

Losing Your Dictator: Firms During Political Transition*

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Can firms transfer distortions across political regimes? To answer this question, we use novel firm-level data, network analysis, and a differences-in-differences framework to study firms during Chile's transition to democracy. We find that firms with links to the dictatorship were relatively unproductive before the transition, increased their productive capacity and obtained more loans from state-owned banks during political transition, and had better market outcomes in democracy. We discuss and test for different explanations and provide suggestive evidence consistent with strategic behavior. These results suggest that distortions can be transferred across political regimes and constrain the effects of democratizations.

Keywords: transition, distortions, firms, networks

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Political transitions are ubiquitous and are associated with significant changes in the economy, but little is known about the behavior of key economic actors such as firms during these times.¹ Understanding the behavior of firms can help us to unbundle the black box behind the economic effects of political transitions. This knowledge is also crucial to understand the sustainability of democracy, a result which, as the Arab Spring has reminded us recently, is far from guaranteed.

Distortions in the allocation of resources across firms are one important source of economic inefficiency (Hsieh and Klenow, 2009) and politics is at the heart of this issue. Indeed, scholars have long argued that firms with links to political regimes benefit from a number of distortions that increase firm value – e.g. corruption in procurement and preferential lending, among others.² The anticipation that these distortions will disappear if there is a regime change could lead firms to “prepare” for the new state of the world. If firms successfully prepare, this anticipation might affect markets even well after the regime change. Firms would be able to transfer distortions across political regimes, limiting the benefits of a democratization and the market changes it creates. Observing how firms “prepare” to better position themselves under the new regime is, however, typically difficult.

Can firms transfer distortions across political regimes? This paper focuses on Chile’s transition to democracy to study how firms with links to the Pinochet dictatorship (1973–1990) prepared for a future democratic period. Using a novel dataset of balance sheets, firm-level annual reports, and a network analysis of board members who worked for Pinochet, we find that firms with links to the dictatorship were relatively unproductive before democratization (1973–1988), increased their productive capacity and obtained more loans from state-owned banks during political transition (1988–1990), and had better market outcomes in democracy (1990s). We discuss a number of potential explanations for these findings and provide suggestive evidence consistent with a strategic behavior of firms that aimed to improve their market position. These results provide one of the first microeconomic evidence of distortions being transferred across political regimes.

Chile’s transition to democracy provides a unique opportunity to measure and study the interactions between a dictatorship and firms. Vast amounts of (previously unex-

¹There have been four transitions to democracy per year in the last 25 years (Figure A.1). A large literature studies the effects of political regimes on economic variables. See Acemoglu et al. (2017) for a recent discussion of the literature and Papaioannou and Siourounis (2008b) for an empirical assessment of democratization theories.

²See Fisman (2001), Khwaja and Mian (2005), Faccio (2006), Faccio et al. (2006), Jayachandran (2006), Claessens et al. (2008), Ferguson and Voth (2008), Blanes i Vidal et al. (2012), Cingano and Pinotti (2013), and Colonnelli and Prem (2017), among others.

exploited) information exists about firms operating during and after the dictatorship led by Augusto Pinochet (1973–1990). The existence of records with information about people who worked for Pinochet assures that interactions between the state and firms are measurable. In addition, the timing of this political transition gives us an opportunity to measure firm responses after a democratization announcement but before the new democratically elected government took office. After fifteen years in power, Augusto Pinochet called for elections in 1988, where he would run as the unique candidate to transform his autocratic regime into a democratic one for the next eight years. Contrary to everyone’s expectations, Pinochet not only lost the election, but also acknowledged his defeat. This election known as the “1988 plebiscite” marked the beginning of Chile’s transition to democracy. The plebiscite’s outcome changed the following years from a Pinochet regime to a democracy. We take advantage of these features to study how firms operating in dictatorship moved towards the new democratic era.

Our analysis uses a novel dataset of publicly listed firms observed between 1985 and 1994. We constructed these data by hand-collecting firm-level information from two different administrative sources: quarterly balance sheets and firm-level annual reports. Both data were stored in Chile’s stock market regulatory agency and have been previously unused. In the former we observe assets and its subcategories, debt and its subcategories, and profits. In the latter we observe firm-bank relationships and the identity of board members. To identify firms with links to the regime, we conduct a network analysis of board members that worked for Pinochet before 1988, a process which results in the identification of firms with direct or indirect links to the regime. The usage of direct and indirect links is a relevant and new dimension of our empirical approach.

To motivate our analysis of firms during political transition, we collected daily stock prices of firms in our data to investigate how financial investors reacted to the plebiscite. We document that firms with direct *or* indirect links to Pinochet suffered a substantial decrease in abnormal returns in the days that followed. Although decreases in stock prices of connected firms after negative political events have been documented before, there are two surprising facts about our findings. First, firms with *indirect* links also suffered a substantial decrease in their stock prices, suggesting the existence of more complex political networks than previously thought. Second, the value of firms with direct links *increased* twelve weeks after the plebiscite and the value of direct links increased more than the value of indirect links. This suggests that (1) connected firms reacted to the political transition in ways not anticipated by financial investors, and (2) firms with different types of links reacted differently.

The core of our analysis combines our network of firms with direct and indirect links

with a differences-in-differences framework across three political periods, i.e. dictatorship (four years), transition (one-and-a-half years), and democracy (five years). Exploiting within firm variation over time, we find that firms with direct links increased their productive capacity by 0.4 standard deviations after the plebiscite, with no changes in either productivity or labor. We also study the credit market and find that firms with direct links obtained substantially more loans from state-owned banks during political transition. Importantly, all these results account for any effects the political transition might have had across industries (and other observable variables) and are robust to a wide range of empirical exercises, including placebos that exploit the attempted murder of Pinochet in dictatorship and elections in democracy. The final part of our analysis finds that firms with links to the regime were 15 percentage points more likely to remain operating *after* our period of analysis, and that firms increasing their productive capacity during political transition experienced an increase in profits in democracy.

Why did firms with direct links to the regime increase their productive capacity and obtained more loans from state-owned banks during political transition? The last part of our paper explores four different explanations: the role of political and economic uncertainty, a potential strategic behavior that aimed to improve their market position, the regime's potential strategic placement of individuals in firms that were expected to behave in this way, and the role of wealth transfers from the regime to firm owners. Using a collection of additional empirical evidence and contemporaneous accounts that include narrative evidence from businessmen, we conclude that the evidence is most consistent with a strategic behavior of firms that aimed to improve their position in the market.

Our work is closely related to the empirical literature studying the legacies of non-democracies. The empirical literature documenting short-term persistence of economic and political distortions across political regimes is a relatively new area of research and has focused mostly on local governments. For example, [Martínez Bravo \(2014\)](#) shows that appointed officials that persisted in power after Indonesia's transition to democracy are associated to significant economic and political distortions. In the same context, [Martínez Bravo et al. \(2016\)](#) show that mayors who persisted in power experience worse governance outcomes, highlighting the costs associated to slow transitions. We contribute to this literature by examining the persistence of economic distortions associated to firms during political transition, thus suggesting a new dimension of inefficiency arising from slow transitions (see [Roland 2002](#) for a survey).

This paper also contributes to the empirical literature studying the economic effects of political transitions. Estimates of the effect of democracy on economic growth go back to at least the beginning of the 1990s and have been the focus of contentious debates

in the social sciences. [Acemoglu et al. \(2017\)](#) provide the most recent empirical analysis and show significant positive effects of democratizations on economic growth in the long-run.³ Our results suggest that potential negative short-run effects and positive long-run effects of democratizations may be explained by a transfer of distortions from non-democratic times. In this sense, we interpret the persistence of distortions as a constraint to the effects of democratizations.⁴

The next section discusses the Pinochet regime, firms, and Chile's transition to democracy. Section 2 presents the data construction process, descriptive statistics, and motivating evidence from the stock market. Section 3 presents our main results, robustness checks, and a discussion about the importance of network links versus other variables. Section 4 provides a discussion and presents evidence for mechanisms that can potentially explain our results. Section 5 concludes.

1 Chile's Transition to Democracy

The dictatorship led by General Augusto Pinochet in Chile began after a coup d'état against democratically elected socialist Salvador Allende on September 1973. Following the coup, Pinochet was part of a military *junta* that ruled the country until June 1974. After consolidating his power at the *junta*, Pinochet ruled the country for the next seventeen years. We can divide the Pinochet dictatorship in three periods: installation and repression (1973-75), implementation of radical economic policies (1976-82), and implementation of pragmatic policies (1983-89). Our analysis focuses in the last period.

1.1 Firms and the Pinochet regime

We now briefly discuss the history of the relations between firms and the Pinochet regime. Although empirical work studying the practices of firms during this period is limited ([Os-sandón and Tironi, 2013](#)), historical work documenting the relationship between firms and the regime is abundant.⁵ Relying on this research we argue that firm-state relations in the 1980s (our period of study) had their origins in (1) the preexisting links between

³See [Barro \(1996\)](#), [Tavares and Wacziarg \(2001\)](#), [Rodrik and Wacziarg \(2005\)](#), [Persson and Tabellini \(2006\)](#), [Papaioannou and Siourounis \(2008a\)](#), [Murtin and Wacziarg \(2014\)](#) among many others. [Doucouliagos and Ulubasoglu \(2008\)](#) provide a meta-analysis of the literature.

