

# Bartering Bureaucrats: FDI Weakens Governance

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## Abstract

How does global economic integration shape governance in developing countries? This question is central to globalization's welfare implications, but existing work generates contradictory findings. We analyze how liberalization of foreign direct investment (FDI) shapes a critical input to governance: the allocation of bureaucratic talent. We present two competing hypotheses: politicians locate competent bureaucrats to FDI-exposed areas to maximize economic growth, or they prioritize loyal bureaucrats to facilitate rent-seeking. We leverage India's large and sudden 2005 FDI liberalization to identify FDI's causal effect on turnover of bureaucrats in the Indian Administrative Service (IAS). Our findings are consistent with increased rent-seeking. Bureaucratic turnover increases in FDI-exposed districts, driven by the movement of loyal bureaucrats. This pattern is pronounced in more corrupt states, in the presence of FDI from more corrupt countries, and FDI to produce for the local market. State legislators representing FDI-exposed constituencies see substantial growth in their personal assets, but only when their party controls the state government and when they are in districts with higher proportions of loyal bureaucrats. Finally, survey respondents in exposed areas report less confidence in politicians. Our findings highlight a novel way that global economic integration strengthens politicians' motives to engage in corruption.

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# 1 Introduction

Global economic integration presents new opportunities and challenges for governance in low- and middle-income countries. Competition for mobile capital changes politicians' incentives and capacity to use public resources efficiently. This competition can strengthen governance if foreign investors demand stronger property rights protections (Gerring and Thacker 2005) and better infrastructure (Ross 2019), are less willing to pay bribes (Zhu and Shi 2019), or expose politicians to innovative governance techniques (Kwok and Tadesse 2006). Alternatively, competition may undermine governance when politicians sign treaties that limit their regulatory and contract enforcement authority (Simmons 2014) or use public funds to subsidize investment (Jensen and Malesky 2018).

These opposing mechanisms speak to the same underlying question: how much do the dictates of foreign investors drive politicians' governance choices? This question is at the heart of prominent debates about global economic integration and inequality (Antràs et al. 2017), but the scope for causal tests is limited. Foreign investment flows are endogenous to governance quality (Bénassy-Quéré et al. 2007). Further, for many metrics of governance, scholars cannot isolate integration's effects on politicians' motives to govern. For instance, the quality of public services may reflect both politicians' motives to provide services and external fiscal constraints imposed by economic integration.

In this study, we analyze how foreign direct investment (FDI) changes how Indian state politicians assign bureaucrats. We introduce two innovations. First, we analyze politicians' allocation of bureaucratic talent as a real-time indicator of how economic integration changes politicians' incentives to govern. In India, like many countries, state politicians have discretion to transfer bureaucrats across posts (Wade 1985; Brierley 2020). Economic integration does not change politicians' capacity to transfer bureaucrats. Politicians' management of the bureaucracy has large consequences for social welfare, trust in government, and state legitimacy (Pepinsky et al. 2017).

We articulate two competing hypotheses. Politicians for whom FDI is a means to deliver economic prosperity should locate relatively competent bureaucrats to FDI-exposed districts in their state. Competent bureaucrats can better serve the needs of multinational corporations (MNCs) by facilitating access to inputs, streamlining regulations, and other measures that contribute to MNCs' job creation and productivity spillovers. Politicians for whom FDI is a source of rents should locate relatively loyal bureaucrats to FDI-exposed areas. Loyal bureaucrats have stronger incentives to help politicians extract rents from MNCs.

The bureaucracy in our context is the Indian Administrative Service (IAS), famously described as India's "steel frame" (Potter 1996). Two-thirds of IAS officers are direct recruits,

selected through a national, merit-based process and quasi-randomly assigned to one state for the duration of their IAS career. The remaining third are state recruits, state-level civil servants appointed to the IAS by the state’s Chief Minister (CM). All officers are subject to the same promotion rules, pay scale, and mandatory retirement age. Politicians cannot fire IAS officers. As we explain in detail, IAS promotion rules give direct recruits stronger career motives to be competent and resist political pressure to extract rents. State recruits have limited prospects for career advancement, producing stronger incentives for loyalty to politicians in exchange for desirable postings (Iyer and Mani 2012). We limit our empirical analysis to district-level IAS officers, who have the same job descriptions across India.

Our second innovation addresses the endogenous relationship between FDI and governance. We leverage India’s large and sudden FDI liberalization in 2005 to identify FDI’s causal effects on turnover of IAS officers. India eliminated all entry barriers into 110 industries. Figure 1 shows a large spike in intended FDI in 2006 and near-threefold increase foreign firms’ new spending by 2008. Our reduced form analysis exploits the concentration of post-liberalization FDI growth in six Indian states, an artefact of FDI’s tendency to geographically agglomerate. We harness this temporal and cross-state variation in FDI inflows in a difference-in-difference framework and event study estimation. Additionally, we estimate a two-stage instrumental variable model that uses district exposure to FDI liberalization – measured with original FDI regulation data – to instrument for district-year FDI.

Our findings are consistent with politicians moving loyal bureaucrats to help extract rents from MNCs. FDI-exposed districts have more bureaucratic turnover, which is driven by the turnover of state recruits. This change is concentrated in more corrupt states, and in districts with FDI from more corrupt countries. State recruit turnover is also higher in districts with FDI intended to produce for the Indian market, investments for which MNCs are more tolerant of rent-seeking. Competent bureaucrats, as measured by education and exam rankings, exhibit no statistically significant change in turnover. We find no change in turnover among direct recruits posted to their home state, indicating that state recruits are not more frequently transferred because of contextual knowledge about their home state. We address possible bias in our difference-in-difference estimations, including the potential for heterogeneous treatment effects (de Chaisemartin and D’Haultfœuille 2020).

We further establish politicians’ rent-seeking motive for bureaucratic transfers by analyzing growth in politicians’ personal assets, an insightful proxy for corruption in India Fisman et al. (2014). Members of the state legislature from FDI-exposed districts saw a substantive and statistically significant increase in their personal assets. However, this effect only obtains if the politician belongs to a party in the state’s ruling coalition, and if their constituency is located in a district with a high proportion of loyal bureaucrats. Growth accrues to politi-

cians’ “moveable” (i.e. liquid) assets, which are more likely to reflect corruption. These patterns are inconsistent with FDI’s economic effects driving asset growth. Additionally, we find that in FDI-exposed districts with higher shares of state-recruited bureaucrats, citizens’ confidence in state and local politicians declines.

Our study most closely relates to research on FDI’s consequences for corruption, to which we contribute a new explanation for why FDI increases corruption. Existing research argues that MNCs engage in corruption when market entry barriers generate monopoly rents (Malesky et al. 2015; Zhu 2017). Supporting evidence is from countries that extensively restrict foreign ownership, including China and Vietnam. By contrast, we show that FDI liberalization, the elimination of entry barriers, increases corruption. In large countries like India that have attractive domestic markets, FDI growth after liberalization creates more opportunities to extract rents from MNCs who require bureaucrats’ assistance to produce and sell in the local market. Our explanation is more broadly applicable as most countries today have relatively low foreign ownership restrictions (Pandya 2014). We also highlight the importance of bureaucrats in extracting rents from MNCs.

Our study also sheds new light on FDI’s electoral consequences. Current research argues that voters perceive FDI as a signal of a politician’s competence to deliver economic prosperity (Jensen and Malesky 2018; Owen 2019). Our findings suggest a different mechanism: rents extracted from MNCs support electoral strategies based on politicians’ payments to voters or self-financed campaigns (Stokes et al. 2013; Golden and Min 2013). Though we lack suitable measures to directly test this link, our asset growth findings are consistent with extensive research that pins corruption on politicians’ need to buy votes (Bussell 2012; Gingerich 2013). This alternate electoral logic can help explain why politicians in many low-income democracies devote considerable resources to FDI promotion despite relatively weak economic voting. Indeed, FDI promotion is successful only when host countries have burdensome bureaucratic procedures (Harding and Javorcik 2011), which suggests that investment incentives help offset the costs to firms of rent-seeking.

Finally, we contribute to a growing literature on political control over bureaucracies. We examine an exogenous shock that changes politicians’ returns to the allocation of bureaucratic talent. We build on research that explores how electoral cycles shape the allocation of bureaucrats (Iyer and Mani 2012), how career incentives influence bureaucratic performance (Bertrand et al. 2020; Xu et al. 2020), and bureaucracies’ effects on public goods provision (Gulzar and Pasquale 2017; Bhavnani and Lee 2018, 2021). While much existing work also focuses on the IAS, these studies omit state recruits, who account for one-third of all officers. Our novel comparison of direct and state recruits shows that within a single bureaucracy with uniform rules for pay and promotion, bureaucrats recruited through less meritocratic

procedures are more likely to facilitate rent-seeking. Our findings also suggest that existing research underestimates rent-seeking in the IAS.

## 2 Theory

Our theoretical framework explains how FDI changes politicians' incentives to allocate bureaucratic talent. Three actors populate our framework: MNCs, politicians, and bureaucrats. We begin by establishing why MNCs undertake FDI, FDI's effects in recipient countries, and how MNCs choose where to invest. Next, we consider what FDI means to politicians and why FDI can change what politicians want from the bureaucrats they oversee. Finally, we unpack the relationship between politicians and bureaucrats to understand how bureaucrats' career concerns shape their loyalty to politicians.

### Multinational Corporations

FDI is foreign investment by MNCs to produce goods and services across multiple countries via foreign subsidiaries. MNCs pursue FDI for their most skill- and technology-intensive activities that they wish to keep internal to the firm. All else equal, MNCs prefer to retain full ownership of their foreign subsidiaries. Ownership restrictions force MNCs into joint ventures with local firms, which weakens their control over proprietary technologies. Consistent with motives for control, countries that liberalize foreign ownership receive more FDI (Pandya 2014). From the perspective of host country governments, FDI is a source of higher-skilled jobs and advanced technologies that generate productivity spillovers to local firms (Harding and Javorcik 2012; Alfaro 2017).

MNCs organize their production across countries to either sell in the local market or produce for export. Though market-oriented FDI accounts for the majority of FDI, export-oriented FDI has grown rapidly in recent decades (Antràs 2020). MNCs making market-oriented investments are limited to host countries with a large domestic market that can support a profitable scale of production. Governments of large countries, therefore, have leverage over these firms and can often attract market-oriented FDI despite a poor investment climate (Vernon 1971; Kobrin 1987). By contrast, MNCs producing for export have more location flexibility, lowering their tolerance for a poor investment climate. They favor countries with abundant skilled labor and low trade barriers. This distinction implies that MNCs making market-oriented investments are more tolerant of rent-seeking in large countries because they have fewer alternative markets in which to invest. Once MNCs have selected a host country, they tend to locate in close proximity to firms in the same industry

in order to access specialized inputs (Head et al. 1995; Bobonis and Shatz 2007). Agglomeration reduces MNCs' scope to select sites within countries on the basis of governance quality. Combined, these conditions explain why some MNCs may knowingly choose to locate in areas where they may be subject to rent-seeking.

In most countries, MNCs rely on local governments to help establish and operate plants. Local governments typically oversee basic utilities including power and water, maintain critical infrastructure such as roads, and have regulatory authority over a variety of production activities.<sup>1</sup> These tasks provide contact points between MNCs and the local bureaucrats and politicians who facilitate MNCs' access to these public services. Politicians can have a stake in the quality of local services that MNCs receive and public services in FDI-exposed areas. The quality of local public goods provision, such as education and infrastructure, builds local firms' capacity to absorb productivity spillovers from MNCs (Borensztein et al. 1998; Alfaro 2017).

MNCs may be willing to pay rents if doing so allows them to overcome the consequences of a poor investment climate. Existing research suggests that MNCs pay bribes to enter restricted markets (Malesky et al. 2015; Zhu 2017). Beyond engaging in corruption for market access, MNCs may also be willing to make a range of other payments to local politicians and bureaucrats to begin and maintain production. For example, MNCs may be willing to pay rents for smooth land acquisition (Levien 2013). Additionally, they may pay local bureaucrats "speed money" to expedite business registration, utility access, and industry-specific regulatory approvals (Kaufmann and Wei 1999). While many MNCs face the prospect of legal sanction in their home countries for engaging in corruption abroad, not all rent-seeking activities are necessarily clear-cut instances of corruption. Many rent-seeking opportunities may be perceived not as out-and-out corruption, but rather the cost of doing business in a poor investment climate. This creates an opening for politicians to extract rents from MNCs.

