally control for the results from the previous election. In this case, we are asking whether support for Allende varies in counties with military presence, relative to the level of support in the previous election. This is the closest specification to the one we use for our main analysis. We observe that the β estimates are all very close to zero (though varying in sign), precisely estimated, and not statistically significant.¹⁵

Main Results

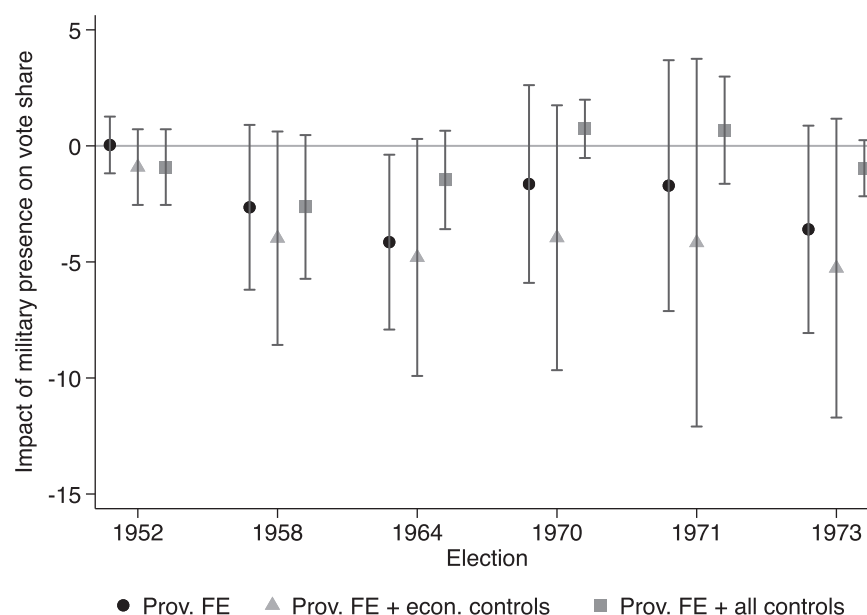
Exposure to Repression

In this section, we present quantitative evidence on the relationship between military presence and exposure to

¹³Online Appendix Table D1 (p. xx) shows that our results are unaffected if we include all the controls considered in Table 1 or an optimal combination based on a machine learning algorithm.

¹⁴Online Appendix Figure C3 (p. xi) shows equivalent figures with similar results for turnout and the vote share of the winning candidate.

¹⁵Alternatively, panel (a) in Online Appendix Figure C4 (p. xii) provides difference-in-differences estimates (with county and year fixed effects) showing no significant changes in Allende’s vote share relative to 1952.

FIGURE 2 Military Presence and Allende Vote Share before 1973

Note: Graph shows point estimates and 95% confidence intervals. Dependent variable is Allende's vote share in 1952, 1958, 1964, and 1970 presidentials and UP vote share in local and legislative elections in 1971 and 1973. Markers indicate specification. Circle: province fixed effects; triangle: province fixed effects, distance to Santiago and regional capital, 1970 population, and rural share; square: same as triangle plus Allende and winner's vote share from previous election. Weights: 1970 population. Robust standard errors.

repression during the Pinochet dictatorship. The maps in panels (B) and (C) in Figure 1 provide preliminary evidence from the provinces of Coquimbo and Cautín. Both maps show that counties with a military base (denoted with stars) had high rates of civilian victimization relative to other counties in the same province. The historical evidence in Comisión Rettig (1996) indicates that this is not a coincidence: Military units were active participants in the detention, torture, and death of many of the victims. In Cautín, 23 out of 100 victims were last seen at one of the two military bases in the province. In Coquimbo, the local army regiment was responsible for 19 out of 22 deaths.

