Politics, State Ownership, and Corporate Investments. *

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Abstract

State-owned enterprises (SOEs) form a significant part of the corporate sector This paper documents evidence of a political investment cycle in the corporate investment decisions of state owned firms by using the constitutionally mandated schedule of elections as a source of exogenous variation in politicians incentive to cater to voters. Using a unique project level database of new investments announced in India, we track investments by non-financial SOEs around election years. We find that the number of capital expenditure projects announced by SOEs in election years is on average 36% greater in politically competitive districts and 66% higher in districts of high-ranking politicians. These projects have negative announcement returns suggesting that political influence results in projects that are likely value destroying. These patterns are in stark contrast to investment announcements observed in a placebo set of nongovernment firms. Our results inform the policy debate on the efficiency differences between government and private firms and support the political view of government ownership.

JEL Classification:G31, G38, D72, D73, P16

Introduction

State owned enterprises (SOEs) are a substantial fraction of the corporate sector in both developing and developed countries.[1] In OECD countries alone, SOEs employ over 6 million workers and have a combined value close to USD 2 trillion with approximately 76% of the total value concentrated in non-financial sectors (Christiansen (2011)). There has been an intense debate, especially around the decisions by several economies to de-nationalize real sector, on whether activities conducted by SOEs are better run by the private sector.[2] According to the theories on the politics of government ownership, SOEs are less efficient than private firms because they pursue political objectives at the cost of firm value maximization (Shleifer and Vishny (1994); Shleifer (1998)). However, empirical evidence on what drives the efficiency wedge between the SOEs and private firms remains scant and ambiguous.[3] In this paper, we provide the first cleanly identified micro evidence of politically motivated investments by non-financial SOEs.

The key econometric challenge in evaluating the role of political influence on the investment decisions of SOEs is obtaining the counterfactual investment behavior in the absence of political interference. To circumvent this issue, we exploit the timing of elections in India as a source of exogenous variation in politicians' incentives to influence SOE investments. Our empirical design tracks the investments by both SOEs and firms in the private sector (placebo group) around election years. There are two novel components of this empirical design. First, we are able to use data on pre-specified state and national elections. Importantly, state elections in India are staggered across years, allowing us to tightly control for time varying aggregate shocks. We exploit within district variation that account for time invariant differences in demographic and economic characteristics across districts.

Second, we conduct our analysis by using a unique project-level dataset of capital investment projects in India by both SOEs and non-government enterprises. This data allows us to

[1] López de Silanes et al. (1999) and Musacchio and Lazzarini (2012). Kowalski et al. (2013) report that over 10% of the world's largest firms are state-owned. Karolyi and Liao (2015) highlight the expanded role of governments in capital markets by focusing on government led cross-border corporate acquisitions.

[2] e.g., See Boycko et al. (1995) and Musacchio and Lazzarini (2012)

[3] The empirical evidence is mixed with some studies finding that SOEs underpeform their private counterparts (e.g. Kikeri et al. (1994), López de Silanes et al. (1999), Boubakri and Cosset (1998) and Bartel and Harrison (2005)) and others reporting ambiguous results (e.g. Funkhouser and MacAvoy (1979), Groves et al. (1994), Kole and Mulherin (1997), and Dewenter and Malatesta (2001)). Recent studies on state owned banks (Dinc (2005) and Cole (2009)) and privatization (Dinc and Gupta (2011) and Netter and Megginson (2001)) find evidence consistent with political influence.

also assess the nature of these investments by tracking the announcement effects of projects as an indication of NPV of new investments. This aspect to the best of our knowledge is unique to this literature. We merge our project level data with hand-collected district-level political variables from national and state elections held in India. Our panel data covers 18,981 projects announced over a period of 15 years (1995- 2009) that includes 4 national and 93 state elections, in 435 (594) national (state) electoral districts.

Using our empirical design we find that SOEs are more likely to announce projects in election years relative to non-election years. They also announce a greater number of projects during election years. In particular, election years are associated with a 17% increase in the number of projects announced by SOEs owned by the central government in a district. This is even larger (27.5%) when we consider projects announced by SOEs owned by the local state governments in a district. We find no such patterns in the placebo group comprising of non-government firms. Our results point to the existence of a political investment cycle where politicians manipulate investment of public enterprises around elections in order to signal their ability and garner voter support.

These effects are not homogeneously spread across the country. Rather, we find that new projects by SOEs are more likely to be announced in districts where the previous election was closely contested. Such politically motivated targeting of investments is only observed during election years. For the average electoral district in our sample, a 10% decrease in the share of votes received by the incumbent party during the previous election is associated with an 8% (24%) increase in the number of projects announced by central (state) SOEs. This effect is largest during election years. These results are consistent with theories on tactical redistribution that suggest that to the extent that politicians care about winning elections, the incentives to affect economic variables are stronger when elections are more competitive (Lindbeck and Weibull (1987); Dixit and Londregan (1996)).

Next, we evaluate the market's perception of investments by studying the stock market's reaction to project announcements by partially privatized SOEs. We find that on average, announcement returns are negative, and lower for projects announced by SOEs during election years and for projects announced in politically competitive districts. These effects are not visible in private firms. These results suggest that the markets view SOE investments as foregoing value maximization under political influence (i.e., they are negative NPV). A back of the envelope calculation suggests that the costs of these politically motivated investment distortions are as high as $13 billion dollars in terms of market capitalization for each

election.

We conduct several additional tests that strengthen the interpretation of our findings and better clarify the underlying mechanism. First, we find that ruling party incumbents who rank higher in the political hierarchy influence SOEs to reward voters in their own districts. Specifically, investment announcements by SOEs are higher in districts where the electoral representative is a federal minister. Again, this is especially true for investments made in election years.

Second, we find that our results hold when we look at just infrastructure projects and projects in industries with high employment growth. This suggests that two of the channels through which politically driven investments attract votes are the promise of better infrastructure and greater employment.

Finally, we find that election year investment announcements by SOEs do have a non-trivial effect on the outcome of elections. In particular, we find a positive impact on the outcome of elections in favor of the incumbent when such investments are undertaken. On average, each additional project announced in a district leads to a 2.4% increase in the incumbent parties' margin of victory.

Overall, while it is widely believed that political interference engenders significant externalities in the context of SOEs, ours is the first paper to present clear evidence to this end in a relatively cleanly identified setting. Politicians are shown to be distorting the investments in the real economy through their influence on investments in government controlled firms around the elections. Thus, we show the vulnerability of SOEs to political interference and provide direct evidence in support of the political view of government ownership.

The findings in our paper advance the literature examining the implications of government ownership in financial markets. Several papers have shown the role of political incentives in lending by state-owned banks (Khwaja and Mian (2005), Dinc (2005), Cole (2009), and Sapienza (2004)) and more broadly that widespread government ownership of banks is correlated with poor financial development (Barth et al. (2001)) and economic growth and productivity (La Porta et al. (2002)). Carvalho (2014) finds that politically motivated lending by state owned by banks can have real implications for allocation of capital in an economy. Specifically, he studies Brazilian manufacturing plants and finds that in exchange for government bank loans, firms expand employment and investment in politically attractive regions. In contrast to these studies, our paper is focused on real investment decisions

of state owned enterprises.[4] In particular, our study shows that politicians can directly distort allocation of capital in the economy by influencing the investment decisions of SOEs. Furthermore, our paper is unique in using project level data to assess the marginal value of politically motivated investments by SOEs. We find that projects announced by SOEs in election years and politically competitive areas are associated with negative stock price reaction (i.e., they are negative NPV).

A second stream of literature on political connections (Fisman (2001); Faccio (2006); Goldman et al. (2009); Cooper et al. (2010); Prabhat (2013)) shows that political connections increase firm value and that firms actively establish political connections. The typical channels through which political contributions are found to be beneficial are preferential access to credit (Dinc (2005); Khwaja and Mian (2005)) and receipt of government bailout funds (e.g. Duchin and Sosyura (2012), Faccio et al. (2007), Johnson and Mitton (2003)). While most of this literature focuses on the benefits of political connections, very few studies provide *direct* evidence on how the politicization of firm investment may prove detrimental to a firm's public shareholders. Our study shows that government ownership is associated with investment distortions to suit the political agendas of politicians in power. An exception is the privatization literature that documents such costs. For instance, Dinc and Gupta (2011) find that political patronage plays a significant role in the privatization decisions of Indian firms. They find that privatization is delayed if the main operations of a firm are located in more competitive electoral districts and no government-owned firm located in the home state of the politician in charge is ever privatized. Our focus is different since we examine the role of political factors on the real investment decisions of state owned firms versus non-govt firms and whether such politically motivated investments destroy firm value. Fan et al. (2007) analyze the post-IPO performance of newly privatized SOEs in China and find that SOEs run by politically connected CEOs underperform those with apolitical CEOs. Our study complements their findings as we shed light on one potential cause of under-performance by SOEs: politically motivated negative NPV investments pursued by such firms. Other studies have examined the role of politics on investment, although in a cross-country setting. Julio and Yook (2012) and Durnev (2012) find that political uncertainty surrounding elections leads to a drop in investments and investment-sensitivity to stock prices during election years. Our paper, on the other hand, focuses not on the impact of uncertainty but rather on the direct

[4]Our paper is also related to the literature on political budget cycles (Rogoff (1990), Drazen (2001)) which suggests that politicians may opportunistically manipulate fiscal policies in election years to increase their likelihood of re-election.

influence of politicians on investment decision of SOEs for political gains.

The remainder of the paper is organized as follows. In the next section we discuss India's political scenario. Section 2 develops the hypotheses. Section 3 describes the data, key variables and provides the summary statistics. In Section 4 we describe our empirical specification and discuss endogenity concerns. In Section 5 we discuss our empirical results and Section 6 concludes.

