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Do Criminal Politicians Affect Firm Investment and Value? Evidence from a Regression Discontinuity Approach

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Abstract
We provide evidence on the effects of criminal/corrupt politicians on firm performance and investments in their constituencies. Using a regression discontinuity approach, we focus on close parliamentary elections in India to establish a causal link between election of criminal-politicians and firms' stock-market performance and investment decisions. Election of criminal-politicians leads to lower election-period and project-announcement stock-market returns for private-sector firms with economic ties to the district. There is a significant decline in total investment and employment by private-sector firms in criminal-politician districts. Interestingly, decline in private-sector investment is largely offset by a roughly equivalent increase in investment by state-owned firms.

Keywords Corporate investments · Political corruption · Criminal politicians · Rent-seeking · Elections · Corruption · Indian political economy

JEL Classification G30 · G38 · D70 · D72 · D73

Introduction

Anecdotal and survey evidence suggest that emerging economies are rife with corruption – far more so than more developed economies (e.g., Svensson, 2005). Contributing to the pervasive corruption are a plethora of factors that are associated with developing countries such as weak institutions, bureaucratic red-tape and cultural norms that are accepting of (or resigned to) corruption. Reducing corruption has proven to be difficult—which may not be surprising since it is in the interest of beneficiaries of a corrupt system to maintain weak institutions and complex, arbitrary rules that facilitate corruption.[1]

We focus on the economic implications of rampant corruption in India, a large developing country long plagued by corruption/criminality among its politicians and bureaucrats. In recent years, corruption has emerged as a potent political issue and likely affected the outcome of the 2014 general election.[2] The effort to clean elections has led to wider dissemination of information about the background of the candidates for public office, including criminal charges and convictions. This, combined with novel and fairly

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[1] An especially egregious instance in which beneficiaries of a corrupt system were favored is that of the 2-G telecommunications scam in India in 2007–2008, in which rules were manipulated in arbitrary ways to favor politically connected bidders during the telecom spectrum license auctions.

[2] As Gallup notes, based on its surveys prior to the 2014 general election: "Political parties vying for seats in India's national election are hoping to lure voters with promises of tackling the country's graft, which the majority of Indians see as a widespread problem that they don't think their current government is doing enough to combat.". https://news.gallup.com/poll/168488/corruption-concerns-generations-indian-voters.aspx

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comprehensive data on project investments by Indian corporations, allows us to investigate questions about the interplay between corruption and electoral outcomes on the one hand, and corporate stock market performance and investment decisions on the other.

While there are several studies of corruption in emerging economies including India, there are relatively few reliable estimates of the actual magnitude and broader economic consequences of corruption In particular, empirical evidence linking the presence of corrupt politicians to firms' real activity and shareholder value is scarce. It is difficult to know, therefore, whether the election of corrupt politicians has significant implications for economic growth. This is since it is hard to discern whether corruption has a negative causal effect on economic growth or whether the corruption is largely a manifestation of poor economic and social conditions and does not per se, have a meaningful effect on economic growth.

We study the effect of Indian politicians with criminal backgrounds on the value and performance of firms and investments in their electoral districts. Since 2003, Supreme Court of India has mandated that the candidates contesting elections for federal and state legislatures file an affidavit declaring pending criminal cases, past convictions, assets, liabilities, educational qualifications etc. For our study, we use a database that collects the criminal background and other variables from the affidavits filed by candidates with the Election Commission of India before the 2004 and 2009 General Elections for the Lok Sabha (lower house of Indian Parliament). We refer to these politicians as "criminal" though, in most cases, they have been charged, rather than convicted of criminal activity. Actual conviction rates tend to be low, possibly indicating the difficulty of convicting politicians. The use of this data is validated by other studies that suggest that being charged with criminal activity correlates well with other measures of corruption.[3] For instance, charges of criminal behavior are strongly related to indicators of corruption such as growth in personal assets (Fisman et al., 2014) and survey data (Banerjee & Pande, 2007). In the paper we will, therefore, refer interchangeably to criminal and corrupt politicians.

Our data allows us to explore key questions, such as the impact of corrupt/criminal politicians on economic activity. To establish a causal link between the election of criminal politicians and firm stock-market value, we use a regression discontinuity approach that has been used in the literature on the causal effects of elections (e.g., Chemin, 2012; Lee, 2008). Specifically, we compare the effects on firm and project values in districts where a criminal politician narrowly wins the election to the districts in which they narrowly lose against a non-criminal candidate. Further, we examine the response of corporations in terms of whether new investment projects are initiated, and existing ones are completed or stalled. Our overall finding is that the election of corrupt politicians has a negative effect on firms with significant investments in the politician's district. Corporations are less likely to initiate or to complete projects in districts in which a criminal politician wins. In addition, the announcements of new projects in these districts tend to be received less favorably by investors. Districts in which a criminal candidate narrowly wins, experience a sharp average reduction in private firm capital expenditures of about $664.4 million in the five years following the election. On the other hand, there is an average increase of $488.1 million in investment in districts where a criminal candidate narrowly loses to a noncriminal candidate. The difference of $1.15 billion is both economically and statistically significant.

The finding that the election of corrupt politicians discourages new investment projects and hurts the stock market value of firms in their districts raises the question of how these politicians are, nevertheless, able to attract support from voters and get elected?[4] A possibility is that certain communities are willing to support politicians from their own communities (or castes) as long as the criminal activities work in their favor or, at least, are not directed against the community. It is also possible that corrupt politicians support local enterprises—while disfavoring competition from outside firms. We, therefore, examine the impact of election outcomes on firms with economic ties to the politician's district in terms of past investments, classifying firms as local or non-local in terms of their headquarter location. We also distinguish between privately owned and state-majority-owned enterprises (SOEs).[5]

Our results indicate that both local and non-local private corporations suffer when a corrupt politician is in power. When a criminal politician wins an election (in close elections), both types of firms experience significantly lower stock returns. There is also a decrease in aggregate investment by firms in the corrupt politician's district, though effects are smaller for local firms. An intriguing finding, however, is that while there is a reduction in investment by

[3] Banerjee and Pande (2007) estimate political corruption among candidates for political office by surveying journalists who covered that election and politicians who stood for election in neighboring jurisdictions. They then correlate the reported outcomes (such as whether the candidate faced criminal charges) with actual data on the same and find a high correlation.

[4] We believe that the elections in India are relatively 'clean' and the Election Commission in India appears to have been successful at eliminating large-scale tampering with ballots and direct intimidation of voters.

[5] Publicly traded corporations in which the government is a significant owner are typically the result of partial privatization of previously wholly owned state corporations.

private corporations—this is offset to a degree by an increase in investment by state-majority-owned enterprises. This suggests that, to an extent, corrupt politicians could keep their supporters satisfied, by providing them business opportunities in connection with investments by state-owned firms over which they may exercise some control. On employment, however, the overall effect appears to be negative, at least for the limited district-level data available to us for the fiscal years around the 2004 election. There is a significantly lower growth rate in private firm employment following the electoral victory of criminal politicians. The growth in SOE employment in districts where the criminal politician won is weakly higher or the same compared to the growth of SOE employment in districts where the criminal politician lost.

Our findings on state-owned enterprises is consistent with the evidence that corrupt politicians favor state-owned enterprises over non-state-controlled firms. Nguyen and Dijk (2012), for instance, finds that corruption hampers the growth of Vietnam's private sector but is not detrimental for growth in the state sector. We find as well that corrupt politicians appear to discourage the growth of private firms but facilitate the growth of SOEs—possibly as a way to extract personal benefits and to keep their supporters satisfied by providing them with business and employment opportunities. An implication is that reducing political players' access to favors from state-owned enterprises, such as through privatization, could help reduce corruption in countries with state-owned corporations.

Hypotheses and Related Literature

Hypotheses

Corruption is endemic to many developing countries and is generally associated with weaker institutions and poorer economic conditions. While there is a literature that suggests that welfare implications of corruption might be small or even improve outcomes (e.g., Leff, 1964), there appears to be growing academic and policy consensus that corruption is often high in low-income countries and that it is costly (see e.g., Olken & Pande, 2012).

In the paper we examine the economic consequences of the election of corrupt politicians on the profitability, investment and employment of firms in their electoral districts. In general, we might expect corrupt politicians to use their positions to extract rents from firms in their districts and to negatively affect the value and profitability of these firms. As noted earlier, to establish a causal link between the election of criminal politicians and the firm's stock market performance, we use a regression discontinuity approach, Specifically, we compare the impact on firms in districts in which a criminal politician narrowly wins to those in which there is a narrow loss to a non-criminal candidate. This leads to our first formal hypothesis:

Hypothesis- 1A A close election win by a corrupt politician will have a significantly negative effect on the stock market performance and valuation of private sector firms in the politician's district.

The negative costs imposed by corrupt elected politicians are likely to be affected by factors such as the incumbency of politicians and the level of corruption at the state level – both of which are likely to exacerbate the negative effects of a corrupt politician being returned to power. Incumbent politicians might, for instance, have existing relationships with local government officials responsible for issuing various permits, which facilitates the extraction of rents; while high levels of state corruption could imply that there were few legal repercussions for corrupt activities. This leads to the hypothesis below:

Hypothesis- 1B A close election win by a corrupt politician will have a greater negative effect on the stock market value of private sector firms if the district is in a state with worse corruption and the corrupt politician is an incumbent.

Corrupt politicians might also be more likely to extract rents from private sector firms rather than SOEs which are often rigidly bound by government rules and reporting requirements.[6] We state the following hypothesis:

Hypothesis- 1C A close election win by a corrupt politician will result in a more moderate negative effect on the stock market value of SOEs, relative to private-sector firms.

The election of a corrupt politician might also have different consequences for local firms with headquarters in the district versus those that are non-local. It is plausible, for instance, that criminal politicians may favor local firms, particularly ones with which they have had a past relationship, at the expense of non-local firms. This could be done by increasing barriers to entry for non-local firms by, for instance, making it difficult to obtain permits for construction or utility connections. For our initial tests we follow some of the literature on the economic consequences of corruption, papers such as Fisman (2001) and Faccio (2006) and examine the firm's stock market performance in reaction to the win or loss of corrupt politicians in the district. Our next hypothesis, about firms' stock market performance on

[6] As noted, SOEs in our context are majority government-owned, publicly traded corporations that came into being as a result of partial privatization of previously wholly owned state corporations.

announcements of new projects draws on the notion that projects will be perceived to be less valuable when a corrupt politician is likely to extract rents. We can state:

Hypothesis-2 The announcement of new projects in districts in which the elected representative is corrupt (non-corrupt) will be less (more) positively received by stock market investors.

The above hypotheses focus on the effect of corrupt politicians on firms' stock market reaction to election outcomes and project announcements. We next turn to the investment and performance of district firms in the aftermath of a corrupt politician being elected in the district. We expect that private sector firms, given the possible rent extraction by corrupt politicians, will be less likely to initiate or to complete projects in districts in which a criminal politician wins. Along with the drop in investments, we would expect there to be decrease in firm performance as indicated by accounting measures such as ROA and stock market value indicators such as the Q-ratio:

Hypothesis-3A Following the election of a corrupt politician, there will be a significant decline in investments and performance of private-sector firms in the politician's district.

We expect that these performance and value effects might differ by whether a firm is based locally. For instance, it is possible that corrupt politicians support local enterprises—while disfavoring competition from outside firms, even while they extract rents from both types of firms. In our analysis, we examine the impact of election outcomes on firms with economic ties to the politician's district in terms of past investments, classifying firms as local or non-local in terms of their headquarter location. We also distinguish between privately owned and state-majority-owned enterprises (SOEs). This leads to our next hypothesis:

Hypothesis-3B Following the election of a corrupt politician, there will be a more moderate decline in investments and stock market performance of SOEs in the politician's district, relative to private-sector firms.

From above, we expect that the election of corrupt politicians will discourage new investment projects and hurt the stock market value of firms in their districts. As a result, it is reasonable to expect that private sector firms would experience a significant decline in their employment. We state the hypothesis below:

Hypothesis-4A Following the election of a corrupt politician, private-sector firms will significantly reduce employment in the politician's district.

For state-majority-owned enterprises, however, if there is little change in investments and performance, we might expect that their employment may increase or at least not decline. It is plausible that corrupt politicians might be effective at influencing SOEs to hire their supporters. However, even if SOEs increase investments, employment growth might be limited since SOEs, at least prior to their partial privatization, tended to be heavily staffed to serve social or political objectives. Hence, if some of the overstaffing issues have persisted, this could lower the need to hire more employees despite higher investment. We state the following hypothesis:

Hypothesis-4B Following the election of a corrupt politician, there will be little or no decline in SOE employment in the politician's district.

Related Literature

Our paper is related to several strands of the finance and economics literature. First is the literature on the relation between corruption and economic growth. Some of this literature, such as Leff (1964) and Huntington (1968), suggests that corruption might promote efficiency and growth by "greasing the wheels of bureaucracy". The efficiency argument is essentially that the most efficient firms will be assigned projects since they can afford to pay the largest bribes.[7] A sharply divergent view is the "grabbing hand" view of corruption (Frye & Shleifer, 1997; Shleifer & Vishny, 1993, 1998). According to this view, corruption affects economic growth. It can lead to the propping up of inefficient enterprises and a misallocation of human and financial capital. In these environments, entrepreneurs will seek ways to minimize their exposure to public corruption, even if this results in the adoption of inefficient technologies.[8] Olken and Pande (2012) provides a survey of the corruption literature and argues that there appears to be growing

[7] Corruption is found to have a fairly neutral effect in some situations. For instance, Gorodnichenko and Peter (2007) finds that, on average, public employees in Ukraine have consumption levels similar to those of their private sector counterparts, even though salaries are lower. It appears that what the government pays them is reduced to just about offset the amount they receive in bribes.

[8] Entrepreneurs might adopt inefficient technologies with a high degree of reversibility since there may be less expropriation by corrupt officials if the entrepreneur can credibly threaten to shut down operations (Choi and Thum, 1998; Svensson, 2003).

academic and policy consensus that corruption is often high in low-income countries and that it is costly.

Our paper is also related to a relatively new and growing literature that examines the effect of political connections on firm performance and stock market value. Among these, Fisman (2001) estimates the value of political connections by examining the stock price reaction of Indonesian firms connected to Suharto to news releases about his health. Faccio (2006) examines the value of political connections in several countries and finds positive benefits channeled to relatively poor performing firms. Similar results are reported in Goldman et al. (2009) and Do et al. (2013).

There are several papers that examine the welfare effects of criminal politicians. For example, using a regression discontinuity design (RDD) approach around elections, Chemin (2012) shows that criminal politicians have a negative effect on their constituents. Using a similar RDD, Lehne et al. (2018) shows that political interference in India raises the cost of road construction, while Asher and Novosad (2017) finds that the local economy benefits from being represented by a politician from the ruling party. Fisman et al. (2014) study the wealth accumulation of Indian politicians and show that annual asset growth of election winners is 3–5% higher than losers. Prakash et al. (2019) show that aggregate economic growth in constituencies in India that elect criminally accused politicians is lower.

Fisman and Svensson (2007) studies the impact of corruption on firm growth and finds that a 1 percentage point increase in bribes reduces annual firm growth by 3 percentage points. Khwaja and Mian (2005) show that politically connected firms, defined as those with a politician on their board, receive larger loans from government banks despite a higher default rates on these loans. This suggests that one reason for politicians to start or join existing firms, is that it enables them to capture public resources through corruption. Sequeira and Djankov (2014) examines a different type of distortion and finds that firms in South Africa are willing to pay much higher trucking costs to avoid having to pay bribes in Mozambique. Among recent studies in the context of US firms, Brown et al. (2021) finds that firm-level economic rents and monitoring mechanisms moderate the negative relation between corruption and firm stock market value, while Dass et al. (2016) reports that firms have significantly lower value (*Tobin's q*) and informational transparency in more corrupt areas.