Table 2 shows estimates of Equation (1). Panel A uses the binary indicator of military presence, whereas panel B uses the distance to the nearest military base. The dependent variable in column 1 is the civilian victimization rate—that is, the number of victims per 10,000 inh. in 1970. We find that the victimization rate was 2.1 units higher in counties housing military bases, which corresponds to a 91% increase over the sample mean. The estimate is very precise, whether we use robust standard errors (shown in parenthesis) or Conley standard errors that account for spatial correlation in the error term (p -value shown in brackets). Similarly, panel

B shows that a doubling of the distance to the nearest base is associated with 0.6 fewer victims per 10,000 inh. Panel (A) in Figure 3 provides a visualization of this result.¹⁶

In columns 2 and 3, we disaggregate the effect of military presence into the extensive and intensive margins of repression. Column 2 shows that counties with bases were slightly more likely to report any victims, but the effect is small and insignificant. However, column 3 shows a large, positive effect of military presence on the probability of being in the top quartile of the distribution of the victimization rate. These results indicate that military presence had a much larger effect along the intensive margin of repression (number of victims) than the extensive margin (any victims). One concern with these results is that the number of victims in counties with bases may be artificially inflated by residents of other counties that died or were last seen at military bases. But column 4 shows that the estimates remain positive, significant, and quantitatively important when we use our hand-collected data on county of residence of the victim instead of the county of death. Another concern is that our

¹⁶Online Appendix Table C1 (p. xiii) shows that these effects were three times larger during the first 2 years of the dictatorship, when the armed forces were in charge of repression.

TABLE 2 Impact of Military Presence on Repression

	Victims per 10,000 inhabitants (1)	Victims > 0 (Dummy) (2)	Victims > p75 (Dummy) (3)	Victims (residence) (4)	Detention centers (5)
Panel A					
Indicator military presence	2.09** (0.41) [0.00]	0.08 (0.04) [0.06]	0.40** (0.10) [0.00]	1.20** (0.37) [0.00]	4.04** (0.76) [0.00]
Panel B					
ln distance closest military base	-0.62** (0.14) [0.00]	-0.03 (0.02) [0.09]	-0.14** (0.03) [0.00]	-0.35** (0.14) [0.00]	-0.87** (0.23) [0.00]
Observations	276	276	276	276	276
R-squared (A)	0.57	0.43	0.50	0.49	0.83
R-squared (B)	0.55	0.43	0.52	0.48	0.81
Province fixed effects	x	x	x	x	x
Controls	x	x	x	x	x
Avg. dependent variable	2.31	0.86	0.29	1.95	5.97

Note: Dependent variable in column 1 is the civilian victimization rate. In columns 2 and 3, a dummy for victimization rate larger than zero or above the 75th percentile. In column 4, the civilian victimization rate based on county of residence. In column 5, the number of centers of detention/torture. All regressions include province fixed effects and control for distance to Santiago and regional capital, 1970 population, and rural share, vote shares for Allende and Alessandri in 1970. Weights: 1970 population. Robust standard errors in parenthesis, *p*-values based on Conley (1999) standard errors in brackets.

Significance level: ** *p* < 0.01, * *p* < 0.05.

measure of exposure to repression only captures the phenomenon in its most extreme form (killings and forced disappearances). To address this concern, column 5 uses data on the universe of documented centers of detention during the dictatorship and shows that municipalities housing military bases also had more. Hence, military presence is also associated with increases in other forms of repression (e.g., torture).