⁴Our results also speak to a theoretical literature studying the persistence of economic power across political regimes (e.g. [Acemoglu 2008](#), [Acemoglu and Robinson 2008](#), and [Acemoglu et al. 2011](#)).

⁵Most academic work studies the impacts of the macroeconomic reforms implemented in the Pinochet dictatorship. See, for example, [Ramos \(1980\)](#), [Corbo \(1985\)](#), and [Edwards \(1986\)](#), among others.

advisors to the regime and the business world, and (2) the privatization program implemented in the 1970s and 1980s.

After the 1973 coup, the right-wing coalition saw an opportunity to pursue their economic program and persuaded the regime to implement market-based policies and to change the institutional framework (Cavallo et al., 2011). The regime was advised by two groups of individuals. The former group was composed by technocrats trained as economists at the University of Chicago – popularly known as “Chicago Boys” – who had developed an economic program for the right-wing candidate at the 1970 presidential election (Silva, 1991). The majority of these economists studied business at leading universities in Chile and had close connections to the business world (Silva, 1996). The latter group of advisors was in charge of designing and implementing the legal framework that was to be used by the regime to take institutional control of the country (Huneus, 2000). The majority of advisors were formally or informally associated to the right-wing coalition and had therefore close links to the business world.

In addition to the links between advisors and the business world, individuals who worked for the regime acquired control of firms in the context of a privatization program, probably one of Pinochet’s most controversial policies.⁶ Individuals close to Pinochet started working as board members in firms that were privatized by the regime. Perhaps the most famous case is Pinochet’s former son-in-law, Julio Ponce Lerou, who worked for the regime and became board member of the Chemical and Mining Society of Chile during its privatization process. Ponce Lerou represents one of the links between firms and the regime in our empirical analysis.⁷

1.2 *Democratization by election at the “1988 plebiscite”*

Pinochet called for elections in 1988 in which he would run as the only candidate, a Yes/No election known as the “1988 plebiscite” that took place on October 5th. Pinochet’s goal was to internationally validate his regime and become president of Chile for the period 1988–1996. However, he could not accomplish his goal. In an election in which more than 90 percent of the voting-age population registered to vote, 56 percent rejected Pinochet’s continuation.⁸ Then, in December of 1989, a presidential election with can-

⁶The controversy relies on the fact that people linked to the regime acquired firms at lower-than-market prices, effectively transferring wealth from the State to the private world (Mönckeberg, 2015).

⁷Importantly, not all privatized firms were linked to Pinochet and not all firms linked to Pinochet were privatized. Thus, we can account for the effect of privatizations and differentiate it from the effect of links to Pinochet.

⁸More details about this election in Hirmas (1993), Boas (2015), and González and Prem (2017).

didates from all parties took place, an election in which Pinochet could not run. As expected, the opposition won, and the new democratically elected president Patricio Aylwin took office in March of 1990. Between the plebiscite and the arrival of the new government, seventeen months transpired in which firms could adjust their decisions for the new economic environment. This period of “transition” is a crucial part of our analysis.

Pinochet’s defeat at the plebiscite was unexpected for several reasons. First, there was no legal institution in charge of regulating the election. Second, previous surveys did not state a clear prediction (Cauce, 1988). Third, most people believed that Pinochet was not going to acknowledge a negative result.⁹ And fourth, on election day, most preliminary results showed that Pinochet was winning, and the opposition’s victory was only recognized on October 6 at around 2 a.m. (Méndez et al., 1988; Engel and Venetoulis, 1992). In addition to this historical evidence, section 2.2 provides empirical evidence for the unexpectedness of the plebiscite’s outcome by analyzing stock market returns of firms with and without links to the Pinochet dictatorship.

1.3 *The credit market during political transition*

There are three state-owned banks during our period of analysis: the Bank of the State, the Central Bank, and the Production Development Corporation. The Bank of the State granted 83 percent of loans from state-owned banks between 1988 and 1990 (see section 2). Executives at these banks were directly appointed by Pinochet and were in charge of the review and approval of loan petitions (Law No. 2079, enacted in 1978).

The President of the Bank of the State during the transition was Alvaro Bardón, former President of the Central Bank (1977–81), Undersecretary of Finance (1982), and member of the Chicago Boys. Bardón was appointed president one month after the plebiscite (November 7, 1988) and remained in this position until the last week of the regime. This appointment has been the focus of controversy due to the bank’s financial operations during the transition. The controversy lies on the privatization of *El Mercurio* and *La Tercera* (the two largest newspapers), bankrupted by the time of the transition. These newspapers were bailed out after the 1982 financial crisis and, as a consequence, were heavily indebted to the Bank of the State. These debts meant that the opposition party could have owned a significant part of the written media after taking office in 1990. To prevent this scenario, Bardón used debt swaps to transfer the ownership of newspapers to firms with links to Pinochet. These financial operations were implemented between

⁹According to declassified documents posted by the U.S. National Security Archive, Pinochet stated, “I’m not leaving power, no matter what.” Different political forces (including the navy) pushed him to finally accept the result (Huneus, 2006).

November 1989 and March 1990 and, because of significant mispricing, cost the Bank of the State approximately 26 million USD (Leon-Dermota, 2003).¹⁰

This “newspapers case” exemplifies how the Pinochet regime used state-owned banks to gain an advantage during political transition. Leon-Dermota (2003, p. 143) puts it succinctly: “The connection between *El Mercurio* and the military regime facilitated access to credit that was used to invest and gain an advantage over competitors.”

2 Empirical Framework

We begin this section describing the data construction process and the method to identify the network of firms related to the Pinochet regime. Then, we present evidence from the stock market to motivate the study of firms. Finally, we present our empirical strategy to study firms-level outcomes during political transition.

2.1 Data construction

We constructed a dataset of firms listed in the Chilean stock market. Our main analysis uses 118 firms observed annually or quarterly between 1985 and 1994.¹¹ We collected firm-level information from two sources. First, we used *quarterly* balance sheets gathered by the stock market regulatory agency.¹² Second, we digitized *annual* reports, required by law and audited by international companies. From these reports, we hand-collected firms outstanding borrowing from banks, bond and equity issuance, number of workers, year of foundation, and information about exports. We converted all variables to 1998 Chilean pesos using the consumer price index of the Central Bank of Chile.

The first part of our analysis studies investment in physical capital, profits, workers, and productivity. Similar to Banerjee and Duflo (2014), we define investment as the logarithmic change in land, machinery, and buildings. Profits are defined as earnings before interests, taxes, and depreciation. We estimated revenue productivity using Olley and Pakes (1996) procedure. We also used Hsieh and Klenow (2009) methodology to con-

¹⁰Price Waterhouse was in charge of estimating this value. Bardón and his team were investigated for state fraud in 1991. In a controversial ruling, the Supreme Court decided to exonerate them. Leon-Dermota (2003) argues that this exoneration is an example of Pinochet’s power in the new democratic era.

¹¹We start our analysis in 1985 to avoid confounding factors from the recovery period after the 1982 economic crisis. In 1985 GDP growth reached its pre-crisis level. See Figure A.2.

¹²Chile’s regulatory agency is called *Superintendencia de Valores y Seguros*. The US equivalent is the Securities and Exchange Commission.

struct two misallocation measures, capital and output wedges. To handle outliers, we winsorized all variables at 2.5 percent of the empirical distribution. In addition, we constructed firms' year of foundation, an indicator for exporting firms, an indicator for firms privatized by Pinochet, and existing business groups in 1987. The regime privatized 40 firms in our data, and 32 firms were part of nine different business groups.¹³ The second part of our analysis studies the credit market by analyzing firms outstanding borrowing from state-owned and other banks over time. We classified all firms in two-digit industries following the classification of [United Nations \(2008\)](#).

We constructed the network of firms related to Pinochet using the name of board members in the 1987 annual reports. We performed a Google search of all board members and classified them as linked to the regime if she worked for Pinochet before 1988 or was a member of Pinochet's close family.¹⁴ We found that approximately 10 percent of board positions were connected. We say a firm was connected to the regime if at least one board member had a political connection. Besides *direct* (first degree) connections, we say a firm had an *indirect* (second degree) connection to the regime if none of its directors was connected but at least one worked for a connected firm. Several papers have shown that these "interlocking directors" affect firm outcomes through an information mechanism (e.g., [Khwaja et al. 2011](#), [Patnam 2013](#), and [Fracassi 2016](#)). Overall, we found that 43 firms had a *direct* connection to Pinochet, 33 firms had an *indirect* connection, and 42 were unconnected. [Figure 1](#) shows this network of firms.¹⁵

[Table 1](#) presents descriptive statistics for the dictatorship period by type of connection. Firms linked to the dictatorship were larger and older, more likely to have been exporters, privatized by the regime, and part of a business group. These firms were also less productive and accrued more debt from banks. Differences between firms with direct and indirect links are considerably smaller. In addition, the misallocation wedges reveal that connected firms benefited from cheaper access to credit and higher subsidies. Connected firms also had more access to credit and were less productive. These differences tend to be larger for firms with direct links and are similar when we use within industry comparisons.