## Politicians

We articulate two competing hypotheses as to how FDI changes politicians' incentives to govern. The first hypothesis holds that FDI should motivate politicians to improve governance. Politicians have electoral incentives to attract FDI, prevailing accounts argue, because voters approve of politicians who do so. Owen (2019) finds that FDI increases the probability that incumbent mayors in Brazil get re-elected because voters credit politicians for improved economic conditions. US survey respondents report stronger approval for governors who

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<sup>1</sup>Classic accounts of the relationship between governments and MNCs suggest that low- and middle-income countries lack the bureaucratic know-how to effectively regulate the technologically advanced production activities of MNCs (e.g. Tarzi 1991).

offer investment subsidies, even if no investment materializes (Jensen et al. 2014). Jensen and Malesky (2018) argue that politicians deliberately offer investment subsidies in order to claim credit for investments which firms would have made regardless. These findings are consistent with voters’ generally positive view of FDI (Pandya 2010). We expect that politicians motivated by voter approval of economic performance will react to FDI by improving governance in ways that maximize FDI’s economic benefits.<sup>2</sup>

Alternatively, FDI may increase politicians’ incentives to seek rents. This much is implied by findings that MNCs pay bribes to public officials (Malesky et al. 2015; Zhu 2017), though these findings focus more on MNCs’ willingness to pay bribes rather than politicians’ motives to seek them. Personal enrichment is an obvious motive for politicians. In our empirical context of India, politicians’ personal wealth plays an outsized role in the electoral process because political parties are weak and campaign finance barriers foreclose on alternative strategies (Sircar 2018). Though Indian voters disapprove of politicians’ wealth accumulation, these attitudes do not meaningfully shape vote choice (Chauchard et al. 2019).

We propose an additional motive for rent-seeking rooted in electoral incentives: politicians extract rents from MNCs to fund vote-buying. FDI flows to many countries in which voters commonly exchange their votes for cash, goods, and services provided by politicians (Stokes et al. 2013; Hicken 2011). Vote-buying involves private transfers – commonly cash, food, alcohol, and consumer goods – which distinguishes it from transfers of state resources like employment or public services.<sup>3</sup> Definitions of vote buying are contested (Nichter 2014), but our focus is on politicians’ motives to finance vote-buying strategies. State politicians perceive illicit funds to be the dominant source of campaign finance among their peers (Bussell 2010). Large expenditures on various forms of “gifts” to voters are consistent with politicians’ demand for illicit funds. Though some India scholars argue that vote-buying is less important than previously thought (Auerbach et al. 2021), it endures as an important part of the Indian electoral landscape.

## Bureaucrats

Politicians’ motives for governance manifest in how they allocate a key governance input: bureaucratic talent. Their relationship embodies a principal-agent dynamic. The first question to unpacking this dynamic is: what do politicians want from bureaucrats? In standard accounts, politicians want to maximize bureaucratic efficiency because they are accountable

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<sup>2</sup>Existing findings leave some question as whether voters respond to FDI’s realized economic benefits or the mere presence of FDI. The latter implies less of a tradeoff between efficiency and rent-seeking.

<sup>3</sup>FDI’s income benefits accrue to relatively skilled workers because MNCs demand this type of labor. To the extent that vote buying is targeted at the poor, FDI’s positive income effects should not change the cost of sustaining clientelist relationships.

to voters.<sup>4</sup> Politicians monitor bureaucrats' effort more when voters can readily assign them credit for service delivery (Gulzar and Pasquale 2017). Where accountability is weaker, politicians may deploy bureaucrats to facilitate corruption. For example, Raffler (2020) shows that when local politicians in Uganda belong to the ruling party, they willfully monitor bureaucrats less to avoid detecting misconduct that benefits their party.

What motivates bureaucrats? In Weberian bureaucracies, merit-based recruitment and promotion foster norms that contribute to efficiency (Rauch and Evans 2000). Where promotion entails higher salary and greater prestige, bureaucrats have stronger incentives to perform competently. Politicians may use a variety of mechanisms to control bureaucrats' behavior (McCubbins and Schwartz 1984; McCubbins et al. 1987). In many merit-based civil services, politicians cannot fire bureaucrats or set salaries, but they retain the ability to transfer them across posts (Wade 1985). The threat of transfer taps into bureaucrats' preference for higher prestige portfolios (Iyer and Mani 2012) and postings in urban areas (Dal Bó et al. 2013). Brierley (2020) finds that bureaucrats in Ghana are more likely to engage in corruption on behalf of politicians who can transfer them to less desirable posts.

## **FDI, Politicians, and the Allocation of Bureaucratic Talent in India**

The Indian Administrative Service (IAS) is an insightful context to examine how economic integration changes politicians' motives to govern. IAS has two recruitment channels that each produce opposite incentives to engage in rent-seeking on behalf of politicians.<sup>5</sup> The IAS has about 5,000 officers nationwide and less than 200 join each year. In each year's cohort, two-thirds of officers are direct recruits, selected through a competitive nationwide exam and quasi-randomly assigned to a state for the duration of their career. Applicants must be 21-30 years of age.<sup>6</sup> The remaining one-third of officers are state recruits, lower-level civil servants nominated by their state's Chief Minister (CM). They serve as IAS officers in the state that nominated them. In principle, CMs select their state's most talented civil servants, but allegations of patronage appointments are common.<sup>7</sup> As we discuss below, direct recruits outperform state recruits on key indicators of ability. For example, 80 percent of direct recruits graduated with first-class degrees, compared to 20 percent of state recruits.

CMs control the placement of IAS officers assigned to their state, but otherwise have

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<sup>4</sup>Where social cleavages are politically salient, accountability can magnify discrimination against bureaucrats from marginalized groups (Pierskalla et al. 2021).

<sup>5</sup>A more detailed discussion of the IAS is available in Appendix B. See also Vaishnav and Khosla (2016) and Bertrand et al. (2020). Cited IAS statistics are based on authors' own calculations.

<sup>6</sup>Applicants from Scheduled Castes or Tribes are eligible until 35.

<sup>7</sup><https://timesofindia.indiatimes.com/city/hyderabad/babus-seek-probe-into-irregularities-in-ias-promotions/articleshow/11968657.cms>



limited control over their career advancement. CMs cannot fire IAS officers. Salary and promotion eligibility are uniform nationwide. Officers begin their careers as deputies to the district magistrate, the chief district-level bureaucrat.<sup>8</sup> District officers oversee many governance functions, including revenue collection, infrastructure, welfare programs, law enforcement, and crisis administration. They are automatically promoted after two years in the entry-level position. All subsequent promotions are merit based. Eligibility for promotions is at fixed intervals (4, 9, 13, 16, 25, and 30 years of service). Officers must serve the minimum years in rank. Higher rank promotions are subject to vacancies and strict merit criteria. Turnover refers to reassignment to another post by the CM. Based on the IAS pay scale, turnover can reflect lateral transfer, promotion, or demotion. Turnover is frequent: 57 percent of district-level officers experience turnover at least once annually. Most turnover is lateral (64.4 percent), followed by promotion (33.8 percent).<sup>9</sup>

We argue that if politicians are motivated to strengthen governance for MNCs, we should observe more turnover of direct recruits in FDI-exposed districts. IAS recruitment and promotion rules give direct recruits stronger incentives to be competent and resist political pressure. The average direct recruit begins their IAS career at 26, as compared to 43 for state recruits. The IAS has mandatory retirement at age 60.<sup>10</sup> Promotions confer higher pay and more appealing jobs. The promotion process emphasizes merit.<sup>11</sup> After at least 20 years of service, officers are eligible for appointment to prestigious central government posts, the highest pay grade. Pensions are based on pay grade at retirement and these officers can leverage prestige for post-retirement opportunities. The career incentives of IAS direct recruits embody canonical justifications for meritocratic recruitment in bureaucracies (Rauch and Evans 2000).

By contrast, if politicians are motivated to extract rents from MNCs, we expect greater turnover of state recruits in FDI-exposed districts. All else equal, state recruits have weaker incentives for competence. Owing to their age, most state recruits cannot reach the IAS' highest ranks. On average, only five percent of officers in prestigious central government posts are state recruits. Bertrand et al. (2020) show that the effect of age operates through weakened career concerns and not through other officer characteristics correlated with age. Along with weaker career incentives, state recruits can have multiple reasons for facilitating politicians' rent-seeking. As we note, patronage considerations may influence CMs' selection

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<sup>8</sup>Indian districts nest within states and are a key level of administration for a range of important government functions.

<sup>9</sup>Demotions comprise less than two percent of turnover.

<sup>10</sup>The age was 58 before 1998.

<sup>11</sup>Senior IAS officers evaluate officers annually and make recommendations to the CM. CMs can exercise some discretion over district-level promotions but tend to follow recommendations for higher-level promotions.

of state recruits, who often have kinship ties and other similar affinities with politicians that reinforce loyalty Iyer and Mani (2012). Direct recruits with such ties are perceived as more corrupt and prone to political capture (Xu et al. 2020), and perform worse in delivering public goods (Bhavnani and Lee 2018). Bertrand et al. (2020) show that career-constrained IAS officers are perceived by their peers as more susceptible to political pressure. We anticipate these effects are stronger among state recruits, who are also posted to their home state and recruited through a less meritocratic process. Politicians can also influence bureaucrats with the threat of transfer or a share of rents.

In India, members of state legislative assemblies (MLAs) work closely with district-level IAS officers in ways that allow politicians to influence officers' interactions with MNCs. MLAs who belong to the state's ruling party can credibly threaten to have non-compliant officers transferred to a less desirable post (Iyer and Mani 2012). Through transfer threats, MLAs can influence IAS officers' actions on issues over which MLAs have no formal oversight authority. Lehne et al. (2018) document this dynamic, finding that IAS officers facilitated MLAs' corruption around road construction. More generally, Asher and Novosad (2017) find political favoritism drives improved firm performance in India, driven by politicians' influence over regulatory enforcement.

MNCs rely directly on IAS officers for regulatory approvals and indirectly through their reliance on public infrastructure. India is cited in investment reports as a particularly burdensome bureaucratic environment for MNCs to navigate (Santander 2021) and one in which businesses are regularly pressured to pay bureaucratic officials for expedient approvals (PERC 2010). IAS officers play a prominent (and often controversial) role in brokering land acquisitions for foreign investors (Levien 2013; Alkon 2018). Land-related transactions are especially rife with corruption in India, owing to the lack of transparency and discretion granted to local officials (Kapur and Vaishnav 2018).

### **3 Empirical Strategy: FDI Liberalization in India**

We harness a large de facto FDI liberalization in 2005 to identify FDI's effects. India regulates FDI inflows on two dimensions: 1) the percent foreign equity ownership allowed in a single firm and 2) government approval of the investment is required. India's federal Department of Industrial Promotion and Protection (DIPP) oversees FDI policy and announces policy changes via its *Press Notes* series.

On December 23, 2005, DIPP issued a clarification of FDI policy, stating that "FDI up to 100% is permitted under the automatic route in most sectors/activities." DIPP explains the motivation for this clarification: "It has been observed that sometimes proposals are

submitted for prior Government approval even though the cases are eligible for the automatic route. The investors are hereby advised to access the automatic route where the policy so permits” (DIPP 2005). This announcement was the first legally binding statement that, unless explicitly stated otherwise, 100 percent foreign-owned firms are legal and require no government approval. Six weeks later, DIPP formally repealed ownership restrictions for additional industries. This episode fully liberalized FDI into 110 industries, a shift noted in other countries’ investment climate reports (U.S. Department of State 2007; GAO 2008). The expansive nature of liberalization suggests that the identity of liberalized industries were not correlated with bureaucracy or governance. Consistent with liberalization, Figure 2 shows that greenfield investment via the automatic route drove India’s post-2005 FDI growth.