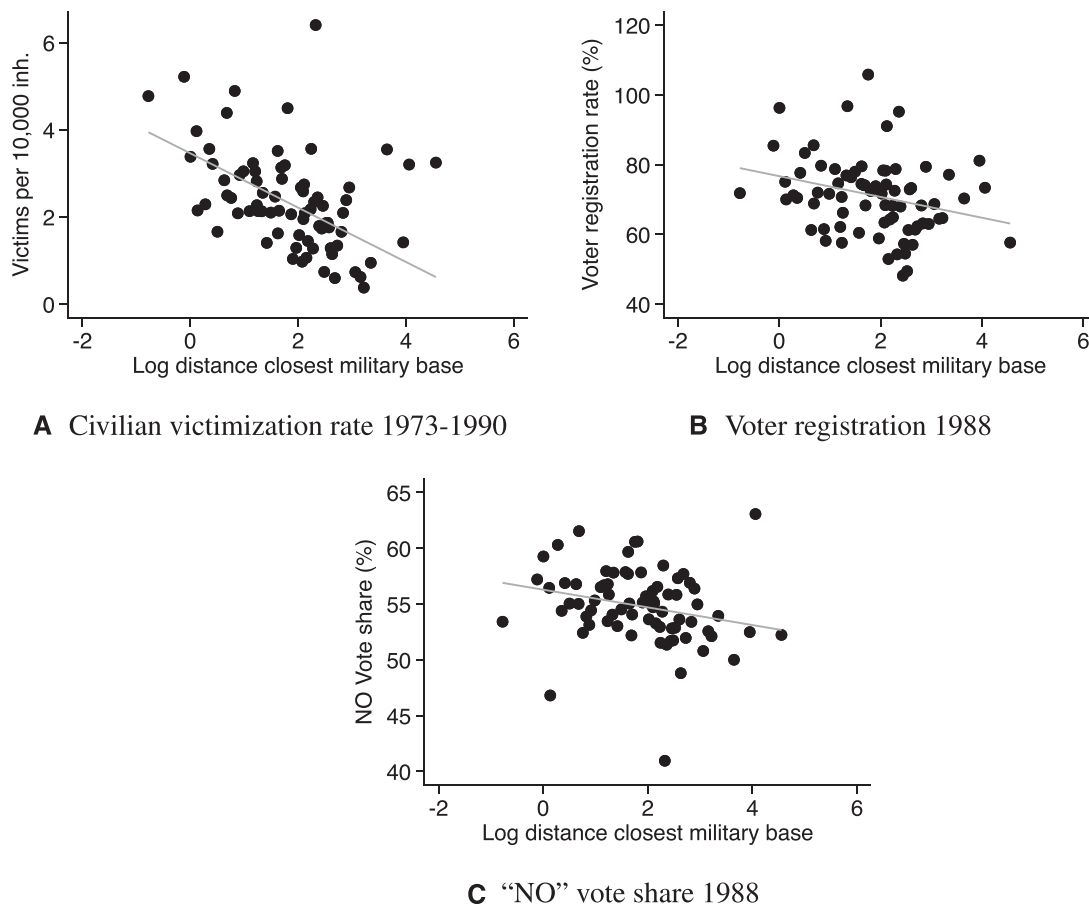
The 1988 Plebiscite

We now turn to the impact of military bases on the 1988 plebiscite. Panel A in Table 3 presents estimates of Equation (1). The dependent variable in column 1 is the rate of voter registration. We find that registration for the plebiscite was 9.3 pp higher in counties with military presence. This point estimate is precisely estimated and corresponds to a 13% increase above the sample mean. Column 3 shows the equivalent estimate for the “No” vote share. Support for “No” was 2.2 pp higher in counties with military bases. This coefficient is also precisely estimated and corresponds to a 4% increase over the sample mean. These two estimates are *not* directly comparable, because the outcomes have different denominators. Column 4 shows that the latter effect increases to 6.2

pp if we divide the number of “No” votes by population in 1970. Hence, the large majority of the additional voters in counties with military bases voted against Pinochet’s continuation in power.¹⁷ Columns 2 and 5 present the corresponding results using log distance to the nearest base. We find that a doubling of the distance to the nearest base is associated with respective decreases of 3 pp and 0.8 pp in voter registration and the “No” vote share. The scatter plots in panels (b) and (c) of Figure 3 illustrate these results. We observe a strong negative relationship between both of our outcomes of interest in 1988 and the distance to the nearest base in 1970.