¹³We identified privatized firms using data from a commission in charge of investigating privatizations. More information can be found in [CEME \(2004\)](#). We identified business groups using the official document *Circular N. 766* produced by the stock market regulatory agency.

¹⁴Other papers have classified individuals as politically connected in a similar way (e.g., [Fisman 2001](#), [Bertrand et al. 2007](#), [Acemoglu et al. 2014](#), [2016](#)). More details in [Appendix A](#).

¹⁵The distinction between direct and indirect links is novel and, it does *not* drive our results, and increase the precision of our estimates. We present results using only direct links to facilitate comparison with the literature. [Table A.1](#) presents an example of a connected firm and [Table A.2](#) the number of firms per link type and industry.

2.2 *Motivating evidence from the stock market*

The stock market reflects the knowledge of financial investors about current and future events and, therefore, it can provide valuable information about the contemporaneous perception of events. To estimate the effect of the plebiscite on the stock market we combine our network analysis with daily stock market prices we hand-collected from contemporary newspaper *El Mercurio*, publicly available at Chile’s National Library. To account for unobserved variables affecting stock returns across firms we utilize “abnormal returns,” i.e. the difference between actual returns and expected (business-as-usual) returns. We measure abnormal returns by restricting attention to firms that were traded four months before October 1988, reducing our data to 80 firms.

We present results graphically. Figure 2-A reveals a significant drop in abnormal returns of firms linked to the Pinochet regime. This drop corresponds to a decrease of three standard deviations and is similar for firms with direct (first degree) and indirect (second degree) connections. We confirmed that this drop in stock returns was unique to the plebiscite by studying abnormal returns around other important political events (Figure A.3). We interpret this result as evidence that the outcome of the plebiscite was unexpected and as validation of our connection measure.¹⁶

How long-lasting are the stock market effects? Theoretically, stock prices should remain low if the event under study is unexpected and the present value of future cash flows among connected firms is permanently lower. Nevertheless, actions in the aftermath of the event could reverse the initial drop in stock prices. To analyze how permanent the effect was, Figure 2-B plots the weekly price relative to the price one week before the plebiscite. This figure shows that the initial drop lasted only twelve weeks. This finding suggests that once firms lose their dictator, there is a change in their behavior, a change that is not predicted by financial investors.¹⁷ These findings serve as motivation to study firms during political transition.

2.3 *Empirical strategy*

How did firms linked to the regime react to Pinochet’s defeat at the plebiscite? Our econometric strategy exploits within firm variation, the plebiscite’s outcome as an exoge-

¹⁶In contrast, the victory of the opposition at the 1989 presidential election was expected and did not cause significant changes in the stock market (Figure A.3-C). Table A.3 presents regression estimates.

¹⁷These patterns could also be consistent with an overreaction of investors. We argue this is unlikely to be the case because (1) there are no significant differences in stock prices during other important political events, and (2) the observed heterogeneity is hard to reconcile with an overreaction mechanism.

nous democratization announcement, and our network analysis of firms, resulting in a differences-in-differences with three time periods and three types of firms. As firms were not randomly linked to the regime, we perform a variety of exercises to show that results are explained by networks and the plebiscite and not other variables or time trends.

The main regression equation we estimate is:

$$Y_{ijkt} = \beta_T(P_i \cdot T_t) + \gamma_T(p_i \cdot T_t) + \psi_{kt} + \zeta_i + \lambda_t + \varepsilon_{ijkt} \quad (1)$$

where Y_{ijkt} is the outcome of firm i – part of business group j and operating in industry k – in period t , with $T = \{transition, democracy\}$ denoting political periods (dictatorship is the omitted category). The outcomes in the first part of our analysis are investment, workers, productivity, and profits. The vectors of parameters $\beta_T = (\beta_{tran} \ \beta_{dem})'$ and $\gamma_T = (\gamma_{tran} \ \gamma_{dem})'$ contain the coefficients of interest, with β_{tran} and γ_{tran} capturing differences in firm behavior during political transition. The indicators P_i and p_i are equal to one if firm i had a (respectively) direct or indirect links in 1987, mutually exclusive categories. The vector ψ_{kt} captures industry unobservable shocks *after* the plebiscite, and ζ_i and λ_t represent firm and time fixed effects. Finally, ε_{ijkt} is an error term clustered at the business group level.¹⁸

We also present results using three variations of equation (1). To explicitly show the importance of the network analysis, the first variation classifies firms with second degree connections as unconnected firms. The second variation of equation (1) omits ψ_{kt} . When compared to our main regression, this specification shows the effect of industry shocks on our estimated coefficients.¹⁹ The third variation is to study the credit market and replaces the index i in equation (1) from a firm to a firm-bank pair. We collapsed the universe of bank names in annual reports into “state-owned” and “other” banks. This empirical strategy is similar to the one in [Khwaja and Mian \(2005\)](#). The main difference is that we exploit *within firm-bank* variation *over time* (i.e., before and after the plebiscite), and not only *within firm* variation. For the credit market analysis we use three dependent variables: (1) monetary value of debt in Chilean pesos, (2) an indicator for positive amounts of debt, and (3) the logarithm of debt.

¹⁸Any firm that is not part of a business group is assumed to be a business group on its own. There are 104 clusters in our dataset. We obtain similar results when we cluster using [Newman \(2004\)](#) community detection algorithm.

¹⁹For example, one might worry that firms in the energy sector anticipate increases in demand after the plebiscite and decide to increase their productive capacity accordingly. Including industry fixed effects after the plebiscite addresses this type of concern.

3 Results

We present results in three parts. First, we estimate how firm inputs, profits, and the credit market changed during political transition. Second, we present empirical exercises to test for the role of links to the regime versus other variables. Third, we study the consequences of our findings in democracy. Overall, we find that (1) firms linked to the regime increased their productive capacity during political transition, (2) firms linked to the regime obtained more loans from state-owned banks during political transition, and (3) firms linked to the regime had better market outcomes in democracy. Section 4 tests for different explanations for these findings.

3.1 Firms during political transition

Columns 1 and 4 in Table 2-A show how investment, profits, productivity, and the number of workers changed after the plebiscite among firms with first degree connections. Coefficients indicate that these firms increased their investment and profits during political transition. In contrast, Table 2-B shows no significant changes in productivity or the number of workers. In terms of magnitudes, the standard deviations (σ) in dictatorship imply that investment in physical capital increased by 0.22σ , profits increased by 0.10σ , and the changes in productivity and labor are smaller than 0.05σ .

Columns 2 and 5 allow for firms with indirect links to respond differently than unconnected firms. Coefficients for these firms indicate similar patterns during political transition but smaller in magnitude. Interestingly, the coefficient for firms with *direct* links increases, suggesting that accounting for indirect links is important. Columns 3 and 6 include industry fixed effects after the plebiscite and coefficients remain similar. Because this specification compares firms within the same industry, it is our preferred regression.

It is important to discuss the interpretation of outcomes in democracy. We believe it is difficult to interpret coefficients in democracy because firm-level variables are significantly correlated across years. This means that actions during political transition could have easily persisted to the democratic period. For example, after reading annual reports we realized that (1) most investments in physical capital take place across multiple years, and (2) investments are usually followed by complementary investments. We present coefficients for the democracy period simply for transparency.

Table 3 presents results for the credit market. Column 1 presents estimates using debt in Chilean pesos as dependent variable. Firms with direct links increased their debt with state-owned banks during political transition. The coefficient is large, as can be seen from

the average debt with these banks. Column 2 shows that the probability of having a positive amount of debt is also larger for these firms. Column 3 shows that debt over assets also increases significantly after the plebiscite. Remarkably, coefficients are always positive but smaller in magnitude for firms with indirect links (p -values of 0.16, 0.23, and 0.07, respectively). In addition to debt with banks, we also explored changes in stocks and bond issuances as other sources of funding and found no significant differences explained by links to the regime (Table A.4). Taken together, these results emphasize the importance of state-owned banks during political transition.

Even though equation (1) is a fairly non-parametric regression, the reader may worry about specification decisions affecting our results. Several checks suggest that previous results are not driven by this type of decisions. Indeed, results are robust to use different parts of the empirical distribution to winsorize the dependent variables (Table A.5), similar when we use a Solow residual to estimate productivity (Table A.6), and similar when we collapse the data to three periods (dictatorship, transition, and democracy) to deal with potentially serially correlated outcomes (Bertrand et al., 2004, see column 1 in Table 4). In the last specification check, we confirm that results in the credit market are similar if we classify banks linked to the regime in three other ways: (1) banks that were privatized or received financial help during the 1982 economic crisis, (2) state-owned banks and large banks that were privatized during the regime, and (3) state-owned banks and banks with politically connected directors (Table A.7).

3.2 *The importance of links to the regime and the plebiscite*

As shown in Table 1, firms not only differ in their links to the Pinochet dictatorship, but also on other observable variables. We now present and discuss empirical exercises that suggest our findings are driven by links to the Pinochet regime and not other variables. Note that, because our estimates include firm fixed effects, we are concerned with time effects affecting firms differently. Our exercises allow for time effects of potential confounding variables, use matching approaches to estimate changes in firm behavior during political transition, and present placebo exercises that implicitly test for parallel trends among firms with and without links. Tables 4 and 5 present the most relevant empirical exercises. Additional results can be found in the Appendix.