Finally, our paper examines the impact of election outcomes on firms with economic ties to a corrupt politician's district and distinguishes between firms that are local or non-local in terms of headquarter location. This is related to several papers that study the diffusion of information about local economic events on firms with connections to various geographic areas. Among these, Smajlbegovic (2019) studies the diffusion of news from economically relevant regions into firms' stock prices. Different aspects of geographic distribution and diffusion of information on stock prices and investor decisions are studied in Bernile et al. (2015) and Jannati (2020). Also related is a theoretical model in Acemoglu et al. (2015) that examines the role of network interactions in propagation and amplification of microeconomic shocks.

Data and Method

We use data from multiple sources. Since 2003, Supreme Court of India has required candidates contesting elections for federal and state legislatures to file an affidavit that declares pending criminal cases and past convictions and provides information such as assets, liabilities and educational qualifications. The specific database we use is compiled by the Association of Democratic Reform (available at http://www.myneta.info) that collects the criminal background and other variables from the affidavits filed by candidates with the Election Commission of India before the 2004 and 2009 General Elections for the Lok Sabha, the lower house of Indian Parliament.[9] We get the election results data i.e., the number of votes polled for each candidate and the total number of votes polled in each constituency from the Election Commission of India website (www.eci.nic.in) and merge it with the database of candidate background variables. We match the parliamentary constituencies with administrative districts using the information available on the Election Commission of India website.[10] We also account for the change in constituencies or their boundaries caused due to delimitation of constituencies before the 2009 elections.

The summary statistics for the elections database is presented in Table 1. Our sample includes 1023 constituencies out of the 1086 constituencies for which voting was held during two general elections (2004 and 2009). These constituencies cover 569 districts during the 2004 elections and 574 districts during the 2009 elections.[11] Our main variable

[9] The Lok Sabha resembles the House of Commons in Britain and is the more powerful, directly elected legislative body in a bicameral legislature.

[10] Each parliamentary constituency could be matched to multiple districts and similarly each district could cover parts of multiple electoral constituencies. For example, during the 2009 elections Pune district in Maharashtra covered parts of the following four Lok Sabha constituencies: Pune, Baramati, Shirur and Maval.

[11] The number of districts in India in 2004 was 595 and in 2008 was 618 (https://data.gov.in/catalog/number-districts-drdas-blocks-villages-country). Our data includes about 96% (2004) and 93% (2009) of all districts in the data. No regions are systematically excluded, the reason for missing administrative districts is missing data for electoral constituencies.

Table 1 Summary statistics: parliamentary elections

Panel A summary statistics for election outcomes

	2004	2009	All Elections
Number of elections	517	506	1023
Number of administrative districts	569	574	1143
% of Criminal winners	24.4%	30.4%	27.4%
% of Criminal second positions	20.3%	28.9%	24.5%
% of Election contested between criminal and non-criminal	27.1%	34.6%	30.8%
% of Districts with criminal winner	32.2%	35.0%	33.6%
Mean win margin	12.2%	9.6%	10.9%

Panel B summary statistics for various variables

	N	Mean	St.Dev	Min	Median	Max
Criminal_index	1143	0.24	0.38	0.00	0.00	1.00
Criminal_win	315	0.50	0.50	0.00	1.00	1.00
Criminal_win (WinMargin < = 5%)	114	0.49	0.50	0.00	0.00	1.00
WinMargin	1023	10.92%	9.80%	0.04%	8.40%	70.06%
Number of criminal cases_winner	1023	0.97	3.24	0.00	0.00	46.00
Net_assets_winner (million indian rupees)	1015	34.54	105.73	−66.27	7.24	1737.51
Number of criminal cases_runner up	947	0.74	2.14	0.00	0.00	27.00
Net_assets_runner up (million indian rupees)	934	33.49	222.83	−6.84	6.76	6317.63

Panel C summary statistics for crime categories for criminal politicians

Crime category	% Criminally charged candidates
Crimes against body	55%
Crimes against property	18%
Crimes against public order	64%
Crimes against women and children	2%
Economic crimes	15%
Other (unspecified) crimes	94%
Violent crimes	56%

Panel D regressions with candidate's criminal status/number of pending criminal cases

	Dependent variable		
	CRIMINAL		CRIMINAL_CASES
Independent variable	1	2	3
INTERCEPT	0.165	0.215**	1.788**
	(1.59)	(2.06)	(2.40)
COLLEGE_EDUCATION	−0.086***	−0.084***	−0.868***
	(−3.38)	(−3.33)	(−3.93)
SEX	−0.076**	−0.074**	−0.405***
	(−2.37)	(−2.31)	(−3.13)
LOG(NET_ASSETS)	0.010	0.005	−0.019
	(1.58)	(0.68)	(−0.45)
MINISTER	−0.093**	−0.088**	−0.193
	(−2.34)	(−2.19)	(−1.03)
CORRUPT_STATE	−0.026	−0.026	−0.273**
	(1.24)	(−1.28)	(−2.15)
NATIONAL_PARTY	−0.065***	−0.064***	−0.516***

Table 1 (continued)

Panel D regressions with candidate's criminal status/number of pending criminal cases			
	Dependent variable		
	CRIMINAL		CRIMINAL_CASES
Independent variable	1	2	3
	(−2.91)	(2.90)	(−3.31)
PC_GENERAL	0.100***	0.108***	0.569***
	(4.38)	(4.72)	(4.56)
ELECTIONYEAR_2009		0.064***	0.209
		(3.05)	(1.53)
R-squared	0.030	0.035	0.038
N	1877	1877	1877

Panel A and Panel B report the summary statistics for the election outcomes and characteristics for the winner and runner-up candidates. In Panel C, we list the percentage of candidates with criminal background who have been charged with at least one crime in the corresponding crime category. We further classify the Crimes against Body and Crimes against Women and Children as violent crimes, rest of the crimes are categorized as non-violent crimes. Panel D presents results from regressions with either candidate's criminal status or number of pending criminal cases as a dependent variable and following independent variables: logarithm of net assets, dummy variables for college, education, gender, minister rank, general category candidate, corrupt state and for 2009 election year. 1%, 5% and 10% significance levels are indicated with ***, ** and * respectively.

of interest from the candidate affidavits is the criminal background of the winner and runner-up candidates in each of the Lok Sabha constituencies. 24.4% of the elected MPs in 2004 and 30.4% of winners in 2009 had at least one criminal case pending against them. The number and seriousness of the criminal cases vary across candidates. The maximum number of pending criminal cases in our sample was 46 against the elected MP (Member of Parliament) in 2009 from Palamu constituency in Jharkhand state. The majority of the elected MPs with criminal backgrounds have less than three criminal cases pending against them. The severity of the cases varies from being very serious criminal cases (Murder, Kidnapping etc.) to relatively minor ones. Given that very few Indian politicians are ever convicted by the courts, we use the presence of a pending case as a noisy proxy for the criminal or corrupt background of the politician. For expositional ease, we will refer to these politicians as 'criminal' or 'corrupt'. We show that our results generally hold when we use an alternative measure of corruption, the asset growth (self-reported) that the politician experiences following an election victory. This asset-growth measure has been regarded as an indicator of corruption (Fisman et al., 2014). In our sample, 315 elections (30.8% of all elections) are contested between a criminal and a non-criminal out of which 114 are close elections with a win margin less than or equal to 5% of all votes polled.

In Panel C of Table 1, we categorize the charges against criminally-charged candidates into six broad categories based on the classification methodology used by the National Crime Records Bureau. We list the percentage of criminally-charged candidates that have been charged with at least one crime in the corresponding crime category. As indicated, 64% of the candidates with criminal backgrounds are charged with at least one crime against public order; 55% have at least one criminal charge in the crimes against body category (that includes crimes such as murder and kidnapping), while 15% are charged with an economic crime. We also categorize crimes by whether they are violent (Crimes against Body and Crimes against Women and Children) or non-violent. As indicated, 56% of the criminal candidates have been charged with at least one violent crime. As shown in Fig. 1, the presence of members of parliament with criminal backgrounds is not limited to certain regions or states in the country. Overall, about one third of the districts in India have at least one elected Member of Parliament with a criminal background.

To examine the correlation of a candidate's criminal status with other observable characteristics, we next estimate regression models with either the winner or runner up candidate's criminal status or the number of criminal cases against a winner or runner up candidate as the dependent variable and other candidate characteristics as explanatory variables. The results are presented in Table 1 Panel D. In columns 1 and 2 we estimate a regression model with criminal status as a dependent variable where the dummy variable, CRIMINAL is equal to one if a candidate has at least one pending criminal charge and is zero otherwise. The independent variables include dummy variables for college education, gender, minister rank, general category candidate (some constituencies are reserved for candidates from disadvantaged groups identified as Scheduled Caste and Scheduled

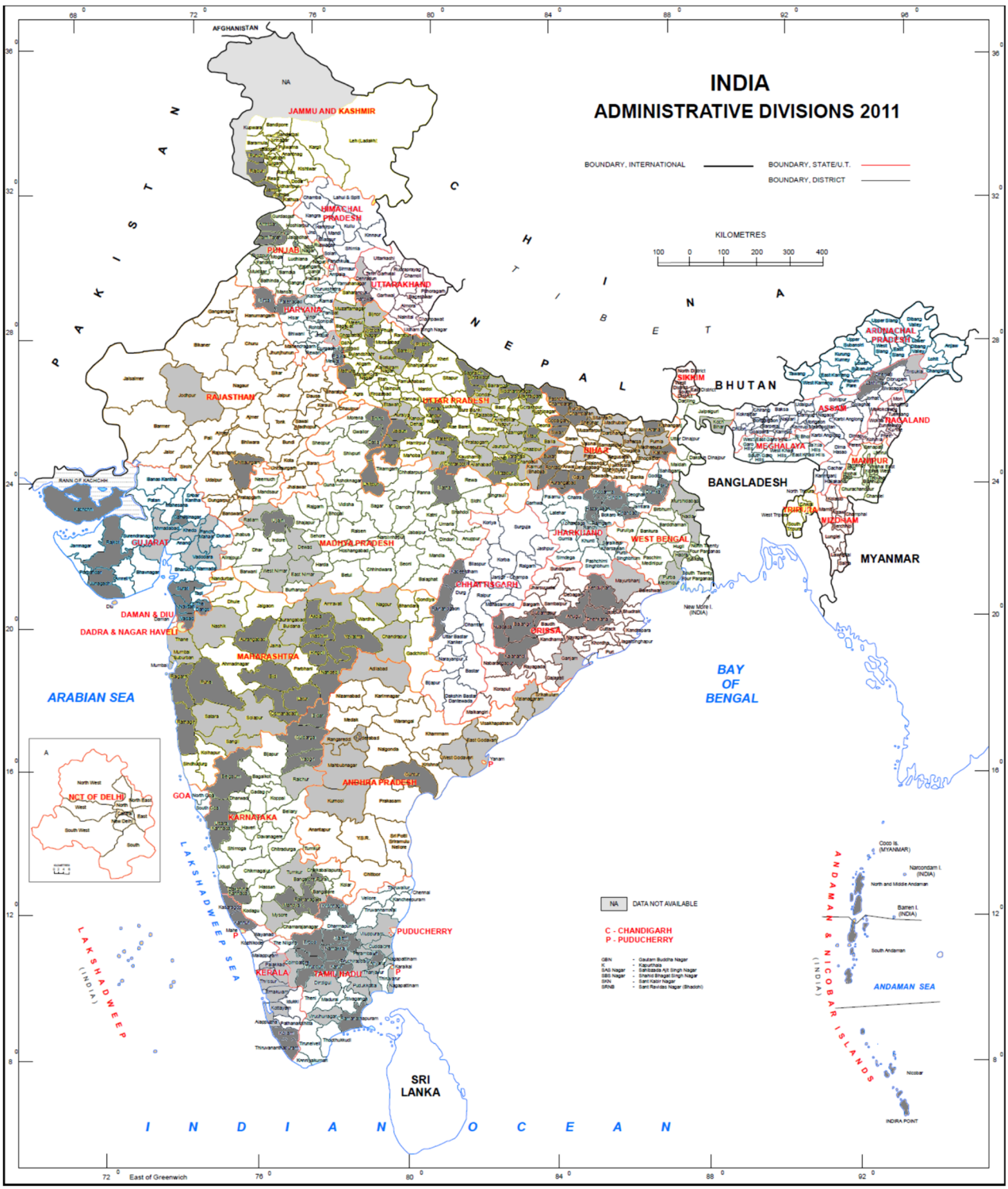


Fig. 1 Criminal Politicians Index: 2009 General Election. (Note: White shaded area indicates that the district has zero elected MPs with criminal background. Light Gray indicates less than or equal to half of the elected MPs with a criminal background whereas dark gray indicates districts with more than half of the MPs with criminal charges

Tribes), highly corrupt state (CORRUPT_STATE)[12] and for the 2009 election year. We also include logarithm of the candidate's net assets as an additional explanatory variable. Across both specifications, we find that having a college education, being a woman, belonging to a national party, contesting from a reserved category seat or having a minister rank are negatively correlated with the likelihood of being a criminal candidate. Logarithm of net assets and belonging to a corrupt state are not significantly correlated with the likelihood of being a criminal candidate. In column 2, the coefficient for the dummy variable corresponding to election year 2009 is positive and significant which indicates that the proportion of criminal candidates went up between the election years 2004 and 2009. In column 3, we find similar results if we include the number of criminal cases as a dependent variable.

We get firm-level data from two databases managed by the Center for Monitoring Indian Economy (CMIE). The first database, CMIE Prowess, which is equivalent to Compustat and CRSP for Indian Firms, provides firm-level accounting variables, stock returns data and ownership structure for both private and publicly traded Indian firms. We obtain the capital expenditure data for the Indian firms from CMIE CapEx database. It includes the firm name/identifier, project date of announcement, cost, completion date and status of the project. CapEx database includes projects with cost of Indian Rupees 10 million or more announced by Indian firms or government since 1996. CapEx collects this information from publicly available sources, regulatory filings and by directly contacting firms. We also obtain the total district-level employment data for private-sector and state-owned firms from the Annual Survey of Industries (ASI) micro dataset. In particular, we use the web-based data analytic tool available on Indian Council of Social Sciences Research (ICSSR) website to obtain two snapshots of the ASI dataset: 2003–04 fiscal year and 2008–09 fiscal year. In Table 2, we report summary statistics of the firm-level and project variables for the close election sample corresponding to districts where a criminal politician wins or loses against a non-criminal candidate with a margin less than or equal to 5%. The number of observations (N) in Table 2 is the same as in the sample used for empirical tests in later sections. We report summary statistics for the private-sector firms and state-owned firms separately in Panel A and Panel B respectively.