1 Indian Political System

India has a federal parliamentary form of government where legislative power is vested in the two houses of Parliament - the House of the People called the *Lok Sabha* comprising of 543 members directly elected by the people and the Council of States called the *Rajya Sabha* comprising of 250 members who are either nominated or indirectly elected. The representatives to the Lok Sabha are elected by the people for a term of 5 years and an alliance of parties that wins the majority of constituencies forms the government. However, sometime elections may be held early. The dominant cause of midterm elections is withdrawal of support by a coalition partner (typically due to ideological conflicts) in which case the ruling party no longer enjoys majority support required to be in power. In our tests, we focus on 4 Lok Sabha elections to the central government namely 1996, 1999, 2004 and 2009. 1 out of the 4 national elections (1999) was held before schedule.[5]

At the state-level, the elected house of state-level legislatives is called "*Vidhan Sabha*". As in the case of the Lok Sabha, the representatives of the Vidhan Sabha are also elected by the people (state elections) for a term of 5 years. The political party or an alliance of parties that wins majority of the state level electoral constituencies forms the government. Our sample includes data on 93 Vidhan Sabha elections held in 30 states. 13 out of these 93 elections were held before schedule. We discuss empirical concerns engendered by early

[5]The 1996 election is the only election where parties that staked claim to form the government did not win majority of seats in Lok Sabha. While BJP could not find support from other parties to form the government. INC chose to support a government ruled by an alliance of small regional parties headed by Janta Dal (only 42 seats) from outside. It is worth noting that these small regional parties had never been key players at National level. Moreover, although these regional parties came together to form a government, they differed sufficiently in their ideologies and spent most of their time balancing the delicate coalition and appeasing alliance members. Thus this government collapsed eventually leading to the 1998 election. Since, it is difficult to clearly identify incumbents and opposition parties for the 1998 elections, we drop 1998 elections from our empirical analysis.

elections in detail in section 4.

1.1 SOEs in India

State owned enterprises are an important element of the Indian economy, even on a global scale. Kowalski et al. (2013) report that India is only second to China in having the highest number of SOEs that rank among the largest corporations in the world. SOEs are prevalent at both the central and state government level in India. As of 31st March 2009, there were 246 central SOEs.The gross revenue generated by central SOEs during the period 2008-2009 stood at 23% of national GDP. During the same period their contribution to total tax collected was 22%. Out of these 246 central SOEs, 41 were publicly listed and accounted for approximately 27% (approximately $185 billion) of the total market capitalization of all firms listed on the National Stock Exchange.

State SOEs are enterprises completely owned and controlled by various state governments. As of 31st March 2008, there were 849 state SOEs.[6] State SOEs are significantly smaller than central SOEs. During 2007-2008, state SOEs contributed to 5% of GDP in terms of gross revenue. The total net worth of these SOEs stood at approximately $36 billion. Only 9 of these enterprises were publicly listed.

The decision making body of the central government encompasses 35 cabinet members (on average) who are assigned key portfolios under the guidance of the Prime Minister who is also the de facto head of the cabinet. Ministries are typically assigned to individuals that rank higher up in the political party hierarchy and are known to be "loyal" to the party leaders. Each of these ministers heads an individual ministry and directly controls all central SOEs under the ministry's jurisdiction. For instance, the Federal Minister of Steel exercises control over all central government SOEs that are engaged in production of steel. There are eleven SOEs under his direct control including SAIL, which is one of the largest manufacturers of steel in the world. Moreover, appointments of managerial heads for SOEs are subject to approval by respective federal ministers. Not surprisingly, the CEOs of these firms are rarely hired from non-government firms. The typical CEO is either a current or former government official or someone promoted from within the SOE. Thus, the government maintains direct influence over the SOEs through such appointments. This allows for a clean

[6]The data on number of SOEs and their economic significance is from the Department of Public Enterprises, Government of India and is for the latest fiscal year available in our sample period.

identification of political influence over SOEs (Fan et al. (2007)). A similar process is followed for executive appointments at state SOEs as well.

2 Hypotheses

Since the seminal work of Nordhaus (1975), there has been extensive theoretical research on political business cycles and political budget cycles (Rogoff (1990)) where incumbent politicians engage in pre-electoral manipulation of monetary policy and fiscal policy instruments to influence voting behavior. Empirically, there has been greater support for the manipulation of fiscal policy instruments (e.g. taxes, fiscal transfers, government spending) rather than monetary policy around elections (Drazen (2001); Brender and Drazen (2005)).

While both fiscal and monetary instruments can be used to boost economic conditions prior to an election, politicians can also try to influence the economy via the corporate sector. For instance, Shleifer and Vishny (1994) model the interests of politicians in having state-owned firms pay above-market wages and have excess employment to gain greater political support. The focus in our paper is on a political investment cycle to see if politicians manipulate the investment decisions of state owned enterprises to influence voting behavior.

Though our focus is on the use of micro-level business decisions to further political goals, the underlying spirit of the political business/budget cycle papers also applies to our setting and hence we draw on them to derive predictions for our research. If the voters care about employment and infrastructure and reward politicians for improvements in their socio-economic well-being, then politicians can boost the quality of infrastructure and employment opportunities in the short run by coercing SOEs to undertake new investment opportunities in the run up to the election. Thus, we expect that state-owned enterprises will undertake greater investments during election years relative to non-election years.

Moreover, to the extent that there may be constraints on capital expenditures by SOEs, such investments will not be homogeneously spread throughout the economy but targeted towards politically attractive regions. There are two basic and opposing models of distributive politics. On the one hand, "Tactical Resdistribution" theories suggest that incentives to woo voters will be greater when elections are more competitive ("swing areas", see Lindbeck and Weibull (1987), Dixit and Londregan (1996)). This is because, in swing areas, small changes in share of votes received can substantially change the likelihood of re-election. On the other

hand, a second set of models predict that political parties may choose to reward a select group of party loyalists, since the parties know their preferences best where as swing voters are riskier bets (the "Core Supporter", Cox and McCubbins (1986) model). A higher margin of victory indicates, that the incumbent enjoys greater support among the voters (higher number of core supporters) and as such weaker competition from opposing candidates. In our empirical tests, we distinguish between these two opposing theories and examine whether extent of electoral competition impacts the location of election year investments by SOEs.

Finally, we develop predictions on the costs of politically motivated investments by SOEs. Specifically, we examine whether such projects are negative NPV investments and pursued at the expense of firm value (Shleifer and Vishny (1994)). Since few of the SOEs in India are partially privatized, we can capture the market's assessment of the NPV of individual investments by tracking announcement returns over the day of project announcements.

In the light of the above discussion, we have the following main predictions relevant to our paper.

Prediction 1. *State-owned firms will undertake greater investments during election years relative to non-election years.*

Prediction 2. *H0: The increase in investments will be primarily concentrated in areas with greater degree of political competition ("swing districts"). Such tactical targeting will only occur in election years.*

H1: The increase in investments will be greater in areas where ruling party candidate won by a larger margin.

Prediction 3. *Election year SOE investments will be associated with negative announcement returns. This effect will be stronger for projects announced in election years and in areas with greater political competition.*

In the next section, we discuss our data and construction of key variables.

3 Data, Key Variables and Summary Statistics

3.1 Electoral Data

Electoral data is primarily collected from the Election commission of India. Our data spans the period 1995-2009. We include data on 4 national elections and 93 state elections held across 30 states during our sample period. For each of these state and national elections, we collect data on the name, political affiliation, and share of votes received by all candidates in each electoral constituency, covering over 35,000 electoral contests and 40,000 unique candidates. Data on members of the ruling party coalition was hand-collected from newspaper articles using the Factiva database. Information on the identity of members of the Federal cabinet was collected from archives of parliamentary debates.[7]

While electoral constituencies are generally smaller than districts, data on location of new projects is only available at the district level. So, constituencies are matched to districts based on "Delimitation Of Parliamentary And Assembly Constituencies Order" (2008 and 1977) published by the Election Commission. All electoral data is aggregated at the district level. The electoral constituencies for national elections (election of the Members of Parliament (MP)) are significantly larger than the constituencies for state elections (election of the Members of State Legislative Assembly (MLA)). For instance, about 102,238 votes were polled in median state electoral constituency compared to 655,010 votes in national electoral constituency in our sample. As such, national constituencies may sometimes span multiple districts and an entire administrative district may be a constituency itself. We are able to identify 435 (594) districts for national (state) elections.

Our main independent variables are as follows: *Election* is a dummy variable that takes the value 1 for the fiscal year immediately preceding the election. Elections in India are usually held between the months of April and May of the scheduled year. For instance, voting for the 2009 National elections commenced on 16th April, 2009 and concluded on 13th May, 2009. The fiscal year in India starts April 1st every year and ends March 31st of the following year. So, for 2009 elections, *Election* will take the value 1 for the fiscal year beginning on 1st April, 2008 and ending on 31st March, 2009.

Scheduled is a dummy variable that takes the value 1 if 5 years have passed since the

[7]Data on members of state cabinets is not publicly available. We could not locate legislative debates regarding members of the state cabinets akin to parliamentary debates for national elections.

last election. That is, it identifies those elections that were held on schedule.

Our measures of political competition are based on the difference in share of votes received by the ruling coalition and opposition parties in a district (Margin of victory from now on): *Absolute margin* is the absolute value of margin of victory. *Swing* is a dummy variable that takes the value 1 if the *Absolute margin* is less than 5% and 0 otherwise. Note that a lower value of *Absolute margin* indicates a more competitive election. We analyze the impact of political outcomes realized during the last election in a district on current investments. So, if elections occurred in years 1999 and 2004, we assign the value of political outcome (say *Absolute margin*) realized in year 1999 to the years 2000-2004. We believe outcomes of the last election are a reasonable proxy for the expected level of competitiveness in the current election.[8]

Table 1, Panel A (Panel B) reports summary statistics on key electoral variables for the national (state) elections. The unit of observation is a district-year. For each election cycle, we drop those constituencies where both the winner and losers were members of the ruling coalition. India has a multi party system with over 450 parties contesting elections and it is therefore common to see coalition governments. Members of a coalition sometimes fail to resolve conflict regarding allocation of electoral seats and contest against each other. Since our analysis is driven by the political contest between incumbent parties and opposition parties in a district, we drop all constituencies where both the winner and loser were members of the ruling coalition (i.e they were incumbents).[9] These leaves us with an unbalanced panel of 5081 (8456) district-year observations for national (state) elections.

Panel A of Table 1 shows that for 27.9% of our observations there was a national election in the following year. The median value of absolute margin is 0.104 for national elections suggesting that there is stiff political competition at the district level. 27.2% of the national electoral district-years are classified as swing. Panel B of Table 1 shows that for 20.9% of our observations there was a state election in the following year. The median value of Scheduled Election Year shows that 17.6% of our observations are for state elections that were held on schedule. State elections seem to be equally competitive with the median value of absolute margin being 0.075 and 37.3% of the state electoral district-years classified as swing.

[8]Similar proxies have been used by other papers in the recent literature, such as Mian et al. (2010) and Carvalho (2014). In personal communication with the authors, several politicians in India confirm that political parties take stock of results from previous polls in designing the strategy for subsequent elections.