Table 4 presents exercises with observable variables. Columns 2-5 add relevant controls to our preferred specification to study the influence of observables in our estimates. We measure controls before the plebiscite and allow their coefficients to change after the plebiscite. Reassuringly, results are similar when we control for an indicator for big firms

– above the median of the firm size distribution before the plebiscite – an indicator for firms privatized by the dictatorship, an indicator for firms participating in some business group, and exporting firms. Column 6 includes all previously mentioned control variables and results are again similar.

We perform three additional exercises making use of differences in observables across firms. First, we flexibly control for the probability of having a link to the regime based on observables. We estimate two probit models to predict direct and indirect links using observable variables before the plebiscite – see Table A.8 – and include these “propensity scores” interacted with a linear trend as control variables. Column 7 present results and coefficients are similar. Second, we follow Crump et al. (2009) and restrict attention to firms with overlap in the propensity score distribution. Column 8 shows that the coefficients of interest are again similar. Third, we use the synthetic control approach proposed by Abadie and Gardeazabal (2003) and Abadie et al. (2010) and find similar results (Table A.9).

We also perform two placebo exercises to corroborate the importance of the plebiscite. The first exercise, presented in Table 5-A, restricts attention to the period 1985–1988 and examines the outcomes of interest before and after the third quarter of 1986, when a group of politically motivated individuals attempted to murder Pinochet, a well-known event at the time.²⁰ Note that this exercise also serves as a test for the parallel trend assumption in our differences-in-differences framework. The second exercise, presented in Table 5-B, restricts attention to the period 1990–1997 and examines the time before and after the 1994 presidential election in columns 1 and 2. Due to data constraints, we repeat this exercise before and after the 1992 local elections for other outcomes in columns 3-5. We observe smaller and not statistically significant point estimates in these placebo exercises in dictatorship and democracy. We interpret these additional results as further evidence for the importance of the plebiscite.

3.3 *Consequences in democracy*

We now present two additional findings that we think have the potential to illuminate the mechanisms behind the observed behavior of firms. We discuss in detail potential interpretations in the next section. In this section our focus is on firm survival in democracy and, given their robustness and magnitude, on the effect of investment in physical capital on future profits.

Are connected firms more likely to survive in democracy? To answer this question we

²⁰More details about this event and the participants can be found in Peña (2007).

estimate the following cross-sectional regression every year between 1994 and 2008:

$$Y_{ijt} = \alpha_t + \beta_t P_i + \gamma_t p_i + \gamma_t x_i + \psi_j + \varepsilon_{ijt} \quad (2)$$

where Y_{ijt} is an indicator that equals one if firm i in industry j is operating as listed in year t , P_i and p_i are indicators for direct and indirect links to the regime, x_i is a vector of the most relevant control variables (i.e. firm size, privatized by the regime) in dictatorship, and ψ_j is a set of industry fixed effects.

Figure 3-A presents OLS estimates $\hat{\beta}_{1994}, \dots, \hat{\beta}_{2008}$. We find that firms with direct links to the regime were more likely to remain operating in democracy. In particular, these firms are approximately 10 percentage points more likely to be active by the year 2000, and more than 20 percentage points more likely in 2008. Regarding firms with indirect links, Figure A.4 shows that coefficients are similar until the year 2000 but smaller in 2008.

To improve our understanding of investment results, we estimate the correlation between profits and firm-specific changes in investment during the transition period. Because we expect investments to increase profits, we compare this correlation to a similar correlation in a different period, i.e. the third quarter of 1986. We proceed in three steps. First, we modify equation (1) to estimate firm-specific investment responses $\hat{\beta}_{i,tran}$ with $i = 1, \dots, 118$. Figure A.5 presents these coefficients. Second, we construct annual profits in year t by adding up quarterly profits. Third, we estimate the following cross-sectional regression each year between 1990 and 1994:

$$\Pi_{it} = \alpha_t + \tau_t \hat{\beta}_{i,tran} + \eta_{it} \quad (3)$$

where Π_{it} represents profits of firm i in year t , α_t is a constant term, and $\hat{\beta}_{i,tran}$ represent firm i investment response. To facilitate the interpretation of coefficients, we standardize $\hat{\beta}_{i,tran}$ and Π_{it} . The coefficient of interest is τ_t and measures the average response of profits in t to changes in investment during political transition. We calculate standard errors for τ_t using a bootstrap procedure to account for the uncertainty in $\hat{\beta}_{i,tran}$.

Figure 3-B presents OLS estimates $\hat{\tau}_{1989}, \dots, \hat{\tau}_{2008}$. There are three interesting patterns. First, there is a positive and statistically significant correlation between investment in transition and future profits. Second, the effect is roughly constant in the five years after the plebiscite. Third, the effect is large when compared to investments in a different period. Indeed, a 1σ increase in investment response is associated with an increase of 0.2σ in profits, which is larger than the increase of 0.1σ to investments in a different period.²¹

²¹We again use the attempted murder of Pinochet in September of 1986 as a benchmark.

In sum, we find that firms linked to the Pinochet regime operated for a longer time and benefited from the increase in investment in physical capital during political transition. We now discuss and test for potential explanations for these and previous findings.

4 Mechanisms

This section discusses potential explanations for our findings. We first address the roles of political and economic uncertainty as an explanation for our results. We then discuss three different explanations for the observed behavior of firms with links to the regime.

4.1 *Political and economic uncertainty*

Are results driven by political and economic uncertainty? Several authors have shown that uncertainty affects investment and profits (e.g. [Bloom 2009](#), [Julio and Yook 2012](#)). It is sensible to believe the period after the plebiscite is a time of uncertainty. Empirical evidence and contemporaneous accounts, however, suggest this is not the case.

Lets begin with the empirical evidence. Because our analysis accounts for time fixed effects, macroeconomic variables affecting all firms are taken into account. Uncertainty can only explain our results if it affects firms with and without links differently after the plebiscite. Note, however, that [Table 4](#) shows our results are similar when we interact a series of variables with an indicator for the period after the plebiscite. Moreover, if firms with links are delaying investments because of the uncertainty associated to the plebiscite, we should observe an increase in their liquid assets before the plebiscite. But the difference in liquid assets between firms with and without links is not statistically different from zero before 1988. If anything, linked firms have *less* liquid assets. Therefore, the evidence suggests that results are not driven by uncertainty having heterogeneous effects on firms with and without links to the regime.

In addition, contemporaneous accounts suggests there was not significant uncertainty after all. For example, a leading businessman of the time, Eliodoro Matte, stated that “We [the business world] understood people did not want drastic changes [which] allowed us to be calm and the transition to democracy to be pacific without affecting investment.” ([Matamala, 2015](#), p. 151). Accounts in the annual reports of the firms we analyzed suggest a similar lack of uncertainty:

“Taking into account the political changes and the existing information, we conclude that there will not be significant economic changes and, therefore,

we believe our company should continue its business as usual.”

The lack of economic and political uncertainty is unsurprising given the negotiations between the opposition coalition and the Pinochet regime, which made the transition to democracy peaceful and possible.²²

Taken together, the empirical evidence and contemporaneous accounts suggest political and economic uncertainty are unlikely to be an explanation behind the patterns we have documented in previous sections.

4.2 *Strategic investments*

The investment patterns we have documented are theoretically consistent with a strategic behavior of firms with links to the regime trying to deter firm entry. In particular, we test for two implications of entry deterrence models that predict increases in investment when there is a threat of increasing competition (Dixit, 1980). The motivation to test for predictions of this model comes from the potential increase in competition that democracy brings (Acemoglu, 2008).

In entry deterrence models investment in physical capital is an effective way to reduce firm entry. Then, if investment is a strategic decision, we should expect more of it in industries with higher entry costs. To test for this, we follow Lambson and Jensen (1998) and construct a proxy for “sunk costs” by industry using data on property, plant, and equipment in the period 1985–87. We divide industries into those with more and less average sunk costs and use this variable to augment equation (1) with a triple difference. Table A.10 shows that investment among firms with links is indeed higher in more capital intensive industries during political transition.

We can also test if the presence of firms with links to the regime is associated with lower firm entry in democracy. To test for this, we estimate a regression of log number of firms on the share of connected firms. We do this in our sample of publicly listed firms and in a panel of firms constructed from the Chilean annual manufacturing census. The latter exercise also serves as an out-of-sample test. Table A.11 provides some suggestive evidence that industries with more linked firms had less firm entry in democracy. Given the limited number of industries in our data, these results need to be interpreted with caution. Nevertheless, both of these additional results provide some evidence for strategic behavior of firms.

²²Ellman and Wantchekon (2000) provide a theoretical analysis of this and similar political transitions.

4.3 Targeting of firms

Another explanation for our findings is that the Pinochet regime placed individuals as board members in firms that were expected to invest during political transition and perform well in democracy. Two pieces of evidence suggest that this “targeting of firms” is unlikely to be relevant in our context.