Our reduced form identification strategy relies on the historical agglomeration of FDI in six Indian states: Maharashtra, Karnataka, National Capital Region (NCR) of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.<sup>12</sup> Figure 3 plots annual FDI into these six “treated” states versus FDI into all other “control” states during 1995-2010. Before liberalization, FDI flows were relatively constant across the two groups but only treated states experienced large growth after liberalization. This pattern is consistent with MNCs’ tendency to agglomerate with other firms in their industry (Mukherjee 2011; Mukim and Nunnenkamp 2012; Chakrabarti et al. 2017). Agglomeration produces knowledge spillovers, especially important for firms operating in an unfamiliar country, and improves access to specialized inputs (Head et al. 1995; Bobonis and Shatz 2007). An obvious concern is that districts in treated states may have other underlying traits that correlate with FDI and governance. We analyze state- and district-level correlates of treatment status for 1962-2001 and find only modest differences between treatment and control areas.<sup>13</sup> No single industry dominates FDI inflows before or after liberalization.<sup>14</sup>

We also construct an instrumental variable that leverages district-year data on exposure to FDI liberalization. Our identifying assumption is that national FDI policies are orthogonal to district-level governance quality. We obtained annual FDI regulations from DIPP’s *FDI Press Notes* and *Consolidated FDI Circular*. For each 4-digit industry in the 2008 Indian National Industrial Classification (NIC), we coded the percent foreign ownership allowed in a firm and whether investment required government authorization (government route) or not (automatic route). For each industry-year, we measure liberalization as the percent foreign

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<sup>12</sup>NCR of Delhi consists of the National Capital Territory of Delhi and adjoining districts in surrounding states: Faridabad, Panipat, Sonapat, Rohtak, Rewari, Alwar, Gautam Buddha Nagar, Ghaziabad, and Gurgaon.

<sup>13</sup>See our discussion in the Appendix and Appendix Tables A.1 and A.2 for results.

<sup>14</sup>Industry FDI inflow patterns available on request.

ownership allowed via the automatic route.<sup>15</sup> We use these FDI regulations data to construct a measure of district-year exposure to FDI liberalization.<sup>16</sup>

The instrument relies on strong industry agglomeration tendencies in MNCs' location choices. Exposure is a function of districts' pre-liberalization industrial composition, which we measure using employment data from the 2001 Indian National Sample Survey (NSS). For example, if a district-year has five industries, each accounting for 20 percent of employment in 2001, and one industry is open to 100 percent foreign ownership via the automatic route, the district-year value is 0.2. If, in the following year, a second industry is fully liberalized, the value increases to 0.4. On average, 35 percent of a district's economy is open to FDI.

## 4 Data

We utilize two main data sources: district-level data on FDI inflows constructed from project-level investment data, and the complete executive record of bureaucrats serving in the IAS. Summary statistics for all variables are available in Appendix Table A.3.

### Foreign Direct Investment

Our measure of FDI uses data from CapEx, a database published by the Centre for Monitoring of the Indian Economy (CMIE). CapEx's project-level level FDI data reports location, industry, and date of operation, along with other information.<sup>17</sup> To the best of our knowledge, these data are the most granular and accurate Indian FDI data available for the sample period. Official FDI data are based on intended investment, a portion of which never materializes, whereas CapEx identifies completed investments.<sup>18</sup> We measure FDI as the number of completed greenfield FDI projects in a district-year. The industry distribution of projects before and after liberalization indicates that no specific industries drive topline FDI growth.

### IAS Officer Records

Data on IAS officers comes from the executive record sheet of each officer that is currently serving or has served in the past. This information is public record and is provided by the

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<sup>15</sup>In some industries, higher percentage ownership is allowed through the government route.

<sup>16</sup>Aghion et al. (2008) uses an analogous FDI liberalization measure for Indian states and Topalova (2010) constructs a similar measure of district-year trade liberalization exposure.

<sup>17</sup>CMIE obtains this information through press reports, government filings, and direct correspondence with firms.

<sup>18</sup>CapEx data are also less likely to capture Indian firms' use of foreign tax havens, which inflates official FDI estimates.

Ministry of Personnel, Public Grievances, and Pensions via an online portal.<sup>19</sup> Each officer’s executive record sheet contains common biographical information and highly detailed work history since entering the IAS. We transformed this data into an officer-year panel dataset. We focus on the time period of 1995-2009, during which we have essentially universal coverage of serving officers.<sup>20</sup> Our main sample is limited to officers serving in district-level positions as our unit of analysis is a district.<sup>21</sup>

Our data contain a range of biographical information, including an officer’s name, date of birth, gender, year of entry into the IAS, state cadre, and home state. Our data also include information on how an officer entered the IAS (i.e. via direct recruitment or from the state civil service) and pre-service educational qualifications. Additional information includes an officer’s mid-career occupational training record and all languages spoken. In addition to biographical information, the data includes a highly detailed work history for all officers. An officer’s executive record sheet lists each position the officer has held. For each position, we observe job title, salary level, department and geographic location, and experience area variables. Some officers hold multiple positions in a single year; when this occurs, we preserve the position they hold that is at the highest salary level. We create a series of variables from this data that we use in subsequent analyses.

**Turnover, Promotion, and Demotion** We first create  $Turnover_{ijt}$ , which is equal to one if officer  $i$  in district  $j$  is posted in a different position in year  $t$  than in year  $t - 1$  and zero otherwise. There are three distinct types of job turnover: lateral transfers, promotions, and demotions. Accordingly we create:  $Lateral_{ijt}$ , which is equal to one if officer  $i$  in district  $j$  holds a new position at the same salary level in year  $t$  as in year  $t - 1$  and zero otherwise;  $Promotion_{ijt}$ , which is equal to one if officer  $i$  in district  $j$  holds a new position at a higher salary level in year  $t$  than in year  $t - 1$  and zero other wise, and  $Demotion_{ijt}$ , which is equal to one if officer  $i$  in district  $j$  holds a new position at a lower salary level in year  $t$  than in year  $t - 1$  and zero otherwise.<sup>22</sup> The probability of turnover in a given year is 0.57, with the most common form of turnover being lateral transfers.

**Recruitment Source and Seniority** We next construct  $StateRecruited_i$ , a time-invariant indicator variable that is equal to one if bureaucrat  $i$  entered the IAS by promotion from a state civil service and zero otherwise. Approximately 1/3 of all IAS officers posted in district

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<sup>19</sup>Executive record sheets for all IAS officers can be found at <https://supremo.nic.in/KnowYourOfficerIAS.aspx>. We used web scraping techniques to collect this information.

<sup>20</sup>While the data stretch from immediately following Indian independence to the present day, coverage of earlier years is thin.

<sup>21</sup>Officers posted to state and central government positions are excluded.

<sup>22</sup>Some officers experience multiple job turnovers within the same year. When this occurs, we code them as having experienced turnover only once, meaning that our measures underestimate the level of turnover. This adjustment is common in the literature on the Indian bureaucracy (e.g., Iyer and Mani 2012).

positions are recruited from the state civil services, while 2/3 enter through direct recruitment.  $NearRetirement_{it}$ , a time-varying indicator variable, is equal to one if bureaucrat  $i$  is within five years of mandatory retirement at time  $t$  and zero otherwise. At any given point, slightly less than 1/5 of officers are within five years of mandatory retirement.<sup>23</sup>

**Officer Quality** We measure officer quality in several ways, all of which leverage pre-service officer information. As previously discussed, directly recruited officers take a competitive examination and must perform relatively highest to secure a position in the IAS. The examination rank of accepted officers is generally public, although not readily available for the universe of directly recruited officers. Among directly recruited officers, we use separately collected data on entry examination rank that is available for officers who are currently serving.<sup>24</sup>  $SameCadreDomicile_i$  is an indicator variable equal to one if directly recruited officer  $i$  serves in the same state as his or her listed domicile and zero otherwise. This reflects the fact that directly recruited officers who score highly on the entry examination are given the opportunity to choose their home state for cadre assignment.<sup>25</sup>

For all officers regardless of entry pathway, we create  $FirstClassDegree_i$ , which is equal to one if officer  $i$  is listed as having attained a first class degree and zero otherwise. We also construct  $ForeignDegree_i$ , which is equal to one if officer  $i$  holds a degree from a foreign educational institution and zero otherwise. Directly recruited officers are much more likely to have both first class and foreign degrees. 80 percent of directly recruited officers hold first class degrees and 20 percent hold foreign degrees, compared to just 10 and three percent, respectively, for state-recruited officers. These differences suggest a significant baseline quality gap between direct and state recruits.

## Control Variables

We use data from the 1991 and 2001 rounds of the Indian Census to construct a series of district-level control variables related to FDI and local governance. These variables include: logged total population, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio. Summary statistics for these variables are available in Appendix Table A.3.

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<sup>23</sup>We account for change in mandatory retirement age from 58 to 60 in 1998.

<sup>24</sup>We collect publicly available data from the IAS's Empanelment and Appraisal System (EASY). These data are available at <https://easy.nic.in/civilListIAS/YrCurr/AppendixQryCL.htm>. Examination rank data for officers who served during the sample period of 1995-2009 but who have retired is missing, which is approximately 30 percent of all directly recruited officers during the sample period.

<sup>25</sup>We create this variable only for directly recruited officers, for whom this distinction is relevant. State-recruited officers are virtually always assigned to their home state.

## 5 Empirical Analysis

We carry out our empirical analysis using difference-in-differences (DID) and instrumental variables research designs, both of which leverage India’s sudden FDI growth following liberalization in late 2005. We also leverage a triple differences design to analyze the differential movement of relatively more competent and loyal officers, to examine the effect of ex ante corruption on bureaucratic reorganization, and to examine differential bureaucratic turnover by type of FDI. We extend the results by exploring how FDI and bureaucratic transfers affected the value of assets held by state politicians, as well as citizen access to social services and perceptions of local politicians.

### Difference-in-Differences

Our reduced form analysis exploits temporal and cross-state variation in FDI inflows in a DID framework. Historically, FDI agglomerates in six Indian states that also received most of the post-2005 influx: Maharashtra, Karnataka, National Capital Region (NCR) of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat. Officers posted in the districts of these six states are “treated” in our analysis. We compare bureaucratic job turnover in treated states’ districts before and after FDI liberalization to districts in India’s other states (i.e. “control” states). We estimate a DID specification with district and year fixed effects and district-specific time trends, as well as district-level characteristics extracted from the 1991 and 2001 rounds of decennial Indian Census.<sup>26</sup> We estimate the following empirical model:

$$Y_{ijt} = \alpha_0 + \alpha_1 Treated_{ij} * Post_t + \alpha_2 Salary_{it} + \alpha_3 X_{jt} + \theta_j + \kappa_t + \theta_j * Year_t + \epsilon_{ijt} \quad (1)$$

where  $Y_{ijt}$  is the job turnover outcome for officer  $i$  in district  $j$  at time  $t$ ;  $Treated_{ij}$  is an indicator variable equal to one if officer  $i$  is located in a treated district  $j$ ;  $Post_t$  is an indicator variable equal to one for years 2006 and beyond;  $Salary_{it}$  represents a salary level indicator for officer  $i$  at time  $t$ ;<sup>27</sup> and  $X_{jt}$  is a vector of characteristics for district  $j$  at time  $t$ . District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, 1991/2001 Scheduled Caste rate, 1991/2001 adult literacy rate, 1991/2001 employment rate, and 1991/2001 gender ratio.  $\theta_j$  and  $\kappa_t$  are district and year fixed effects.  $\theta_j * Year_t$  represents district-specific linear time trends.  $\epsilon_{ijt}$  is the idiosyncratic error term.  $\alpha_1$ , the coefficient on the interaction of  $Treated_{ij}$  and  $Post_t$ , is the parameter of interest. We estimate all models using OLS and report standard errors

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<sup>26</sup>We also include officer-level fixed effects in supplementary models.

<sup>27</sup>IAS officers are organized in seven salary tiers based on seniority.

clustered by state.<sup>28</sup>

Table 1 shows the results of the estimation of Equation 1.  $Turnover_{ijt}$  is the dependent variable in Columns (1) and (2); Column (1) controls for district-level population only, while Column (2) adds the full set of district-level controls. Columns (3), (4), and (5) present results for  $Lateral_{ijt}$ ,  $Promotion_{ijt}$ , and  $Demotion_{ijt}$ , respectively. Overall, India’s liberalization of FDI caused a reorganization of the bureaucracy in exposed districts. Officers located in districts most exposed to liberalization are more likely to experience job turnover – a 23.7 percentage point increase in the probability of experiencing a move.