The previous results constitute reduced-form evidence of the positive link between military presence at the time of the 1973 military coup and opposition to the dictator in the 1988 plebiscite. To quantify the impact of repression, panel B in Table 3 provides two-stage least squares estimates using military presence as an instrumental variable (IV). This IV strategy circumvents the bias in OLS estimates resulting from omitted variables and measurement error, the sign of which is not obvi-

¹⁷Formally, we fail to reject the null that the coefficients in columns 1 and 4 are equal (*p*-value of 0.31).

FIGURE 3 Military Presence, Repression and the 1988 Plebiscite

Note: All panels include province fixed effects and control for distance to Santiago and regional capital, 1970 population and rural share, Allende and Alessandri's vote share in 1970. Weights: 1970 population.

ous ex ante.¹⁸ This part of the analysis requires us to assume an additional *exclusion restriction* stating that military presence affects our outcomes of interest exclusively through increased exposure to repression. We provide evidence in support of this assumption below and also test the sensitivity of the results to small violations.

Column 1 shows that a one unit increase in the civilian victimization rate led to respective increases of 4.4 pp and 1.1 pp in the voter registration rate and the “No” vote share. These effects are equivalent to increases of 6% and 2% over the corresponding sample averages. Under the IV assumptions, these estimates represent a positive causal effect of exposure to repression on voters' behavior

in the plebiscite.¹⁹ These estimates are somewhat larger than their OLS counterparts (shown in Online Appendix Table C2, p. xiv), but we fail to reject the null that they are equal to one another ($p = 0.17$ in both cases), suggesting that the bias in OLS is small.²⁰

¹⁹In the presence of heterogeneous effects, the IV estimates capture the Local Average Treatment Effect (LATE) of repression on the compliers: those voters that faced higher exposure to repression due to military presence. This interpretation requires a monotonicity assumption that is very likely satisfied (i.e., being farther away from a military base does not increase exposure to repression, all else equal). Online Appendix Table C3 (p. xiv) shows that our instrument satisfies additional validity tests, whereas Online Appendix Table C4 (p. xvi) provides a characterization of the complier counties.

²⁰The discrepancy can be explained by a classical measurement error in our measure of repression (attenuation bias) or by complier counties experiencing a more brutal type of repression than the average county, leading to a stronger response.

¹⁸For example, hard-to-measure levels of social capital may have reduced the intensity of repression while increasing political opposition in 1988, leading to downward bias. However, targeted repression against more politically active districts, which may not be perfectly captured by our political controls, could lead to upward bias.

TABLE 3 Impact of Military Presence and Repression on the 1988 Plebiscite

	<u>Voters</u> <u>Pop. 1970</u> (1)	<u>Voters</u> <u>Pop. 1970</u> (2)	<u>NO votes</u> <u>Votes</u> (3)	<u>NO votes</u> <u>Pop. 1970</u> (4)	<u>NO votes</u> <u>Votes</u> (5)
Panel A: Reduced form					
Indicator military presence	9.26* (4.38) [0.04]		2.24* (1.01) [0.06]	6.21* (2.97) [0.00]	
In distance closest military base		−2.98* (1.33) [0.01]			−0.79* (0.31) [0.02]
Panel B: 2SLS					
Victims per 10,000 inh.	4.44* (2.08) [0.13]	4.78* (2.16) [0.10]	1.08* (0.49) [0.08]	2.98* (1.46) [0.00]	1.27* (0.50) [0.06]
Observations	276	276	276	276	276
R-squared (A)	0.67	0.67	0.82	0.50	0.83
Kleibergen Paap F-stat. (B)	26.27	18.92	26.27	26.27	18.92
Province fixed effects	x	x	x	x	x
Controls	x	x	x	x	x
Avg. dependent variable	71.16	71.16	54.82	38.74	54.82

Note: Dependent variable is the voter registration rate in columns 1 and 2 and the “NO” vote share in columns 3–5. Denominator indicated in the header. In panel B, the corresponding measure of military proximity is used as excluded instrument. All regressions include province fixed effects and control for distance to Santiago and regional capital, 1970 population and rural share, and vote shares for Allende and Alessandri in 1970. Weights: 1970 population. Robust standard errors in parenthesis, *p*-values based on Conley (1999) standard errors in brackets.