[9]In unreported tests, we find that all our results remain robust to including constituencies where both the winner and losers are from the ruling coalition.

3.2 Investment and Financial Data

Data on new project announcements is obtained from the CAPEX database maintained by Centre for Monitoring Indian Economy (CMIE). CAPEX provides detailed information on the date of announcement, location, cost, identity of the sponsor and industry classification for new and ongoing projects announced in India since 1995. This information is collected from multiple sources including company annual reports, media reports and government agencies when projects require bureaucratic approval. Our enquires to CMIE reveal that any project costing more than Rs. 100 million (approximately $2 Million) is likely to be covered by the database. Over 24,000 projects were announced during our sample period (1995-2009). CAPEX is updated daily and also furnishes information on the current status and expected time of completion of the project.

This database offers some unique advantages our study. First, while we could have used data on capital expenditures at the firm level to understand investment behavior, this would not allow us to identify targeting of investments towards politically important locations such as "Swing" districts. In addition, aggregate capital expenditure provided in balance sheet statements will lead to errors in estimation if we are unable to differentiate expenditure due to new investments from expenditure on maintenance of plant and property. For instance, unexpected changes in cost of maintenance may result in spurious estimates. Having project-level data allows us to overcome these issues and undertake a detailed analysis of political investment cycles. Second, information on the date of announcement allows us to assess the NPV of these investments by tracking announcement returns.

Our main dependent variables are as follows: *Number of projects announced* in a district in a year. This variable is defined separately for projects announcements by SOEs and non-govt firms. *Announced* is a dummy variable that takes the value 1 if at least one project is announced in the district in a given year and 0 otherwise. Again this variable is defined separately for SOEs and non-govt firms. *Percentage of government-owned projects* is the ratio of total projects announced in a district by SOEs to the total number of projects announced in a district by all firms particular year. This variable measures the percentage of projects announced by SOEs relative to non-govt enterprises. We drop all projects with missing date and those for which CAPEX does not identify a unique district. This leaves us with a total of 18,981 projects announced during our sample period, of which 1938 and 3630 projects were initiated by central and state SOEs respectively. In contrast, non-govt firms

announced 13,413 projects.

To evaluate whether politically motivated investments destroy firm value, we look at the *Excess return* and *Abnormal return* on the firm's stock over the day of project announcements. *Excess return* is defined as the difference in return on firm's stock and the return on market ($R_f - R_m$) over the day of project's announcement date. *Abnormal return* is the difference between the return on a firm's stock and the return predicted by the CAPM model.

Panels A and B of Table 2 report summary statistics for our dependent variables, *Number of projects announced* in a district and *Announced* (announcement dummies), for projects announced by SOEs and non-govt firms based on national (state) elections. On average, a greater number of projects are announced in a national electoral district-year (2.896) than a state electoral district-year (2.328). But this seems to be driven by the non-govt firms since state SOEs announce a greater number of projects (0.396) than Central SOEs (0.283) in a electoral district-year. The *Announced* dummy shows that at least 1 project was announced in more than 50% (42%) of the national (state) electoral district-years. This is expected since on average the size of the aggregated districts are greater for national elections.

In the next section we discuss our empirical methodology.

4 Empirical Methodology

The key econometric challenge in evaluating the role of political influence on the investment decisions of SOEs is obtaining the counterfactual investment behavior in the absence of political interference. Our empirical setting addresses this issue by exploiting the timing of elections as a source of exogenous variation in politicians' incentives to influence investments by SOEs. The Indian Constitution mandates that both national and state elections be held every 5 years and so the timing of elections is exogenous to local market supply and demand conditions since they are pre-specified. The identifying assumption is that around elections, politicians have a strong incentive to alter the investment behavior of SOEs in a way that allows them to woo voters. Specifically, in our empirical tests, we compare number of new investments announced by SOEs in a district during election years relative to off-election years.

Formally, our main empirical specification is as follows.

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \beta_2 \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt} \quad (1)$$

where subscript i refers to the state, j refers to the district and t refers to the time period. The dependent variable Y is one of the following three variables: *Announced*, *Number of projects announced*, and *Percentage of government-owned projects*. *Election Year*$_{it}$ is a dummy variable that takes the value one for election years and zero otherwise. C_{it} refers to state level *Annual per capita* GDP *growth* which controls for state level macroeconomic shocks. μ_j and μ_t correspond to district and year fixed effects respectively. Standard errors are clustered at the district level. The coefficient of interest is β_1, which captures the impact of political interference on investment behavior.

Our empirical design allows us to account for several alternatives. First, we exploit within district variation to absorb time invariant differences across districts for our tests based on both national and state elections. Second, state elections are staggered across time with each state following its own 5 year cycle. This design allows us to control for macro-economic shocks using year fixed effects.

Third, one could be worried about potential endogeneity in the timing of elections. For instance, if business cycles were correlated with election cycles, our tests would falsely lead us to conclude existence of political interference in investments of SOEs. This is especially important for national elections where we are unable to control for macro-economic shocks using time fixed effects. We can address this issue and strengthen our claims regarding causal identification of political influence on investment decisions of SOEs around elections using non-government firms as a placebo group. To the extent that politicians do not exert direct influence over decisions of non-government firms, we expect to find no evidence of political cycles in investment behavior of non-government firms.

It is worth noting that while elections are constitutionally mandated to be held every 5 years, the incumbent government can call early elections. In our sample, 1 out of 4 national elections and 13 out of 93 state elections were held early. This may indeed bias our estimates if the decision to call an early election is related to the economic environment. For instance, politicians may hold early elections when the economy is booming if they believe that voters are likely to attribute economic success to their efforts. While the placebo test with non-govt. firms addresses this issue to an extent, we exploit the fact that state elections in India

are not synchronized and so different states have elections in different years. Thus, we are able to instrument for the timing of state elections using the 5 year schedule of elections as in Khemani (2004). The first stage specification in these tests is:

$$Election_{it} = \alpha_0 + \beta_1 \times Scheduled_{it} + \beta_2 \times C_{it} + \mu_j + \mu_t + \varepsilon_{it} \quad (2)$$

Scheduled is a dummy variable that takes value 1 if 5 years have passed since the last election. So, it will take the value 1 for only those elections that were held on schedule and zero otherwise. Since, most of the elections are held on time, *Scheduled* should be a strong predictor of the actual occurrence of elections and clearly satisfies the inclusion restriction. Further, it is reasonable to assume that the schedule of elections has no bearing on investments of SOEs other than through the timing of the actual elections and therefore satisfies the exclusion restriction.

Finally, as a corollary to our baseline specification, we hypothesize that the effect of political influence on investment behavior of SOEs will be particularly strong in districts where the previous election was close (*Swing* districts). To test this idea, we employ a difference-in-differences strategy and compare the investment behavior of SOEs around elections in *Swing* districts relative to other districts. The formal empirical specification is as follows:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \beta_2 \times Swing_{ijt} + \beta_3 \times Election_{it} \times Swing_{ijt} + \gamma \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt} \quad (3)$$

The coefficient of interest in these tests is β_3 which measures the increase in investments announced in swing districts in election years relative to non-election years. The electoral composition of a district is typically a function of demographic characteristics such as caste and communal composition and is not related to economic outlook. Thus whether the district is swing or not is exogenous of its economic environment. Note that, for identification we only require a weaker assumption that any potential difference between swing and non-swing districts (other than political interference) that is also likely to be correlated with investments remains the same between election and non-election years. Again, we exploit within district variation and employ district fixed effects to control for all time-invariant differences across districts.

Now, we proceed to discussion of results of our multivariate tests.

5 Empirical results

5.1 Election cycle and Investments

We begin our empirical analysis with tests of *Prediction 1*. In Table 3, we present the results for our tests based on equation (2) where the unit of observation is a district-year. Panel A presents results for national elections and panel B presents results for state elections. The dependent variables in columns 1 and 2 are the number of projects announced in an electoral district by central SOEs and non-govt firms respectively.

The positive and significant coefficient on *Election* in column 1 indicates that central SOEs announce greater number of projects during election years. For the average district in our sample, the coefficient estimate of 0.048 translates into approximately 17% increase in the number of projects announced in that district during election years.[10] This is consistent with the idea that politicians manipulate investments of SOEs to serve their own political interests. Column 2 shows that we don't find the same pattern in a placebo group of non-government firms. In column 3, we use the percentage of projects announced in a district by central SOEs as the dependent variable. While column 1 shows that central SOEs announce greater number of projects in election years relative to their investments in non-election years, the estimates from column 3 show that central SOEs announce greater number of projects during elections relative to projects announced by other firms as well.

Column 4 shows that the likelihood of a project being announced in a district by central SOEs is higher for election years. Again, this effect is not observed for projects announced by non-govt firms (column 5). Note, that while the dependent variable in these tests is a binary variable, our estimations are based on OLS. All our results are robust to using logit or probit specification instead of OLS. However, we do not report logit or probit estimates as our main specification because controlling for district fixed effects introduces the incidental parameters problem which can lead to inconsistent estimates of our coefficients of interest. Since the estimates based on these variables are qualitatively similar, in the rest of the paper,

[10] Note from table 1 that mean value of number of projects announced in an electoral district is 0.283 (National). Since, election years are on average associated with 0.048 increase in number of projects announced in a district. This translates into $\frac{0.048*100}{0.283}$=17% increase in number of projects announced in a district.

we only present results from our tests using number and percentage of projects announced as the dependent variable.

In Panel B we analyze the impact of state elections on corporate investments of state SOEs. One concern with these tests is that our results may be driven by omitted variables correlated with both the occurrence of elections and improvement in overall economic conditions or by reverse causality if politicians call elections exactly when the economy is doing well. However, as noted earlier, elections' schedule are exogenously specified and mandated by the constitution. Moreover, if it was indeed the case that politicians hold early elections when the economy is performing favorably, we should expect to see an increase in investments for both government and non-govt enterprises around elections. Since the increase in investments is only observed for SOEs, we contend that this is an effect of political manipulation. Nonetheless, a few elections are held early and we employ the constitutionally mandated schedule of elections as an instrument for actual occurrence of state elections. Panel C presents estimates from an instrumental variables regression where *Scheduled* is used as an instrument for *Election*. The coefficient on *Scheduled* in the first stage regression (not reported here for brevity) is 0.95 (standard error 0.005) with an R^2 of 0.80. Thus the election schedule is a strong predictor of actual occurrence of elections. Further, tests based on Stock and Yogo (2005) critical values confirms the strength of our instrument.