The results in Column (3) suggest that this topline result is primarily driven by an increased probability of lateral transfer (i.e. within salary levels). Officers located in FDI-exposed districts are also marginally more likely to experience a promotion, though this effect is not statistically significant at conventional levels. In Appendix Table A.4, we include individual officer fixed effects to account for officer-specific, time-invariant characteristics. Our baseline results do not substantively change, with the exception that officers in FDI-exposed districts are more robustly likely to experience a promotion.

## Event Study Analysis

To evaluate the plausibility of the parallel trends assumption of our DID analysis, we estimate the following event study model:

$$Y_{ijt} = \alpha_0 + \sum_{l=1996}^{2009} \gamma_l (Treated_{ij} * d_l) + \alpha_2 Salary_{it} + \alpha_3 X_{jt} + \theta_j + \kappa_t + \theta_j * Year + \epsilon_{ijt} \quad (2)$$

where notation remains the same as in Equation 1.  $\gamma_l$  are year-specific estimates of the interaction of  $Treatment_{ij}$  and the year indicators  $d_l$ .

We present the results of our event study estimation in Figure 4. 2005 is the excluded reference year; we also omit the first year, 1995, due to the inclusion of district-specific trends. The figure plots the coefficients of the interaction term between treatment and year indicators with 95 percent confidence intervals. For each year between 1996 and 2004, the estimates are small and statistically insignificant. An F-test for joint significance of the pre-period coefficients fails to reject the null hypothesis that the coefficients are equal to zero ( $F = 0.212, p = 0.64$ ). We observe a sharp, statistically significant increase in the probability of turnover in 2006, the year following FDI liberalization. We find the effect stays relatively constant thereafter. An F-test for joint significance of the post-period coefficients rejects the null hypothesis that the coefficients are equal to zero ( $F = 15.67, p = 0.00008$ ) We do not

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<sup>28</sup>We also ensure that our results are robust to clustering by district. Results available upon request.



discern any differential pre-trends by treatment status, and the timing of the increase in the turnover corresponds with liberalization.

## Possibility of Bias in DID Estimation

Recent econometric advances in identify a potential source of bias in DID research designs that exploit differential treatment timing across units (i.e. staggered roll-out designs). Since earlier-treated observations can serve as a control for later-treated observations in such designs, the parallel trends assumption may not hold, biasing estimates (Goodman-Bacon 2021; Callaway and Sant’Anna 2021). Our DID design does not leverage differential treatment timing across units for identification, so we do not expect that our estimates are biased in this manner. Our event study results also suggest that the estimated effect on job turnover is relatively constant over time.

Another potential source of bias is the possibility of heterogeneous treatment effects. Since the overall estimated causal effect is a weighted average of the effect for different groups, the overall estimated effect can have a different sign than the individual group effects (de Chaisemartin and D’Haultfœuille 2020). We address this possibility by employing the estimator developed by de Chaisemartin and D’Haultfœuille (2020) to ensure that our results are robust to heterogeneous treatment effects.<sup>29</sup> We present these results in Appendix Table A.5. The estimated effect of exposure to liberalization on job turnover is virtually identical to our baseline results. We also use a placebo test to check for evidence of differential pre-trends using this same estimator and present the results in Appendix Figure A.1; there is little evidence of differential pre-trends.

## Instrumental Variables Estimation

We also directly estimate the relationship between FDI and bureaucratic job turnover using a two-stage least-squares (2SLS) model with district and year fixed effects. We use our previously discussed measure of district-year exposure to FDI liberalization. This strategy addresses the possibility that MNCs’ district location decisions within India are non-random with respect to ex ante governance quality.

The first-stage regression is estimated as follows:

$$FDI_{jt-1} = \beta_0 + \beta_1 \text{ LiberalizationExposure}_{jt-2} + \beta_2 \text{ Salary}_{it} + \beta_3 X_{jt} + \theta_j + \kappa_t + u_{jt} \quad (3)$$

where  $FDI_{jt-1}$  is the count of new FDI projects district  $j$  receives at time  $t - 1$ ;

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<sup>29</sup>We implement this estimator using the `did_multipligt` command in Stata.

$LiberalizationExposure_{jt-2}$  is exposure to liberalization in district  $j$  at time  $t - 2$ ; and  $u_{jt}$  is the error term. All other notation is the same as in Equation 1.

The second-stage regression is estimated as follows:

$$Turnover_{ijt} = \alpha_0 + \alpha_1 \widehat{FDI}_{jt-1} + \alpha_2 Salary_{it} + \alpha_3 X_{jt} + \theta_j + \kappa_t + \epsilon_{ijt} \quad (4)$$

where  $\widehat{FDI}_{jt-1}$  is the instrumented number of new FDI projects from Equation 3 and  $\epsilon_{ijt}$  is the error term. We cluster standard errors by state and utilize a linear specification to estimate our 2SLS model.

We show the estimated effect of FDI liberalization on job turnover using our 2SLS estimation in Table 2. Column (1) presents the first-stage results for receipt of new FDI, while Column (2) presents the second-stage results for the probability of turnover. Using our instrument based on changes in FDI regulations, we find that an increase in average FDI allowed causes a significant increase in the number of new FDI projects. This increase in FDI exposure leads to a 36 percentage point increase in the probability of job turnover. Our 2SLS results further confirm that liberalization in India caused significant bureaucratic reorganization at the district level.

## Who is Moved? Loyalty versus Competency

Our results so far establish that India’s liberalization of FDI caused a reorganization of the bureaucracy. Does this reorganization reflect the systematic reallocation of relatively more loyal bureaucrats, or those who are relatively more competent? We extend our reduced form strategy to answer this question, utilizing a triple difference model specified as follows:

$$\begin{aligned} Y_{ijt} = & \alpha_0 + \alpha_1 Treated_{jt} * Post_t + \alpha_2 Treated_{jt} * Post_t * StateRecruited_i + \\ & \alpha_3 Post_t * StateRecruited_i + \alpha_4 Treated_{ij} * StateRecruited_i + \\ & \alpha_5 Salary_{it} + \alpha_6 X_{jt} + \theta_j + \kappa_t + \theta_j * Year_t + \epsilon_{ijt} \end{aligned} \quad (5)$$

where the parameter of interest is  $\alpha_2$ , the coefficient on the interaction between indicators for treatment status, post-liberalization period, and whether the officer is a state recruit.

Table 3 presents models analogous to our baseline results with the addition of this triple interaction.<sup>30</sup> The bureaucratic reorganization caused by liberalization primarily involved the reallocation of state-recruited officers, who are an additional 17.2 percentage points more

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<sup>30</sup>All constituent interactions are also included but suppressed from the results.

likely to experience job turnover in FDI-exposed areas. This increased probability of turnover is primarily driven by *promotions* of state-recruited officers – in other words, the movement of state-recruited officers to higher-salary positions. The double interaction ( $Treated_{jt} * Post_t$ ) continues to be positive and statistically significant for overall job turnover and for lateral transfers.<sup>31</sup> The top panel of Figure 5 shows the results of an identical event study model expressed in Equation 2 for state recruits only. For each year between 1996 and 2004, the estimates for state recruits are small and statistically insignificant.<sup>32</sup> We again observe a sharp and statistically significant increase in the probability of turnover for state recruits immediately following liberalization; this effect stays relatively constant thereafter. One year in the post-liberalization period (2008) is statistically insignificant, while all others are significant at  $p < .05$ .<sup>33</sup>

As an extension, we explore whether officers nearing retirement are also more likely to experience turnover; their lack of ability to move up the ladder means they also have weaker incentives for competency. We estimate the same triple difference model specified in Equation 5 but replace  $StateRecruited_i$  with  $NearRetirement_{it}$ . We present these results in Appendix Table A.6. There is some tentative evidence that the liberalization-induced bureaucratic reorganization also involved the movement of near-retirement officers. The coefficient on the triple interaction indicates that there is a 16.4 percentage point additional increase in the likelihood of turnover for bureaucrats nearing retirement in exposed areas, though this effect is not statistically significant. Near-retirement bureaucrats are also about 13 percentage points more likely to experience promotion in exposed areas, but these results are attenuated with the inclusion of officer fixed effects.<sup>34</sup> The double interaction ( $Treated_{jt} * Post_t$ ) continues to be positive and statistically significant.

While we analyze how falling FDI entry barriers shape bureaucratic turnover, it is possible that coincident barriers to international trade could drive the observed results. As a robustness check, in Appendix Table A.9, we add an additional control variable for the average tariff rate weighted by a district’s pre-liberalization industrial composition. Higher average tariff rates indeed appear to be associated with an increased probability of turnover, consistent with existing research suggesting entry barriers to trade and investment may drive corruption. However, the effect of exposure to FDI on turnover – and differential turnover

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<sup>31</sup>Appendix Table A.7 shows the same models with the inclusion of individual officer fixed effects. The results are slightly weaker, but state-recruited officers still continue to experience a similar increased probability in experiencing a promotion in FDI-exposed areas.

<sup>32</sup>An F-test for joint significance of the pre-period coefficients fails to reject the null hypothesis that the coefficients are equal to zero ( $F = 0.0185, p = 0.67$ ).

<sup>33</sup>An F-test for joint significance of the post-period coefficients rejects the null hypothesis that the coefficients are equal to zero ( $F = 6.39, p = 0.012$ ).

<sup>34</sup>See Appendix Table A.8 for these results.

for state-recruited officers – remains virtually identical with the inclusion of district-level trade barriers.

## No Differential Turnover of Competent Bureaucrats

Our results show that the bureaucratic reorganization induced by FDI primarily involved the movement of more loyal and less career-concerned officers – those who are state-recruited and nearing retirement. They provide little evidence to suggest that liberalization caused the reallocation of relatively more competent officers. Nevertheless, we estimate additional triple difference models with four measures of ex ante officer competence: *Top20Exam<sub>i</sub>*, an indicator for whether officer *i* scored in the top 20 of her cohort on the entry exam; *SameDomicile<sub>i</sub>*, an indicator for whether officer *i* is assigned to the same cadre as her domicile; *FirstClassDegree<sub>i</sub>*, an indicator for whether officer *i* received a first class degree; and *ForeignDegree<sub>i</sub>*, an indicator for whether officer *i* has earned a degree from a foreign educational institution. The first two measures are only relevant for directly recruited officers, who take the entry examination and who can choose their own domicile if they score highly.

Table 4 displays the results of these models. Models (1), (2), (3), and (5) are estimated for direct recruits, while models (4) and (6) are estimated for state recruits. More competent officers, as measured by any of these indicators, are not more likely to experience job turnover in FDI-exposed areas. In fact, there is some tentative evidence to suggest that more competent officers experience *less* turnover – state recruits who hold first class degrees are less likely to be moved, as well as direct recruits who hold foreign degrees. Importantly, directly recruited officers posted to their home state are no more likely to experience turnover, suggesting that the movement of state recruits is not solely due to their superior local contextual knowledge. These results broadly suggest that FDI did not cause politicians to systematically reallocate more competent bureaucrats. Only relatively more loyal and less career-concerned officers are differentially moved.

## Turnover Aligned with Ex Ante Corruption

Rather than cause a bureaucratic reorganization privileging the movement of high-quality bureaucrats, the 2005 liberalization of FDI led to the reallocation and promotion of relatively more loyal and less career-concerned officers. We suggest this movement is consistent with a rent-seeking strategy. We provide additional evidence to this effect by exploring if the differential movement of more loyal officers in FDI-exposed areas is concentrated in more corrupt states. We leverage pre-liberalization (2005) data from Transparency India on the rank-

ings of Indian states by their level of corruption (Transparency International India 2005).<sup>35</sup> Higher numerical ranks reflect greater levels of corruption. We have notable variation in ex ante levels of corruption among treated states.<sup>36</sup>

We estimate a triple difference model similar to Equation 5, but instead interact liberalization exposure with state corruption rank in 2005. The sample is restricted only to state recruits. These results are displayed in Table 5. We find that the systematic movement of state-recruited officers is almost entirely concentrated in states that are ex ante more corrupt. For a relatively clean exposed state like Gujarat, state-recruited officers are an additional 13.5 percentage points more likely to experience turnover. This jumps to 54 percentage points for a more corrupt state like Tamil Nadu. Critically, we do not observe this same pattern when restricting the sample to directly recruited officers in Appendix Table A.10, where turnover does not systematically vary with respect to state-level corruption. However, a similar pattern emerges when we limit the sample to near-retirement officers in Appendix Table A.11, who have weaker career concerns.

