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## Building connections: Political corruption and road construction in India

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## ABSTRACT

Politically-driven corruption is a pervasive challenge for development, but evidence of its welfare effects are scarce. Using data from a major rural road construction programme in India we document political influence in a setting where politicians have no official role in contracting decisions. Exploiting close elections to identify the causal effect of coming to power, we show that the share of contractors whose name matches that of the winning politician increases by 83% (from 4% to 7%) in the term after a close election compared to the term before. Regression discontinuity estimates at the road level show that political interference raises the cost of road construction and increases the likelihood that roads go missing.

## 1. Introduction

A growing literature documents the private returns to holding public office and the benefits from political connections in both the developed and developing world (e.g. [Fisman et al., 2014](#); [Cingano and Pinotti, 2013](#)).<sup>1</sup> It is often not clear from existing work to what extent the observed gains by public officials or connected firms represent a welfare loss. We document political influence over the allocation of individual road contracts in India's major rural road development scheme, providing econometric evidence that politicians intervene in the allocation of contracts on behalf of members of their own network. By studying the performance of firms on contracts that are likely to have been allocated preferentially, our paper provides direct evidence on the welfare costs of political corruption. A distinguishing feature of our findings is that we study a programme in which politicians have no formal role.

Specifically, we use data on more than 88,000 rural roads built under the Pradhan Mantri Gram Sadak Yojana (PMGSY) programme to study how close-election victories shift spending. Using regression discontinuity (RD) estimates to identify the causal effect of coming to power we show in our preferred specification that the share of contractors whose name matches that of the winning politician increases from 4% to 7% (an 83% increase). The magnitude of these distortions are large relative to programme size. Applying our RD estimate to the full sample (i.e.

extrapolating from a LATE) would imply that state-level parliamentarians (MLAs) intervened in the allocation of roughly 1900 of the 4127 road contracts let to connected contractors, approximately \$540M of the \$1.2B spent on such roads and approximately 4% of the total spent on the programme. These results are broadly representative of Indian polities. Our sample consists of 4058 electoral terms from 2001 to 2013, covering 2632 constituencies in 24 of the 28 states which existed in our sample period.

The allocation of contracts to those with political connections does not conclusively prove that politicians' motives are corrupt. In an environment of imperfect information, MLAs could, in theory, be better informed about, and better able to monitor, contractors in their own network, and might therefore improve programme performance through benevolent interference. RD estimation at the road level provides no evidence that is the case for PMGSY road construction. Instead, we document direct negative welfare consequences for the people the programme is supposed to serve.

We find that roads allocated to politically connected contractors are significantly more likely never to be constructed. Census data at the village-level, collected after road construction was officially completed, reveal that a number of roads listed as having been completed in the PMGSY monitoring data, and for which payments were made, do not appear to exist. We define a road as "missing" if a village it was meant to

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reach subsequently lacked “all-weather road access” (PMGSY’s stated objective). The preferential allocation of roads is estimated to increase the likelihood of a missing all-weather road by 86%. Assuming an extrapolation from a LATE were valid, this would imply that an additional 497 all-weather roads are missing as a result of corrupt political intervention and, that the 857,000 people these roads would have served, remain at least partially cut-off from the wider Indian economy. Political interference in PMGSY is also detrimental when road construction actually takes place. Further road-level RD estimations show that roads allocated to connected contractors are more expensive to construct. These results indicate that corruption in PMGSY imposes social costs while providing no offsetting benefits in terms of efficiency or quality. Importantly, because road locations were largely determined before the elections we study, the impact of the corruption examined here arises primarily from who is allocated a contract rather than where a road is built.

Our paper’s first contribution is to provide micro-evidence on informal channels of political influence. A growing number of papers document how firms benefit from political connections, (Amore and Bennedsen, 2013; Do et al., 2015). Khwaja and Mian (2005) show that banks in Pakistan lend more to politically connected firms - in spite of higher default rates. Cingano and Pinotti (2013) show that connected firms in Italy benefit from a misallocation of public expenditures, which helps them to increase profits. Mironov and Zhuravskaya (2016) show that Russian firms who funnel money in the run-up to elections are significantly more likely to receive procurement contracts after the election. We add to these recent contributions, by showing a link between the election of Indian legislators and the allocation of PMGSY road contracts to connected contractors. Preferential allocation in the context of PMGSY is particularly striking, because state-level legislators do not have any formal role in the allocation of contracts. In fact, this programme’s bidding rules were designed in ways that should have forestalled political influence at the bidding stage (NRRDA, 2015). Our evidence on preferential allocation in such a programme helps us to understand the economic role of local politicians, in particular in India. Recent work shows how Indian state legislators have a sizable impact on local economic outcomes. Asher and Novosad (2017) show that employment is higher in constituencies whose MLAs are aligned with the state-level government. Prakash et al. (2015) find that the election of criminal MLAs leads to lower economic growth in their constituencies. Fisman et al. (2014) show that the assets of marginally elected MLAs grow more than those of runners-up, which confirms the idea that there are substantial private returns to holding office.<sup>2</sup> Existing work has shown that MLAs have influence over the assignment of bureaucrats (Iyer and Mani, 2012). In further analysis, our paper documents that the misallocation of roads is stronger when MLAs and local bureaucrats (District Collectors) share the same name, and weaker when local bureaucrats are up for promotion and subject to greater scrutiny. These results suggest that bureaucrats play an important role in facilitating political corruption, and they help to explain how politicians can exert influence even when they do not have any formal role. Hence, our paper provides micro-evidence that accounts for MLAs’ disproportionate impact on the economies of their constituencies, and for the private benefits they derive from holding office.