As shown in Table 2, our close-election sample of private sector firms consists of 7,446 firm year observations from fiscal years 2004 to 2013 and the corresponding sample of state-owned firms consists of 163 firm-year observations. The private sector firms are on average smaller in size with median total assets of 1,105.8 million Indian Rupees (roughly USD 22 million at an exchange rate of 50 Indian Rupees/1 USD) compared to 27,663 million Indian rupees for the state-owned firms. The average change in firm stock market value around the election result announcement date as measured by the 3-day market-adjusted cumulative abnormal return is positive for the private sector firms (0.80%) and negative for the state-owned enterprises (-0.85%). For the project announcement analysis, we include projects with minimum cost or capital expenditure of 100 million Rupees (roughly USD 2 million). Our close-election sample includes 1022 capital expenditure projects announced by publicly-traded private-sector firms and 201 projects announced by the government majority-owned publicly traded firms during the 2004–2014 time period for which the election data is available. The mean cost of the private sector projects is 4,342 million Rupees compared to 25,293 million Rupees for the government owned firms. Around 10% of all private-sector projects in our sample are stalled or abandoned compared to around 6% for the government owned firms. We aggregate the total investment in a district in 5-year periods between the general elections (2004–2009 and 2009–2014) to examine the changes in aggregate district-level capital expenditure. The average total capital expenditure in a 5-year period across all districts in the country where a candidate with criminal background won or lost against a non-criminal candidate in a close election with win margin less than or equal to 5% is 79,065 million Indian Rupees (USD 1.6 billion) for private-sector firms and 44,369 million Indian Rupees (USD 887 million) for government-controlled firms. Much of the capital expenditure in a district (90% for investor-controlled firms and 95% for government-controlled firms) is undertaken by non-local firms, headquartered outside the district. In our analysis we examine the effect of election outcomes on non-local firms with strong economic ties to a district compared to those with weaker economic links. The mean of the total number of employees of private-sector firms in a district across fiscal years 2003–04 and 2008–09 is 32,109 whereas the corresponding number for state-owned firms is 3,244. Therefore, the mean of the

[12] CORRUPT_STATE = 1 for states that are ranked above median by the state-level corruption index reported in the 2005 India Corruption Study by Transparency International India. The Transparency International study (https://transparencyindia.org/wp-content/uploads/2019/04/India-Corruption-Study-2005.pdf) ranks majority (20) of the Indian states by the perceived level of corruption based on a comprehensive sample of 10,000 survey respondents and provides the only snapshot of state corruption.

of which we are aware. According to the study, Bihar is reported as the most corrupt state with an index value of 695 and Kerala is rated as the least corrupt with an index value of 240. Table 1.2 and 1.3 in the report show the methodology used in calculating the state-level corruption index. It is a survey-based measure calculated by adding weighted corruption scores (experience (weight = 0.60) and perception (weight = 0.40)) for a set of residents from a state across 11 need-based and basic services. It is a broad-based index and not focused only on elected official level of corruption.

Table 2 Summary statistics: firm and project variables

Panel A summary statistics: private-sector firms

	N	Mean	Stdev	Min	Median	Max
Sample: election result announcement (5% win margin)						
CRIMINALWIN	429	0.55	0.50	0	1	1
Election announcement CAR $(-1,+1)$	429	0.80%	8.19%	−16.5%	0.40%	21.79%
Log(market cap)	429	8.67	2.16	4.25	8.63	14.69
CORRUPT_STATE	429	0.38	0.49	0	0	1
CRIMINAL_INCUMBENT	429	0.32	0.47	0	0	1
State GDP growth (nominal in %)	429	14.0	3.9	8.4	14.3	26.0
State crime growth (%)	429	4.1	6.2	−3.7	2.4	30.0
State sex ratio (females per 1000 males)	429	945	34	876	922	1058
State literacy (%)	429	69.8	7.7	53.6	68.6	90.9
District crime growth (%)	429	4.3	10.3	−29.4	3.0	34.7
Sample: firm valuation and profitability (5% win margin)						
ROA	7446	0.04	0.10	−0.56	0.03	0.44
Q	7446	1.40	1.08	0.14	1.04	8.77
Log(sales)	7446	6.70	2.19	−1.61	6.81	12.15
Assets (million indian rupees)	7446	9757.0	50,903.1	100.2	1105.8	1,501,494.4
Sample: project announcement (5% win margin)						
Project cost (million indian rupees)	606	4341.8	13,488.9	100.0	1000.0	220,000.0
Project CAR $(-1,+1)$	1022	0.9%	5.1%	−21.9%	0.2%	26.1%
Stalled	1022	0.10	0.30	0.00	0.00	1.00
Time to completion (days)	485	703.4	472.3	7.0	566.0	2832.0
Sample: investment and employment results (5% win margin)						
Number of employees in a district	50	32,109	76,060	10	7927	479,347
Change in logarithm of number of employees in a district	50	1.28	1.39	−3.90	1.13	4.70
Total investment district (million indian rupees)	164	79,065	149,448	0	12,615	859,274
Change total investment district (million indian rupees)	164	−3353	184,307	−629,157	−725	729,474
Change local investment district (million indian rupees)	164	2839	27,554	−68,810	0	194,332
Change non-local investment district (million indian rupees)	164	−8248	168,412	−619,554	−600	595,763

Panel B summary statistics: state-owned firms

	N	Mean	Stdev	Min	Media n	Max
Sample: election result announcement (5% win margin)						
CRIMINALWIN	70	0.51	0.50	0	1	1
Election announcement CAR $(-1,+1)$	70	−0.85%	6.06%	−20.15%	−0.98%	14.53%
Log(market cap)	70	12.47	1.17	8.29	12.91	14.33
CORRUPT_STATE	70	0.46	0.50	0	0	1
CRIMINAL_INCUMBENT	70	0.26	0.44	0	0	1
State GDP growth (nominal in %)	70	15.2	4.4	4.6	14.7	25.2
State crime growth (%)	70	4.1	9.3	−35.0	2.4	30.0
State sex ratio (females per 1000 males)	70	945	47	861	922	1058
State literacy (%)	70	67.5	10.5	47.0	66.6	90.9
District crime growth (%)	70	3.1	13.6	−30.4	4.9	39.6

Table 2 (continued)

Panel B summary statistics: state-owned firms						
	N	Mean	Stdev	Min	Media n	Max
Sample: firm valuation and profitability (5% win margin)						
ROA	163	0.01	0.15	−0.94	0.03	0.24
Q	163	1.71	1.56	0.56	1.34	14.09
Log(sales)	163	9.80	2.42	−0.69	9.94	14.81
Assets (million indian rupees)	163	92,578.3	184,166.7	196.9	27,663.3	1,253,202.8
Sample: project announcement (5% win margin)						
Project cost (million indian rupees)	149	25,292.7	34,902.7	106.9	8033.4	200,000.0
Project CAR $(-1,+1)$	201	0.5%	2.9%	−6.6%	0.5%	13.9%
Stalled	201	0.06	0.25	0.00	0.00	1.00
Time to completion (days)	50	904.4	470.5	94.0	926.0	1859.0
Sample: investment and employment results (5% win margin)						
Number of employees in a district	30	3244	4347	120	1330	16,351
Change in logarithm of number of employees in a district	30	−0.18	0.96	−1.62	−0.18	1.96
Total investment district (million indian rupees)	147	44,369	73,580	0	9130	383,255
Change total investment district (million indian rupees)	147	−859	135,617	−786,852	2550	270,951
Change local investment district (million indian rupees)	147	329	10,191	−44,710	0	63,607
Change non-local investment district (million indian rupees)	147	−1113	135,582	−786,852	2498	270,951

This table report summary statistics of the firm-level and project variables for the close election sample corresponding to districts where a criminal politician wins or loses against a non-criminal candidate with a margin less than or equal to 5%. The number of observations (*N*) is the same as in the sample used for as the empirical test. We report summary statistics for the private-sector firms and state-owned firms separately in Panel A and Panel B respectively. The variables are calculated using the information in the most recent annual financial statements. ROA refers to the return on assets, Q refers to Tobin's Q. The table also presents the summary statistics for the capital expenditure projects announced by the firms in our sample. We use the market model adjusted cumulative abnormal returns for a ± 1 day window around the election result announcement date or the project announcement date to measure the election result announcement and project announcement CARs (cumulative abnormal return). We also report summary statistics for aggregate district-level employment and investment for districts in our sample

number of employees in a district for private-sector firms is approximately ten times greater than the total employment in state owned firms whereas the total investment in a district by private sector firms is approximately only twice as much as the investment by state owned firms.

Empirical Results

Our empirical analysis focuses on the impact that the election of a criminal politician has on firm's stock market performance, employment and investment decisions. We use several approaches to address the issue. We begin our empirical analysis by examining whether the criminal background of a locally elected politician affects firms' stock market performance as measured by abnormal stock returns around the date that election results are announced. Next, we examine the effect of a criminal politician's win on measures of firm stock market valuation (Tobin's Q) and profitability (Return on Assets: ROA). Finally, we examine the stock price reaction to capital expenditure announcements, possibly indicative of the stock market's perception regarding the marginal value of capital expenditure. There are potential endogeneity concerns about measuring the effect of a criminal politician's win on firm stock market valuation and investment decisions. We address these concerns by focusing on close elections between a criminal and a non-criminal

candidate where the election outcome can plausibly be treated as random or exogenous.

Evidence from Close Elections: Regression Discontinuity Design

In all our empirical tests, we use a regression discontinuity design (RDD) approach and focus on elections in which one of the two highest vote recipients is a criminal and the other is a non-criminal candidate – and the victory margin between the winner and runner-up is relatively small. We compare the stock market performance and investment decisions of firms in districts where a criminal politician defeats a non-criminal politician in a close election (CRIMINALWIN = 1) to firm's stock market performance and investment where a non-criminal politician just defeats a criminal politician (CRIMINALWIN = 0). We define close elections as elections where the win margin between the winner and runner up is less than or equal to 3%, 5% or 10% of the overall vote following extant literature (Fisman et al., 2014).

We note that the application of RDD requires certain conditions to be satisfied (Imbens & Lemieux, 2008). A primary assumption behind the use of RDD is that in close elections, as in a randomized trial, criminal candidates are randomly assigned to the winner and runner-up groups. Election outcomes would not be random if, for instance, candidates could perfectly manipulate the outcome in close elections. To test for the validity of the random assignment assumption, we follow standard methodology to determine whether there is discontinuity or manipulation indicated around the cutoff point of zero vote share difference between criminal and non-criminal candidates.

Figure 2, Panel A presents the distribution of vote share difference between criminal and non-criminal candidates for the 331 elections contested between a criminal and a non-criminal candidate: a positive vote share difference denotes a criminal win and negative vote difference corresponds to a non-criminal candidate victory. The distribution of vote share appears symmetric around the cutoff point of zero difference. To formally test for the presence of a jump in density of vote share difference at the cutoff point, we use the methodology from McCrary (2008). Figure 2 Panel B presents the smoothed density function of the vote share difference between the criminal and non-criminal candidates. We find that the magnitude of the jump in vote share at the cutoff point is insignificant with a p-value of 0.42, which validates the random assignment assumption behind the regression discontinuity design.

We next test the other two crucial assumptions to validate the application of Regression Discontinuity design. One assumption is that other covariates don't change around the cutoff point. We test this assumption by examining the characteristics of criminals that won in a close election to those that lost narrowly. We also examine the characteristics of firms, districts and states associated with the electoral constituencies where the criminal candidate narrowly won compared to constituencies where the criminal candidate narrowly lost. To reliably estimate the effect of a criminal win, the two groups should be similar in every other observable aspect, save for the treatment effect i.e., winning or losing the election. The results are presented in Table 3. In Panel A, we compare criminal candidate characteristics for the sample of criminal candidates that either won or lost in a close election against a non-criminal candidate with a win margin less than or equal to 5%. We find the coefficient on CRIMINALWIN to be insignificant for all specifications. In Panel B, we compare the district, state and firm characteristics around the cutoff of zero vote difference between the criminal and non-criminal candidates. We find that the districts, states and firms associated with criminal candidates that narrowly won are similar to those in which criminal candidates narrowly lost along the following dimensions: district crime growth, state crime growth, state GDP growth, state literacy, state sex ratio, state corruption index, logarithm of assets, FII ownership and insider ownership. The coefficient corresponding to CRIMINALWIN is insignificant in all the specifications.

Finally, we test for the absence of discontinuity in outcome variables such as election return announcement returns and firm investment at cutoffs other than vote difference of 0%, we consider + 5% and -5% as alternative cutoff points, the outcome variable should be similar around these cutoffs since the criminal status of the winning candidate doesn't change around these cutoffs. In Appendix Table 11, we find that, as expected, the outcome variables don't exhibit a significant change around the cutoffs of + 5% and.

-5%. These three tests, taken together, validate the use of regression discontinuity design in our analysis and allow us to interpret the effects of a criminal candidate victory in causal terms.

Election Result Announcement Returns: Evidence from Close Elections

We begin our empirical analysis by examining whether the criminal background of local elected politicians affects the firm's stock market performance as measured by the market-model adjusted cumulative abnormal return for a ± 1 day window around the election result announcement date. To calculate the market-model adjusted abnormal returns, we estimate the CAPM model by using S&P CNX 500 index as a proxy for Indian stock market returns. We use daily stock

returns over last four quarters excluding the current quarter to estimate the market beta for each firm at the end of each quarter. The most recent beta estimate and raw stock returns during the election result announcement window are then used to estimate the cumulative abnormal returns around the election result announcement date.

We note that the use of a short-term window to measure the stock market reaction can raise legitimate concerns such as whether the average investor is likely to possess information about the election outcomes and their potential impact on a firm's future value and performance. However, for stock prices to reflect investor information it is sufficient that some investors are informed and can trade in the market (e.g., Grossman & Stiglitz, 1980). For our setting, there will be shareholders such as the firm's employees, managers and members of the founding family, large suppliers and customers among others that have a stake in the firm and will tend to pay close attention to the outcome of an election that can substantially impact the firm's performance and value. We validate our findings in later sections of the paper by analyzing longer-term effects such as investment drop-off (Table 5), employment (Table 6) and firm performance and value (Table 7).

Our next step is to use the regression discontinuity approach to examine the causal effect of election of candidates with criminal background on the firm's stock market performance. This methodology is similar to other papers in the literature that examine the causal effect of elections on economic outcomes (e.g., Chemin, 2012; Lee, 2008).[13] The results are presented in Table 4. In Panel A, the dependent variable is the market-model adjusted cumulative abnormal return for a 3-day window around the election result announcement date (CAR$(-1,+1)$), which captures the change in the firm's stock market value around the election result announcement. Our sample-period consists of days around election result announcement dates for the general elections in India held in 2004 and 2009 (May 13, 2004 and May 16, 2009). To determine the firms likely to be economically linked to a district, we estimate a variable PCTPROJECT which is calculated as a firm's capital expenditures in the district as a percentage of its total capital expenditures in the 5 years prior to a general election. PCTPROJECT is zero for a firm and district pair if a firm has not announced any capital project in that district in past 5 years. Further, we classify a firm as LOCAL or NON-LOCAL based on whether the firm is headquartered in a given district or not. We focus on three sets of firms: Local Firms with PCTPROJECT = 0, Local Firms with PCTPROJECT > 0 and non-local firms with PCTPROJECT > 0. We would expect local firms with PCTPROJECT > 0 to be most closely connected to the district.

In column 1, the coefficient corresponding to CRIMINALWIN is insignificant for local firms with no capital projects in their district in last 5 years. These firms are unaffected by a criminal win. In column 2, we focus on local firms with non-zero investment in last 5 years. The coefficient corresponding to CRIMINALWIN is negative and highly significant. For these firms, the three-day election result announcement returns indicate that a narrow criminal victory (compared to a narrow loss) results in a loss of 8.00% of total stock market capitalization. In column 3, the sample includes non-local firms that had invested in the last 5 years in a district where a criminal candidate contested against a non-criminal candidate in a close election. For these firms, the win by a criminal politician leads to a loss of 3.50% of total market capitalization. The lower impact on non-local firms is consistent with a lower investment stake in the district, compared to local firms that are headquartered in the district. In column 4, we examine the combined effect on both local and non-local firms with non-zero past investment in that districts. The average effect of the criminal winning in a close election is -3.70% of the stock market value of the firms. In columns 1–4, we include district fixed effects to control for unobserved, time-invariant heterogeneity across districts. In column 5, we replicate the regression in column 4 using state fixed effects instead of district fixed effects and obtain similar results.