Panels B and C confirm the results in panel A for state elections. State SOEs announce greater number of projects during election years and there is no evidence of a political investment cycle for non-government firms. Note that, the coefficient estimates from both the OLS and instrumental variable approach are quite similar. This suggests that endogeneity in the timing of elections (early elections) does not bias our estimates. For the average district in our sample, the IV coefficient estimate of 0.109 translates into approximately 27.5% increase in the number of projects announced in a district during election years.[11] As robustness, we repeat these tests after excluding early elections from our sample and obtain qualitatively similar results. However, in the interest of space, we do not report these results in the paper.

In Table 4, we analyze cyclical variations in investment patterns of firms over a three year period around elections including the year immediately before and after the election.

[11] Note from table 1 that mean value of number of projects announced in an electoral district is 0.396 (National). Since, election years are on average associated with 0.109 increase in number of projects announced in a district. This translates into $\frac{0.109*100}{0.396}$=27.5% increase in number of projects announced in a district.

The results are based on the following regression.

$$Y_{ijt} = \alpha_0 + \beta_1 \times Pre_{it} + \beta_2 \times Post_{it} + \gamma \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt} \tag{4}$$

where *Pre* (*Post*) is a dummy variable that takes the value one for the year immediately before (after) election year and zero otherwise. The reference dummy variable in these tests is *Election*. So, the coefficients β_1 and β_2 measure the district level investments of SOEs one year before and one year after elections relative to election year.

The results for national and state elections are reported in panels A and B respectively of Table 4. Column 1 of panel A indicates that in the one year before and one year after elections there is a decrease in the investments of central-SOEs relative to the election year. This suggests that SOEs boost investments around elections. It is likely that these firms over-invest during election years which leads to a decrease in investments in the year immediately after elections.

Focusing on non-govt enterprises in column 2, we find that the difference in number of investments announced in election years and those announced one year before is statistically indistinguishable from zero. However, there is a drop in investments announced by non-govt firms in the year after elections. This suggests that non-govt enterprises invest conservatively immediately after national elections probably due to policy uncertainty (Julio and Yook (2012)). In column 3, we test for the cyclical variations in relative number of projects announced by central-SOEs when compared to other firms. The percentage of projects announced by central-SOEs in a district is also lowest in the years immediately preceding and succeeding the election year. Specifically, there is approximately a 3% drop in the percentage of projects announced in both, the 1 year before and 1 year after elections. This is economically significant given that no project is announced by central-SOEs in a median district-year and the mean value of the percentage of projects announced in a district-year is 7.8%.

In panel B, we repeat these tests for state elections and obtain qualitatively similar results. The estimates from these tests show that both the number and percentage of new project investments by state owned firms are lower one year before and after election years. Panel B also confirms that political influence or state level regulatory uncertainty is not a significant factor for the investment decisions of non-govt enterprises.

Overall, the results in Tables 3 and 4 show evidence of a political investment cycle where there is an increase in the number of capital investment projects announced by state owned enterprises in election years. We find no evidence of a political investment cycle in the investments of non-government firms.

5.2 Political competition and investments

In Table 5, we estimate how the degree of political competition in a district impacts investments. The core Supporter hypothesis (*prediction 2:H1*) predicts that politicians will reward their supporters and announce greater investments in districts where they enjoyed greater vote share. On the other hand, the tactical Redistribution hypothesis (*prediction 2:H0*) argues that politicians will reward "swing voters" who are more likely to vote opportunistically.

These tests are based on a difference-in-differences specification (see equation (3)), where we investigate if new investment announcements in election years are especially greater in swing districts relative to other districts. District fixed effects absorb district-specific time invariant factors that are likely to affect investments. The regressions are therefore identified off the differential investment behavior of SOEs in *Swing* districts relative to other districts during elections.

The coefficient of the interaction term, *Election X Swing,* in column 1 of table 5 indicates that on average central SOEs' investments are greater in swing districts. The coefficient estimate of 0.098 translates into a 35% jump in investment announcements in swing districts in election years relative to other districts. The interaction term is not significant in Column 2 where we examine investments of non-government firms. The estimates from column 3 show that the percentage of projects announced by central SOEs relative to the investments made by other firms is approximately 3.6% higher for swing districts in election years.

In panel B, we present the results for state elections. Note that apart from exploiting within district variation, we also employ year fixed effects in these tests to control for macroeconomic shocks. Again, we obtain qualitatively similar results. The significant interaction coefficient of 0.203 in column 1 translates into a 50% increase in investments announced by state-SOEs in swing districts in election years relative to other districts. We again find no evidence of the impact of political competition on investment decisions of non-govt firms in

column 2.

In the next set of tests, we analyze how the relationship between the extent of political competition and investments in a district varies over a three year period around elections including the year before and after election year. The estimates are based on following specification.

$$Y_{ijt} = \alpha_0 + \eta_1 Pre_{it} \times Swing_{ijt} + \eta_2 Post_{it} \times Swing_{ijt} + \phi Swing_{ijt} + \beta_1 Pre_{it} + \beta_2 Post_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt} \quad (5)$$

The results of the estimation are presented in panels A-D of table 6. Panels A and B present the results for SOEs and non-government firms respectively for national elections and panels C and D present results for SOEs and non-government firms respectively for state elections. For ease of interpretation, in each panel we present the difference in the investment behavior of firms in swing districts relative to non-swing districts in the election year and the years before and after. Thus the impact of political competition on investments is given by $\eta_1 + \phi$ in the year before the election year, by ϕ in the election year, and by $(\eta_2 + \phi)$ in the year after the election year.

Panel A shows that central SOEs strategically announce new projects during election years in districts in which the incumbent party faced tough competition from opponents during the previous election. Specifically, the coefficient estimate of 0.112 implies that on average, the number of projects announced in a district during election years is approximately 36%[12] greater for swing districts. The difference in the number of projects announced by SOEs in *Swing* districts relative to other districts is statistically indistinguishable from zero for both one year after and before election year. Thus, politically motivated targeting of investments towards swing districts occurs only in election years. Panel B reports results using number of investments announced in a district by non-government firms as the dependent variable and shows no evidence of political targeting of investments by non-government firms.

In panels C and D, we repeat these tests for state elections. The results confirm our

[12] $\frac{0.11*100}{0.302}$, where average number of projects announced by central SOEs in non-swing districts during election years is 0.302

findings in panels A and B. Panel C shows that state-SOEs announce new investments in districts where the previous elections were close. On average, the number of projects announced in a district during election years is approximately 52%[13] greater for swing districts. Again, we do not find any evidence of preferential investments in swing districts by non-govt enterprises in panel D.

Overall, Tables 5 and 6 provide support for the Tactical Redistribution hypothesis where politicians target voters in swing districts by announcing a greater number of investment projects by state owned enterprises in election years.

5.3 Are Political Investments Costly?: Market Reaction to Politically Motivated Investments

In these tests, we focus on the set of partially privatized SOEs, to evaluate whether politically motivated investments deplete firm value. We use *Excess return* and *Abnormal return* on the day of the project announcement as a measure of the market's perception about these investments. If these investments are primarily driven by political factors without any regard to firm value, then we expect these project announcements to be associated with negative excess returns.

In Table 7, panels A and B, we present the results for our univariate tests for the dependent variables *Excess return* and *Abnormal return* respectively. We find that on average, excess returns are negative for projects announced by SOEs during election years (approx -1.1%) and for projects announced in swing districts (approx -1.3%). We also find a statistically significant difference between SOE projects announced in election and non-election years. Specifically, announcement returns are approximately 1.5% lower for projects announced in election years relative to non-election years. In contrast, excess returns for projects announced by non-govt enterprises in election years are statistically indistinguishable from zero while projects announced in non-election years are associated with positive excess returns. While the univariate results suggest that announcement returns are lower even for projects announced by non-govt enterprises in election years, in our multivariate tests, we find that these results are not robust to including additional controls. In panel B, we repeat these tests with *abnormal returns* and obtain qualitatively similar results.

[13] $\frac{0.203*100}{0.388}$, where average number of projects announced by state SOEs in non-swing districts during election years is 0.388

Our results are qualitatively similar when we differentiate between projects announced in districts on the basis of political competition (*Swing districts*, Columns 4, 5, and 6). We now proceed to discussion of our multivariate tests.

Table 7, panel C reports the results for our multivariate tests. These tests are based on the following difference-in-differences specification

$$Y_{fp} = \alpha_0 + \beta_1 \times (\text{SOE}_f) + \beta_2 \times \text{Politics}_p + \beta_3 \times \text{Politics}_p \times (\text{SOE}_f) + \beta_4 \times X_f + \mu_{f,ind} + \varepsilon_{fp} \quad (6)$$

Where f refers to firm and p refers to project. The dependent variable is *Excess return* estimated over the day of project announcement in Columns 1 and 2 and *Abnormal return* in Columns 3 and 4. SOE_f is a dummy variable that identifies projects announced by SOEs. Politics_p is *Election* in columns 1 and 3 and *Swing* in columns 2 and 4. *Election* is a dummy variable that identifies projects announced in election years while *Swing* is a dummy variable that identifies projects announced in swing districts. We expect β_3 to be negative if projects announced by SOEs in election years and swing districts are politically motivated and destroy firm value. Since these tests are at the firm-level, we control for other firm-specific variables including *ROA*, *Debt/Assets*, *Size Decile fixed effects* and *Industry fixed effects* in all of these tests.

The interaction term *Election* X *SOE* in column 1 is negative and statistically significant indicating that relative to non-govt firms, announcement returns are on average 1.5% lower for projects announced by SOEs in election years compared to non-election years. The coefficient on *Election* is insignificant suggesting that the difference between announcement return for projects announced by non-govt enterprises in election years and non-election years is statistically indistinguishable from zero. Tests for the significance of sum of coefficients, $\beta_1 + \beta_3$, (not tabulated) shows that on average, announcement returns are 2.0% lower for projects announced by SOEs in election years and this effect is statistically significant at the 1% level. We obtain similar results when we differentiate between projects announced in swing districts and those announced in other districts (column 2). Specifically, compared to non-govt firms, announcement returns are 2.1% lower for projects announced by SOEs in districts where incumbents face stiff electoral competition (*swing* districts) relative to projects announced in other districts.

In columns 3 and 4, we repeat these tests using abnormal return instead of excess return and obtain similar results. In unreported robustness tests, we find similar results using

excess return and cumulative abnormal return over 3-day event windows. Our results are also robust to controlling for *project size*.