We also examine if job turnover for more loyal bureaucrats systematically varies with the level of corruption of FDI countries of origin.<sup>37</sup> If MNCs that originate in more corrupt countries are more comfortable engaging bureaucrats and politicians in rent-seeking behavior, then the movement of more loyal bureaucrats should be concentrated in localities with FDI from relatively more corrupt countries. We estimate an additional triple difference model where we limit the sample to districts that received any FDI, measuring origin-country corruption as the average of public sector corruption, measured by V-Dem, weighted by the number of projects received from each country of origin.<sup>38</sup> In Table 6, we find that state-recruited officers are significantly more likely to experience job turnover in districts that received FDI from relatively more corrupt countries of origin. Officers are less likely to be shuffled when FDI from originates from relatively less corrupt origin countries.

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<sup>35</sup>These rankings are based on surveys of people on their personal corruption experiences that Transparency India conducts in each state, calculating an overall corruption score and ranking states accordingly.

<sup>36</sup>Gujarat is ranked 3rd, Andhra Pradesh 4th, Maharashtra 5th, Delhi 11th, Tamil Nadu 12th, and Karnataka 17th.

<sup>37</sup>CapEx does not report firms' country of origin. Using firm names and industry, we matched Capex project data to project data in fDiMarkets, a proprietary database of greenfield FDI announcements. We matched approximately seventy percent of firms using fastLink, an R package for probabilistic record linkage (Enamorado et al. 2019) and the remainder through online searches. We assigned projects to the home country of the firm's ultimate beneficial owner to minimize bias caused by MNCs routing investments through low tax jurisdictions.

<sup>38</sup>The V-Dem public sector corruption measure is bounded by zero and one, with higher values representing greater public sector corruption. Projects originate from 29 unique countries of origin. Origin countries with the highest levels of corruption include China, Malaysia, Mexico, Brazil, and Greece. Origin countries with the lowest levels of corruption include Denmark, Singapore, Sweden, Germany, and New Zealand. The most common countries of origin, the US and UK, also have relatively low corruption scores.

## Market-Oriented FDI Drives Turnover

We suggest that MNCs' willingness to engage in corruption varies with their motive for investment. MNCs are primarily attracted to India and other large developing countries because of their large domestic market. The entry of MNCs that are resistant to market exit therefore creates a wide range of rent-seeking opportunities. By contrast, firms producing for export are less tolerant of corruption given their greater flexibility in location choice.

An observable implication is that market-oriented FDI should be more strongly associated with the turnover of loyal bureaucrats than export-oriented FDI. To test this implication, we create a yearly district-level measure of the extent to which FDI inflows are market- vs. export-oriented using related party exports from India to the US. Data are from the US Census Related Party Trade Database, which defines related party trade as trade between entities in which one party holds a five percent or greater share in the other party.<sup>39</sup>

We take US related-party trade patterns as representative of all MNCs' motives to invest in India. We first match individual FDI projects to their HS-4 industry code. For each HS-4 industry, we then calculate the percentage of exports from India to the US that are between related parties. We calculate this percentage by averaging over years 2003-2005 to capture pre-liberalization levels of related party trade.<sup>40</sup> This measure proxies for the extent to which FDI in an industry is market- or export-oriented; higher percentages indicate an industry is more export-oriented. Finally, for each district-year, we calculate the average of industry-level FDI export orientation, weighted by the number of FDI projects in each industry. The sample is limited only to district-years that received FDI.

Using this district-year measure of export orientation, we estimate a triple difference model, interacting liberalization exposure with the average export orientation of FDI inflows. Table 7 presents the main results. We split the sample by recruitment source, analyzing state recruits in Model (1) and direct recruits in Model (2). The results align with our theoretical predictions. As the extent to which a district's FDI is market-oriented increases, state recruits are increasingly likely to have experienced job turnover. This is not the case with direct recruits. The fact that loyalty-based bureaucratic turnover is concentrated in districts which receive relatively more market-oriented FDI provides support for our argument that firm motives for entry can shape its governance implications.

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<sup>39</sup>A more detailed description of related party trade is available at [https://www.census.gov/foreign-trade/Press-Release/related\\_party/index.html](https://www.census.gov/foreign-trade/Press-Release/related_party/index.html).

<sup>40</sup>For non-traded industries, this percentage equals zero.

## Private Returns to Office Increase

What are the governance impacts of this bureaucratic reorganization in liberalization-exposed areas? We interpret our results as consistent with a story in which politicians reallocate loyal bureaucrats to engage in rent-seeking, either for personal enrichment or to fund clientelist electoral strategies. If this were true, one observable implication would be that the value of politicians' personal assets concomitantly increases in response.

The Indian setting offers a clear way to evaluate this observable implication. We draw on candidate-level asset disclosure data collected by the Election Commission of India (ECI) and provided by India's Association for Democratic Reform (ADR). As a result of a December 2002 Supreme Court Ruling, all candidates for state and national office are mandated by law to disclose the value of their personal assets; this requirement was first enforced in 2003 elections. Misstatement is punishable with financial penalties, imprisonment up to six months, and disqualification from holding office. The ADR petitioned for the public release of this information for all candidates.<sup>41</sup> The asset declaration data has information on assets, education, criminal activity, and age. Quinquennial elections are held in every state. State legislative assemblies are fully nested within districts.

We use this data in an empirical strategy pioneered by Fisman et al. (2014) that models the private returns to office using a subset of state assembly candidates who were involved in close elections. For each candidate, some of whom won and some lost, we observe the total value of their assets at two points in time – at elections that occur both pre- and post-liberalization. The exact time points at which we observe their assets depends on the particular state's election cycle. The asset data are further broken down by the value of *movable* (e.g., cash on hand or vehicles) vs. *immovable* (e.g., real estate) assets.<sup>42</sup> We conjecture that rent-seeking should have a larger effect on movable assets, whereas changes in immovable asset values are more likely to reflect FDI-related changes in local economic conditions. We match each candidate to the cumulative amount of FDI received in their district between the two time points. We also match each candidate to the *share* of officers in their district in the immediate year preceding their second election that are state recruits. The ADR asset disclosure data provide a range of candidate-level characteristics that we use as controls in our empirical models.

We model asset growths for politicians in elections held subsequent to FDI liberalization in 2006 using the following equation:

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<sup>41</sup>See <https://adrindia.org/about-adr/who-we-are> for asset disclosure records for all elections since 2003.

<sup>42</sup>Summary statistics for politicians' financial assets is available in Appendix Table A.3.

$$\begin{aligned}
Assets_{pjt} = & \gamma_0 + \gamma_1 CumulFDI_{jt} + \gamma_2 Incumbent_{pjt-} + \gamma_3 StateRecruited_{jt-1} + \\
& \gamma_4 CumulFDI_{jt} * Incumbent_{pjt-} + \gamma_5 StateRecruited_{jt-1} * Incumbent_{pjt-} + \\
& \gamma_6 CumulFDI_{jt} * StateRecruited_{jt-1} + \\
& \gamma_7 CumulFDI_{jt} * StateRecruited_{jt-1} * Incumbent_{pjt-} + \\
& \gamma_8 Assets_{pjt-} + \gamma_9 X_{pt} + \tau_{t-} + \mu_{pjt}
\end{aligned} \tag{6}$$

where  $Assets_{pjt}$  is the logged value of assets of politician  $p$  in district  $j$  at time  $t$ , the year of the politician's post-liberalization election;  $CumulFDI_{jt}$  is the cumulative count of FDI projects in district  $j$  that were completed between the pre-liberalization election at time  $t-$  and the post-liberalization election at time  $t$ ;  $Incumbent_{pjt-}$  is an indicator for whether politician  $p$  in district  $j$  won the pre-liberalization election at time  $t-$  and therefore holds office at the time of the post-liberalization election  $t$ ;  $StateRecruited_{jt-1}$  is the share of bureaucrats in district  $j$  that are state-recruited at time  $t - 1$ , the year prior to the post-liberalization election;  $Assets_{pjt-}$  is the logged value of assets of politician  $p$  in district  $j$  at the time of the pre-liberalization election,  $t-$ ; and  $X_p$  is a vector of candidate  $p$  characteristics at time  $t$  including age, gender, educational attainment, and an indicator for whether the candidate has been convicted of a crime.  $\tau_{t-}$  represent pre-liberalization election fixed effects. We estimate these models using OLS and cluster standard errors by state.

Table 8 presents our results. Panel A shows the results for total logged assets, while Panels B and C show the results for movable and immovable assets, respectively. Recall that we restrict the sample to politicians who narrowly won or lost their pre-liberalization election, in line with Fisman et al. (2014), to address potential endogeneity concerns with respect to candidate selection. In Column (1) we analyze all candidates, while in Columns (2) and (3) we disaggregate politicians by whether they formed a part of the ruling government in their state. We first note that greater cumulative numbers of FDI projects are unconditionally associated with increased asset growth for politicians, and this result is driven entirely by politicians whose party controls the state government.

The more interesting comparison, however, is between incumbent politicians in FDI-receiving areas with relatively greater or fewer state-recruited officers in their district. In high-FDI areas, incumbents whose district has no state-recruited bureaucrats immediately preceding the election experience *negative* asset growth, as showed in the second row of Panel A. But in high-FDI districts with a greater share of state-promoted bureaucrats, incumbents who are in government see a substantial increase in their assets. This gain is especially



concentrated in *movable* rather than *immovable* assets: the triple interaction estimated in Column (2) of Panel B indicates a 24 percent increase in assets in between the pre- and post-liberalization elections. For the average FDI-recipient district, which receives a little less than four new investments during a politician’s term in office, the average increase in movable assets of a politician in government is roughly 12 percent of the average value of new district-level FDI during the length of their term. These results indicate that incumbent politicians who are part of the government responsible for reshuffling relatively more loyal bureaucrats see more private asset growth due to FDI. Asset growth for this subset of politician is a clear observable implication of FDI inducing rent-seeking behavior on the part of incumbents.

## Confidence in Politicians Falls in FDI-Exposed Areas

Finally, we investigate whether FDI-induced bureaucratic turnover influences citizen access to public goods and perceptions of politicians. We again use data from the Indian Human Development Survey (IHDS) rounds in 2005 and 2012, which asks households a range of questions related to local governance: whether they have access to electricity and piped water; whether they have confidence in their national, state, and local politicians; and whether they receive benefits from government programs. In Appendix Table A.12, we analyze whether district-level exposure to the reallocation of more loyal and less career-concerned bureaucrats influenced these outcomes. These results suggest that when more district-level bureaucrats are state-recruited in liberalization-exposed areas, citizen confidence in state and local politicians falls. However, we do not find clear evidence that public goods provision suffers in the immediate short-run following liberalization. These results are further consistent with the proposition that liberalization weakens, rather than strengthens, bureaucratic governance.

## 6 Conclusion

Global economic integration can create new opportunities for politicians to rent-seek. We show that following FDI liberalization, Indian state politicians position loyal bureaucrats in FDI-exposed districts to facilitate rent-seeking.

Our findings point to two fruitful areas for further research. One set of questions concerns possible externalities for public goods provision. The introduction of MNCs as actors who demand time and resources from bureaucrats may harm other aspects of bureaucrats’ work. If politicians value rents from MNCs more than votes, they may direct bureaucrats to prioritize the needs of MNCs over local public goods provision. This might especially be the case if politicians use rents from MNCs to fund vote-buying. Additionally, bureaucrats have limited

time and resources. Independent of politicians' motives to prioritize MNCs, bureaucrats may have less capacity to perform other governance tasks important to social welfare. We note the possibility of positive spillovers if FDI pushes bureaucrats to prioritize public goods such as infrastructure that have wider benefits. Finally, FDI can have long-term consequences for bureaucratic quality if MNCs provide a more attractive outside career option.