In Columns 6 and 7 we consider the election announcement effect on state-owned firms. Unlike privately owned companies, a criminal politician win has no significant effect on the stock market performance of state-owned firms that are economically connected to the district with positive past investments. This suggests either that criminal politicians are unable to directly extract resources from state-owned firms or, more likely, that extraction of benefits is offset by actions favorable to SOEs. As we discuss later, these politicians seem adept at getting SOEs to invest in their districts.

In Fig. 3 Panel A, we present a regression-discontinuity plot to illustrate the discontinuity or jump in election announcement returns conditional on a criminal candidate win. Our sample includes the local and non-local firms with non-zero past investment in the districts where a criminal candidate contested against a non-criminal candidate in a close election. We plot the average election result announcements CAR$(-1,+1)$ in each of the win margin bins, after

[13] To classify elections as close, Fisman et al. (2014) and Chemin (2012) use a bandwidth of 5%. Fisman et al. (2014) also use 3% and 10% win margins to test the robustness of results. For further validation, we use election announcement returns and *rdbwselect* function in STATA, which relies on the algorithms in Calonico et al. (2014) to estimate the optimal bandwidth for RDD regressions. The optimal bandwidth is found to be between 2.83% and 6.3% depending on the algorithm, providing additional justification for the use of 3%, 5% and 10% win margins in classifying an election as close.

controlling for the covariates as in column 4 of Table 4, Panel A, where positive (negative) values of win margin denote a criminal win (loss). As shown in the figure, election announcement returns are lower if a criminal candidate wins: a clear discontinuity can be seen at win margin equal to 0.

In Table 4 Panel B, to rule out the possibility that CRIMINALWIN might be capturing other observable state or district characteristics, we show that our results are robust to including additional state and district level control variables. These variables are state GDP growth, state crime growth, state literacy, state sex ratio and district crime growth.

For regression models in columns 1–4 (columns 5–6) the sample is that of private-sector (state-owned) firms with non-zero investment in past 5 years in the district. We report regression results for samples with win margin less than or equal to 3%, 5% and 10%, in addition to ones with the full sample of firms (i.e., all). In column 1, for the sample including all election outcomes, we find that the coefficient on CRIMINALWIN is negative but not statistically significant after controlling for state and district-level controls. In columns 2–4, the coefficient on CRIMINALWIN is negative and highly significant for the close-election samples with different win margin bandwidths. For example, in column 3, for the sample with win margin less than or equal to 5%, the difference in the election result announcement returns where a criminal candidate won compared to districts where a criminal candidate lost is -1.80% with a p-value of 0.03. In columns 5 and 6, our sample consists of state-owned firms with non-zero investment in the given district. In line with Panel A results, the coefficients corresponding to CRIMINALWIN are insignificant, indicating that the value of state-owned firms is unaffected by the election of a criminal candidate.

In Table 4 Panel C, we examine the effect of candidate incumbency and state-level corruption on election result announcement returns for firms with past investments in the district. We include district fixed effects in all specifications. In the first column, we find that the effect of criminal win on election announcement returns is more negative in districts located in more corrupt states as proxied by an above median score on the Transparency International corruption index. The coefficient corresponding to the interaction term between the indicator variable for states with above median score on the corruption index and CRIMINALWIN is negative (-0.053) and highly significant (p-value < 0.00001). Therefore, the coefficient on CRIMINALWIN is lower for firms based in states with above average level of corruption. Alternatively, in columns 2–3, we divide the sample into two groups based on the median score on the corruption index. The results show that the coefficient on CRIMINALWIN is negative and significant for elections in states with above median state corruption index. The difference in the magnitude of coefficients on CRIMINALWIN between the two groups is also negative and significant (p-value < 0.00001). This is consistent with criminal politicians having greater ability to extract rents in states with a poor law and order situation and widespread corruption.

In column 4, we find that the coefficient on the interaction between CRIMINALWIN and CRIMINAL_INCUMBENT (indicator variable which is equal to 1 if the criminal candidate is an incumbent and 0 otherwise) is negative and highly significant. This indicates that the coefficient on CRIMINALWIN is lower when the criminal candidate is also an incumbent. To provide further evidence, in columns 5–6 we estimate the CRIMINALWIN coefficient separately for the incumbent and non-incumbent sub-samples. The coefficient for CRIMINALWIN is negative and significant only for the incumbent sample (p-value < 0.0001) and is insignificant for the non-incumbent sample (p-value = 0.36). The difference is also negative and significant with a p-value < 0.0001. These results are consistent with the notion that incumbent criminal candidates are likely to be senior and more influential in their districts and, hence, could affect economic outcomes to a greater extent than non-incumbent candidates.

Criminal Politicians: Effect on Investment and Employment

We next turn to the question of whether the election of criminal politicians affects the pattern of corporate investment and employment in the district.

Aggregate Private Sector Investment in Districts: Evidence from Close Elections

We compare the total dollar investment in the five years before and after the election in districts in which a criminal candidate narrowly won to those in which the criminal candidate narrowly lost. Univariate results for aggregate investment in districts by private-sector firms are presented in Panel A of Table 5. As indicated, if the criminal candidate wins in a close election with a win margin less than or equal to 5%, this leads to a reduction in the 5-year investment level in the district by 33,219.0 million Indian Rupees (roughly 664.4 million USD at an exchange rate of 1 USD = 50 Indian Rupees), compared to 5 years before the election. On the other hand, if the criminal candidate loses in a close election, this leads to an increase in total investment in the district by 24,405.1 million Indian Rupees. The difference in investment growth between the districts in which a criminal narrowly lost versus won is 57,624.1 million Indian rupees (USD 1.15 billion), an economically large effect. Therefore,

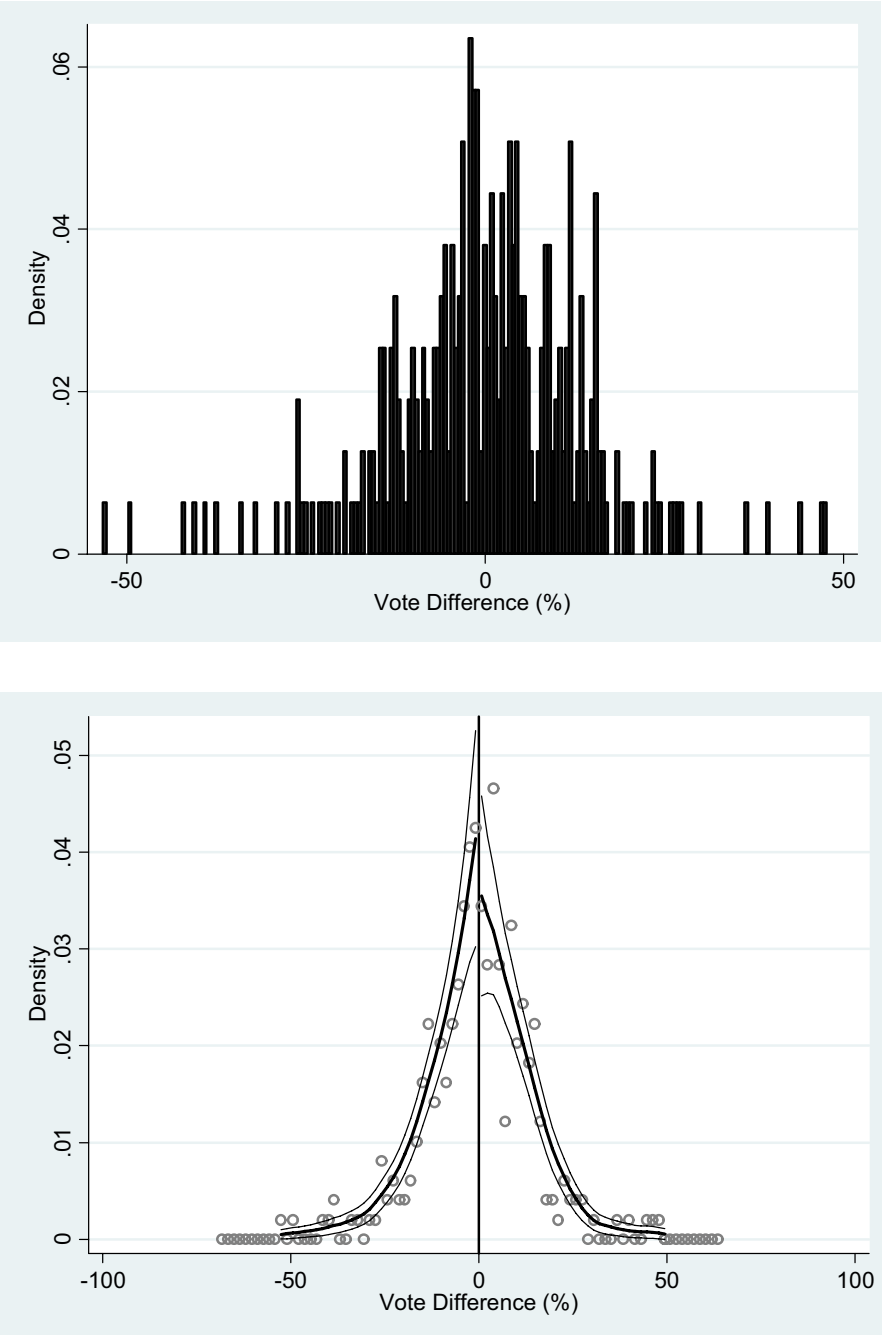


Fig. 2 **A** Regression Discontinuity Design: Distribution of Vote-Share Difference. **B** Smoothed Density of Vote-Share Difference

the election win (loss) of criminal politicians leads to a sharp reduction (increase) in investment by private sector firms.

As shown in the second and third columns of Table 5 Panel A, the reduction in investment when the criminal candidate wins is much larger for non-local firms compared to local firms. This could indicate that local firms, in particular smaller firms that are not geographically diversified may be forced to locate a substantial proportion of their new investment locally, regardless of the political environment in their local district. On the other hand, the non-local investment tends to be by larger firms that have greater ability to locate their investment away from a district with a criminal member of parliament. The results are similar in Columns 4–6 for the alternative 10% win margin definition for a close election.

In Table 5 Panel B, we examine the changes in investment using pooled regressions with state fixed effects or state and district controls. The dependent variable is one of the following: Change in total project cost for all, local, non-local firms investing in the district, standardized within sample to mean 0

Table 3 Regression discontinuity design: tests

Panel A criminal candidate characteristics around the cutoff point			
	N	Intercept	CRIMINALWIN
Number of criminal cases	114	2.66***	−0.03
		(4.81)	(−0.04)
Serious criminal	114	0.50***	−0.05
		(7.55)	(−0.57)
Assets	112	66.65***	−37.95
		(2.89)	(−1.58)
Liabilities	108	4.161*	−0.986
		(1.74)	(−0.38)
Education	114	3.931***	−0.181
		(27.06)	(−0.89)
National party	114	0.569***	0.11
		(8.67)	(1.21)
Panel B candidate characteristics around the cutoff point by firm/district/state			
	N	Intercept	CRIMINALWIN
District crime growth	177	0.05**	0.01
		(2.50)	(0.44)
State crime growth	114	0.04***	0.01
		(3.60)	(0.59)
State GDP growth	111	0.137***	0.002
		(16.68)	(0.18)
State literacy	114	63.773***	2.305
		(44.29)	(1.15)
State sex ratio	114	938.466***	−12.037
		(186.03)	(−1.43)
State corruption index	112	496.77***	−14.37
		(36.48)	(−0.78)
Log(assets)	1002	7.287***	0.0288
		(67.58)	(0.22)
FII ownership	1002	0.02088***	0.0065
		(5.14)	(1.37)
Insider ownership	1002	0.419***	0.0161
		(29.37)	(0.97)

This table reports the results corresponding to the tests that validate the application of Regression Discontinuity design. In Panel A, we examine the characteristics of criminal candidates who narrowly won (CRIMINALWIN = 1) compared to those who narrowly lost (CRIMINALWIN = 0) with a margin of less than or equal to 5% of total votes polled. The independent variable is CRIMINALWIN and the dependent variable is one of the various observable characteristics corresponding to the criminal candidate. In Panel B, we compare the observable firm, district and state characteristics corresponding to electoral districts where criminal candidates narrowly won (CRIMINALWIN = 1) compared to those where they narrowly lost (CRIMINALWIN = 0). The t-statistics are reported in parentheses and 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively

and standard deviation of 1. We focus on private sector firms and include the districts where a criminal candidate contested against a non-criminal candidate and the outcome was determined in a close election with win margin of either less than or equal to 5% or 10% of all votes polled. The main independent variable is CRIMINALWIN. The results are similar to the univariate results: criminal politicians' win leads to a sharp decrease in investment. The coefficient on CRIMINALWIN remains similar and significant in column 2 if instead of state fixed effects, we include the following state and district level controls: state GDP growth, state crime growth, state literacy, state sex ratio and district crime growth. In Fig. 3 Panel B, we present a regression-discontinuity plot to illustrate the discontinuity or jump in private-sector investment following a criminal candidate win. As shown in the figure, the private

sector investment in a district drops if a criminal candidate wins (denoted by positive win margin) in that district.

In Table 5 Panel C, we examine whether the effect of a criminal candidate win is more negative on district-level investments if the criminal candidate is also an incumbent or if the state in which the district is located is regarded as more corrupt in general. In column 1, the interaction term between CRIMINALWIN and CORRUPT_STATE (dummy variable equal to 1 if the state is ranked above median by the 2005 Corruption Study by Transparency International India and 0 otherwise) is negative and significant (p-value = 0.002). In columns 2–3, we divide the sample into two groups based on the median score on the corruption index. The results show that the coefficient on CRIMINALWIN is negative and significant for elections in states with above median state corruption index. The difference in the magnitude of coefficients on CRIMINALWIN between the two groups is also negative and significant (p-value = 0.026). Therefore, consistent with our earlier results, private-sector firms are also more likely to reduce capital expenditure following a criminal candidate win if the project is located in a corrupt state. In column 4, we include the interaction between dummy variables corresponding to a criminal win and to whether the candidate is also an incumbent: CRIMINAL_INCUMBENT (equals 1 if the criminal candidate is also an incumbent and 0 otherwise). For private sector firms, we find that the coefficient corresponding to an interaction between CRIMINALWIN and CRIMINAL_INCUMBENT is negative and significant with a p-value of 0.025. Further, in columns 5–6 we estimate the CRIMINALWIN coefficient separately for the incumbent and non-incumbent sub-samples. The coefficient for CRIMINALWIN is negative and significant only for the incumbent sample (p-value = 0.004) and is insignificant for the non-incumbent sample (p-value = 0.70). The difference is also negative and significant with a p-value of 0.006. Hence, the negative effect of a criminal candidate win is largely driven by incumbent criminal candidates, consistent with the notion that they are likely to be more powerful and have greater influence on the outcome of investment projects located in their districts.

Aggregate Investment by State-Owned Firms in Districts: Evidence from Close Elections

In Panel D Table 5, we examine the effect of a criminal politician win on investment by state-owned firms.[14] If the criminal candidate wins in a close election, this leads to an increase in total investment in the district of 17,191.2 million Indian Rupees (roughly 343.8 million USD) in the next 5 years compared to the 5 years prior to the election. If the criminal candidate loses in a close election, this leads to a decrease in total investment in the district by 17,722.6 million Indian Rupees. The difference of change in investment between the districts where a criminal narrowly won or lost is 34,913.8 million Indian rupees (USD 698.3 million). Therefore, in sharp contrast to private sector firms, the election of criminal politicians leads to a substantial increase in investment by state-owned firms. Hence, corrupt politicians appear to be able to substantially offset the loss in investment by private-sector firms with investment by state-owned enterprises. This is an intriguing result since it sheds some light on why criminal politicians may be able to win, despite causing private sector firms to drastically reduce their investment. It appears that by inducing investment by state-owned firms, the criminal politicians may be able to provide employment and other favors to their supporters and retain their loyalty.