To summarize, Table 7 highlights the adverse costs of government control over investment decisions of corporate entities. Based on the estimates from these tests, we can provide a back of the envelope estimate of the loss in value to the firm by making additional assumptions. To be conservative, we assume that only the number of *additional investments* announced in election years relative to non-election years are politically motivated. The average increase in number of projects announced by Central SOEs in election years is 17% (see section 5.1). This translates into approximately 21 additional projects announced in election years. We can therefore compute the average loss in market value of firms announcing a project in election years as the product of the number of politically motivated investments and the average announcement return (-1.5%; see Table 7, panel B, Column 1) and the average market capitalization of the firm on the day of the project announcement. That is,

Cost= Number of Politically motivated investments(=21) $\times$ Average Market Value loss (=-1.5%) $\times$ Average Market Cap on day of announcement).

The estimated cost of politically motivated investments during the last three elections, 2009, 2004 and 1999 is given below:[14]

Cost Estimations

Election year	2009	2004	1999
Average Market Cap Rs Billions	676.857	341.603	125.998
Cost in Rs Billions	213.21	137.7037	65.34682
Average Total Market Cap of all listed SOEs	8168.32	3215.246	1410.315
Cost as % of Total Market Cap	2.610	4.282	4.633
Cost in $ Billions	12.691	8.196	3.889

Thus, the dead-weight costs of politically motivated investments in India ranges anywhere between $4 billion to $13 billion for the last three elections. These measures are only a lower bound for the true cost of political influence because of the following reasons: First, note that we are examining the increase in investments by SOEs in election years

[14]All values are adjusted for inflation based on the all India wholesale price index and are in 2009 terms. Dollar values are based on Purchasing Power Parity (PPP) conversion rate of 16.28 Indian Rupee per U.S. dollar in 2009, according to the International Monetary Fund (IMF).

relative to a baseline of their investment behavior in non-election times. To, the extent that politicians may also influence SOE decisions in non-election years, the baseline investment behavior itself may be shifted towards catering to political goals of incumbents. Because our empirical strategy nets out the baseline effect, our estimates of political influence on investments of SOEs provide a lower bound to the actual impact of the political interference. In other words, our measures are based on the assumption that only the additional number of projects announced by SOEs (only 21 out of on average of 143 projects announced) in election years are costly. However, even non-additional projects announced in election years may be politically influenced. Indeed, our results from table 7 show that on average each election year project is associated with a negative 1.5% stock price reaction. Similarily, our tests on announcement returns estimate the difference between market reactions to project announced by SOEs in election years vs non-election years. To the extent that there are politically motivated (-ve NPV) projects announced projects even in non-election years, and non politically motivated (+ve NPV) projects announced in election years, our estimates are biased downwards.

Second, our cost estimates are based on market reaction to new project announcements by publicly listed SOEs. Since only a few of the state government owned SOEs are publicly listed, we are unable to perform a similar analysis for them. Thus, our estimates to do not capture the costs of politically motivated investments undertaken by state SOEs.

Finally, we are analyzing only one aspect of political influence: new project announcements. However, there could be other channels through which politicians influence SOE investments such as project expansions, updations, etc.

5.4 Additional robustness tests

5.4.1 Political authority, jurisdiction and investments

Governments also face budget constraints. So, it is unlikely that they will be able to reward their supporters across all the states and districts. Thus given finite resources and limited capital available for investments, incumbent parties may cherry pick districts to suit the interests of their main leaders who rank higher up in the political hierarchy. So, any politician picked at random may not wield sufficient influence within the party to be able to get investments in their home districts whereas those in positions of political power might wield

greater influence over investments of SOEs. Our measure of political authority is whether the electoral representative holds a ministerial position: *Federal minister* is a dummy variable that identifies districts in which the Member of Parliament is also a minister in the federal cabinet.

The likelihood that the member of parliament from a district is chosen as a federal minister is independent of district level economic variables. Moreover, there is sufficient variation in the identity of ministers and consequentially the districts associated with federal ministers, allowing us to exploit within district variations in our tests. Cabinets are often reshuffled before the termination of an electoral cycle and individuals may lose their ministerial positions due to internal conflicts within the party or as a result of losing favor with the top party leadership.

To examine the importance of political authority, we use a specification similar to equation (5). Specifically, we replace *Swing* dummy with *Federal* minister dummy in equation (5), where *Federal* dummy identifies those districts in which the incumbent politician is a member of the federal cabinet of ministers. We only have the list of ministers at the federal level, so these tests are carried out for national elections.

$$Y_{ijt} = \alpha_0 + \eta_1 Pre_{it} \times Federal_{ijt} + \eta_2 Post_{it} \times Federal_{ijt} + \phi Federal_{ijt} + \beta_1 Pre_{it} + \beta_2 Post_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt} \quad (7)$$

The coefficient on *Federal*, ϕ estimates the difference in number of projects announced in districts where the member of parliament (MP) is also a federal minister relative to other districts during election years and is reported in column 2 of table 8. The relationship between investments and political authority one year before and one year after election year is given by $\eta_1 + \phi$ and $\eta_2 + \phi$ and is reported in columns 1 and 3 of table 8 respectively. In Panel A we report results for projects announced by Central SOEs and in panel B we report results for projects announced by non-government firms.

Column 2 of panel A in table 8 shows that the number of projects announced by central SOEs in election years is greater for districts associated with a Federal Minister relative to other districts where the elected representative is not a member of the Federal Cabinet. We also see that this preferential targeting of investments in the districts of federal ministers starts one year before election year and is strongest during election year. Specifically, $\eta_n + \phi$

is statistically significant at 10% level in the year before election year (n=1) and statistically indistinguishable from zero in the year after election year (n=2). On average, the number of projects announced by central-SOEs in the home districts of federal ministers in election years is approximately twice the number of projects announced in other districts.

In panel B, we repeat the tests for investments by non-govt firms and do not observe a similar pattern.

The results in this section show that high-ranking politicians seem to have a significant influence on investment decisions of SOEs.

5.4.2 Politically Driven Investments and Election Outcomes

In this section we restrict our sample to election years only and analyze whether election year project announcements by SOEs have a favorable impact on the outcome of elections for the incumbent. Specifically, we look at the number of electoral constituencies in a district in which the incumbent party won the elections and the margin of victory of the incumbent party in a district. To the extent that past election outcomes affect current investments and past election outcomes may also be correlated to current election outcomes, our estimates may be biased. To address this issue, we control for the margin of victory for the incumbent in the previous elections. Table 9 reports the results from these tests based on National elections.

The results from columns 1 and 2 show that the number of projects announced by SOEs in an election year positively impacts both the the number of constituencies in which the incumbent party won the elections and the margin of victory of the incumbent party in a district. In particular, each additional project leads to a 2.4% gain in the margin of victory for the incumbent party. Thus, if we compare two districts associated with the same margin of victory for the incumbent during the previous election, election results will be more favorable for the incumbent in the district with greater current investments.

In unreported tests, we repeat these results with state elections and find that election year project announcements by SOEs significantly affects the number of constituencies in which the incumbent party won the elections in a district. However, the effect of these announcements on the margin of victory is positive but not significant.

These results confirm that politicians benefit from election year targeting of investments.

5.4.3 Political Investment Channels to Attract Voters

In this section, we analyze the channels through which election year project announcements may attract voters. There is plenty of anecdotal evidence to suggest that politicians announce infrastructure investment projects just prior to elections.[15] Thus here we seek to understand whether election year projects serve to address the needs of voters for better infrastructure and higher employment. First using industry codes, we look specifically at infrastructure projects and examine if there is an association between election years and infrastructure announcements. Second we use annual employment data across all manufacturing firms from the Indian census[16] and split industries into high employment growth (median or higher) and low employment growth (below median) each year.

In Table 10, we present the results for these tests. These tests are structured similar to our baseline specification (equation (2)) and are based on National elections. The unit of observation is a district-year. The dependent variables in columns 1 and 3 are the *Number of high employment growth industry projects* and *Number of infrastructure projects* announced in a district by Central SOEs respectively. Consistent with the idea that voters care about access to better infrastructure and employment opportunities, focusing on columns 1 and 3, we find that the total number of projects announced by Central SOEs that are in high-employment growth industries and infrastructure industries are higher in election years. This effect is statistically significant at the 1% level. In unreported tests, we repeat these tests for projects announced by non-govt firms and do not observe a similar effect.

To ensure that what we observe is not just a mechanical effect, we repeat these tests with the ratio of total number of high employment growth industry projects (number of infrastructure industry projects) announced in a district in a given year to the total number of projects announced in a district in a year by central SOEs in column 2 (column 4). These results indicate that even the relative proportion of high-employment growth and infrastructure industry projects announced in a district is higher during election years.

In unreported tests, we repeat all these tests for State elections and obtain similar results.

[15] For instance, a few months preceding the 2014 elections, the government owned Railways announced a Rs.1,100 crore ($177 Million @ 62Rs/$) forged wheel factory in the home constituency of the ruling party (Congress) president, Sonia Gandhi with estimated employment projects of 2500 jobs for local people. http://articles.economictimes.indiatimes.com/2013-10-03/news/42664604_1_wheel-factory-rail-coach-factory-wheel-plant

[16] We use data from the Annual Survey of Industries (ASI) which is an annual census of manufacturing firms in India. This data spans the period 2001-2009.

Collectively, these results suggest that politicians focus on announcing projects that seek to attract voters either by means of improvements in infrastructure or employment prospects.

5.4.4 Alternate dependent variable - Cost of investment project

In this section, we use an alternate dependent variable to see if we can find evidence of a political investment cycle when we use the estimated cost of proposed investments. Specifically we use the ratio of the total cost of all projects announced by central SOEs in a district to the total cost of all projects announced in the district. We don't present these results as our main specification in the earlier tables since the cost of the project is missing for approximately 20% of the projects in our sample. So the size of the project is coded as zero if a project was announced in a district but the cost is not reported for the project. This introduces some measurement error in our regressions and is likely to bias our estimates. These tests are similar to the tests we discussed in sections 5.1, 5.2, and 5.4.1.

Table 11 presents the results from these tests based on National elections. The estimates from these tests confirm that the relative size of total investments announced in a district by central SOEs are greater in election years (Panel A). Moreover, these effect is greater for election year investments announced in swing districts (Panel B) and in districts of federal ministers (Panel C). In unreported tests, we find that the results are qualitatively similar for our tests based on state elections.

Overall these results confirm the findings from our previous analyses based on the number and percentage of projects announced by SOEs that there is indeed a political investment cycle where the number and scale of SOE investments are manipulated by politicians during election cycles.