Because our econometric strategy accounts for industry unobservable shocks after the plebiscite, our first piece of evidence against this interpretation comes from the difficulty of predicting future economic outcomes within industries. If the regime targeted firms, the regime should have been able to identify (1) firms that will behave in a precise way in the future, and (2) if and when there will be a political transition. Besides the observable variables for which we control form, it is hard to imagine what type of within industry information could the regime have had to target firms. In addition, the regime was planning on staying as the incumbent at least until 1996 (see Section 1 for details). Therefore, we believe the context suggests that the strategic targeting of firms within industry is unlikely to be a mechanism behind our findings.

The second piece of evidence against this interpretation comes from the stock market. Recall that stock prices of firms with links to the regime *decreased* following the plebiscite. However, if these firms were expected to behave in a certain way during political transition, we should not observe a decrease in their stock value after the plebiscite. The reason behind this argument is that the plebiscite should not have revealed any new information if the regime expected the transition and the reaction of firms. Taken together, we argue that the context and the evidence from the stock market suggest that the strategic targeting of firms is unlikely to be a relevant explanation for our results.

4.4 Wealth transfers

Another interpretation for our findings is that the Pinochet regime extracted wealth from state-owned banks and made transfers to the owners of firms in its network before leaving power. We highlight two pieces of evidence that are hard to reconcile with this interpretation.

First, we observe better market outcomes among firms with links after the plebiscite, particularly among those with increases in productive capacity (Figure 3-B). Because there is no a priori reason to expect wealth transfers should increase future profits and firm survival, we think this interpretation cannot explain these results. Second, if the regime transferred resources to firm owners, we should observe an increase in wealth extraction

from firms by their owners, the last step of the transfer process. This auxiliary prediction can be tested by studying changes in extraordinary dividends after the plebiscite, which we observe in annual reports. Table A.12 shows that individuals in the regime's network did not extract more wealth from firms after 1988. In fact, if anything, in democracy we observe fewer extraordinary dividends among firms with direct links.

Given that this interpretation of transfers has difficulties in explaining some patterns we observe in the data, and because we fail to find evidence for auxiliary predictions, we conclude that our findings are unlikely to be explained by transfers of resources from the regime to individuals in its network.

5 Conclusion

To improve our understanding of the economic effects of democratizations, we studied the behavior of firms during political transition. Our empirical analysis focused on Chile's transition to democracy, which offered a unique opportunity to measure the network of firms with links to the dictatorship and important firm-level variables during political transition. Our analysis provided evidence consistent with firm distortions being transferred across political regimes as firms with links to the dictatorship seem to have successfully improved their market position using their political ties. We cannot, however, claim that this behavior was necessarily inefficient for the market. Although firms with links to the dictatorship were relatively unproductive and a source of misallocation, to compute the complete welfare implications we would need to fully characterize demand and supply in different industries, a task beyond the scope of this paper.

The reader might worry that Chile's transition to democracy differs from other transitions and our findings have limited external validity. Although certainly unique, we believe the timing of Chile's democratization provides a valuable starting point to evaluate the behavior of firms during political transition. If firms in a dictator's network have more accurate information about the future than other firms – the most likely case in our view – the kind of firm behavior we have documented could be magnified. Conversely, if the new regime is fragile and a reversal probable, firms may be less likely to respond during transition. In this sense, careful regulation of the credit and investment market during a democratization seems like a potentially effective policy to avoid persistence of distortions. One way to achieve this regulation is with government audits of investment projects, which have been shown to reduce corruption (Olken, 2007).

Besides the firm outcomes we have studied, there could be other economic and political areas affected in democracy. We believe the political arena is particularly important

not only in the Chilean case, but potentially other settings as well. If the economic power that persists across regimes translates into political power in democracy, the old political regime could still exert influence and create political distortions. Recent corruption scandals in Chile suggests this is indeed the case as several firms have been accused of (illegally) financing electoral campaigns.

References

- Abadie, A., Diamond, A., and Hainmueller, J. (2010). Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. *Journal of the American Statistical Association*, 105(490):493–505.
- Abadie, A. and Gardeazabal, J. (2003). The economic costs of conflict: a case study of the Basque country. *American Economic Review*, 93(1):113–132.
- Acemoglu, D. (2008). Oligarchic versus democratic societies. *Journal of the European Economic Association*, 6(1):1–44.
- Acemoglu, D., Hassan, T. A., and Tahoun, A. (2014). The power of the street: evidence from Egypt's Arab Spring. *Working Paper*.
- Acemoglu, D., Johnson, S., Kermani, A., Kwak, J., and Mitton, T. (2016). The value of connections in turbulent times: evidence from the United States. *Journal of Financial Economics*, 121(2):368–391.
- Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, J. (2017). Democracy does cause growth. *Journal of Political Economy*.
- Acemoglu, D. and Robinson, J. (2008). Persistence of power, elites, and institutions. *American Economic Review*, 98(1):267–293.
- Acemoglu, D., Ticchi, D., and Vindigni, A. (2011). Emergence and persistence of inefficient states. *Journal of the European Economic Association*, 9(2):177–208.
- Banerjee, A. V. and Duflo, E. (2014). Do firms want to borrow more? Testing credit constraints using a directed lending program. *Review of Economic Studies*, (81):572–607.
- Barro, R. (1996). Democracy and growth. *Journal of Economic Growth*, 1(1):1–27.
- Bertrand, M., Duflo, E., and Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics*, 119(1).
- Bertrand, M., Kramarz, F., Schoar, A., and Thesmar, D. (2007). Politicians, firms, and the political business cycle: evidence from France. *Working Paper*.

- Blanes i Vidal, J., Draca, M., and Fons-Rosen, C. (2012). Revolving door lobbyists. *American Economic Review*, 102(7):3731–48.
- Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, 77(3):623–685.
- Boas, T. C. (2015). Voting for democracy: campaign effects in Chile's democratic transition. *Latin American Politics and Society*, 57(2):67–90.
- Cauce (1988). Mito, temores y encuestas. *Cauce Magazine*.
- Cavallo, A., Salazar, M., and Sepúlveda, O. (2011). *La Historia Oculta del Régimen Militar: Memoria de una Época 1973–1988*. Uqbar editores.
- CEME (2004). Informe de la comisión investigadora encargada de analizar presuntas irregularidades en las privatizaciones de empresas del estado ocurridas con anterioridad al año 1990. *Centro de Estudios Miguel Enriquez*.
- Cingano, F. and Pinotti, P. (2013). Politicians at work: the private returns and social costs of political connections. *Journal of the European Economic Association*, 11(2):433–465.
- Claessens, S., Feijen, E., and Laeven, L. (2008). Political connections and preferential access to finance: the role of campaign contributions. *Journal of Financial Economics*, 88:554–580.
- Colonnelli, E. and Prem, M. (2017). Corruption and firms. *Working Paper*.
- Corbo, V. (1985). Reforms and macroeconomic adjustments in Chile during 1974–84. *World Development*, 13(8):893–916.
- Crump, R. K., Hotz, V. J., Imbens, G. W., and Mitnik, O. A. (2009). Dealing with limited overlap in estimation of average treatment effects. *Biometrika*, 96(1):187–199.
- Dixit, A. (1980). The role of investment in entry deterrence. *Economic Journal*, 90(357):95–106.
- Doucouliafos, H. and Ulubasoglu, M. (2008). Democracy and economic growth: a meta-analysis. *American Journal of Political Science*, 52(1):61–83.
- Edwards, S. (1986). Monetarism in Chile, 1973–1983: some economic puzzles. *Economic Development and Cultural Change*, 34(3):535–559.
- Ellman, M. and Wantchekon, L. (2000). Electoral competition under the threat of political unrest. *Quarterly Journal of Economics*, 115(2):499–531.
- Engel, E. and Venetoulis, A. (1992). The Chilean plebiscite: projections without historic data. *Journal of the American Statistical Association*, 87(420):933–941.
- Faccio, M. (2006). Politically connected firms. *American Economic Review*, 96(1):369–386.
- Faccio, M., Masulis, R. W., and McConnell, J. J. (2006). Political connections and corporate bailouts. *Journal of Finance*, LXI(6):2597–2635.