In columns 3 and 4, we examine the effect of a criminal win on changes in total capital expenditure in the district including both private and state-owned enterprises. The average change in capital expenditure if the criminal narrowly wins is negative but insignificant (p-value = 0.46) and change in capital expenditure if the criminal narrowly loses is positive but again insignificant (p-value = 0.88). The difference is also insignificant with a p-value of 0.56. Therefore, there does not appear to be a significant decrease in the overall investment level, though there is substitution between private and state-sector investment.

Effects on Employment: Evidence from Close Elections

As discussed above, private sector firms sharply cut investment in districts where the criminal politicians are elected, though this reduction in investment is largely balanced by the increase in investment by state-owned firms. In this section, we examine the effect of a criminal politician win on the employment by state owned and private sector firms. We obtain total district-level employment data for private-sector and state-owned firms from the Annual Survey of Industries (ASI) micro dataset. In particular, we obtain the data for two snapshots: 2003–04 fiscal year and 2008–09 fiscal year. This allows us to analyze employment effects for the first half of our sample (2004 election).[15]

[14] Our evidence indicates that senior elected officials have influence on the investment decisions of state-owned firms. In particular, the election of a politician who becomes a minister leads to an increase in investment by state-owned firms governed by his or her ministry by 20% in the politician's district and 6.3% in the politician's state. Please see Internet Appendix Table 3.

[15] Employment effects for the second half of our sample cannot be analyzed since the district identifier is missing for all observations in the ASI dataset for 2010–11 fiscal year and later years.

Table 4 Criminal politicians and firm's stock market value: returns around election result announcement

Panel A: criminal politicians & election announcements returns for private sector firms & SOEs

	Dependent variable: market model-adjusted CAR (−1, + 1) for WINMARGIN < = 5%						
	PRIVATE SECTOR FIRMS					STATE-OWNED FIRMS	
	PCTPROJECT						
	= 0	> 0	> 0	> 0	> 0	> 0	> 0
Independent variable	Local firms	Local firms	Non-local firms	All firms	All firms	All firms	All firms
	1	2	3	4	5	6	7
INTERCEPT	0.078***	0.201**	0.066**	0.120***	0.077**	0.068	0.190
	(4.20)	(2.56)	(2.36)	(3.99)	(2.47)	(0.15)	(0.91)
CRIMINALWIN	−0.004	−0.080***	−0.035***	−0.037***	−0.024**	0.029	0.004
	(−0.29)	(−3.60)	(−2.65)	(−2.90)	(−2.47)	(0.83)	(0.27)
LOG(MCAP)	−0.008***	−0.007	0.001	−0.002	0.001	−0.015	−0.016
	(−3.27)	(−0.92)	(0.42)	(−0.83)	(0.51)	(−0.38)	(−0.91)
R-square	0.18	0.59	0.53	0.47	0.33	0.85	0.75
District fixed effects	Yes	Yes	Yes	Yes	No	Yes	No
State fixed effects	No	No	No	No	Yes	No	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	582	86	343	429	429	70	70
Z-score of difference						1.77*	1.58

Panel B criminal politicians & election announcements returns for various winmargin cutoffs

	Dependent variable: market model-adjusted CAR (−1, + 1)					
	WIN MARGIN					
	ALL	< = 3%	< = 5%	< = 10%	ALL	< = 5%
	Private sector firms				State-owned firms	
	PCTPROJECT > 0					
Independent variable	All firms	All firms	All firms	All firms	All firms	All firms
	1	2	3	4	5	6
INTERCEPT	0.077	0.211	0.206*	0.157*	−0.219*	−0.032
	(0.81)	(1.46)	(1.79)	(1.70)	(−1.67)	(−0.15)
CRIMINALWIN	−0.008	−0.035***	−0.018**	−0.018**	−0.005	−0.006
	(−1.44)	(−2.87)	(−2.17)	(−2.48)	(−0.80)	(−0.53)
LOG(MCAP)	−0.003	−0.003	0.0001	−0.0001	0.011	−0.012
	(−1.54)	(−0.84)	(0.03)	(−0.02)	(1.24)	(−0.96)
STATE_GDP_GROWTH	−0.212**	−0.103	−0.052	−0.116	0.074	0.193
	(−2.15)	(−0.60)	(−0.38)	(−0.82)	(0.89)	(1.60)
STATE_CRIME_GROWTH	−0.112**	−0.117	−0.183**	−0.121*	0.088**	0.094**
	(−2.44)	(−0.91)	(−2.04)	(−1.66)	(2.33)	(2.44)
STATE_LITERACY	−0.0001	−0.001	−0.0001	0.00002	0.001	−0.001
	(−0.15)	(−0.84)	(−0.08)	(0.04)	(1.55)	(−1.03)
STATE_SEX_RATIO	0.0001	−0.00002	−0.0001	−0.0001	−0.0001	0.0003
	(0.68)	(−0.12)	(−0.88)	(−0.61)	(−0.45)	(1.52)
DISTRICT_CRIME_GROWTH	0.016	−0.086	0.003	−0.024	−0.002	−0.033
	(0.51)	(−0.97)	(0.05)	(−0.54)	(−0.04)	(−0.83)
R-square	0.20	0.38	0.31	0.29	0.58	0.72
State and district controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes

Table 4 (continued)

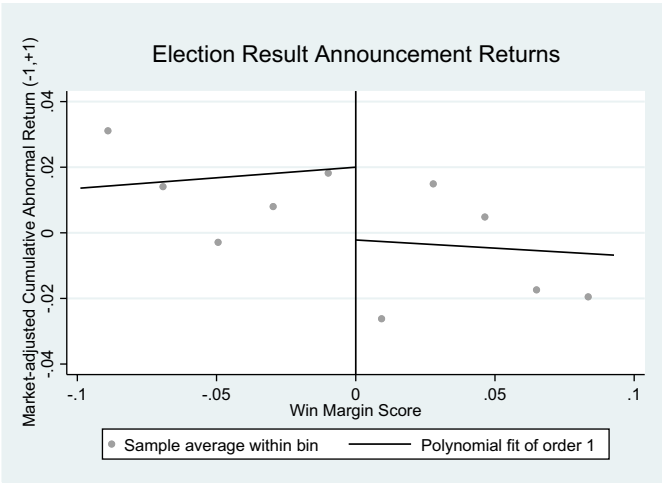
Panel B criminal politicians & election announcements returns for various winmargin cutoffs

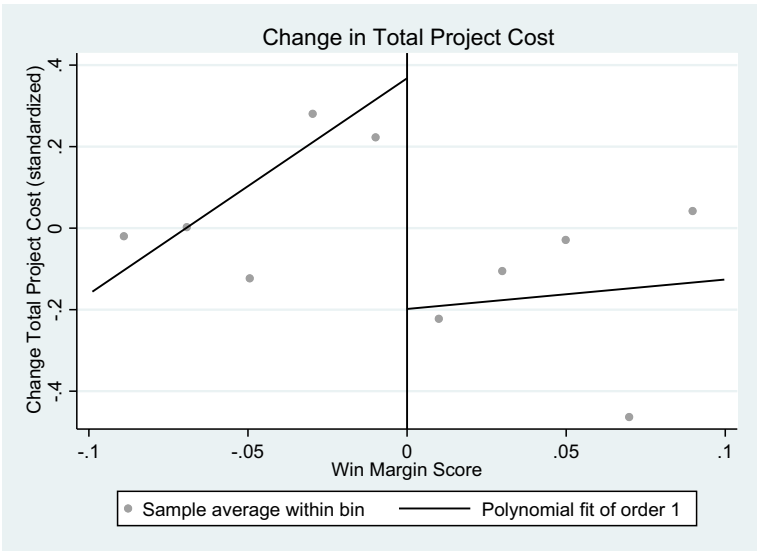
	Dependent variable: market model-adjusted CAR (−1, + 1)					
	WIN MARGIN					
	ALL	< = 3%	< = 5%	< = 10%	ALL	< = 5%
	Private sector firms				State-owned firms	
	PCTPROJECT > 0					
Independent variable	All firms	All firms	All firms	All firms	All firms	All firms
	1	2	3	4	5	6
N	1242	202	429	701	210	70

Panel C criminal politicians & election announcement returns by state corruption and politician incumbency

	Dependent variable: market model-adjusted CAR (−1, + 1)					
	WINMARGIN < = 5%					
	PCTPROJECT > 0					
Independent variable	All firms	Above median state corruption	Below median state corruption	All firms	Incumbent	Non-incumbent
	1	2	3	4	5	6
INTERCEPT	0.127***	0.144***	0.048	0.104***	0.055***	0.097**
	(4.21)	(4.04)	(0.98)	(3.12)	(3.62)	(2.17)
CRIMINALWIN*CORRUPT STATE	−0.053***					
	(−6.63)					
CRIMINALWIN*CRIMINAL_INCUMBENT				−0.046***		
				(−3.20)		
CRIMINALWIN		−0.062***	−0.011		−0.064***	0.012
		(−8.25)	(−0.66)		(−4.45)	(0.91)
LOG(MCAP)	−0.002	−0.003	−0.004	−0.003	0.003	−0.005
	(−0.72)	(−0.61)	(−1.25)	(−1.07)	(1.18)	(−1.32)
R−Square	0.48	0.53	0.60	0.46	0.45	0.59
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes
N	429	164	265	429	137	292
Z-Score of difference		−6.24***			−3.90***	

This table presents estimates from regressions where the dependent variable is the market-model adjusted abnormal return for a 3-day window (CAR(−1, + 1)) around the election result announcement date. In Panel A, the main independent variable is a dummy variable (CRIMINALWIN) which is equal to 1 if a criminal candidate defeats a non-criminal candidate in close election with a win margin of less than or equal to 5% and is 0 if the criminal candidate loses to a non-criminal candidate in a close election. Logarithm of firm's market cap is included as additional control variable. We also report results separately for local & non-local firms, and private sector & state-owned firms. PCTPROJECT measure the strength of economic linkages of a firm to a given district and is calculated as the percentage of the total cost of the capital expenditure of a given firm in that particular district in last 5 years before the general election. In Panel B, we include additional state-level and district-level control variables. In all specifications, we include private sector firms with non-zero investment in past 5 years in that district. Our sample includes all elections between a criminal and a non-criminal candidate or close elections with a win margin less than or equal to 5% or 10%. In Panel C, for the sample of private-sector firms with non-zero investment in the past 5-years in that district, we include interaction terms between the CRIMINALWIN and one of the following variables as additional explanatory variables (columns 1, 3): CORRUPT_STATE (dummy variable which is equal to 1 for states with above median value of corruption index in 2005 Corruption study by Transparency International) or CRIMINAL_INCUMBENT (dummy variable which is equal to 1 if the criminal candidate is an incumbent and 0 otherwise). In columns 2–4 and 5–6, we estimate the regression model separately over subsamples divided based on high and low values of CORRUPT_STATE and CRIMINAL_INCUMBENT. All regression specifications in the table include industry fixed effects and one of the following: state fixed effects, district fixed effects or state and district controls. The t-statistics (reported in parentheses) are based on standard errors clustered by district and election year. 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.





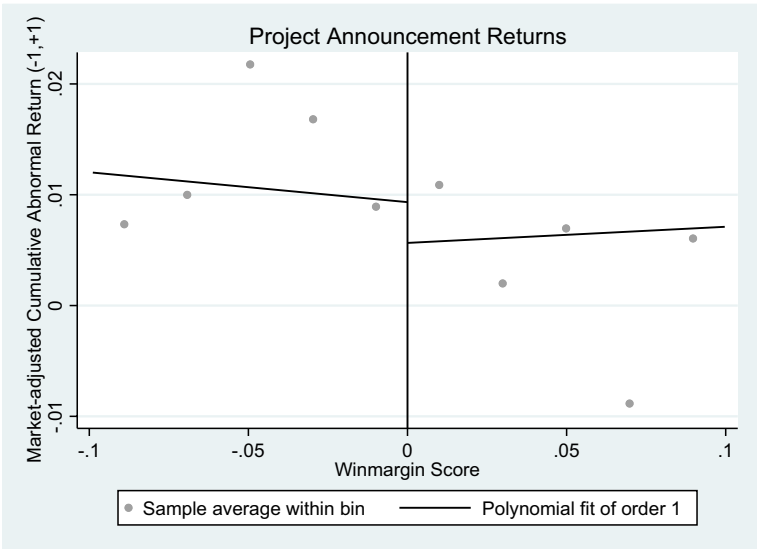


Fig. 3 **A** Election Result Announcement Returns around Close Elections (Table 4A, column 4). **B** Change Total Project Cost: Private Sector (Table 5B, column 5). **C** Project Announcement Returns: Private Sector Firms (Table 8A, Column 5)

The results are presented in Table 6. The dependent variable is the change in log of total number of employees in a district for private sector (columns 1–3), for state owned (columns 4–6) and for all firms (columns 7–9). The main independent variable is CRIMINALWIN, which is equal to 1 if the criminal candidate won and 0 otherwise. In column 1, we present results for all win margins and in columns 2 and 3 our focus is on close elections with win margins of 10%, and 5%. In columns 1–3, the coefficient corresponding to CRIMINALWIN for private sector firms is negative and significant, which suggests that the employment growth for private sector firms headquartered in a district where a criminal politician won against a non-criminal politician is lower in the post-election five-year period compared to districts where the criminal politician lost. These results are consistent with the decrease in investment by private sector firms after a criminal politician win as documented in Table 5.

The coefficient corresponding to CRIMINALWIN is positive or insignificant for the state-owned firms as documented in columns 4–6 of Table 6. The results for close elections indicate that the election of criminal politicians does not significantly affect the employment growth for state-owned firms in their districts. In columns 7–9, we present results for employment for all firms. The coefficient corresponding to CRIMINALWIN is negative, though not always significant. Overall, criminal politicians appear to have a negative effect on aggregate employment growth in their district. Hence, while the investment in state-owned-firms and private sector firms is roughly offsetting, the employment is not. Despite the drop in overall employment, it is possible that criminal politicians can provide favors other than employment to their supporters, such as favorable business opportunities related to the increase in investment by state-owned firms.

Q and *ROA* Regressions

In this section, we use Tobin's Q and Return on Assets (ROA) as measures of firm performance. In Table 7 Panel A, we focus on close elections and follow a difference-in-difference approach to provide evidence on the effect of criminal politicians on the following measures of firm performance: firm valuation (Tobin's Q) and profitability (ROA). We estimate panel regressions with either Tobin's Q or ROA as the dependent variable. We control for industry by including industry fixed effects (industry is defined by 2-digit National Industry Classification (NIC) codes). We also include district, industry and year fixed effects to control for unobserved heterogeneity. In columns 1, 2, 5, and 6, we include district and state-level control variables instead of district fixed effects. Our sample includes firm-year observations of firms headquartered in districts where a criminal candidate contests a non-criminal candidate in a close election. CRIMINALWIN = 1 if the criminal candidate won and is 0 otherwise. We define, POST = 1 for four fiscal years after the election and POST = 0 for four fiscal years before the election. For example, for close elections in year 2009, we include firm years from fiscal year 2006–2013: POST = 0 for observations in year 2006–2009 and POST = 1 for observations from 2010 to 2013. We follow the same procedure to label firm years as pre or post for close elections in 2004. Therefore, the coefficient on the POST variable captures the change in Q or ROA in the four years after the election compared to the four years before the close election. Our main variable of interest is the interaction term between POST and CRIMINALWIN that captures the impact on Q or ROA conditional on a criminal candidate winning or losing.