6 Conclusion

We examine the role of political influence on investments decisions of state owned enterprises by exploiting the timing of elections in India as a source of exogenous variation in politicians' incentives to attract voters. Using a unique project level dataset of capital investments over a fifteen year period, we compare investment behavior of both SOEs and non-government firms in different districts of India across election and non-election years. We document

compelling evidence of a political investment cycle in the corporate investment decisions of state owned firms. Controlling for district and year fixed effects, there is a 17%-28% increase in the number of projects announced by government firms (depending on whether they are central SOEs or state SOEs) during election years. We do not find a similar pattern for investment announcements by non-government firms. Further, these effects are particularly stronger for districts in which the previous election was closely contested.

The project level data also allows us to gauge the value of these investments by examining the announcement returns. Consistent with SOEs foregoing value maximization to favor their political masters, we find that markets react negatively to projects announced by partially privatized SOEs in election years and located in politically competitive districts. A back of the envelope calculation reveals the per election costs of such politically motivated investment distortions to be as a high as $13 billion in terms of market capitalization.

Overall, our results support the political view of government ownership. We show clear micro evidence of distortions in the investment behavior of state owned enterprises due to political reasons. Our findings have implications for the policy debate on the efficiency of state capitalism in emerging markets.

Appendix A: Variable definitions

- *Abnormal return*: The difference between the return on a firm's stock and the return predicted by the CAPM model with the S&P Nifty as the benchmark market portfolio over the day of the project announcement. The CAPM model is estimated using daily returns on the firm's stock and the S&P Nifty over the preceding 3 months.
- *Absolute Margin*: The absolute value of difference between the percentage of votes received by ruling party coalition and the opposition parties in a district.
- *Announced*: A dummy variable that takes the value 1 if at least one project was announced in the district in a year.
- *Central govt*: Dummy variable that takes the value 1 for firms owned by central govt.
- *Constituencies won*: the number of constituencies in a district where the winner belonged to the incumbents party during the current elections.
- *Cost ratio:* the ratio of total cost of all investments announced by Central SOEs in a district to the total cost of all investments
- *Debt/Assets*: The ratio of total debt to total assets.
- *Election*: Dummy variable that takes the value 1 for the fiscal year immediately preceding the election.
- *Excess return*: The difference between the return on a firm's stock and the return on the benchmark S&P Nifty index over the day of the project announcement.
- *Federal minister*: Dummy variable that identifies districts where the Member of Parliament is a Federal Cabinet minister.
- *Firm size*: Natural log of (1+Total Assets)
- *High Employment Growth Industry*: Dummy variable that takes the value 1 for industries with above median employment growth each year.
- *Infrastructure Industry*: Dummy variable based on NIC codes that takes the value 1 for industries engaged in transportation (roadways, railways, airways and waterways), development of electricity and energy, waste management, communication, education and health services.
- *Margin of Victory*: Difference between the percentage of votes received by ruling party coalition and the opposition parties in a district.
- *Non-govt firms*: Dummy variable that takes the value 1 for non-govt firms.

- *Number of projects*: Total number of projects announced by firms in a district in a year.
- *Number of high employment growth industry projects*: Total number of projects announced by firms in *High Employment Growth Industry* in a district in a year.
- *Number of infrastructure projects*: Total number of projects announced by firms in *Infrastructure Industry* in a district in a year.
- *Percentage(Central)*: The ratio of number of number of projects announced by central SOEs to the total number of projects announced in a district in a year.
- *Per capita GDP growth*: Annual state level per capita GDP growth.
- *Percentage(State)*: The ratio of number of number of projects announced by state SOEs to the total number of projects announced in a district in a year.
- *Pre*: Dummy variable that takes the value 1 year before election year and 0 otherwise.
- *Post*: Dummy variable that takes the value 1 year after election year and 0 otherwise.
- *Project size*: Natural log of (1+Project cost)
- *ROA*: The ratio of operating profits (PBITDA) to total assets.
- *Scheduled*: A dummy variable that takes value 1 if 5 years have passed since the last election.
- *Swing*: Dummy variable that identifies districts where the absolute margin was less than 5%.

References

Bartel, A. P. and A. E. Harrison (2005). Ownership versus environment: Disentangling the sources of public-sector inefficiency. *Review of Economics and Statistics 87*(1), 135–147.

Barth, J. R., G. Caprio Jr, and R. Levine (2001). Banking systems around the globe: Do regulation and ownership affect performance and stability? *NBER Chapters*, 31–96.

Boubakri, N. and J.-C. Cosset (1998). The financial and operating performance of newly privatized firms: Evidence from developing countries. *The Journal of Finance 53*(3), 1081–1110.

Boycko, M., A. Shleifer, and R. Vishny (1995). Privatizing russia.

Brender, A. and A. Drazen (2005). Political budget cycles in new versus established democracies. *Journal of Monetary Economics 52*(7), 1271 – 1295.

Carvalho, D. (2014). The real effects of government-owned banks: Evidence from an emerging market. *The Journal of Finance 69*(2), 577–609.

Christiansen, H. (2011). The size and composition of the soe sector in oecd countries. Technical report, OECD Publishing.

Cole, S. (2009). Fixing market failures or fixing elections? agricultural credit in india. *American Economic Journal: Applied Economics 1*(1), 219 – 250.

Cooper, M. J., H. Gulen, and A. V. Ovtchinnikov (2010). Corporate political contributions and stock returns. *The Journal of Finance 65*(2), 687–724.

Cox, G. W. and M. D. McCubbins (1986). Electoral politics as a redistributive game. *The Journal of Politics 48*(2), pp. 370–389.

Dewenter, K. L. and P. H. Malatesta (2001). State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. *The American Economic Review 91*(1), 320–334.

Dinc, I. S. (2005). Politicians and banks: Political influences on government-owned banks in emerging markets. *Journal of Financial Economics 77*(2), 453 – 479.

Dinc, I. S. and N. Gupta (2011). The decision to privatize: Finance and politics. *The Journal of Finance 66*(1), 241–269.

Dixit, A. and J. Londregan (1996). The determinants of success of special interests in redistributive politics. *The Journal of Politics 58*(4), pp. 1132–1155.

Drazen, A. (2001). The political business cycle after 25 years. *NBER Chapters*, 75–138.

Duchin, R. and D. Sosyura (2012). The politics of government investment. *Journal of Financial Economics 106*(1), 24 – 48.

Durnev, A. (2012). The real effects of political uncertainty: Elections and investment sensitivity to stock prices. *Working paper*.

Faccio, M. (2006). Politically connected firms. *The American Economic Review 96*(1), pp. 369–386.

Faccio, M., R. W. Masulis, and J. McConnell (2007). Political connections and corporate bailouts. *The Journal of Finance 61*(6), 2597–2635.

Fan, J. P., T. J. Wong, and T. Zhang (2007). Politically connected ceos, corporate governance, and post-ipo performance of china's newly partially privatized firms. *Journal of financial economics 84*(2), 330–357.

Fisman, R. (2001). Estimating the value of political connections. *The American Economic Review 91*(4), 1095–1102.

Funkhouser, R. and P. W. MacAvoy (1979). A sample of observations on comparative prices in public and private enterprises. *Journal of Public Economics 11*(3), 353–368.

Goldman, E., J. Rocholl, and J. So (2009). Do politically connected boards affect firm value? *Review of Financial Studies 22*(6), 2331–2360.

Groves, T., Y. Hong, J. McMillan, and B. Naughton (1994). Autonomy and incentives in chinese state enterprises. *The Quarterly Journal of Economics 109*(1), 183–209.

Johnson, S. and T. Mitton (2003). Cronyism and capital controls: evidence from malaysia. *Journal of financial economics 67*(2), 351–382.

Julio, B. and Y. Yook (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance 67*(1), 45–84.

Karolyi, G. A. and R. C. Liao (2015). State capitalism's global reach: Evidence from foreign acquisitions by state-owned companies. *Journal of Corporate Finance, Forthcoming*.

Khwaja, A. I. and A. Mian (2005). Do lenders favor politically connected firms? rent provision in an emerging financial market. *The Quarterly Journal of Economics 120*(4), 1371–1411.

Kikeri, S., J. Nellis, and M. Shirley (1994). Privatization: Lessons from market economies. *The World Bank Research Observer 9*(2), 241–272.

Kole, S. R. and J. H. Mulherin (1997). Government as a shareholder: A case from the united states, the. *JL & Econ. 40*, 1.

Kowalski, P., M. Büge, M. Sztajerowska, and M. Egeland (2013). State-owned enterprises: Trade effects and policy implications. Technical report, OECD Publishing.

La Porta, R., F. Lopez-de Silanes, A. Shleifer, and R. Vishny (2002). Investor protection and corporate valuation. *Journal of finance*, 1147–1170.

Lindbeck, A. and J. Weibull (1987). Balanced-budget redistribution as the outcome of political competition. *Public choice 52*(3), 273–297.

López de Silanes, F., R. La Porta, and A. Shleifer (1999). Corporate ownership around the world. *Journal of finance 54*(2), 471–517.

Mian, A., A. Sufi, and F. Trebbi (2010). The political economy of the us mortgage default crisis. *American Economic Review 100*(5), 1967–98.

Musacchio, A. and S. G. Lazzarini (2012). Leviathan in business: varieties of state capitalism and their implications for economic performance.

Netter, J. and W. Megginson (2001). From state to market: A survey of empirical studies on privatization. *Journal of economic literature 39*(2).

Nordhaus, W. D. (1975). The political business cycle. *The Review of Economic Studies 42*(2), pp. 169–190.

Prabhat, S. (2013). Do political contributions enhance shareholder value? *Working Paper*.

Rogoff, K. (1990). Equilibrium political budget cycles. *The American Economic Review 80*(1), pp. 21–36.

Sapienza, P. (2004). The effects of government ownership on bank lending. *Journal of Financial Economics 72*(2), 357–384.

Shleifer, A. (1998). State versus private ownership. *The Journal of Economic Perspectives 12*(4), pp. 133–150.

Shleifer, A. and R. W. Vishny (1994). Politicians and firms. *The Quarterly Journal of Economics 109*(4), pp. 995–1025.

Stock, J. H. and M. Yogo (2005). Testing for weak instruments in linear iv regression. *Identification and inference for econometric models: Essays in honor of Thomas Rothenberg*.