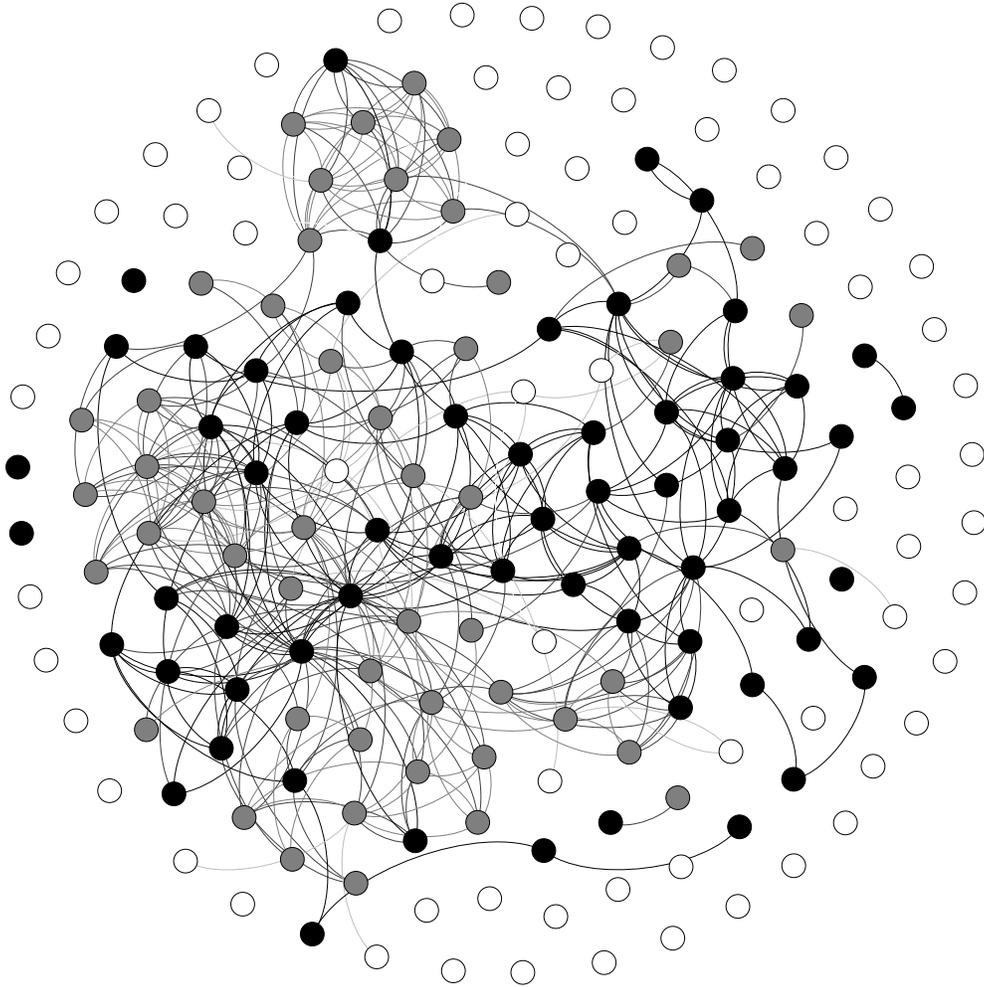
- Ferguson, T. and Voth, H.-J. (2008). Betting on Hitler: The value of political connections in nazy Germany. *Quarterly Journal of Economics*, 123(1):101–137.
- Fisman, R. (2001). Estimating the value of political connections. *American Economic Review*, 91(4):1095–1102.
- Fracassi, C. (2016). Corporate finance policies and social networks. *Management Science*, pages 1–19.
- González, F. and Prem, M. (2017). Can television bring down a dictator? Evidence from Chile’s ‘No’ campaign. *Working Paper*.
- Hirmas, M. E. (1993). The chilean case: Television in the 1988 plebiscite. In Skidmore, T. E., editor, *Television, Politics, and the Transition to Democracy in Latin America*. The Johns Hopkins University Press: Baltimore and London.
- Hsieh, C.-T. and Klenow, P. J. (2009). Misallocation and manufacturing TFP in China and India. *Quarterly Journal of Economics*, 124(4):1403–1448.
- Huneus, C. (2000). Technocrats and politicians in an authoritarian regime. the ‘odeplan boys’ and the ‘gremialists’ in pinochet’s chile. *Journal of Latin American Studies*, 32:461–501.
- Huneus, C. (2006). *The Pinochet Regime*. Lynne Rienner Publishers.
- Jackson, M. O. and Rogers, B. W. (2005). The economics of small worlds. *Journal of the European Economic Association*, 3(2-3):617–627.
- Jayachandran, S. (2006). The Jeffords effects. *Journal of Law and Economics*, XLIX:397–425.
- Julio, B. and Yook, Y. (2012). Political uncertainty and corporate investment cycles. *Journal of Finance*, LXVII(1):45–83.
- Khwaja, A. I. and Mian, A. (2005). Do lenders favor politically connected firms? Rent provision in an emerging financial market. *Quarterly Journal of Economics*, 120(4):1371–1411.
- Khwaja, A. I., Mian, A., and Qamar, A. (2011). Bank credit and business networks. *Working Paper*.
- Lambson, V. E. and Jensen, F. E. (1998). Sunk costs and firm value variability: theory and evidence. *American Economic Review*, 88(1):307–313.
- Leon-Dermota, K. (2003). *...And Well Tied Down: Chile’s Press Under Democracy*. Praeger.
- Martínez Bravo, M. (2014). The role of local officials in new democracies: evidence from Indonesia. *American Economic Review*, 104(4):1244–87.
- Martínez Bravo, M., Mukherjee, P., and Stegmann, A. (2016). The non-democratic roots of elite capture: evidence from Soeharto mayors in Indonesia. *CEMFI Working Paper No. 1601*.

- Matamala, D. (2015). *Poderoso caballero: el peso del dinero en la política chilena*. Catalonia.
- Méndez, R., Godoy, O., Barros, E., and Fontaine, A. (1988). ¿Por qué ganó el no? *Centro de Estudios Públicos*.
- Mönckeberg, M. O. (2015). *El Saqueo de los Grupos Económicos al Estado Chileno*. De Bolsillo.
- Murtin, F. and Wacziarg, R. (2014). The democratic transition. *Journal of Economic Growth*, 19:141–181.
- Newman, M. E. (2004). Fast algorithm for detecting community structure in networks. *Physical review E*, 69(6):066133.
- Olken, B. A. (2007). Monitoring corruption: evidence from a field experiment in Indonesia. *Journal of Political Economy*, 115(2):200–249.
- Olley, G. S. and Pakes, A. (1996). The dynamics of productivity in the telecommunications equipment industry. *Econometrica*, 64:1263–1297.
- Ossandón, J. and Tironi, E., editors (2013). *Adaptación: La Empresa Chilena Después de Friedman*. Ediciones Universidad Diego Portales.
- Papaioannou, E. and Siourounis, G. (2008a). Democratisation and growth. *Economic Journal*, 118:1520–1551.
- Papaioannou, E. and Siourounis, G. (2008b). Economic and social factors driving the third wave of democratization. *Journal of Comparative Economics*, 36:365–387.
- Patnam, M. (2013). Corporate networks and peer effects in firm policies. *Working Paper*.
- Peña, J. C. (2007). *Los fusileros*. De Bolsillo.
- Persson, T. and Tabellini, G. (2006). Democracy and development: the devil in the details. *American Economic Review*, 96(2):319–324.
- Ramos, J. R. (1980). The economics of hyperstagflation: stabilization policy in post 1973 Chile. *Journal of Development Economics*, 7:467–488.
- Rodrik, D. and Wacziarg, R. (2005). Do democratic transitions produce bad economic outcomes? *American Economic Review*, 95(2):50–55.
- Roland, G. (2002). The political economy of transition. *Journal of Economic Perspectives*, 16(1):29–50.
- Silva, E. (1996). From dictatorship to democracy: the business-state nexus in Chile's economic transformation, 1975–1994. *Comparative Politics*, 28(3):299–320.
- Silva, P. (1991). Technocrats and politics in Chile: from the Chicago boys to the CIEPLAN monks. *Journal of Latin American Studies*, 23:385–410.

Tavares, J. and Wacziarg, R. (2001). How democracy affects growth. *European Economic Review*, 45(8):1341–1378.

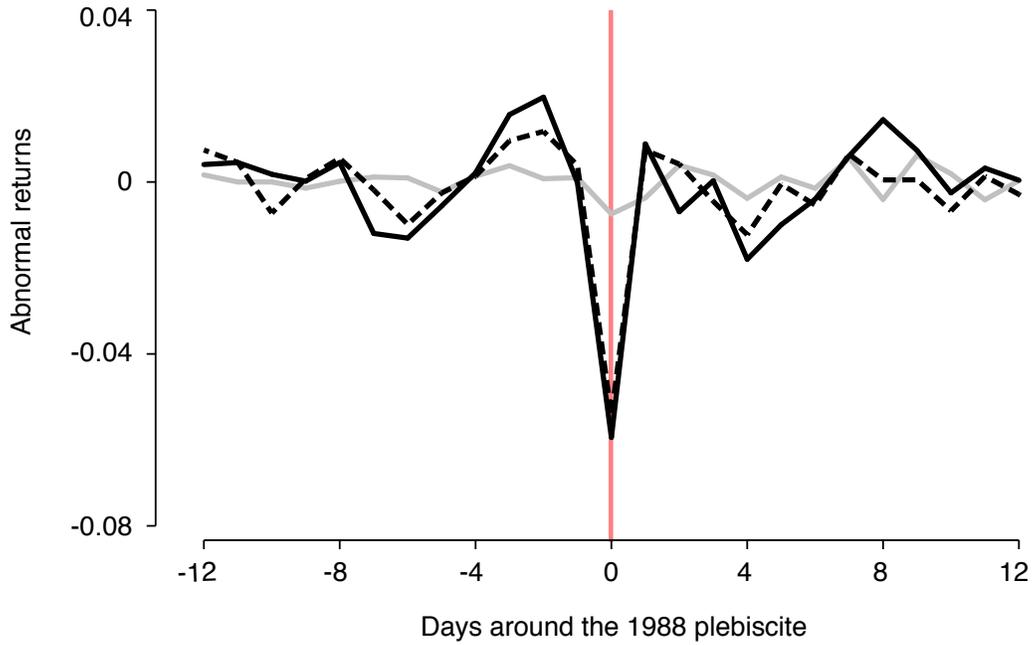
United Nations (2008). International standard industrial classification of all economic activities. Statistical Papers Series M No.4/Rev.4, Department of Economic and Social Affairs.