In columns 1–4, our sample is that of close elections with win margin less than or equal to 3%. Tobin's Q is the dependent variable in column 1. As indicated, the coefficient corresponding to the interaction between POST and CRIMINALWIN is negative and significant, indicating that a criminal win leads to a drop in firm valuation as measured by the Q-ratio. In column 2, using ROA as the dependent variable we obtain similar results. The average difference in industry adjusted ROA in the four-year period before and after a criminal wins against a non-criminal is an economically significant -1.7%. In columns 3 and 4, instead of the district and state-level controls, we include district fixed effects. The coefficient on CRIMINALWIN*POST remains similar in magnitude and significance. Results are similar in magnitude but weaker in significance in columns 5–8 for close elections with win margin less than or equal to 5%.[16]

In Table 7 Panel B, we examine the effect of criminal win on valuation and profitability of state-owned firms. In columns 1–4, we find that the effect of a criminal win on the valuation and profitability of state-owned firms is insignificant. This is consistent with the results in Table 4 where we find no effect of a criminal win on the valuation of state-owned firms measured using their cumulative abnormal returns around the election result announcement dates.

Finally, in Table 7 Panel C, we examine the effect of CRIMINALWIN on firm performance based on whether the corruption index of the state is above or below median and whether the criminal politician is an incumbent or non-incumbent. We follow the same methodology as in Table 7

[16] In untabulated results, we examine whether the impact of a corrupt politician on Q and ROA is affected for two levels of pre-election economic linkage strength: PCTPROJECT > 0 or PCTPROJECT > 0.50 (i.e., more than 50% of the firm's investment was in the district in the 5 years prior to the election). Overall, the results are weak, with the interaction term CRIMINALWIN*POST consistently negative, but noisy and not significant for majority of the specifications. This suggests that in the years following the election, firms adjust their investments not just in response to a corrupt politician, but also to a whole host of other economic and political events that might intervene.

Table 5 Criminal politicians and aggregate district-level investments around close elections

Panel A univariate results: change in local and non-local firms' aggregate investments in district for private sector firms:

Independent variable	WINMARGIN < = 5%			WINMARGIN < = 10%		
	Change total project cost	Change local project cost	Change non-local project cost	Change total project cost	Change local project cost	Change non-local project cost
	1	2	3	4	5	6
CRIMINALWIN = 0	24,405.1	5461.5	13,975.0	9973.4	5110.1**	1179.7
	(1.27)	(1.54)	(0.82)	(0.63)	(2.05)	(0.37)
	(N = 85)	(N = 85)	(N = 85)	(N = 146)	(N = 146)	(N = 146)
CRIMINALWIN = 1	−33,219.0	18.2	−32,159.4*	−35,945.7**	837.7	−37,441.6**
	(−1.56)	(0.01)	(−1.61)	(−2.08)	(0.38)	(−2.38)
	(N = 79)	(N = 79)	(N = 79)	(N = 129)	(N = 129)	(N = 129)
DIFFERENCE	−57,624.1**	−5443.3	−46,134.3*	−45,919.1**	−4272.4	−38,621.3*
	(−2.02)	(−1.39)	(−1.76)	(−1.96)	(−1.27)	(−1.80)

Panel B regression results: change in aggregate investment in district for private sector firms:

Independent variable	Dependent variable					
	WINMARGIN < = 5%				WINMARGIN < = 10%	
	Changetotal project cost	Changetotal project cost	Change local project cost	Change non-local project cost	Changetotal project cost	Changetotal project cost
	1	2	3	4	5	6
INTERCEPT	0.209	−1.445	0.165	0.1820	0.121	−1.470
	(1.35)	(−0.91)	(1.03)	(1.17)	(0.86)	(−1.01)
CRIMINALWIN	−0.439**	−0.364**	−0.444	−0.3487*	−0.310**	−0.269**
	(−2.08)	(−2.18)	(−1.63)	(−1.69)	(−2.21)	(−2.04)
R-square	0.1321	0.0712	0.1183	0.1268	0.1026	0.06748
State fixed effects	Yes	No	Yes	Yes	Yes	No
State and district controls	No	Yes	No	No	No	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes
n	164	164	164	164	275	275

Panel C regression results: change in aggregate investment in districts by state corruption and politician incumbency

Independent variable	Private sector firms					
	WINMARGIN < = 5%					
	Dependent variable: changetotal project cost					
	All districts	Above median state corruption	Below median state corruption	All districts	Incumbent	Non-incumbent
	1	2	3	4	5	6
INTERCEPT	−0.027	0.454*	0.038	0.036	0.915	0.009
	(−0.21)	(1.74)	(0.24)	(0.26)	(1.47)	(0.06)
CRIMINALWIN		−1.088***	−0.120		−1.767***	−0.084
		(−3.09)	(−0.48)		(−3.09)	(−0.38)
CRIMINALWIN*CORRUPT_STATE	−1.088***					
	(−3.14)					
CRIMINALWIN*CRIMINAL_INCUMBENT				−0.873**		
				(−2.26)		
R-Square (%)	0.169	0.219	0.128	0.145	0.405	0.145
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes

Table 5 (continued)

Panel C regression results: change in aggregate investment in districts by state corruption and politician incumbency						
	Private sector firms					
	WINMARGIN < = 5%					
Independent variable	Dependent variable: changetotal project cost					
	All districts	Above median state corruption	Below median state corruption	All districts	Incumbent	Non-incumbent
	1	2	3	4	5	6
Z Score of difference		−2.23**			−2.74***	
N	164	59	105	164	44	120

Panel D univariate results: change in aggregate investment in district: state owned and all firms				
	State owned firms		All firms	
	WINMARGIN < = 5%	WINMARGIN < = 10%	WINMARGIN < = 5%	WINMARGIN < = 10%
Independent variable	Changetotal project cost	Changetotal project cost	Changetotal project cost	Changetotal project cost
	1	2	3	4
CRIMINALWIN = 0	−17,722.6	4387.9	4056.1	8307.1
	(−0.87)	(0.37)	(0.15)	(0.44)
	(*N* = 76)	(*N* = 131)	(*N* = 93)	(*N* = 160)
CRIMINALWIN = 1	17,191.2**	22,911.9**	−16,793.9	−15,921.1
	(2.23)	(2.43)	(−0.75)	(0.89)
	(*N* = 71)	(*N* = 117)	(*N* = 88)	(*N* = 144)
DIFFERENCE	34,913.8*	18,524.0	−20,850.0	−24,228.2
	(1.68)	(1.22)	(−0.58)	(−0.92)

This table reports the differences in total investments between the next five years after the election and the investment in previous five years in the same district for the districts where the criminal candidate narrowly won (CRIMINALWIN = 1) to the districts where the criminal candidate narrowly lost (CRIMINALWIN = 0). Panel A presents the univariate results for private sector publicly traded firms. In Panel B, the dependent variable is one of the following: Change in total project cost for all, local, non-local firms investing in the district, standardized within sample to mean 0 and standard deviation of 1. We focus on private sector firms and include the districts where a criminal candidate contested against a non-criminal candidate and the outcome was determined in a close election with win margin of either less than or equal to 5% or 10% of all voted polled. The main dependent variable is CRIMINALWIN and we also include the state fixed effects. In Panel C we examine the changes in investment for private sector and also include an interaction between CRIMINALWIN and either one of the following variables: CRIMINAL_INCUMBENT which is equal to one if the criminal candidate is also an incumbent member of parliament,, CORRUPT_STATE (dummy variable which is equal to 1 for states with above median value of corruption index in 2005 Corruption study by Transparency International). In Panel D, we present the univariate results for change in investments by state-owned firms and for all firms. 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.

Panel A and the dependent variable is either Tobin's Q as a measure of firm's stock market value or Return on Assets (ROA) to measure firm profitability. We also include industry, year and district fixed effects. In columns 1–4, we divide the sample into two groups based on the dummy variable CORRUPT_STATE. The CORRUPT_STATE variable is 1 for firms headquartered in states with an above median score on the 2005 Transparency International India state-level corruption study and 0 otherwise. We find that both for Q and ROA regressions, the coefficient on the interaction term POST and CRIMINALWIN is negative and highly significant only for the high CORRUPT_STATE sample. This shows that the effect of CRIMINALWIN on stock market value and profitability is evident mainly for firms headquartered in states with an above average overall corruption score. This is consistent with earlier results that the negative effect of criminal politicians on private sector economic activity is far worse in the more corrupt states. In columns 5–8, we divide the sample into two groups conditional on the dummy variable CRIMINAL_INCUMBENT, which is equal to 1 if the criminal candidate is also an incumbent and 0 otherwise. In columns 5–6, for the Q regressions, we find that the interaction term between POST, CRIMINALWIN is negative and significant only for the CRIMINAL_INCUMBENT = 1 group, which indicates that the effect of a criminal politician win on firm's stock market value is stronger for incumbent criminal candidates. For the ROA regressions in columns 7–8, we don't find any significant

difference between incumbent and non-incumbent criminal candidates. This could suggest, for instance, that incumbent corrupt politicians may be expected to have a longer-term value effect on firm growth, rather than on short-term firm profitability.

Criminal Politicians and Project Announcement Returns

Next, we examine whether the criminal background of locally elected politicians affects project or capital expenditure announcement returns. Project announcement returns capture the marginal effect of a new capital expenditure decision on the firm's stock market performance. We use the market model adjusted cumulative abnormal return (CAR) for a ± 1 day window around the project announcement date to measure the project announcement abnormal returns. As described earlier, we use S&P CNX 500 index as a proxy for Indian stock market returns and estimate the CAPM market beta for each firm at the end of each quarter. We then use the most recent beta estimate and raw stock returns during the project announcement window to estimate the cumulative abnormal returns around each project announcement.

For the sample of private sector firms, we first illustrate the discontinuity or jump in project announcement returns conditional on a criminal win using a regression-discontinuity plot in Fig. 3 Panel C. As before, win margin is the difference in vote share between the criminal and non-criminal candidates. Positive win margins indicate a criminal win and negative win margins indicate a non-criminal win. We plot the average 3-day market-model adjusted cumulative adjusted returns in each of the 10 win-margin bins for projects announced by all private-sector firms. We plot the returns after controlling for industry, district and year fixed effects, similar to specification 5 in Table 8 Panel A.[17]

In Table 8, we focus on samples of private-sector and state-owned firms and use pooled regressions to examine project announcement returns for close elections. The dependent variable is the three-day cumulative market-model adjusted abnormal return ($CAR(-1,+1)$) around the project announcement date. In multivariate regressions, we control for Industry, District and Year fixed effects. We report the t-statistic obtained from standard errors clustered by district and election year. In columns 1–4 of Table 8 Panel A, close elections are defined to have a win margin less than or equal to 5% of all votes polled. In columns 5–8, the cutoff for close elections is 10%. Column 9 includes all observations. In the first column of Table 8 Panel A, the coefficient corresponding to CRIMINALWIN is negative and significant (p-value = 0.05). The difference in returns between projects announced in districts where the criminal candidate narrowly won (margin $\leq$ 5%), compared to the districts where the criminal candidate narrowly lost is -0.90%. We estimate the regressions separately for projects announced by local and non-local firms. The coefficient of CRIMINALWIN for local firms is statistically insignificant (column 2). For NON-LOCAL firms, however, the coefficient indicates that the announcement return is 1.20% lower (significant with p-value = 0.05) in districts where a criminal candidate narrowly won (column 3). The coefficients corresponding to CRIMINALWIN are similar in sign and significance for specifications including district fixed effects in larger samples corresponding to a win margin of 10% (column 5–7) or all win margins (column 9).

In columns 4 and 8, our sample includes projects announced by state-owned firms. In column 4 (column 8), we include projects where elections between candidates with criminal and non-criminal backgrounds are decided by a win margin of less than or equal to 5% (10%). The coefficients corresponding to CRIMINALWIN are insignificant in both column 4 and 8. Consistent with earlier findings on election announcement returns, the value of the projects announced by state-owned firms seems to be unaffected by the election of a criminal candidate.

In Table 8 Panel B, we examine the effect of the overall corruption in the state and incumbent status of the criminal candidate on project announcement returns. Our sample includes all projects located in districts where the criminal-noncriminal win margin is less than or equal to 5%. To measure the effect of overall corruption in the state, we include a dummy variable, CORRUPT_STATE which is equal to 1 if the state is ranked above median by the 2005 Corruption Study by Transparency International India and 0 otherwise. In column 1, the interaction between CORRUPT_STATE and CRIMINALWIN is negative and highly significant with a p-value of < 0.0001. Consistent with the previous findings, the result indicates that criminal politicians have a more negative impact on private-sector firms in more corrupt states. In column 4, we find that the variables corresponding to the interaction between dummy variables for whether the candidate is also an incumbent is insignificant. In columns 2–3 and 5–6, we report results for separate subsamples divided by above or below median state corruption or by the incumbent status of the criminal candidate.

[17] The univariate results for the close election sample (win margin less than or equal to 5%) are reported in Internet Appendix 1. We also examine whether projects are also more likely to be stalled or abandoned in districts with elected criminal politicians. We define a project to be stalled or abandoned if the project status in the CapEx database is one of the following: Abandoned, Announced & Stalled, Implementation Stalled or Shelved. The results are reported in Internet Appendix Tables 1 and Internet Appendix Table 2.

Table 6 Criminal politicians and changes in employment around close elections

	Private sector firms			State-owned and joint-sector firms			All Firms		
	WINMARGIN								
	ALL	< = 10%	< = 5%	ALL	< = 10%	< = 5%	ALL	< = 10%	< = 5%
Independent variable	Dependent variable: CHANGE_LOG(NUMEMP)								
	1	2	3	4	5	6	7	8	9
INTERCEPT	1.604***	1.624***	0.525	0.325	0.582	1.022**	1.626***	1.458***	0.539
	(5.21)	(5.15)	(1.26)	(0.87)	(1.56)	(2.04)	(4.32)	(3.13)	(0.98)
CRIMINALWIN	−0.404**	−0.473*	−0.823*	0.399**	0.176	−0.211	−0.366**	−0.357	−0.620
	(−2.64)	(−1.92)	(−1.82)	(2.11)	(0.74)	(−0.69)	(−2.29)	(−1.52)	(−1.56)
LOG(1 + PROJECTCOST)	0.015	0.013	0.060	−0.014	−0.016	−0.014	−0.012	−0.003	0.028
	(0.79)	(0.50)	(1.27)	(−0.61)	(−0.59)	(−0.37)	(−0.61)	(0.09)	(0.06)
R-Square	0.36	0.46	0.54	0.28	0.29	0.48	0.28	0.37	0.44
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of districts	145	73	42	77	43	26	147	74	43
N	189	93	50	99	54	30	191	94	51

This table presents results from pooled-panel regressions where the dependent variable is the change in logarithm of total number of employees for private-sector, state-owned and all firms in a given district. The district-level employment data for private-sector and state-owned firms is from the Annual Survey of Industries (ASI) micro dataset. We use the data for two snapshots: 2003–04 fiscal year and 2008–09 fiscal year and calculate the change in log of total number of employees from 2003–04 to 2008–09 fiscal year. Our sample includes observations for the districts where a candidate with criminal background contested against a candidate with non-criminal background in a close election, CRIMINALWIN = 1 if the criminal candidate won and 0 otherwise. We include following additional independent variables: PROJECTCOST is the total cost of projects announced by private sector, state-owned or all firms in a district between the general elections of May 2004 and May 2009. All regression specifications in the table include state fixed effects. The t-statistics are reported in parentheses and 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively

Additional Results and Robustness

Evidence from Asset Increases: An Alternative Measure of Corruption

As a robustness check, we examine the effect of corrupt politicians on economic activity based upon an alternative measure of corruption calculated from the increase in the disclosed net assets (assets-liabilities) of the re-contesting incumbent candidates during their previous term in office (Fisman et al. (2014)). According to this alternative definition, we define a candidate to be corrupt if the increase in their net assets is greater than 200% during the 5-year period when they were in office and non-corrupt if the increase is less than 200%. We use 200% as a cutoff because it gives us a similar proportion of corrupt candidates (around one-third of all candidates) as our previous definition based on pending criminal cases. All our results are robust to using alternative cutoffs e.g., 150% and 250%.