Our findings point to unexplored mechanisms through which global economic integration could undermine democracy. FDI might reinforce electoral systems built on clientelist exchange if politicians leverage FDI-derived rents to fund vote-buying campaigns. This is likely the case in large markets that attract FDI despite a poor investment climate. That said, MNCs can and do exit countries with corruption and other MNCs may be deterred from entry. MNCs' tolerance for rents defines the upper bound of possible rents. Our analysis considers the period immediately after a large-scale liberalization. An important question for future research is whether politicians' rent-seeking endures. In the long-run, FDI's distributive consequences – including rising inequality – could change the costs and returns to vote buying strategies. Exploring these questions can shed new light on democratic accountability in a globalized world economy.

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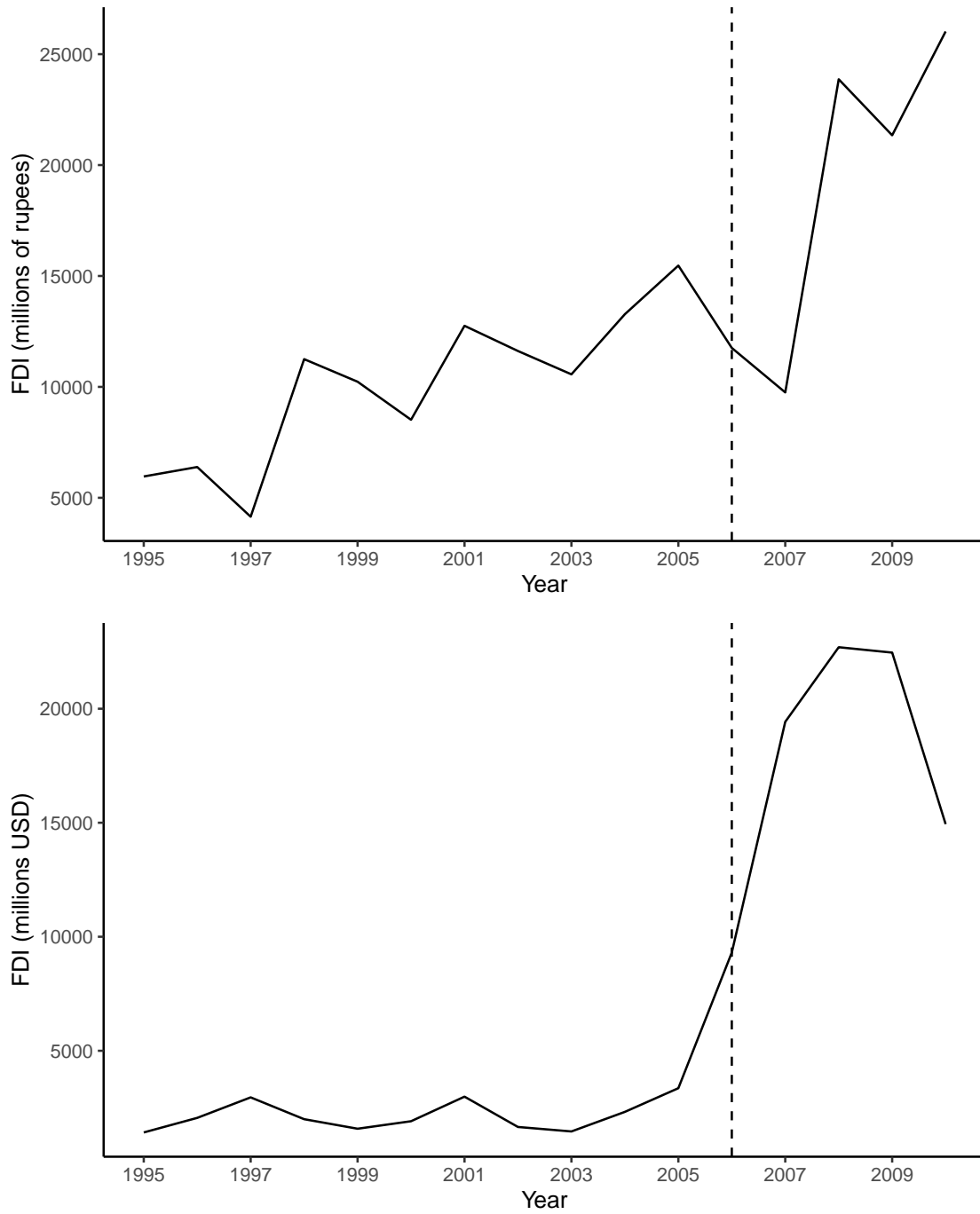
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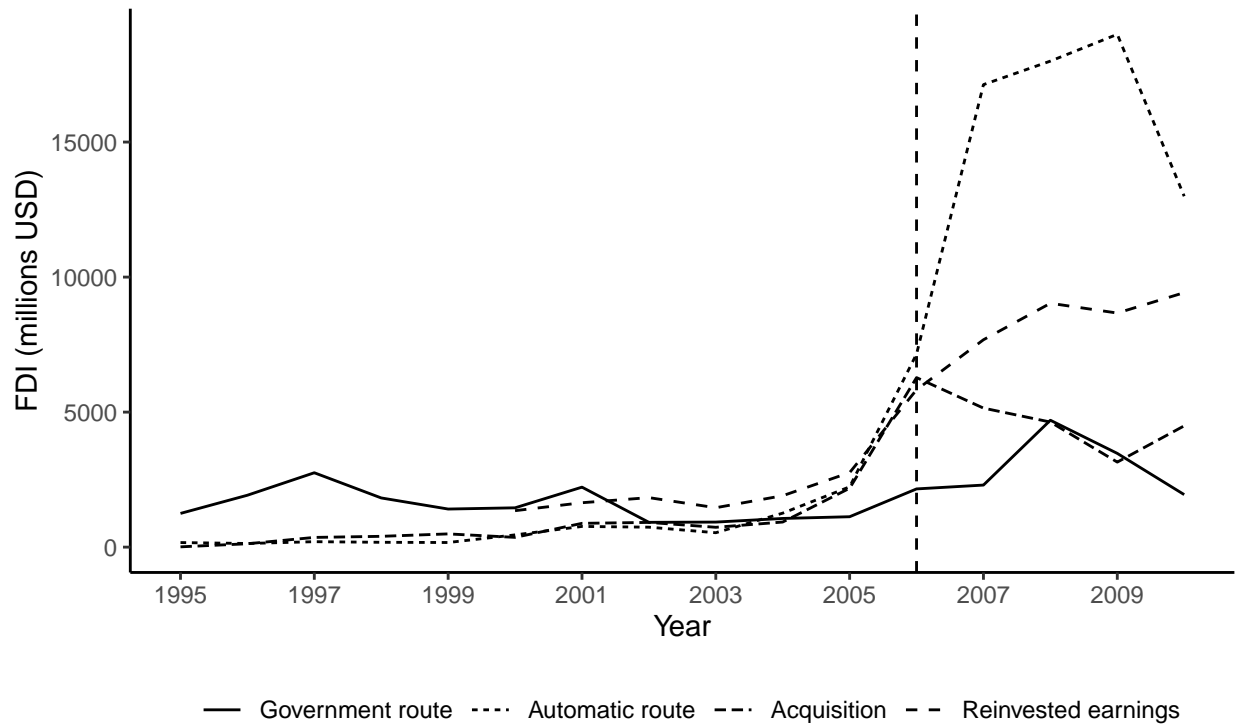
Figure 1: FDI in India Over Time



Top panel: inflation-adjusted value of new completed FDI projects in India (source: CapEx).  
Bottom panel: inflation-adjusted value of intended FDI in India (source: Reserve Bank of India).

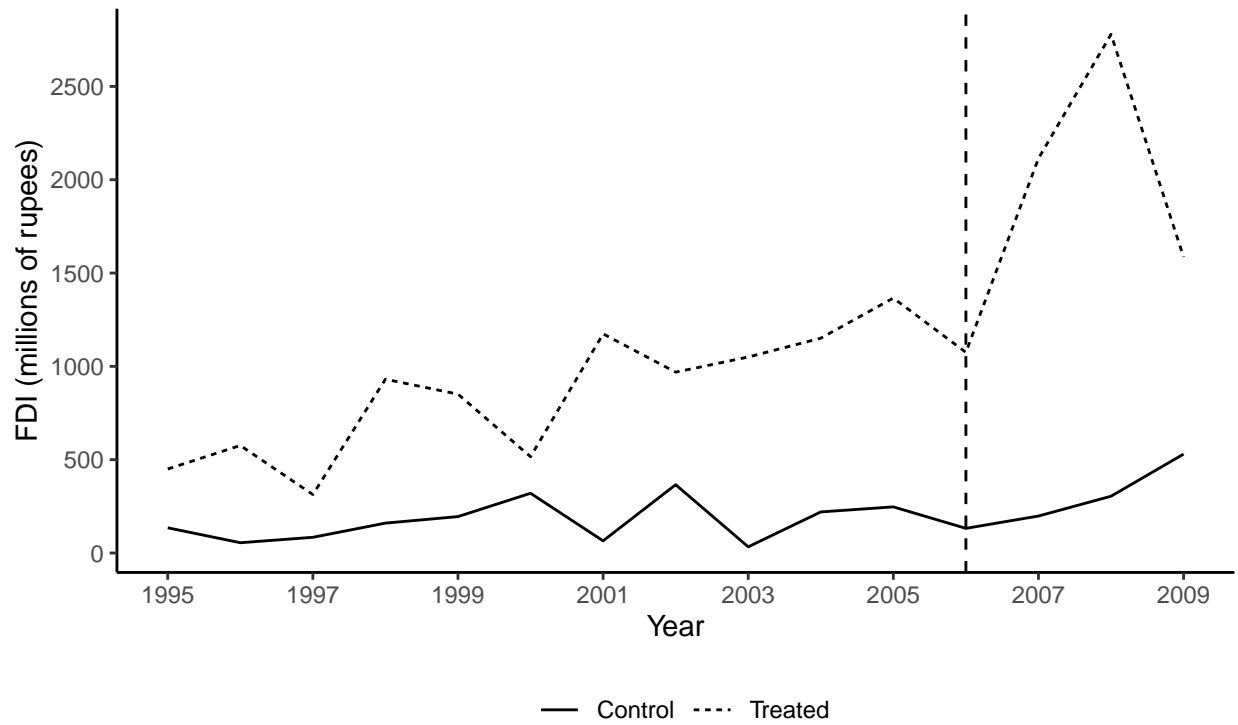


Figure 2: FDI in India Over Time by Entry Route



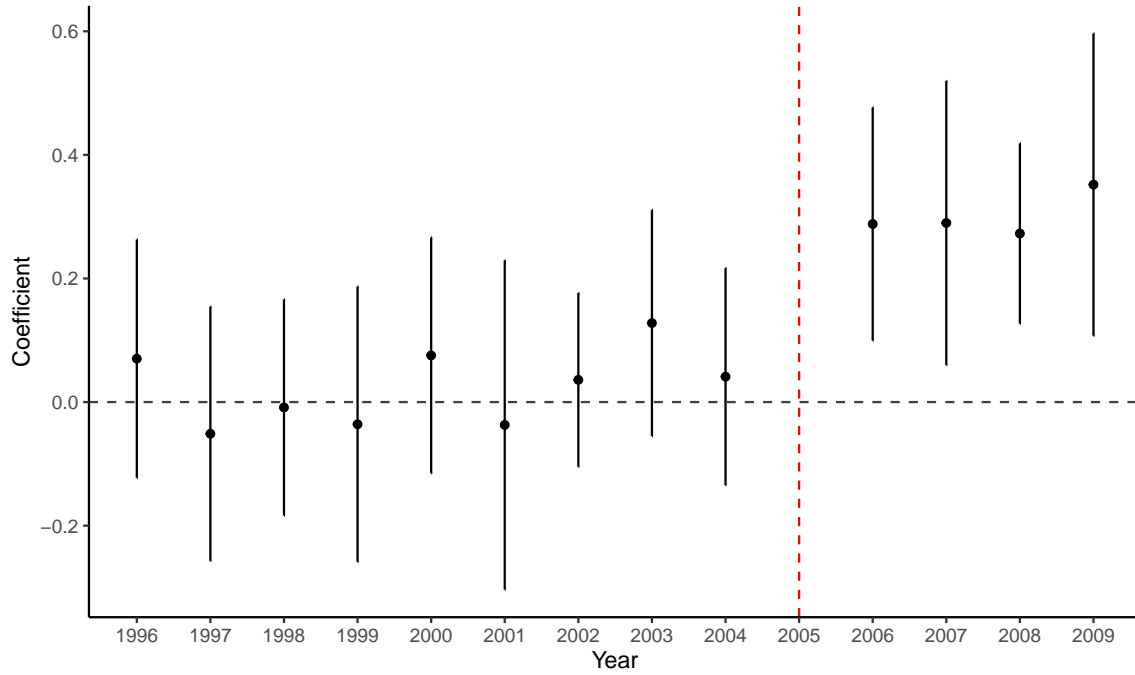
Source: 2012 RBI Bulletin.