Significance level: ** $p < 0.01$, * $p < 0.05$.

Robustness Checks

Online Appendix D (p. xvii) provides a battery of tests on the robustness of our results. We verify that the results are unaffected if we randomly exclude subsets of counties, include outliers in the measure of repression, or omit the population weights. We also show that the results are robust to the inclusion of all the covariates in Table 1, random subsets of them, or an optimal combination using a machine learning algorithm. Results are also robust to additional spatial controls. We further verify that the results are not driven by presence of other facilities, such as airports, or by large urban centers (provincial or regional capitals). Following Oster (2019), we visually show the stability of our estimates to potential selection on unobservables. The results are also robust to restricting the set of bases to those built several decades before the military coup. A permutation test that randomly assigns military bases across coun-

ties reveals that our results are very unlikely to arise by chance.

Alternative Explanations

This section considers channels other than repression through which military presence may have affected the behavior of voters in 1988.²¹ One possibility is that the regime relied on the existing network of military units to run the country, which led to higher government spending in counties with military bases. To examine

²¹An alternative approach, following Conley, Hansen, and Rossi (2012), involves gauging the quantitative importance of a partial violation of the exclusion restriction. In Online Appendix Figure D5 (p. xxvi), we allow military bases to affect our outcomes directly, as well as indirectly through repression. The results show that the direct effect of military bases on the plebiscite would have to be positive and nonnegligible, equivalent to 25% and 28% of the respective reduced-form effects on registration and the “No” vote, to make the effect of repression statistically insignificant.

TABLE 4 Alternative Mechanisms

Dependent variable:	All investment (1)	More visible investment (2)	Less visible investment (3)	Unemployment rate (4)	Not in birth county (5)	Not in 1977 county (6)
Indicator military presence	0.00 (0.07)	0.00 (0.06)	−0.00 (0.02)	0.13 (0.44)	−0.01 (0.02)	−0.02 (0.01)
Observations	276	276	276	276	276	276
R-squared	0.493	0.452	0.625	0.624	0.592	0.715
Province fixed effects	x	x	x	x	x	x
Controls	x	x	x	x	x	x
Avg. dependent variable	0.57	0.49	0.08	9.64	0.64	0.18

Note: Dependent variable in columns 1–3 is spending per capita in urban projects between 1979 and 1989. Total in column 1 and disaggregated into more and less visible projects in columns 2 and 3. Share of working-age population unemployed in 1982 in column 4. Share of people not living in county of birth or of residence in 1977 in columns 5 and 6. All regressions include province fixed effects and control for distance to Santiago and regional capital, 1970 population and rural share, vote shares for Allende and Alessandri in 1970. Weights: 1970 population. Robust standard errors in parenthesis. Significance level: ** $p < 0.01$, * $p < 0.05$.

this possibility, we use a new data set on local infrastructure projects to construct an aggregate measure of public spending per capita between 1979 and 1990.²² We also construct disaggregate measures for highly visible projects, such as public spaces and housing, and less visible projects, including sanitation and indoor equipment. Columns 1–3 in Table 4 show estimates of Equation (1) for these measures of government spending. We find that they are unrelated to the location of bases.

Military presence may have also affected the functioning of the local economy through channels different than spending. The expected sign of this relationship is not obvious *ex ante*. On the one hand, military presence may have mechanically boosted demand for local products. On the other hand, potential rent seeking and extortion could have displaced economic activity away from bases. A depressed local economy could explain the greater regime opposition that we observe in 1988. We test for this mechanism using the county-level unemployment rate as reported in the 1982 census, but the estimate in column 4 of Table 4 is small and insignificant.