Table 1: Summary Statistics

Panel A: National Elections				
Variables	N	Mean	Median	Std. Dev.
Election year	5081	0.279	0	0.448
Absolute Margin	5081	0.144	0.104	0.131
Swing	5081	0.272	0	0.445
Panel B: State Elections				
Election year	8456	0.209	0	0.407
Scheduled election year	8456	0.176	0	0.381
Absolute Margin	8456	0.092	0.075	0.079
Swing	8456	0.373	0	0.483

This table reports the summary statistics of the key electoral variables used in our analysis. Panel A reports the summary statistics for the data on national elections. Panel B reports data on the same variables but for state elections. The data covers the period 1995-2009 and is collected from Election commission of India. The unit of observation is a district-year. There are 435 (594) unique districts for national (state) elections. All variables are defined in detail in Appendix A.

Table 2: Summary Statistics

Panel A: National Elections				
Firm type	N	Mean	Median	Std. Dev
		Number of projects		
Central SOEs	5081	0.283	0	0.829
Non-govt Firms	5081	1.864	0	6.55
All	5081	2.896	1	9.928
		Announced dummy		
Central SOEs	5081	0.168	0	0.374
Non-govt Firms	5081	0.389	0	0.487
All	5081	0.503	1	0.500
Panel B: State Elections				
		Number of projects		
State SOEs	8456	0.396	0	1.41
Non-govt Firms	8456	1.47	0	5.67
All	8456	2.328	0	7.975
		Announced dummy		
State SOEs	8456	0.19	0	0.393
Non-govt Firms	8456	0.323	0	0.467
All	8456	0.429	0	0.495

This table reports the summary statistics of the key investment variables used in our analysis. Panel A reports the summary statistics for the data on national elections. Panel B reports data on the same variables but for state elections. The data covers 18981 projects announced in India during 1995-2009 and is obtained from CAPEX. All variables are defined in detail in Appendix A.

Table 3: Elections and Corporate Investments

Panel A: National Elections

	Number of projects		Percentage	Announced dummy	
	Central SOEs	Non-govt Firms	$\frac{Central}{Total}$	Central SOEs	Non-govt Firm
	(1)	(2)	(3)	(4)	(5)
Election year	.048 (.018)***	-.109 (.072)	.016 (.007)**	.022 (.010)**	.014 (.011)
State level real gdp growth	.337 (.136)**	6.229 (.957)***	-.006 (.054)	.117 (.074)	.695 (.105)***
Const.	.257 (.009)***	1.619 (.042)***	.074 (.003)***	.158 (.004)***	.354 (.006)***
Obs.	5039	5039	5039	5039	5039
R^2	.480	.552	.185	.312	.442

This table reports estimates from the following panel regression model:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by Central SOEs and Non-govt firms in Columns (1) and (2) respectively and a dummy variable that identifies district-years in which at least one project was announced in columns (4) and (5). The dependent variable in Column (3) is the percentage of projects announced by Central government firms in a district. *Election* is a dummy variable that identifies election years. All variables are defined in detail in Appendix A. Panel A reports results for National elections. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 3: Elections and Corporate Investments

Panel B: State elections (OLS)

	Number of projects		Percentage	Announced dummy	
	State SOEs	Non-govt Firms	$\frac{State}{Total}$	State SOEs	Non-govt Firms
	(1)	(2)	(3)	(4)	(5)
Election	.106	-.086	.032	.029	-.012
	(.046)**	(.053)	(.007)***	(.009)***	(.009)
State level real gdp growth	-.806	.334	-.202	-.267	.100
	(.172)***	(.297)	(.049)***	(.062)***	(.078)
Const.	.015	.088	.021	.025	.116
	(.041)	(.108)	(.008)***	(.011)**	(.015)***
Obs.	8412	8412	8412	8412	8412
R^2	.315	.622	.192	.324	.511

Panel C: State elections (IV)

	Number of projects		Percentage	Announced dummy	
	State SOEs	Non-govt Firms	$\frac{State}{Total}$	State SOEs	Non-govt Firms
	(1)	(2)	(3)	(4)	(5)
Election	.109	.038	.029	.025	-.012
	(.054)**	(.058)	(.008)***	(.010)***	(.010)
State level real gdp growth	-.807	.328	-.202	-.267	.100
	(.172)***	(.297)	(.049)***	(.062)***	(.077)
Const.	-.389	-1.191	-.084	-.166	-.205
	(.045)***	(.111)***	(.008)***	(.011)***	(.015)***
Obs.	8412	8412	8412	8412	8412
R^2	.315	.622	.192	.324	.511

Panel B reports the results for our tests based on state elections.The tests are based on the following IV specification:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \gamma \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. *Scheduled* is used as an instrument for *Elections*. *Election* is a dummy variable that identifies election years. *Scheduled* is a dummy variable that takes the value 1 if 5 years have passed since the previous election. Y is *Number of projects* announced in a district by State SOEs and Non-govt firms in Columns (1) and (2) respectively and a dummy variable that identifies district-years in which at least one project was announced in columns (4) and (5). The dependent variable in Column (3) is the percentage of projects announced by state government firms in a district. All variables are defined in detail in Appendix A. The coefficient on *Scheduled* in the first stage of instrumental variable regression (not reported here for brevity) is 0.95 (standard error 0.005) with an R^2 of 0.80. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district* and *year fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 4: Elections and Corporate Investment cycle

Panel A: National Elections

	Number of projects		Percentage
	Central SOEs	Non-govt Firms	$\frac{Central}{Total}$
	(1)	(2)	(3)
1 year before Election (Pre)	-.097 (.025)***	.052 (.130)	-.030 (.008)***
1 year after Election (Post)	-.125 (.023)***	-.533 (.101)***	-.028 (.009)***
State level real gdp growth	.610 (.146)***	3.192 (.667)***	.086 (.064)
Const.	.296 (.013)***	1.637 (.065)***	.087 (.005)***
Obs.	3589	3589	3589
R^2	.466	.529	.216

This table reports estimates from the following panel regression model:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Pre_{it} + \beta_2 \times Post_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by Central SOEs and Non-govt firms in Columns (1) and (2) respectively. The dependent variable in Column (3) is the percentage of projects announced by central government firms in a district. *Pre (post)* is a dummy variable that takes the value 1 for 1 year before (after) the scheduled election. Note that the suppressed dummy variable in these tests is *election year*. So the coefficient on Pre, $\beta_1 = E[Y|Pre = 1, X] - E[Y|election = 1, X]$. All variables are defined in detail in Appendix A. Panel A reports results for National elections. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 4: Elections and Corporate Investment cycle

Panel B: State Elections

	Number of projects		Percentage
	State SOEs	Non-govt Firms	$\frac{State}{Total}$
	(1)	(2)	(3)
1 year before Election (Pre)	-.085 (.036)**	-.028 (.076)	-.024 (.009)***
1 year after Election (Post)	-.213 (.065)***	-.079 (.064)	-.047 (.009)***
State level real gdp growth	-.951 (.320)***	1.116 (.509)**	-.242 (.078)***
Const.	-.052 (.068)	-.411 (.192)**	.036 (.012)***
Obs.	5160	5160	5160
R^2	.364	.618	.222

Panel B reports the results for our tests based on state elections.The specification is the similar to that in Panel A.

$$Y_{ijt} = \alpha_0 + \beta_1 \times Pre_{it} + \beta_2 \times Post_{it} + \gamma \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by State SOEs and Non-govt firms in Columns (1) and (2) respectively. The dependent variable in Column (3) is the percentage of projects announced by state government firms in a district. *Pre (post)* is a dummy variable that takes the value 1 for 1 year before (after) the scheduled election. Note that the suppressed dummy variable in these tests is *election year*. So the coefficient on Pre, $\beta_1 = E[Y|Pre = 1, X] - E[Y|election = 1, X]$. All variables are defined in detail in Appendix A. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district* and *year fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 5: Political Competition and Corporate Investments

Panel A: National Elections

	Number of projects		Percentage
	Central SOEs	Non-govt Firms	$\frac{Central}{Total}$
	(1)	(2)	(3)
Election	.020 (.021)	-.066 (.112)	.006 (.008)
Swing	.015 (.025)	.053 (.307)	.007 (.008)
Election X Swing	.098 (.039)**	-.156 (.307)	.036 (.016)**
State level real gdp growth	.353 (.136)***	6.231 (.959)***	.0009 (.053)
Const.	.252 (.011)***	1.605 (.094)***	.072 (.004)***
Obs.	5039	5039	5039
R^2	.481	.552	.187

This table reports estimates from the following panel regression model:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \beta_2 \times Swing_{ijt} + \beta_3 \times Election_{it} \times Swing_{ijt} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by Central SOEs in Columns (1) and Non-govt firms in Column (2). The dependent variable in Columns (3) is the percentage of projects announced by central government firms in a district. All variables are defined in detail in Appendix A. Panel A reports results for National elections. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 5: Political Competition and Corporate Investments

Panel B: State Elections

	Number of projects		Percentage
	State SOEs	Non-govt Firms	$\frac{State}{Total}$
	(1)	(2)	(3)
Election	.010 (.031)	-.090 (.074)	.020 (.009)**
Swing	.010 (.040)	.078 (.102)	-.014 (.008)*
Election X Swing	.203 (.095)**	.014 (.116)	.026 (.014)*
State level real gdp growth	-.805 (.174)***	.315 (.299)	-.198 (.049)***
Const.	.016 (.046)	.056 (.124)	.027 (.008)***
Obs.	8412	8412	8412
R^2	.316	.622	.192

Panel B reports the results for our tests based on state elections.The specification is similar to that in Panel A.