Figure 3: FDI in India Over Time in Treated vs. Control States



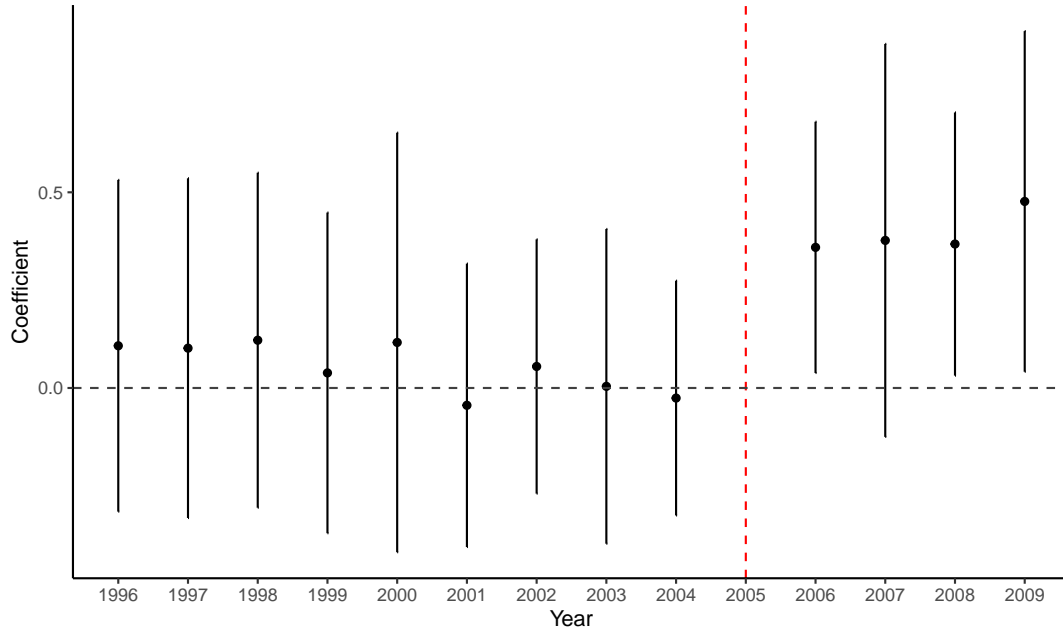
Source: CapEx.

Figure 4: Year-by-Year Treatment Estimates



Notes: year-by-year coefficient of interaction between treatment and year indicators on turnover with 95 percent confidence intervals. Standard errors clustered by state. 2005 omitted as reference period. Model includes district and year fixed effects and district-specific time trends. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Figure 5: Year-by-Year Treatment Estimates for State-Recruited Bureaucrats



Notes: year-by-year coefficient of interaction between treatment and year indicators on turnover with 95 percent confidence intervals. Standard errors clustered by state. 2005 omitted as reference period. Model includes district and year fixed effects and district-specific time trends. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 1: FDI and Bureaucratic Turnover

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.137 [0.043]***	0.237 [0.053]***	0.196 [0.067]***	0.036 [0.031]	-0.075 [0.031]**
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 2: Instrumental Variables (2SLS) Estimation

	<i>Dependent variable:</i>	
	$FDI_{jt-1}$ 1st stage	$Turnover_{ijt}$ 2nd stage
	(1)	(2)
$AvgFDIAllowed_{jt-2}$	0.017 [0.005]***	
$FDI_{jt-1}$		0.360 [0.182]**
First stage F-statistic	10.7	
Observations	9,794	9,794
Number of districts	488	488

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using two-stage least-squares (2SLS) with district and year fixed effects. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 3: FDI and Turnover of State-Recruited Bureaucrats

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.177	0.172	0.036	0.130	0.028
<i>StateRecruited<sub>i</sub></i>	[0.047]***	[0.049]***	[0.068]	[0.057]**	[0.045]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.060	0.165	0.177	-0.016	-0.079
	[0.050]	[0.059]***	[0.068]***	[0.034]	[0.023]***
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 4: FDI and Turnover of Competent Bureaucrats

	<i>Dependent variable: Turnover<sub>ijt</sub></i>					
	Direct recruits (1)	Direct recruits (2)	Direct recruits (3)	State recruits (4)	Direct recruits (5)	State recruits (6)
$Treated_{ij} * Post_t*$	-0.098					
$Top20Exam_i$	[0.101]					
$Treated_{ij} * Post_t*$		-0.022				
$SameDomicile_i$		[0.052]				
$Treated_{ij} * Post_t*$			0.044	-0.341		
$FirstClassDegree_i$			[0.072]	[0.182]*		
$Treated_{ij} * Post_t*$					-0.144	-0.299
$ForeignDegree_i$					[0.078]*	[0.191]
$Treated_{ij} * Post_t$	0.104	0.139	0.098	0.408	0.150	0.399
	[0.111]	[0.067]**	[0.095]	[0.131]***	[0.066]**	[0.131]***
Observations	4,697	6,690	6,690	3,294	6,690	3,294
Number of districts	479	489	489	457	489	457

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).



Table 5: State-Level Corruption and Turnover of State-Recruited Bureaucrats

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	0.029	0.045	0.041	-0.010	0.018
<i>StateCorruptionRank<sub>j</sub></i>	[0.011]***	[0.013]***	[0.025]	[0.019]	[0.011]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.014	-0.021	-0.122	0.184	-0.203
	[0.134]	[0.185]	[0.247]	[0.238]	[0.165]
Observations	3,223	3,223	3,223	3,223	3,223
Number of districts	447	447	447	447	447
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends. Sample includes only state-recruited bureaucrats.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 6: Origin Country Corruption and Turnover of State-Recruited Bureaucrats

	<i>Dependent variable:</i> <i>Turnover<sub>ijt</sub></i>
	(1)
<i>StateRecruited<sub>i</sub> * Post<sub>t</sub>*</i>	0.192
<i>OriginCountryCorruption<sub>jt-1</sub></i>	[0.036]***
<i>Post<sub>t</sub> * OriginCountryCorruption<sub>jt-1</sub></i>	-0.240 [0.080]***
Observations	699
Number of districts	89

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. Model estimated using OLS with district and year fixed effects and district-specific time trends.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Table 7: Related Party Trade and Bureaucratic Turnover

	<i>Dependent variable:</i>	
	<i>Turnover<sub>ijt</sub></i> State recruits	<i>Turnover<sub>ijt</sub></i> Direct recruits
	(1)	(2)
<i>Treated<sub>ij</sub> * Post<sub>t</sub> * RelatedParty<sub>ijt</sub></i>	-0.150 [0.051]**	0.008 [0.018]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.842 [0.752]	0.175 [0.398]
Observations	328	708
Number of districts	80	118

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends. Treated=1 for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat. Post=1 for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, 1991/2001 Scheduled Caste rate, 1991/2001 adult literacy rate, 1991/2001 employment rate, and 1991/2001 gender ratio (sources: 1991 and 2001 Census of India).

Table 8: FDI, Bureaucratic Reorganization, and Private Returns to Office

Panel A: $Assets_{pjt}$	All (1)	In govt. (2)	Out of govt. (3)
$CumulFDI_{jt} * Incumbent_{ijt-} * StateRecruited_{jt-1}$	0.084 [0.034]**	0.119 [0.067]*	0.057 [0.052]
$CumulFDI_{jt} * Incumbent_{ijt-}$	-0.023 [0.013]*	-0.059 [0.035]	-0.002 [0.033]
$CumulFDI_{jt}$	0.021 [0.012]	0.027 [0.011]**	0.005 [0.029]
Observations	716	315	401
Panel B: $MovableAssets_{pjt}$	All (1)	In govt. (2)	Out of govt. (3)
$CumulFDI_{jt} * Incumbent_{ijt-} * StateRecruited_{jt-1}$	0.056 [0.084]	0.214 [0.082]**	-0.063 [0.080]
$CumulFDI_{jt} * Incumbent_{ijt-}$	-0.081 [0.011]***	-0.141 [0.038]***	-0.009 [0.024]
$CumulFDI_{jt}$	0.051 [0.021]**	0.073 [0.015]***	-0.014 [0.026]
Observations	706	310	396
Panel C: $ImmovableAssets_{pjt}$	All (1)	In govt. (2)	Out of govt. (3)
$CumulFDI_{jt} * Incumbent_{ijt-} * StateRecruited_{jt-1}$	0.041 [0.033]	0.100 [0.077]	0.020 [0.048]
$CumulFDI_{jt} * Incumbent_{ijt-}$	0.004 [0.053]	-0.076 [0.095]*	0.026 [0.107]
$CumulFDI_{jt}$	0.032 [0.010]***	0.033 [0.010]***	0.020 [0.031]
Observations	677	295	382

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with first election fixed effects. Candidate controls include: years of education, criminal record, gender, age, previous incumbency status, and logged net assets at time of prior election.

# A Appendix

## Appendix B: Indian Administrative Service

A17

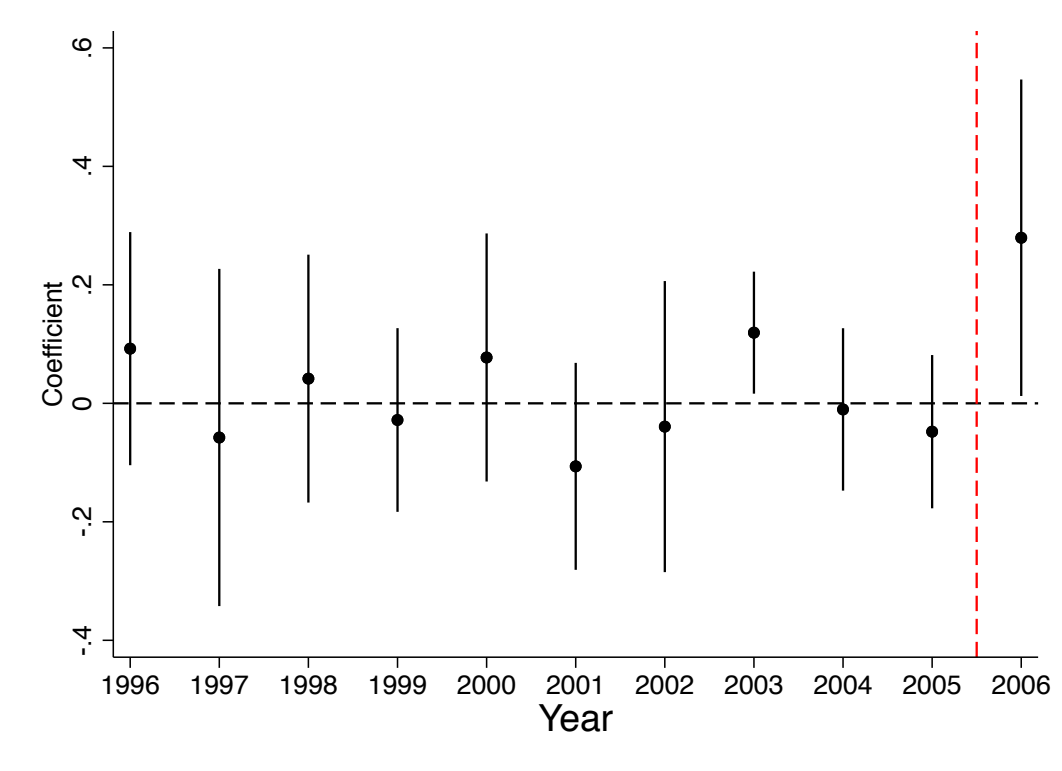
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Appendix Figure A.1: Placebo Test Robust to Heterogeneous Treatment Effects