Our second contribution is to demonstrate a new approach to quantifying politicians’ influence over public procurement contracting. The core challenges we confront in doing so are that: (i) there is no information on actual connections between politicians and the contractors active in their constituency; and (ii), to the extent that politicians intervene in the allocation of roads on contractors’ behalf, such improper

interference would not be documented. We address the first problem by constructing a surname-based measure of proximity between candidates for state-level legislatures and contractors. This approach follows a number of papers that use Indian surnames as identifiers of caste or religion (e.g. Hoff and Pandey, 2004; Field et al., 2008; Banerjee et al., 2014). Dealing with the second issue – identifying improper intervention – requires isolating the variation in proximity to contractors that results from the MLA coming to power. We do so with a regression discontinuity approach that exploits the fact that in close elections, candidates who barely lost are likely to have similar characteristics to those who were barely elected. If MLAs are intervening in the assignment of contracts, one would expect a shift in the allocation towards contractors who share their name, and no equivalent shift for their unsuccessful opponents. This approach to detect undue influence is what Banerjee et al. (2013) refer to as a “cross-checking” method for identifying corruption: the comparison between (i) an actually observed outcome, and (ii) a counterfactual measure which should be equivalent to the former in the absence of corruption.<sup>3</sup> In our setting, if politicians are not intervening in the allocation of road projects, they should be no ‘closer’ to contractors than their unsuccessful opponents.

Our third contribution is to shed light on the social costs of political connections. In principle, allocating contracts to connected firms could be beneficial – politicians could use private information to select higher quality firms, or they could use their social networks to discipline contractors. And while the common intuition is that political influence has deleterious effects, few papers document the social costs of political connections. For example, Mironov and Zhuravskaya (2016) show that politically connected firms have lower average productivity.<sup>4</sup> Our unusually rich data allows us to examine the performance of contractors in the exact contracts that are likely to be preferentially allocated. We introduce a particularly powerful measure of contractor under-performance: “missing roads”. These are roads that are complete in the PMGSY records and for which payments have been made, but that do not appear in the (independently conducted) Population Census. This approach allows us to provide very clear evidence of the welfare costs of undue political influence: the roads that are built by connected contractors are more likely to go missing.

This finding speaks to an old debate in the corruption literature: the contrast between costly rent-seeking or “greasing the wheels”. Theoretically, corruption is typically thought of as rent-seeking. Public officials use their control over the allocation of contracts or the provision of services to ask for bribes (e.g. Becker and Stigler, 1974; Krueger, 1974; Rose-Ackerman, 1975; Shleifer and Vishny, 1993). This behaviour is most likely to arise in contexts where enforcement is weak and officials are poorly remunerated.<sup>5</sup> The so-called “greasing the wheels” hypothesis argues that such corruption can be optimal in a second-best world, by allowing agents to circumvent inefficient institutions and regulation (Huntington, 1968; Lui, 1985). In principle, both arguments could apply to the preferential assignment of PMGSY roads by Indian MLAs.<sup>6</sup>

<sup>3</sup> Other exponents of the “cross-checking” approach include Acemoglu et al. (2014), Golden and Picci (2005), Reinnika and Svensson (2004), Olken (2007), Fisman (2001), and Banerjee et al. (2014). Several countries conduct regular audits of local government expenditure and make the results publicly available. Examples of research based on these data include: Ferraz and Finnan (2008, 2011) and Melo et al. (2009) for Brazil; or Larreguy et al. (2014) for Mexico; and Bobonis et al. (2016) for Puerto Rico. In some settings, corruption can be observed directly, as in the driving license experiment conducted by Bertrand et al. (2007) or in the trucking survey of Olken and Barron (2009).

<sup>4</sup> Cingano and Pinotti (2013) measure the welfare costs of preferential contract allocation through simulation techniques. Fisman and Wang (2015) show that politically connected firms in China have higher worker death rates.

<sup>5</sup> In the case of Indian MLAs, calculating efficiency wages (as suggested by Becker and Stigler, 1974) may be complicated by the fact that candidates frequently need to pay their parties significant sums for their place on the ticket. This could prompt them to engage in corrupt behaviour once elected (Jensenius, 2013).

<sup>6</sup> An intermediate argument is that initial corrupt allocations may not matter if there is scope for Coasian bargaining. Sukhtankar (2015) finds evidence in this direction for the allocation of the wireless spectrum in India.

<sup>2</sup> Gulzar and Pasquale (2016) also confirm the importance of MLAs for local development outcomes. In blocks that are split between different MLAs, the implementation of India’s rural employment guarantee is worse than in blocks that are entirely part of one MLAs constituency.

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