Military presence may have caused differential migration during the dictatorship, leading to changes in the composition of the electorate. In columns 5 and 6 of Table 4, we consider two alternative measures of migration using data from the 1982 census. These are the respective shares of county residents that report not living in their county of birth or in the same county as in 1977. Again, the point estimates are small and statistically insignificant.

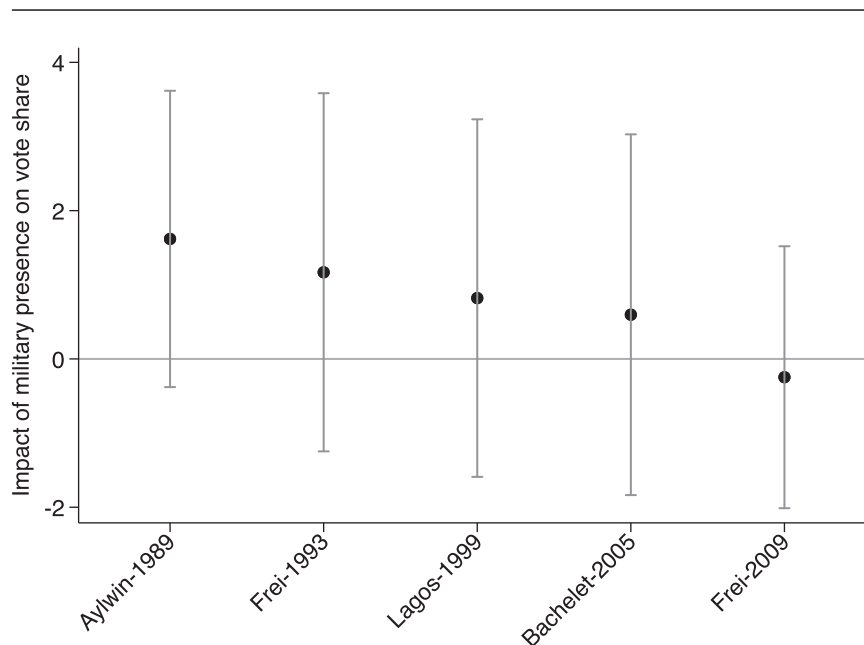
²²Online Appendix B (p. vii) provides additional information on the data.

Military Presence and Political Preferences After the 1988 Plebiscite

In this section, we examine potential persistence in the political preferences revealed in the 1988 plebiscite. In particular, we want to know whether the “Concertación” coalition that championed the vote for “No” and went on to govern the country until 2010 enjoyed stronger support in counties with military presence. This analysis helps us understand whether the 1988 vote should be interpreted as an instance of opposition to autocratic rule or as a reflection of a broader and lasting change in political attitudes and preferences. Motivating this analysis is the fact that the Pinochet dictatorship has remained a looming presence in Chilean politics up to this day and that all of the country’s presidents since 1990 are related to the dictatorship as victims, opponents, or supporters.²³

Figure 4 shows estimates of β in Equation (1) for all the presidential elections in which Concertación took part before its dissolution in 2013. The dependent variable is the county-level vote share for the coalition’s presidential candidate. We observe a steady decrease in the

²³Patricio Aylwin (1990–94) was president of the senate at the time of the military coup and became a leader of the prodemocracy movement in the 1980s. Eduardo Frei Ruiz-Tagle (1994–2000) is the son of President Eduardo Frei Montalva (1964–70), who became the main opposition figure in the early 1980s. Ricardo Lagos (2000–06) was also a major opposition figure and one of the leaders of the prodemocracy movement. Michele Bachelet (2006–10) was detained and tortured in 1975. Her father died during captivity. Sebastian Piñera (2010–14 and 2018–) is the younger brother of a former minister of Pinochet.