Figure 1: Network of firms



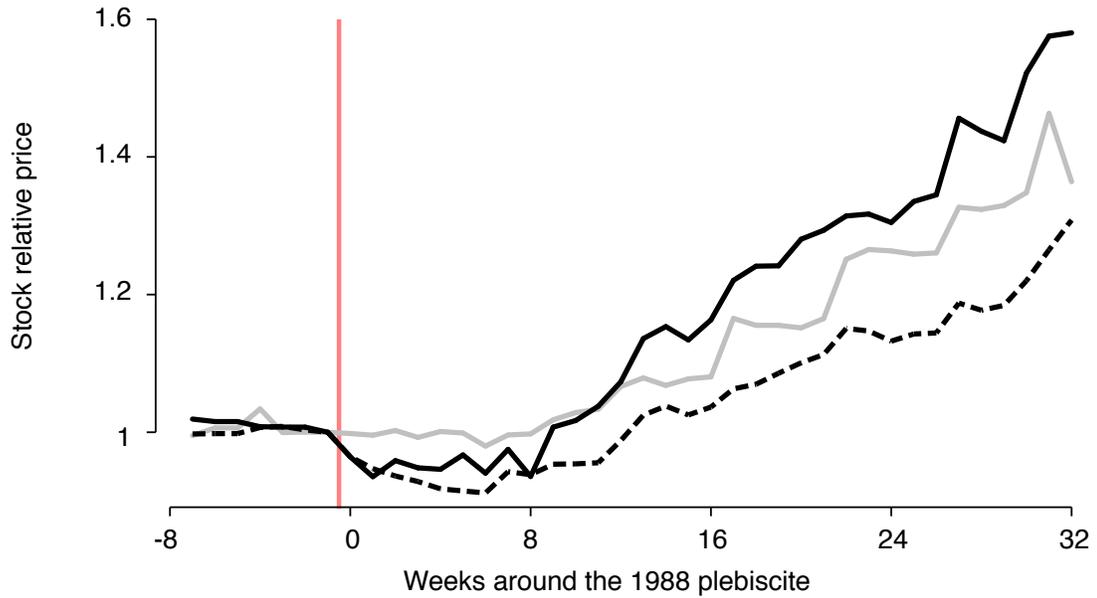
Notes: Network of firms listed in the Chilean stock market in 1987. Each circle represents a firm. We define a link “—” between firms using board linkages. Firms denoted by “●” had a direct link to the Pinochet regime (first degree link), firms denoted by “●” had no links to the regime but had a link to firms with a link (second degree link), and firms denoted by “○” did not have links to the regime nor linked firms. The average firm is linked to 4.7 other firms by board linkages. The average number of links between any two firms that can be connected is 3.3, the maximum distance between any two firms is 9, the global clustering coefficient is 0.48, and the fraction of firms in the giant network is 0.44. This network of firms shows some features of “small world,” low diameter, and high clustering discussed by [Jackson and Rogers \(2005\)](#). The network is our own construction based on data provided by Chile’s stock market regulatory agency.

Figure 2: The stock market



— First degree connections - - - - Second degree connections — Unconnected

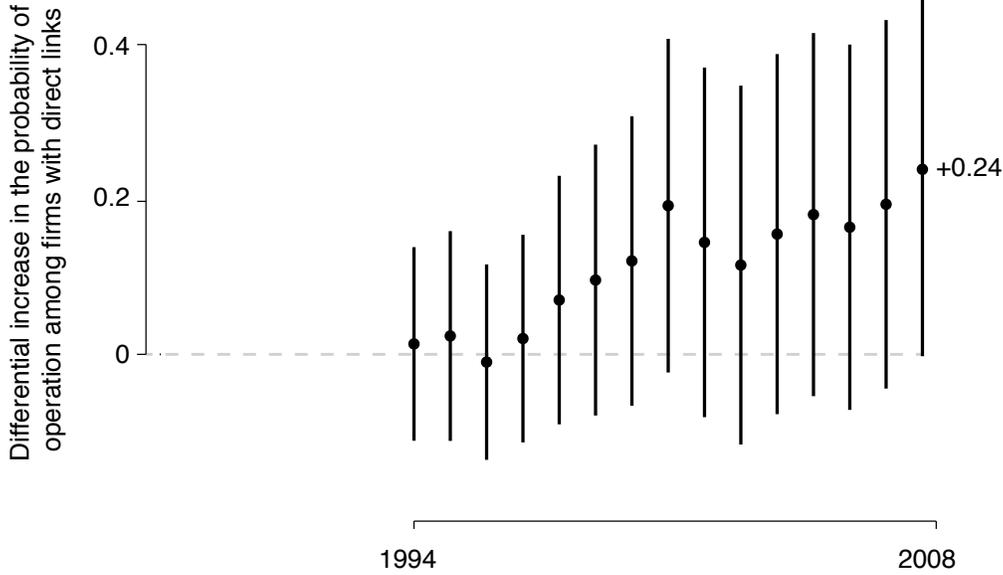
(a) Daily abnormal returns around the plebiscite



(b) Weekly stock prices

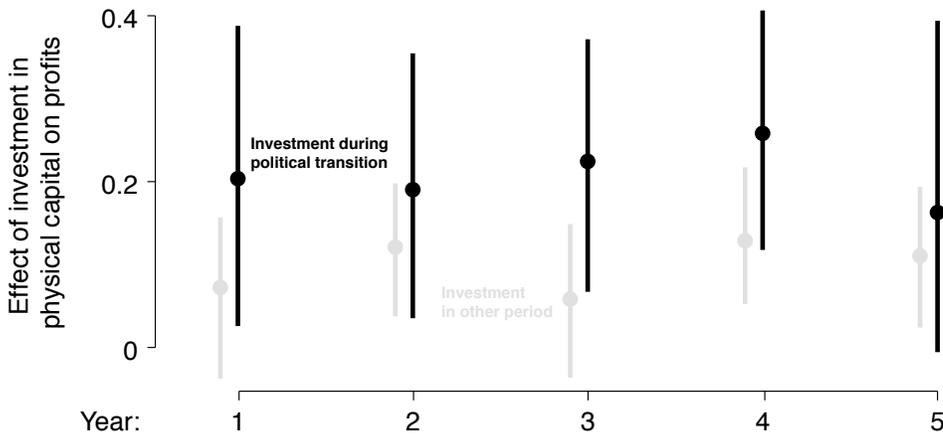
Notes: Own construction based on stock prices collected from contemporary newspapers. The vertical red line denotes the date of the plebiscite (October 5, 1988).

Figure 3: Consequences in democracy



(a) Probability of operation after period of analysis

Notes: This figure presents cross-sectional estimates of an indicator that takes the value of one for firms operating in 1994 and onwards as a function of links to the regime. Each coefficient comes from a separate regression. Vertical lines denote 95 percent confidence intervals. More details in section 3.3.



(b) Did investment during transition affected profits in democracy?

Notes: This figure presents cross-sectional estimates of firm-specific investments in physical capital during political transition and profits in the following five years. For comparison we also include similar estimates for investments in a different period. Vertical lines denote 95 percent confidence intervals. More details in section 3.3

Table 1: Firms during the Pinochet dictatorship

	Firms without links	Firms with direct links to Pinochet	Firms with indirect links to Pinochet	Uni-variate regression		
	(1)	(2)	(3)	(2) – (1)	(3) – (1)	(2) – (3)
<i>A – Quarterly dataset</i>						
Investment	0.00 (0.05)	-0.00 (0.05)	0.01 (0.06)	-0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)
Profits	-0.32 (0.24)	0.39 (1.48)	-0.11 (0.52)	0.70*** (0.17)	0.20** (0.08)	0.50** (0.20)
Log assets	14.52 (2.10)	17.55 (1.87)	16.82 (1.37)	2.99*** (0.43)	2.27*** (0.41)	0.72* (0.37)
<i>B – Annual dataset</i>						
Log workers	4.38 (1.99)	6.27 (1.65)	5.65 (1.39)	1.90*** (0.29)	1.27*** (0.29)	0.63*** (0.24)
Productivity	-0.47 (1.69)	-1.52 (1.92)	-1.08 (1.54)	-1.05*** (0.29)	-0.61** (0.27)	-0.45 (0.27)
Capital misallocation	-0.31 (1.11)	-0.71 (0.53)	-0.70 (0.70)	-0.43* (0.23)	-0.41 (0.26)	-0.03 (0.17)
Output misallocation	0.88 (0.14)	0.76 (0.81)	0.87 (0.49)	-0.10 (0.14)	-0.02 (0.11)	-0.07 (0.17)
Debt with state-owned banks	3.7 (17.2)	17.0 (48.0)	20.6 (45.9)	13.4*** (4.9)	17.0*** (4.8)	3.6 (6.6)
Debt with other banks	17.8 (46.4)	87.8 (117.7)	63.0 (92.0)	70.0*** (12.1)	45.2*** (10.1)	24.8* (15.0)
<i>C – Time invariant</i>						
Age in 1987	39 (27)	53 (30)	49 (29)	14** (6)	10 (7)	4 (7)
Exporter	0.26 (0.43)	0.48 (0.50)	0.57 (0.50)	0.27** (0.10)	0.34*** (0.11)	-0.07* (0.11)
Privatized by Pinochet	0.11 (0.31)	0.56 (0.50)	0.33 (0.47)	0.44*** (0.09)	0.21** (0.10)	0.22* (0.11)
Part of a business group	0.02 (0.15)	0.21 (0.41)	0.39 (0.49)	0.19*** (0.07)	0.37*** (0.09)	-0.18* (0.11)

Notes: Average of main variables in the period 1985–1987. Data for 118 firms in Panel A, 99 firms in the first four rows of Panel B, 113 firms in the last two of rows of Panel B. Debt is measured in billions of Chilean pesos. Standard deviation in parentheses in columns 1-3, and standard error in parentheses in the last three columns. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. More details in section 2.1.