For our tests, we first compare the asset disclosures of the candidates in 2004 and 2009 to determine if a re-contesting candidate is likely to be corrupt or not. We then use this definition of corruption to examine the effect of the election outcome on the firm's stock market performance and on total investments between 2009 and 2014. Since, by construction, the asset-growth based definition of corruption is available only for the second half of the sample and for incumbent candidates, this reduces the sample considerably. In Table 9 Panel A, we examine the relation between the percentage net asset increase of politicians while they are in office with a dummy variable (CRIMINAL) which is equal to 1 if the politicians also have a pending criminal case against them and 0 otherwise. The dependent variable is percentage net asset increase during the five years when the politician was in office. In column 1, we find that the coefficient corresponding to CRIMINAL is positive but insignificant which suggests that overall the correlation between the presence of criminal background and net asset increase while in office is low. In column 2, 3 we also include the interaction term between CRIMINAL and a proxy for corrupt state. In column 2, we find that coefficient for the interaction term between CRIMINAL and corrupt state dummy variable (states with above median corruption index) is positive and significant which indicates that in the most corrupt states, the percentage asset increase is positively correlated with having a criminal background. The results are similar if we use an indicator variable for the most corrupt BIMAROU (Bihar, Madhya Pradesh, Rajasthan, Orissa and Uttar Pradesh) states as an alternative proxy for a corrupt state. These results validate our use of the existence of a criminal

Table 7 Election of criminal politicians: effects on firm performance

Panel A election of criminal politicians: effects on firm performance for private sector firms

	Win margin < = 3%				Win margin < = 5%			
	Dependent variable							
	Q	ROA	Q	ROA	Q	ROA	Q	ROA
Independent variable	1	2	3	4	5	6	7	8
INTERCEPT	1.484*	−0.111	−0.059	−0.132***	−0.342	0.037	0.5319**	−0.058***
	(1.92)	(−1.35)	(−0.07)	(−2.70)	(−0.40)	(0.78)	(2.13)	(−3.67)
CRIMINALWIN*POST	−0.1696**	−0.017**	−0.162**	−0.016*	−0.1011**	−0.004	−0.1102***	−0.004
	(−2.36)	(−2.19)	(−2.18)	(−1.93)	(−2.30)	(−0.85)	(−2.58)	(−0.79)
CRIMINALWIN	0.034	0.008	0.130*	0.026	0.112	0.004	−0.0117	0.002
	(0.48)	(0.76)	(1.88)	(1.61)	(1.47)	(0.99)	(−0.33)	(0.47)
POST	0.253***	0.027**	0.104	0.019*	0.252***	0.016***	0.1607***	0.014**
	(2.73)	(2.29)	(0.93)	(1.73)	(3.08)	(2.88)	(3.41)	(2.44)
LOG(SALES)	0.154**	0.017***	0.154*	0.018***	0.122***	0.014***	0.1196***	0.014***
	(2.07)	(4.46)	(1.77)	(4.06)	(5.37)	(10.03)	(5.03)	(9.33)
R-square	0.272	0.206	0.287	0.240	0.182	0.167	0.197	0.181
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District, state controls	Yes	Yes	No	No	Yes	Yes	No	No
District fixed effects	No	No	Yes	Yes	No	No	Yes	Yes
Cluster(district,election year)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of districts	45	45	45	45	66	66	66	66
Number of firms	361	361	361	361	1255	1255	1255	1255
Number of observations	2061	2061	2061	2061	7446	7446	7446	7446

Panel B election of criminal politicians: effects on firm performance for state owned Firms

	Win margin < = 5%		Win margin < = 10%	
	All elections			
Independent variable	Q	ROA	Q	ROA
	1	2	3	4
INTERCEPT	10.211	−0.628	−5.622	−0.710
	(1.20)	(−1.54)	(−1.00)	(−0.88)
CRIMINALWIN	−0.690	0.010	0.455	−0.037
	(−0.93)	(0.26)	(1.24)	(−0.95)
CRIMINALWIN*POST	−0.058	0.006	−0.278	0.029
	(−0.09)	(0.16)	(−1.49)	(1.29)
LOG(SALES)	−0.444**	0.041***	−0.278	0.031***
	(−2.31)	(8.07)	(−1.49)	(4.53)
R-squared	0.42	0.49	0.29	0.32
State, district controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Cluster(district,election year)	Yes	Yes	Yes	Yes
N	163	163	283	283

Table 7 (continued)

Panel C criminal politicians and firm performance for private sector firms by state corruption and politician incumbency

	WINMARGIN < = 5%							
	State corruption							
	Above median	Below median	Above median	Below median	Incumbent	Non-incumbent	Incumbent	Non-incumbent
	Q	Q	ROA	ROA	Q	Q	ROA	ROA
Independent variable	1	2	3	4	5	6	7	8
INTERCEPT	−1.370**	0.859***	−0.170***	−0.041***	−1.018*	0.888***	−0.1174***	−0.045***
	(−2.30)	(6.25)	(−4.53)	(−3.12)	(−1.81)	(4.50)	(−2.80)	(−3.09)
CRIMINALWIN*POST	−0.392***	−0.045	−0.023**	0.001	−0.286***	−0.088	−0.0025	−0.010
	(−3.27)	(−0.91)	(−2.08)	(0.10)	(−2.69)	(−1.25)	(−0.27)	(−1.34)
CRIMINALWIN	0.061	−0.014	0.0004	0.005	0.211	0.060	0.0322	0.009*
	(0.60)	(−0.52)	(0.04)	(0.91)	(0.91)	(1.51)	(1.13)	(1.71)
POST	0.110	0.099	0.008	0.004	0.422	−0.097	0.0169	0.008
	(0.94)	(1.11)	(0.79)	(0.37)	(1.85)	(−0.92)	(0.59)	(0.72)
LOG(SALES)	0.266***	0.089***	0.024***	0.013***	0.226***	0.105***	0.0200***	0.013***
	(4.22)	(3.63)	(5.88)	(18.81)	(2.87)	(4.38)	(3.29)	(14.98)
R-square	0.341	0.175	0.315	0.172	0.366	0.180	0.300	0.169
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster(district,election year)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Z Score of difference	−2.68***		−1.79*		−1.68*		0.62	
Number of observations	1657	5789	1657	5789	1347	6099	1347	6099

This table presents results from pooled-panel regressions where the dependent variable is either the firm's Tobin's Q or the return on assets. In Panel A, we focus on close elections and present the results using a difference-in-difference approach. Our sample includes firm-year observations for the private sector firms headquartered in districts where a candidate with criminal background contested against a candidate with non-criminal background in a close election, CRIMINALWIN = 1 if the criminal candidate won and 0 otherwise. We define, POST = 1 for four fiscal years after the election and POST = 0 for four fiscal years before the election. We also include additional state-level and district-level control variables. Panel B presents results for state-owned firms. In Panel C, for private sector firms, we estimate the regression models separately over subsamples divided based on high and low values of dummy variable for above median value of state-level corruption index (CORRUPT_STATE) and dummy variable for incumbent/non-incumbent status of the criminal politicians (CRIMINAL_INCUMBENT). All regression specifications in the table include industry fixed effects, year fixed effects and one of the following: district fixed effects or state and district controls. The t-statistics (reported in parentheses) are based on standard errors clustered by district and election year. 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.

case to identify corrupt politicians particularly in the most corrupt states.

Next, using this alternative asset-based definition of corrupt politicians we examine the effect of the election of corrupt politicians on economic outcomes. Results are presented in Table 9 Panel B and Panel C. In columns 1–3 of Table 9 Panel B, we examine the effect of election of corrupt candidates on the election announcement returns for the firms economically tied to the district. For firms economically linked to a district, we find that the 3-day cumulative abnormal return around the announcement of election results is -4.60% lower (p-value = 0.0005) when the corrupt candidate wins in a close election compared to districts where the corrupt candidate loses a close election. In columns 4–6, we examine the effect of a corrupt candidate win on the abnormal returns around future project announcements. In column 4, we find that the 3-day cumulative abnormal return around future project announcement dates in the 5-year period leading to the next election is -3.60% lower (p-value = 0.0006) when the corrupt candidate wins in a close election compared to districts where the corrupt candidate loses a close election. In Panel C, we report the effect of the. election of corrupt candidates on total investments in a district. In column 2, for close elections with win margin of 10% or less, we find that the election of corrupt politicians leads to a decrease in investment by 94.66 bn Indian Rupees ($1.89

bn), which is highly significant with a p-value of 0.003. The difference between average investments in districts where a corrupt politician won compared to where a corrupt politician lost is -$1.66 bn, which is also significant with a p-value of 0.04. In columns 3 and 4, we find a decrease in investment by state-owned firms in districts where a criminal candidate just lost, but the change is not statistically significant. Given the similarity in economic magnitude to our earlier findings, the statistical insignificance is likely due to the much smaller sample size when the asset-growth corruption measure used.

Therefore, for the asset-increase based measure of corrupt politicians, we find that the effects are similar in magnitude and sign to the findings based on the criminal background of candidates. However, given the considerably smaller sample, the results are noisier and statistically insignificant in some cases.

Additional Results

We examine the possibility that the criminal charges against politicians may be politically timed to influence the election. Results (Internet Appendix Table 4) suggest that criminal charges are not politically timed. In fact, we find economic effects are stronger when the politicians are charged for crimes that have been more recently committed.

Further, we examine the implications of the nature of the crime (violent or non-violent) that the politicians are charged with having committed, for our results. While violent crimes such as murder are more serious in nature, they may have a weaker correlation with economic corruption. The results are presented in Internet Appendix Table 5. Based on close elections, our results indicate that for new investments, stock market reaction to new projects and election outcomes, the economic impact of non-violent criminal politicians is much greater than that of politicians charged with violent crimes. We also find (untabulated) that a criminal win has a negative, but statistically insignificant, effect on project announcement returns, election announcement returns and investments of neighboring district firms.

In addition, we analyze whether the effect of elections in which the winning candidate represents a switch from a criminal to non-criminal (or vice versa) member of parliament is explained by changes in political affiliation of winning candidates. We present results corresponding to the 150 firm observations from the 2009 election year in which there is a change (from the 2004 election year) in the criminal status of the winning candidate, with no change in political affiliation. The results are provided in Internet Appendix 6. Overall, the results are similar in magnitude to those reported in the paper, though statistical significance is somewhat weaker given the smaller sample size. These results indicate that our findings are unlikely to be fully explained by changes in political affiliation of the winning candidate.[18]

To examine a possible mechanism for our results, we test the effect of a criminal politician win on the growth rate of crime in their district. The results are in Appendix Table 12. The observations with PRE = 0 include the average annual crime growth in a district in the election year and the two years in the post-election period, while the observations with PRE = 1 include the annual crime growth in a district in the two years prior to the election. In columns 1–3, the dependent variable is the average growth in all categories of crimes over the pre- and post-election periods. In column 1 for all elections, we find that the coefficient on the interaction between CRIMINALWIN and PRE is negative and significant, while the unconditional coefficient on CRIMINALWIN is positive and significant. As indicated, the coefficient on CRIMINALWIN is positive and significant only for the post-election period (PRE = 0) and is close to zero for the pre-election (PRE = 1) period. In column 2, we find similar results for elections with win margin less than 10%, though the co-efficient on the post-election period is not significant at conventional levels. The results are noisy and insignificant for the elections in districts with win margin less than 5%. In columns 4–11, we focus separately on the following categories of crimes: crimes against body, crimes against public order and property (we combine the crime against public order and crime against property in the same category), economic crimes and crimes against women and children. The coefficients on CRIMINALWIN and on the interaction between CRIMINALWIN and PRE are significant only for crimes against public order and property (columns 6 and 7). These crime categories include crimes such as riots and arson that can disrupt economic activity in the district and hence could partly explain the reduction in investments and lower firm valuations that we find in our results.

Discussion and Concluding Remarks

In the paper we find that the election of criminal/corrupt politicians has a negative impact on the stock market values and investments of private-sector corporations. This is

[18] To alleviate concern that criminal election wins might be capturing the election of candidates from Indian National Congress (INC) or from the broader United Progressive Alliance (UPA) that won the majority in both 2004 and 2009 elections, we examine the impact of criminal candidates winning from INC and UPA relative to other criminal candidates (untabulated). Results indicate that election announcement returns and subsequent change in investments are similar for INC (UPA) and non-INC (non-UPA) criminal winning candidates. For project announcement results, the returns for non-UPA and non-INC criminals are somewhat more negative. Overall, the results don't indicate that the effect of criminal win is explained by the election of criminal candidates from the ruling party or alliance (or the opposition).

Table 8 Criminal politicians and project announcements returns: regression evidence from close elections

Panel A: criminal politicians and project announcements returns for local/non-local private sector firms

	WINMARGIN < = 5%				WINMARGIN < = 10%				ALL WINMARGINS
	Private sector			State owned	Private sector			State owned firms	Private sector
Independent variable	All	LOCAL	NON-LOCAL	All	All	LOCAL	NON-LOCAL	All	ALL
	1	2	3	4	5	6	7	8	9
INTERCEPT	0.034**	0.030	0.024	0.062	0.019	0.0263	0.0131	−0.032	0.0198**
	(2.48)	(0.78)	(1.33)	(0.89)	(1.65)	(1.04)	(0.79)	(−0.48)	(2.29)
CRIMINALWIN	−0.009**	0.013	−0.012**	0.005	−0.004*	0.0012	−0.0062**	0.003	−0.0060***
	(−1.96)	(0.93)	(−1.98)	(1.01)	(−1.72)	(0.49)	(−2.11)	(1.41)	(−2.96)
LOG(MCAP)	−0.002	−0.004	0.000	−0.002	−0.001	−0.0028	0.0004	0.001	−0.0011
	(−1.20)	(−1.33)	(0.02)	(−0.46)	(−0.58)	(−1.26)	(0.28)	(0.31)	(−1.23)
R-square (%)	16.72	25.5	23.5	62.86	18.46	27.8	22.7	57.3	14.5
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1022	271	751	201	1669	433	1236	329	3041

Panel B: criminal politicians and project announcements returns by state corruption and politician incumbency

		Dependent variable: market model-adjusted CAR (−1, + 1)				
		WINMARGIN < = 5%, Non-local firms				
	All firms	Above median state corruption	Below median state corruption	All firms	Incumbent	Non-incumbent
INTERCEPT	0.0314**	0.047	–	0.016	0.101***	−0.004
	(2.00)	(1.47)	–	(0.84)	(4.32)	(−0.22)
CRIMINALWIN*CORRUPT STATE	−0.025***					
	(−4.38)					
CRIMINALWIN*CRIMINAL_INCUMBENT				0.005		
				(0.88)		
CRIMINALWIN		−0.031*	−0.006		−0.026**	−0.008
		(−1.90)	(−1.20)		(−1.98)	(−1.10)
LOG(MCAP)	0.0001	−0.002	0.002	0.000	−0.006**	0.003*
	(0.09)	(−0.73)	(1.00)	(0.00)	(−2.51)	(1.92)
R-square	23.81	39.36	24.94	23.17	32.49	29.78
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes
Difference(zscore)		−1.46			−1.25	
N	751	294	457	751	251	500