FIGURE 4 Military Presence and “Concertación” Vote Share after 1988

Note: Graph shows point estimates and 95% confidence intervals. All regressions include province fixed effects and control for distance to Santiago and regional capital, 1970 population and rural share, Allende and Alessandri's vote share in 1970. Weights: 1970 population. Robust standard errors.

electoral advantage held by Concertación in counties with military bases over the 20-year period. Although the estimate for 1989 is not far from the effect on the “No” vote share in 1988, the estimate for 2009 is essentially zero.²⁴ These results suggest that exposure to repression bolstered political opposition to the dictatorship when a window of opportunity appeared, but did not lead to persistent changes in political preferences. Online Appendix E (p. xxvii) presents additional evidence from survey responses in “Latinobarómetro” also showing no lasting effect on political preferences.

These results suggest that informational frictions explain higher regime opposition in counties with military presence better than shifts in preferences. The decreasing support for Concertación is plausibly explained by efforts at accountability and reconciliation after democratization, including the release of the reports by Comisión Rettig (1996) and Comisión Valech (2004), that allowed people throughout the country to become better informed about the abuses during the dictatorship. These policies helped to eliminate the informational advantage held by residents of counties with military presence. An-

other possibility is that government performance gained prominence in voters' assessment of Concertación relative to the coalition's opposition to Pinochet in 1988.²⁵

Conclusion

In this article, we study the effects of exposure to repression on political opposition to an authoritarian regime. We show that counties housing military bases at the start of the Pinochet dictatorship in Chile in 1973 experienced more civilian deaths and forced disappearances. Residents of these counties registered to vote and voted against Pinochet at higher rates in the crucial 1988 plebiscite that bolstered the democratic transition. After democratization, the prodemocracy Concertación coalition initially enjoys higher support in these counties, but this effect gradually disappears.

These findings indicate that targeted violence by an autocratic regime can contribute to regime change when

²⁴The pattern is very similar for local elections (Online Appendix Figure C5, p. xii) or if we run a difference-in-difference specification with county and election fixed effects (Online Appendix Figure C4, panel (b), p. xii).

²⁵One final possibility concerns demographic changes in the composition of the electorate (e.g., rising shares of younger voters unexposed to repression). The analysis of survey data in Online Appendix E (p. xxvii), which controls for age, suggests that this is not the main explanation.

a democratic window of opportunity arises. Naturally, repression is only one of many factors at play and establishing its relative contribution to the regime's electoral demise is complicated by the fact that we are only able to measure the differential effect in areas with greater exposure. What seems certain is that the regime's excesses caused a disproportionate backlash in these areas. The geography of repression matters.

Chile was one of many countries to live under a repressive dictatorship and to transition to democracy in the second half of the twentieth century (Huntington 1991). Hence, our findings could help explain recent episodes of democratization in various parts of the world. In this regard, the effects of repression on political behavior are likely shaped by three factors: (i) whether violence is targeted or indiscriminate, (ii) whether exposure is direct or indirect, (iii) whether there are credible opportunities for political expression. Our finding of no persistent effect on political preferences after democratization stands in contrast with previous research on indiscriminate violence (Lupu and Peisakhin 2017; Rozenas, Schutte, and Zhukov 2017). Arguably, the effect of indirect exposure to targeted violence that we study is more easily diluted over time.

Our results could also help explain recent changes in the functioning of nondemocracies. These include less reliance on repression by what are ever more often hybrid regimes that regularly hold elections (Guriev and Treisman 2019; Levitsky and Way 2010). Our results provide a novel microfoundation for these changes, as violent repression can backfire for an autocrat that participates in elections if a genuine democratic opening arises.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Detailed institutional background

Appendix B: Further information about the data

Appendix C: Additional Figures and Tables

Appendix D: Robustness checks

Appendix E: Political ideology in Latinobarómetro