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \beta_2 \times Swing_{ijt} + \beta_3 \times Election_{it} \times Swing_{ijt} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by state SOEs in Columns (1) and Non-govt firms in Column (2). The dependent variable in Columns (3) is the percentage of projects announced by state government firms in a district. All variables are defined in detail in Appendix A. Panel A reports results for National elections. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 6: Elections, Political Competition and Corporate Investment Cycle

National Elections

Panel A: Y=Number of Projects announced in a district by Central SOEs

	1 year before	Election year	1 year after
$E[Y\|swing=1]-E[Y\|swing=0]$	0.076 (.036)	0.112 (.038)***	-0.013 (.032)
Obs.		3589	
R^2		0.467	

Panel B : Y=Number of Projects announced in a district by Non-govt Firms

	1 year before	Election year	1 year after
$E[Y\|swing=1]-E[Y\|swing=0]$	-0.078 (.311)	-0.175 (.158)	0.259 (.388)
Obs.		3589	
R^2		0.529	

State Elections

Panel C: Y=Number of Projects announced in a district by State SOEs

	1 year before	Election year	1 year after
$E[Y\|swing=1]-E[Y\|swing=0]$	0.110 (.075)	0.252 (.117)**	0.056 (.068)
Obs.		5160	
R^2		0.365	

Panel D : Y=Number of Projects announced in a district by Non-govt Firms

	1 year before	Election year	1 year after
$E[Y\|swing=1]-E[Y\|swing=0]$	0.055 (.148)	0.114 (.156)	0.177 (.122)
Obs.		5160	
R^2		0.618	

Each panel represents the following panel regression model:

$$Y_{ijt} = \alpha_0 + \eta_1 Pre_{it} \times Swing_{ijt} + \eta_2 Post_{it} \times Swing_{ijt} + \phi Swing_{ijt} + \beta_1 Pre_{it} + \beta_2 Post_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by Central SOEs (State SOEs) in Panel A and C and Non-govt firms in panels B and D. respectively. Column (1) reports the estimates for sum of coefficients η_1 and ϕ. Column (2) reports the coefficient estimate ϕ and Column (3) reports the estimates for sum of coefficients η_2 and ϕ All variables are defined in detail in Appendix A. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in all the panels and *year fixed effects* in panels C and D. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 7: Announcement Returns of Politically Driven Investments

Panel A: Univariate tests

Panel A: Excess Return							
	Variable	Election=1	Election=0	Difference	Swing=1	Swing=0	Difference
		(1)	(2)	(3)	(4)	(5)	(6)
Central govt	Excess return	-1.098	0.369	−1.468	-1.326	0.143	−1.469
	Std. Err	(.375)***	(.280)	(.461)***	(.499)***	(.252)	(.532)***
	N	139	217		84	272	
Non-Govt	Excess return	-0.063	0.444	−0.507	0.559	0.218	0.341
	Std. Err	(.189)	(.124)***	(.228)**	(.226)**	(.218)*	(.249)
	N	745	1787		571	961	
Panel B: Abnormal Return							
Central govt	Abnormal return	-1.396	0.332	−1.728	-1.337	-0.079	−1.258
	Std. Err	(.386)***	(.328)	(.512)***	(.539)**	(.287)	(.614)**
	N	139	217		84	272	
Non-Govt	Abnormal return	0.184	0.506	−0.322	0.877	0.279	0.597
	Std. Err	(.210)	(.131)***	(.244)	(.249)***	(.124)**	(.269)**
	N	745	1787		571	961	

This table presents results from our univariate tests on announcement returns of politically driven investments. Announcement return is definaed as *Excess return* on the firm' stock over the day of the project announcement. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 7: Announcement Returns of Politically Driven Investments

Panel C: Multivariate tests

	Excess Return		Abnormal Return	
	(1)	(2)	(3)	(4)
SOE	-.368	-.576	-.669	-.853
	(1.042)	(.934)	(.999)	(.901)
Election	-.483		-.340	
	(.358)		(.345)	
Election X SOE	-1.549		-1.359	
	(.790)**		(.771)*	
Swing		.366		.367
		(.410)		(.396)
Swing X SOE		-2.148		-1.835
		(.965)**		(.837)**
ROA	-.173	.028	.790	.928
	(2.249)	(2.243)	(2.340)	(2.320)
Debt/Assets	.456	.395	.873	.821
	(1.020)	(1.031)	(1.089)	(1.102)
Const.	-.212	-.574	-.739	-1.014
	(1.341)	(1.339)	(1.473)	(1.475)
Size Decile FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	2380	2380	2380	2380
R^2	.234	.232	.240	.239

This table presents results from our multivariate tests on announcement returns of politically driven investments. The estimates are based on the following specification:

$$Y_{fp} = \alpha_0 + \beta_1 \times (\text{SOE}_f) + \beta_2 \times \text{Politics}_p + \beta_3 \times \text{Politics}_p \times (\text{SOE}_f) + \beta_4 \times X_f + \mu_{f,ind} + \varepsilon_{fp}$$

Where f refers to firm and p refers to project. The dependent variable Y_{fp} is *Excess return* (*Abnormal return*) on the firm' stock over the day of the project announcement in columns 1 and 2 (columns 3 and 4). *Politics* is *Election* (*Swing*) in columns (1) and (3) ((2) and (4). The unit of observation is a project. All variables are defined in detail in Appendix A. The standard errors are robust to heteroscedasticity and clustered at the firm level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 8: Elections, Political Authority and Corporate Investment Cycle

National Elections

Panel A: Y=Number of Projects announced in a district by Central SOEs

	1 year before	Election year	1 year after
$E[Y\|Federal=1]-E[Y\|Federal=0]$	0.134 (.073)*	0.220 (.091)**	0.004 (.073)
Obs.		3589	
R^2		0.469	

Panel B : Y=Number of Projects announced in a district by Non-govt Firms

	1 year before	Election year	1 year after
$E[Y\|Federal=1]-E[Y\|Federal=0]$	0.921 (1.082)	0.388 (.780)	-0.703 (.537)
Obs.		3589	
R^2		0.543	

Each panel represents the following panel regression model:

$$Y_{ijt} = \alpha_0 + \eta_1 Pre_{it} \times Federal_{ijt} + \eta_2 Post_{it} \times Federal_{ijt} + \phi Federal_{ijt} + \beta_1 Pre_{it} + \beta_2 Post_{it} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of projects* announced in a district by Central SOEs in Panel A and Non-govt firms in panels B. respectively. Column (1) reports the estimates for sum of coefficients η_1 and ϕ. Column (2) reports the coefficient estimate ϕ and Column (3) reports the estimates for sum of coefficients η_2 and ϕ All variables are defined in detail in Appendix A. The data covers the period 1995-2009. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 9: Politically Driven Investments and Election Outcomes

	Constituencies Won	Margin of Victory	Constituencies Won	Margin of Victory
	(1)	(2)	(3)	(4)
Number of Projects Announced (SOE)	.072 (.035)**	.024 (.009)***		
Number of Projects Announced (Non-govt)			-.002 (.008)	-.0008 (.001)
Lagged Margin of victory or loss	.418 (.125)***	.281 (.044)***	.437 (.125)***	.287 (.044)***
Const.	.566 (.012)***	-.026 (.003)***	.594 (.016)***	-.017 (.002)***
Obs.	1204	1204	1204	1204
R^2	.431	.427	.427	.42

This table reports estimates from the following panel regression model:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Numpojs_{ijt} + \gamma \times C_{it} + \mu_j + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Constituencies won*: the number of constituencies in a district where the winner belonged to the incumbents party during the current elections in (Columns (1) and (3)). The dependent variable in Columns (2) and (4) is the *Margin of Victory*: the difference in share of votes received by incumbent and opposition parties in a district in the current election. *Numpojs* is *Number of projects* announced in a district by Central SOEs (Columns (1) and (2)) and Non-govt firms (Columns (3) and (4)). All variables are defined in detail in Appendix A. These tests are based on National elections. The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 10: Politically Driven Investments: What is the channel?

	High Employment Growth Industry		# Infrastructure Industry	
Dependent variable	# Central Projects	$\frac{\#\text{Central Employment}}{\#\text{Central total}}$	# Central Projects	$\frac{\#\text{Central infra}}{\#\text{Central total}}$
	(1)	(2)	(3)	(4)
Election year	.080	.036	.042	.021
	(.020)***	(.010)***	(.014)***	(.008)**
State level real gdp growth	.072	.208	.123	.051
	(.090)	(.094)**	(.106)	(.063)
Const.	.076	.162	.160	.102
	(.007)***	(.006)***	(.007)***	(.004)***
Obs.	2936	2936	5039	5039
R^2	.365	.215	.296	.212

This table reports estimates from the following panel regression model:

$$Y_{ijt} = \alpha_0 + \beta_1 \times Election_{it} + \gamma \times C_{it} + \mu_j + \mu_t + \varepsilon_{ijt}$$

Where i refers to state, j refers to district and t refers to year. Y is *Number of high employment growth industry projects* and *Number of infrastructure projects* announced in a district by Central SOEs in Columns (1) and (3) respectively. The dependent variable in Column (2) (Column (4)) is the ratio of total number of high employment growth industry projects (number of infrastructure industry projects) announced in a district in a given year to the total number of projects announced in a district in a year by central SOEs. *Election* is a dummy variable that identifies election years. The data spans the period 2001-2009 (1995-2009) in columns (1) and (2)(Columns (3) and (4)). The election data is from Election commission of India and data on new project announcements was obtained from CAPEX, a database of new projects announced in India. We control for *district fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the district level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 11: Alternate dependent variable - Cost of investment project

Panel A: Elections and Corporate Investment Cycle

	(1)	(2)
Election year	.015 (.008)*	
1 year before Election		-.036 (.008)***
1 year after Election		-.034 (.009)***
State level real gdp growth	-.011 (.065)	.015 (.067)
Const.	.082 (.004)***	.100 (.004)***
Obs.	5039	5039
R^2	.197	.180

The dependent variable in these tests, Y_{ijt} is the ratio of total cost of all investments announced by Central SOEs in a district to the total cost of all investments announced in the district. This table replicates our main tests with this alternate dependent variable. The empirical specification for coefficient estimates reported in column (1) (column (2)) is the same as in Table 3 (Table 4). All variables are defined in detail in Appendix A. The unit of observation is a district year. We control for *District fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the firm level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.

Table 11: Alternate dependent variable - Cost of investment project

Panel B: Political Competition and Corporate Investment Cycle

	1 year before	Election year	1 year after
$E[Y\|swing = 1] - E[Y\|swing = 0]$	0.002 (.893)	0.029 (.014)**	0.007 (.707)
Obs.		3589	
R^2		0.207	

Panel C: Political Authority and Corporate Investment Cycle

	1 year before	Election year	1 year after
$E[Y\|Federal = 1] - E[Y\|Federal = 0]$	0.029 (.020)	0.057 (.027)**	0.001 (.024)
Obs.		3589	
R^2		0.209	

The dependent variable in these tests, Y_{ijt} is the ratio of total cost of all investments announced by Central SOEs in a district to the total cost of all investments announced in the district. The empirical specification for coefficient estimates reported in Panel B (Panel C) is the same as in Table 6 (Table 7). All variables are defined in detail in Appendix A. The unit of observation is a district year. We control for *District fixed effects* in these tests. The standard errors are robust to heteroscedasticity and clustered at the firm level. (***), (**), (*) denote statistical significance at 1%, 5%, and 10% levels respectively.