Panel A presents estimates from regressions for the private sector and state owned firms where the dependent variable is the market-model adjusted abnormal return for a 3-day window (CAR(−1, + 1)) around the project announcement date. The independent variables includes a dummy variable (CRIMINALWIN) which is equal to 1 if a criminal candidate defeats a non-criminal candidate in close election with a win margin of less than or equal to 5% or 10% and 0 otherwise. Logarithm of firm's market cap is included as additional control variable. We also report results for all win margins and separately for projects announced by local and non-local firms. All regression specifications in include district, year and industry fixed effects. Panel B presents estimates from regressions where the dependent variable is the market-model adjusted abnormal return for a 3-day window(CAR(−1, + 1)) around the project announcement date. For the sample of private sector non-local firms, we include interaction terms between the CRIMINALWIN and one of the following variables as additional explanatory variables (columns 1, 4): CORRUPT_STATE (dummy variable which is equal to 1 for states with above median value of corruption index in 2005 Corruption study by Transparency International) or CRIMINAL_INCUMBENT (dummy variable which is equal to 1 if the criminal candidate is an incumbent and 0 otherwise). In columns 2–3 and 5–6, we estimate the regression model separately over subsamples divided based on high and low values of CORRUPT_STATE and CRIMINAL_INCUMBENT. The t-statistics (reported in parentheses) are based on standard errors clustered by district and election year. 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively

Table 9 Corrupt politicians and firm investments: evidence from net asset increases while in office

Panel A corrupt politicians and firm investments: evidence from net asset increases while in office

Independent variable	Dependent variable		
	PCT_ASSETINCREASE		
	1	2	3
INTERCEPT	1.336***	1.402***	1.791***
	(3.37)	(3.32)	(4.28)
CRIMINAL	0.272	−0.096	−0.146
	(0.80)	(−0.24)	(−0.31)
CORRUPT_STATE	0.451	0.166	
	(1.48)	(0.46)	
BIMAROU			−0.586
			(−1.64)
CRIMINAL*CORRUPT_STATE		1.051*	
		(1.95)	
CRIMINAL*BIMAROU			1.157**
			(2.42)
COLLEGE_EDUCATION	0.473	0.505	0.494
	(1.44)	(1.52)	(1.56)
SEX	−0.039	−0.017	−0.215
	(−0.09)	(−0.04)	(−0.74)
MINISTER	−0.781**	−0.766**	−0.586**
	(−2.49)	(−2.44)	(−2.19)
NATIONAL_PARTY	0.238	0.279	0.155
	(0.73)	(0.90)	(0.47)
PC_GENERAL	−0.196	−0.209	−0.215
R-square (%)	0.02	0.03	0.02
Number of observations	256	256	256

Panel B corrupt politicians and firm investments: local and non-local firms

		Dependent variable: market model-adjusted CAR (−1, + 1)				
		WINMARGIN < = 5%			WINMARGIN < = 5%	
		PCTPROJECT > 0				
		ELECTION RESULT ANNOUNCEMENT			PROJECT ANNOUNCEMENT	
	ALL	LOCAL	NON-LOCAL	ALL	LOCAL	NON-LOCAL
Independent variable	1	2	3	4	5	6
INTERCEPT	0.0676*	0.156***	0.041	0.062***	0.033	0.045
	(1.80)	(3.55)	(0.80)	(2.69)	(0.86)	(1.58)
CRIMINALWIN_ASSETS	−0.0460***	−0.0393	−0.048***	−0.036***	−0.039	−0.051***
	(−3.56)	(−0.32)	(−3.08)	(−3.47)	(−0.71)	(−4.02)
LOG(MCAP)	−0.0003	0.000	0.0005	−0.002	0.003	−0.001
	(−0.08)	(0.07)	(0.09)	(−0.80)	(0.81)	(−0.40)
R-square	56.62	63.25	59.48	22.92	48.34	32.08
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered(district, electionyear)	Yes	Yes	Yes	Yes	Yes	Yes
N	227	39	188	248	73	175

Table 9 (continued)

Panel C corrupt politicians and firm investments: change in project spending for private firms and SOEs				
	WINMARGIN			
	< = 5%	< = 10%	< = 5%	< = 10%
	Private firms		State owned firms	
Independent variable	Changetotal project cost	ChangeTotal Project Cost	Changetotal project cost	Changetotal project cost
	1	2	3	4
CRIMINALWIN_ASSETS = 0	−24,144.6	−11,823.7	−65,513.0	−46,711.5
	(−0.78)	(−0.49)	(−1.44)	(−1.58)
	(N = 22)	(*N* = 37)	(*N* = 16)	(*N* = 29)
CRIMINALWIN_ASSETS = 1	−103,304.0**	−94,662.5***	−9619.8	−10,999.3
	(−2.41)	(−3.14)	(−0.86)	(−0.84)
	(*N* = 25)	(*N* = 43)	(*N* = 25)	(*N* = 43)
DIFF	−79,159.4	−82,838.8**	55,893.2	35,712.2
	(−1.46)	(−2.09)	(1.44)	(1.23)

This table examines the effect of election of corrupt politician on economic outcomes based on the definition of political corruption introduced in Fisman et al. (2014). We define a candidate to be corrupt it the increase in their net assets (assets—liabilities) is greater than 200% during the 5 year period when they were in office and non-corrupt if the increase is less than 200%. In Panel A, we examine the correlation between incumbent politician's asset increase and other characteristics such as the past criminal record. The dependent variable is the percentage increase in net assets while the politician is in office. We include the politician's criminal status (CRIMINAL) which is equal to 0 if the politician has no criminal case outstanding and 1 otherwise and its interaction with the corrupt state or BIMAROU (Bihar, Madhya Pradesh, Rajasthan, Orissa or Uttar Pradesh, considered as the most corrupt states in India) state dummy as main explanatory variables. We include other characteristics of the politician as additional independent variables. Panel B presents estimates from regressions where the dependent variable is the market-model adjusted abnormal return for a 3-day window (CAR(−1, + 1)) around the election result announcement date. The main independent variable is a dummy variable (CRIMINALWIN_ASSETS) which is equal to 1 if a corrupt candidate defeats a non-corrupt candidate in close election with a win margin of less than or equal to 5% or 10% and is 0 otherwise. We only include firms that are economically linked to the district and have announced at least one project in the given district in past 5-years (PCTPROJECT > 0). In Panel C, we report the effect of election of corrupt candidates on change in total investments in a district for both private-sector and state-owned firms. CRIMINALWIN_ASSETS is equal to 1 if the corrupt incumbent candidate with high asset increase won the election against a non-corrupt candidate and 0 otherwise. The t-statistics are reported in parentheses and 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.

likely to negatively impact economic growth and employment opportunities in the districts of corrupt politicians. A question that arises is how corrupt politicians manage to get elected – if they have large negative economic effects on their districts? Our findings suggest that corrupt politicians may be especially adept at bringing in investments by state-controlled corporations. The magnitude of investments by state owned enterprises appears to largely offset the decrease in investment by private-sector firms. This shift from private investment to state-sector investment is often associated with corruption in other countries as well (e.g., Nguyen et al. (2012)). At the same time corrupt politicians do not appear to offset employment losses in private sector firms with greater employment in state owned firms.

Private-sector firms with headquarters and investment projects in the district are especially vulnerable to the election of corrupt politicians. Rather than supporting local firms, corrupt politicians appear to extract more value from local firms. Further, negative consequences for private-sector firms are more severe in districts narrowly won by corrupt politicians that are incumbents and, hence, are likely to be senior and more influential in their districts. The economic consequences of narrow wins by corrupt politicians are also more adverse for private-sector firms when their districts are in states with higher levels of corruption.

Evidence indicates that actions such as disclosures, monitoring and punishments can reduce corruption.[19] Our paper suggests that reducing political players' access to favors from state-owned enterprises could help in corrupt countries with state-owned corporations. In particular, full privatization of state-owned enterprises would limit the ability of corrupt politicians to keep their supporters satisfied—possibly leading to corrupt politicians losing elections (or reforming).

[19] Banerjee et al. (2010) find that public disclosures about politicians' performance and qualifications can influence electoral accountability and reduce corruption. Studies indicate that punishment and monitoring can curb corruption (e.g., Fisman and Miguel, 2007; Di Tella and Schargrodsky, 2003).

Appendix 1

See appendix Tables 10, 11, 12.

Table 10 Variable definitions

Variable name	Definition	Data source
CRIMINALWIN	A dummy variable which is equal to 1 if a criminal candidate defeats a non-criminal candidate and 0 otherwise	Association of democratic reform (myneta.info)
CRIMINALWIN_ASSETS	A dummy variable which is equal to 1 if a corrupt candidate defeats a non-corrupt candidate in a close election with a win margin of less than or equal to 5% or 10% and is 0 otherwise. We define a candidate to be corrupt if the increase in their net assets (assets—liabilities) is greater than 200% during the 5-year period when they were in office and non-corrupt if the increase is less than 200%	Association of democratic reform (myneta.info)
CRIMINAL_INCUMBENT	Dummy variable which is equal to 1 if the criminal candidate is an incumbent and 0 otherwise	Association of democratic reform (myneta.info)
CORRUPT_STATE	Dummy variable which is equal to 1 for states with an above median value of corruption index in 2005 Corruption study by Transparency International	Transparency international india
ROA	Return on Assets, defined as Profit After Taxes (same as Net Income) divided by Total Assets	CMIE prowess
Q	Tobin's Q is equal to the market value of assets divided by book value of assets where the market value of assets is computed as the book value of assets plus the market value of common stock less the book value of common stock	CMIE prowess
Market Cap	Market Capitalization of the stock	CMIE prowess
Election result announcement CAR (-1, +1)	Defined as market-model adjusted cumulative abnormal return for a ± 1 day window around an election result announcement date. To estimate the market model, we use S&P CNX 500 index as a proxy for Indian stock market returns and daily stock returns over last four quarters excluding the current quarter to estimate the market return sensitivity or beta for each firm at the end of each quarter. We then use the most recent beta estimate and raw stock returns during the election result announcement window to estimate the cumulative abnormal returns around each election result announcement date	CMIE prowess
Project announcement CAR (−1, +1)	Defined as market-model adjusted cumulative abnormal stock return for a ± 1 day window around a project announcement date. To estimate the market model, we use S&P CNX 500 index as a proxy for Indian stock market returns and daily stock returns over last four quarters excluding the current quarter, to estimate the market return sensitivity or beta for each firm at the end of each quarter. We then use the most recent beta estimate and raw stock returns during the project announcement window to estimate the cumulative abnormal stock returns around each project announcement date	CMIE capex, prowess
PCTPROJECT	Percentage of the total cost of the capital expenditure of a given firm in that particular district in last 5 years before the general election	CMIE capex
Project cost (million indian rupees)	Project-level capital expenditure	CMIE capex
STALL	An indicator variable which is equal to 1 if a project is stalled or abandoned and 0 otherwise	CMIE capex
TIME_TO_COMPLETION (Days)	Number of days from beginning to completion of a project	CMIE capex
Number employees district	Total number of employees for private-sector, state-owned and all firms in a given district	Annual survey of industries (ASI) micro dataset

Table 10 (continued)

Variable name	Definition	Data source
Change in log number employees district	Change in logarithm of number of employees for private sector, state owned and all firms in a given district between 2003–04 and 2008–09 ASI datasets	Annual survey of industries (ASI) micro dataset
Total investment district (million indian rupees)	Total capital expenditure by firms in a district in the five-year period after the election	CMIE capex
Change total investment district (million indian rupees)	The differences in total investments between the five years following the election and the investment in previous five years by all firms in the same district	CMIE capex
Change local investment district (million indian rupees)	The differences in total investments between the five years following the election and the investment in previous five years by locally headquartered firms in the same district	CMIE capex
Change non-local investment district (million indian rupees)	The differences in total investments between the next five years after the election and the investment in previous five years by non-locally headquartered firms in the same district	CMIE Capex
STATE_GDP_GROWTH	Nominal GDP growth measured at the state-level in percentage	Ministry of statistics and program Implementation, govt of india
STATE_CRIME_GROWTH	Crime growth measured at the state-level in percentage	National crime records bureau, india
STATE_LITERACY	Percentage of the state population that is literate	ministry of statistics and program implementation, Govt of india
STATE_SEX_RATIO	Number of females in the state population per 1000 males	Ministry of statistics and program Implementation, govt of india
DISTRICT_CRIME_GROWTH	Crime growth measured at the district level in percentage	National crime records bureau, India

Table 11 Regression discontinuity design tests: outcome variables around alternative cutoff points

	Project ann			Election ann		Change Investment
	CAR(−1, +1)			CAR(−1, +1)		Change total project cost
Independent variable	+5%	−5%	+5%	−5%	+5%	−5%
	1	2	3	4	5	6
Intercept	−0.094***	−0.062***	−0.140***	−0.114***	0.200	−1.725*
	(−4.24)	(−2.98)	(−5.77)	(−4.62)	(0.54)	(−1.89)
CRIMINALWIN	0.004	0.001	0.002	−0.016	0.084	−0.122
	(1.02)	(0.52)	(0.14)	(−1.39)	(0.55)	(−0.60)
LOG(MCAP)	0.001	−0.002	0.004	−0.006**		
	(0.76)	(−1.44)	(1.24)	(−2.15)		
Clustered(District,Election Year)	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	No	No
District fixed effects	Yes	Yes	Yes	Yes	No	No
State fixed effects	No	No	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
Number of observations	832	837	352	349	129	146
R-square	0.23	0.20	0.52	0.43	0.26	0.22

Table 12 Criminal politicians and effects on district crime growth

	Dependent variable: CRIMEGROWTHDISTRICT										
	All crimes			Crimes against body		Crimes against public order and property		Economic crimes		Crimes against women and children	
	WIN MARGIN										
	All	10%	5%	All	10%	All	10%	All	10%	All	10%
	1	2	3	4	5	6	7	8	9	10	11
Intercept	0.031***	0.031***	0.041***	0.069***	0.064***	0.023***	0.014*	0.161***	0.124***	0.072***	0.064***
	(5.41)	(4.04)	(3.64)	(6.76)	(4.80)	(3.37)	(1.68)	(6.40)	(7.35)	(6.98)	(5.35)
CRIMINALWIN	0.022***	0.018	0.001	0.016	0.020	0.029**	0.030*	−0.004	−0.008	−0.009	−0.006
	(2.63)	(1.53)	(0.05)	(1.11)	(1.00)	(2.52)	(1.94)	(−0.13)	(−0.33)	(−0.64)	(−0.30)
CRIMINALWIN*PRE	−0.026**	−0.026*	−0.019	−0.035*	−0.061***	−0.056***	−0.044**	−0.004	0.026	0.032	0.027
	(−2.20)	(−1.83)	(−1.05)	(−1.86)	(−2.99)	(−3.81)	(−2.22)	(−0.12)	(0.76)	(1.57)	(1.16)
N	1040	610	354	1014	592	1014	592	1014	592	1014	592
R2(%)	0.57	0.48	0.31	0.29	1.00	1.4	0.98	0.01	0.1	0.24	0.24

Appendix 2

This table reports the results corresponding to the tests that validate the application of Regression Discontinuity design. In Panel A, we test for the absence of discontinuity in one of the following outcome variables: project announcement CAR, election announcement CAR and change in aggregate investments at cutoffs other than 0%, we consider + 5% and −5% as alternative cutoff points. The t-statistics are reported in parentheses and 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.

Appendix 3

This table reports the results corresponding to the tests that examine the effects of criminal politician win on district crime growth. In Panel A, the dependent variable is the average district crime growth (CRIMEGROWTHDISTRICT) for either the two years prior to the elect ion (PRE = 1) or for election year and two years in the post-election period

(PRE = 0) for all crimes or for the different categories of crime. The t-statistics are reported in parentheses and 1%, 5% and 10% statistical significance are indicated with ***, ** and * respectively.

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Data availability Data is from commerical sources or from government sources and will not be deposited.

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