Table 2: Firms during Chile's transition to democracy

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	<i>Investment</i>			<i>Profits</i>		
Direct link × Transition	0.012 (0.007)	0.018** (0.007)	0.018** (0.008)	0.308*** (0.099)	0.350*** (0.099)	0.290*** (0.100)
Direct link × Democracy	0.011* (0.006)	0.020** (0.006)	0.020*** (0.007)	0.197 (0.128)	0.254* (0.135)	0.194 (0.124)
Indirect link × Transition		0.013 (0.008)	0.014 (0.009)		0.096** (0.044)	0.115* (0.069)
Indirect link × Democracy		0.019** (0.008)	0.020** (0.008)		0.129 (0.127)	0.147 (0.095)
Observations	4,694	4,694	4,694	4,692	4,692	4,692
Firms	118	118	118	118	118	118
Firm and time F.E.	x	x	x	x	x	x
Industry F.E. × Post			x			x
Panel B	<i>Productivity</i>			<i>Log workers</i>		
Direct link × Transition	0.046 (0.158)	-0.068 (0.174)	-0.065 (0.177)	0.022 (0.106)	0.020 (0.106)	0.028 (0.108)
Direct link × Democracy	0.009 (0.314)	-0.013 (0.345)	0.130 (0.376)	-0.040 (0.110)	-0.016 (0.116)	-0.057 (0.104)
Indirect link × Transition		-0.224* (0.119)	-0.230* (0.118)		-0.006 (0.089)	-0.004 (0.089)
Indirect link × Democracy		-0.043 (0.214)	-0.017 (0.229)		0.044 (0.111)	0.048 (0.110)
Observations	792	792	792	792	792	792
Firms	99	99	99	99	99	99
Firm and time F.E.	x	x	x	x	x	x
Industry F.E. × Post			x			x

Notes: Panel A uses a quarterly data and Panel B uses annual data. Both panels use data for the period 1985–1994. Robust standard errors are clustered at the business group level and are reported in parentheses. There are 104 clusters in Panel A and 88 clusters in Panel B. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. More details in section 3.

Table 3: The credit market during political transition

Dependent variable (Debt) is total debt with banks, measured from annual reports

	Debt			Indicator for positive debt			Debt over assets		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Direct link \times Transition \times State bank	16.7 (12.9)	29.8*** (10.2)	29.8*** (10.2)	0.16** (0.07)	0.20** (0.08)	0.20** (0.08)	0.06** (0.03)	0.08** (0.03)	0.08** (0.03)
Indirect link \times Transition \times State bank		28.3 (20.0)	28.4 (20.1)	0.09 (0.07)	0.09 (0.07)	0.09 (0.07)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)
Direct link \times Democracy \times State bank	-3.7 (16.0)	4.5 (14.9)	4.5 (15.0)	0.15 (0.10)	0.22** (0.09)	0.22** (0.09)	0.04 (0.03)	0.07* (0.04)	0.07* (0.04)
Indirect link \times Democracy \times State bank		17.0 (19.5)	17.2 (19.5)	0.14 (0.09)	0.14 (0.09)	0.14 (0.09)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)
Mean of dependent variable	29.2	29.2	29.2	0.38	0.38	0.38	0.06	0.06	0.06
Firms	113	113	113	113	113	113	113	113	113
Observations	2,073	2,073	2,073	2,073	2,073	2,073	2,073	2,073	2,073
Double interactions	x	x	x	x	x	x	x	x	x
Firm-bank F.E.	x	x	x	x	x	x	x	x	x
Year F.E.	x	x	x	x	x	x	x	x	x
Industry F.E. \times Post	x	x	x	x	x	x	x	x	x

Notes: These regressions use the annual dataset of firms in the period 1985–1994. The unit of observation is a firm-bank relationship per year. Double interactions include “period and bank” interaction terms, and “link type and period” interaction terms. Robust standard errors are clustered at the business group level and are reported in parentheses. The number of clusters is 99. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. More details in section 3.

Table 4: The importance of links to the regime

	<i>Control variables</i>							
	<i>Pre/Post</i>	<i>Big firms</i>	<i>Privatized</i>	<i>Bus. Group</i>	<i>Exporter</i>	<i>All</i>	<i>Pscore</i>	<i>Matching</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Investment</i>								
Direct link × Transition	0.019** (0.008)	0.019** (0.009)	0.017** (0.008)	0.018** (0.009)	0.018** (0.008)	0.018* (0.009)	0.017* (0.009)	0.019** (0.009)
Indirect link × Transition	0.015* (0.009)	0.015 (0.009)	0.014 (0.009)	0.014 (0.009)	0.014 (0.009)	0.013 (0.010)	0.013 (0.009)	0.015 (0.010)
<i>Profits</i>								
Direct link × Transition	0.297*** (0.101)	0.218** (0.100)	0.228** (0.113)	0.341*** (0.105)	0.282*** (0.101)	0.218** (0.108)	0.252** (0.100)	0.136 (0.120)
Indirect link × Transition	0.106 (0.064)	0.062 (0.078)	0.095 (0.080)	0.194* (0.110)	0.107 (0.080)	0.109* (0.106)	0.082 (0.083)	0.070 (0.072)
<i>Productivity</i>								
Direct link × Transition	-0.014 (0.143)	-0.178 (0.158)	-0.177 (0.158)	-0.064 (0.179)	-0.076 (0.177)	-0.092 (0.128)	-0.084 (0.146)	-0.053 (0.147)
Indirect link × Transition	-0.156* (0.086)	-0.277** (0.126)	-0.277** (0.128)	-0.230* (0.118)	-0.239** (0.117)	-0.189** (0.082)	-0.202 (0.131)	-0.265* (0.149)
<i>Log workers</i>								
Direct link × Transition	0.167* (0.089)	0.041 (0.115)	0.041 (0.115)	0.028 (0.108)	0.027 (0.108)	0.194* (0.103)	0.049 (0.115)	-0.038 (0.155)
Indirect link × Transition	0.103 (0.077)	0.011 (0.096)	0.011 (0.096)	-0.004 (0.089)	-0.005 (0.090)	0.163** (0.081)	0.017 (0.102)	0.088 (0.121)
<i>Credit market</i>								
Direct link × Transition × State bank	26.8** (11.4)	25.4** (11.6)	17.5 (12.4)	36.2*** (11.0)	27.2** (10.6)	22.0* (12.2)	30.7*** (10.9)	18.1 (11.4)
Indirect link × Transition × State bank	30.0 (19.8)	24.6 (18.7)	22.7 (17.6)	40.5 (25.1)	24.1 (18.1)	31.4 (20.6)	29.2 (20.0)	15.9 (14.8)
Firm and time F.E.	x	x	x	x	x	x	x	x
Industry F.E. × Post	x	x	x	x	x	x	x	x

Notes: These regressions use the annual and quarterly datasets of firms in the period 1985–1994. Robust standard errors are clustered at the business group level and are reported in parentheses. Columns 1–7 have 104 clusters and column 8 has 75 clusters. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. More details in section 3.

Table 5: The importance of the plebiscite

	Investment	Profits	Productivity	Workers	Debt
	(1)	(2)	(3)	(4)	(5)
<i>A – Placebo in dictatorship</i>					
Direct link × After attempted murder of Pinochet	0.001 (0.008)	0.236 (0.156)	-0.228 (0.157)	0.043 (0.098)	9.6 (10.1)
Indirect link × After attempted murder of Pinochet	0.010 (0.008)	0.151** (0.064)	-0.107 (0.116)	-0.008 (0.077)	17.7 (14.6)
<i>B – Placebo in democracy</i>					
Direct link × After elections	0.012 (0.010)	0.159 (0.099)	-0.314 (0.252)	0.043 (0.098)	-1.7 (11.9)
Indirect link × After elections	0.009 (0.010)	0.136 (0.090)	0.213 (0.152)	0.097 (0.090)	-8.1 (8.5)
Firm and time F.E.	x	x	x	x	x
Industry F.E. × Post	x	x	x	x	x

Notes: In panel A we create a placebo treatment by splitting the dictatorship period in two, before and after the third quarter of 1986, time when a group of individuals attempted to murder Pinochet. In panel B, we create a placebo treatment by splitting the democracy period in two, before and after the 1993 presidential elections (1990–1997) in columns 1–2, and before and after 1992 local elections in columns 4–5. Robust standard errors are clustered at the business group level and are reported in parentheses (104 clusters). Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. More details in section 3.