Notes: Pre-trend placebo estimates robust to heterogeneous treatment effects using estimator from de Chaisemartin and D'Haultfoeuille (2020). Implemented using *did\_multiplegt* command in Stata. Robust standard errors clustered by state. Model includes district and year fixed effects and district-specific time trends. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

## Historical Correlates of FDI Distribution Across Indian States

We analyze the historical roots of this agglomeration using state-level data for 1962-1992 and 1992-2001.<sup>43</sup> These data provide an unbalanced panel of state characteristics including media coverage, labor regulations, industrial base, taxes, and poverty. We estimate a probit model of treatment (e.g. status as high FDI recipient state) based on these state characteristics and state geographic features in 1991; year indicators are also included.<sup>44</sup> Treatment correlates positively with state land area, stamps and registration fees, excise duties on commodities and services, number of registered factories, and number of industrial regulations. Rural poverty, population, and labor regulations are negatively correlated.<sup>45</sup>

In more recent decades (1991-2001) leading up to the FDI liberalization, we assess using a linear model how demographic characteristics, climatic characteristics, and infrastructure expenditure on features such as roads and transportation influence the location of FDI using district level data. The infrastructure data comes from the CapEx data collected by Center for Monitoring the Indian Economy and the demographic data comes from the Population Census of India.<sup>46</sup> Rainfall and temperature data are from the University of Delaware series.<sup>47</sup> Size of transportation infrastructure positively influences location choice whereas investment in transport infrastructure negatively correlates with treatment albeit to a very small extent. Investment in water, electricity, and welfare infrastructure (schools, dispensaries, hospitals) is uncorrelated with treatment but number of water projects is positively correlated. Literacy rates, employment rates, and female population are correlated with treatment. However, important confounders can be trends. We observe a negative correlation with trends. Areas with better emergent trends in literacy, employment, and gender ratio are less likely to receive treatment. Precipitation is negatively and temperature is positively correlated with the treatment status. Results are reported in Appendix Table A.2.

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<sup>43</sup>State data are from the Economic Opportunities and Public Policy Programme, STICERD-LSE. [http://sticerd.lse.ac.uk/eopp/\\_new/data/indian\\_data/default.asp](http://sticerd.lse.ac.uk/eopp/_new/data/indian_data/default.asp). We consider state-level FDI correlates because analogous district-level data are unavailable.

<sup>44</sup>Model estimates in Appendix Table A.1.

<sup>45</sup>We find no correlation between treatment and total factory workers, newspaper circulation, urban poverty, public expenditures on education/art/culture, scientific services and research.

<sup>46</sup>Data is used for 1991 and 2001.

<sup>47</sup>Spatial tools have been used to extract the data for the Indian districts.

Appendix Table A.1: Historical Correlates of State-Level FDI Agglomeration 1962-1992

Dependent Variable: Treated

Variables	Probit Estimation marginal effects (in %)
Number of total newspapers in all languages	-0.0043 (0.0064)
Cumulative Regulatory Change	4.96*** (1.08)
Labor Regulation Index	-14.09*** (2.69)
No. of Factories covered under Payment of Wages Act 1936	0.0054*** (0.0005)
Factory Sector total workers	0.0000 (0.0017)
Mean per capita expenditure rural (1973-74 prices)	-1.74*** (0.33)
Mean per capita expenditure urban (1973-74 prices)	-0.2938 (0.2299)
Stamps and registration fees	0.0206*** (0.0034)
State Excise duty on commodities and services	0.0013** (0.0005)
Education, art and culture, scientific services, and research expenditure	0.0002 (0.0005)
Population	-1.64e-06*** (2.48e-07)
Area (sq KM)	0.0001*** (0.0000)
Observations	494
No. of States	15

Notes: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1; Year fixed effects controlled. District-clustered standard errors parentheses.



Appendix Table A.2: District-Level Correlates of FDI, 1991-2001

Dependent Variable: Treated

Variables	Linear Probability Estimates
Percentage of Schedule Caste Population 1991	-0.324 (0.248)
Percentage of Literate Population 1991	1.304*** (0.171)
Employment rate 1991	2.959*** (0.259)
Percentage of Female Population 1991	-4.444** (2.124)
Change in Percentage of Schedule Caste Population 1991-2001	-0.940 (0.783)
Change in Percentage Literate Population 1991-2001	-0.886*** (0.291)
Change in Employment Rate 1991-2001	-1.008** (0.501)
Change in Percentage of Female Population 1991-2001	-6.025*** (1.893)
Electricity Infrastructure Investment	-2.49e-06 (4.07e-06)
Number of Electricity Infrastructure projects	0.0541 (0.0340)
Water Infrastructure Investment	-0.000979 (0.000878)
Number of Water Infrastructure Projects	0.392*** (0.102)
Transport Infrastructure Investment	-4.38e-05*** (1.55e-05)
Number of Transport Infrastructure Projects	0.0398*** (0.0120)
Welfare Infrastructure Investment	0.00118 (0.00103)
Number of Welfare Infrastructure Projects	0.0292 (0.252)
Rainfall (average annual in mm)	-0.000143*** (3.99e-05)
Temperature (average annual)	0.0391*** (0.00921)
Constant	0.127 (0.907)
Observations	488
R-squared	0.494

Notes: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1; standard errors clustered by district in parentheses.

Appendix Table A.3: Summary Statistics

Variable	Observations	Mean	SD	Min.	Max.
<b>IAS Data</b>					
<i>Turnover<sub>ijt</sub></i>	10,406	0.572	0.495	0	1
<i>Lateral<sub>ijt</sub></i>	10,406	0.370	0.483	0	1
<i>Promotion<sub>ijt</sub></i>	10,406	0.192	0.394	0	1
<i>Demotion<sub>ijt</sub></i>	10,406	0.058	0.233	0	1
<i>StateRecruited<sub>i</sub></i>	10,406	0.317	0.465	0	1
<i>NearRetirement<sub>it</sub></i>	10,406	0.168	0.374	0	1
<i>Top20Exam<sub>i</sub></i> (direct recruits)	4,697	0.277	0.447	0	1
<i>SameDomicile<sub>i</sub></i> (direct recruits)	6,690	0.275	0.446	0	1
<i>FirstClassDegree<sub>i</sub></i> (direct recruits)	6,690	0.792	0.406	0	1
<i>FirstClassDegree<sub>i</sub></i> (state recruits)	3,294	0.112	0.315	0	1
<i>ForeignDegree<sub>i</sub></i> (direct recruits)	6,690	0.196	0.397	0	1
<i>ForeignDegree<sub>i</sub></i> (state recruits)	3,294	0.029	0.167	0	1
<b>FDI Data</b>					
<i>FDI<sub>jt-1</sub></i>	9,794	0.200	0.999	0	22
<i>AvgFDIAllowed<sub>jt</sub></i>	9,794	35.33	10.164	13.98	72.05
<b>Census Data</b>					
<i>Log(population)<sub>j1991</sub></i>	10,406	14.56	0.605	11.88	16.11
<i>Log(population)<sub>j2001</sub></i>	10,406	14.44	0.692	11.52	16.30
<i>ScheduledCaste<sub>j1991</sub></i>	10,406	0.164	0.078	0	0.518
<i>ScheduledCaste<sub>j2001</sub></i>	10,406	0.163	0.081	0	0.501
<i>Literacy<sub>j1991</sub></i>	10,406	0.426	0.129	0.145	0.851
<i>Literacy<sub>j2001</sub></i>	10,406	0.547	0.115	0.242	0.854
<i>Employment<sub>j1991</sub></i>	10,406	0.377	0.068	0.239	0.540
<i>Employment<sub>j2001</sub></i>	10,406	0.399	0.064	0.241	0.570
<i>Female<sub>j1991</sub></i>	10,406	0.481	0.015	0.441	0.547
<i>Female<sub>j2001</sub></i>	10,406	0.484	0.014	0.434	0.504
<b>Country-of-Origin Data</b>					
<i>OriginCountryCorruption<sub>jt-1</sub></i>	699	0.054	0.073	0.005	0.678
<b>Politician Asset Data</b>					
<i>Log(NetAssets)<sub>pt</sub></i>	741	15.980	1.44	11.945	20.923
<i>Log(NetAssets)<sub>pt-</sub></i>	741	15.118	1.400	11.695	20.607
<i>Log(MovableAssets)<sub>pt</sub></i>	731	14.550	1.494	9.616	20.768
<i>Log(MovableAssets)<sub>pt-</sub></i>	731	13.534	1.618	6.215	18.966
<i>Log(ImmovableAssets)<sub>pt</sub></i>	697	15.774	1.493	11.462	20.112
<i>Log(ImmovableAssets)<sub>pt-</sub></i>	697	14.904	1.438	10.309	20.606
<i>ShareStatePromoted<sub>jt-1</sub></i>	741	0.314	0.411	0	1

Appendix Table A.4: FDI and Bureaucratic Turnover - Including Officer Fixed Effects

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.102 [0.052]*	0.275 [0.066]***	0.200 [0.080]**	0.079 [0.034]**	-0.073 [0.039]*
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with officer, district, and year fixed effects and district-specific time trends.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.5: Robustness to Heterogeneous Treatment Effects

	<i>Dependent variable:</i>	
	<i>Turnover<sub>ijt</sub></i>	
	(1)	(2)
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.262 [0.130]**	0.280 [0.136]**
Observations	722	722
District time trends	X	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using procedure from de Chaisemartin and D'Haultfoeuille (2020) and implemented with *did\_multipligt* command in Stata.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.6: FDI and Turnover of Near-Retirement Bureaucrats

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	0.160	0.164	0.029	0.128	0.045
<i>NearRetirement<sub>it</sub></i>	[0.111]	[0.106]	[0.095]	[0.057]**	[0.035]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.105	0.203	0.183	0.015	-0.079
	[0.046]**	[0.055]***	[0.068]***	[0.031]	[0.032]**
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.7: FDI and Turnover of State-Recruited Bureaucrats - Including Officer Fixed Effects

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	0.140	0.139	−0.038	0.186	0.087
<i>StateRecruited<sub>i</sub></i>	[0.109]	[0.107]	[0.112]	[0.077]**	[0.072]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.044	0.216	0.199	0.015	−0.089
	[0.077]	[0.086]**	[0.083]**	[0.041]	[0.033]**
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
District FEs	✓	✓	✓	✓	✓
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with officer, district, and year fixed effects and district-specific time trends.  $Treated_{ij} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.8: FDI and Turnover of Near-Retirement Bureaucrats - Including Officer Fixed Effects

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	0.004	0.020	-0.079	0.081	0.180
<i>NearRetirement<sub>it</sub></i>	[0.138]	[0.129]	[0.106]	[0.087]	[0.071]**
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.097	0.270	0.205	0.070	-0.092
	[0.043]**	[0.057]***	[0.077]**	[0.037]*	[0.042]**
Observations	10,406	10,406	10,406	10,406	10,406
Number of districts	497	497	497	497	497
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.011$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with officer, district, and year fixed effects and district-specific time trends.  $Treated_{ij} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.9: Controlling for Trade Barriers

	<i>Dependent variable:</i>	
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>
	(1)	(2)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>		0.205
<i>StateRecruited<sub>i</sub></i>		[0.050]***
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.224	0.137
	[0.090]**	[0.095]
<i>TariffRate<sub>jt</sub></i>	0.038	0.039
	[0.018]**	[0.018]**
Observations	7,323	7,323
Number of districts	491	491

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends.  $Treated_{ij} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).



Appendix Table A.10: State-Level Corruption and Turnover of Directly Recruited Bureaucrats

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	-0.003	0.003	-0.004	0.008	0.005
<i>StateCorruptionRank<sub>j</sub></i>	[0.009]	[0.010]	[0.009]	[0.006]	[0.0040]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	0.047	0.104	0.200	-0.108	-0.116
	[0.112]	[0.129]	[0.129]	[0.053]**	[0.056]**
Observations	6,575	6,575	6,575	6,575	6,575
Number of districts	477	477	477	477	477
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends. Sample includes only directly recruited bureaucrats.  $Treated_{ij} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.11: State-Level Corruption and Turnover of Near-Retirement Bureaucrats

	<i>Dependent variable:</i>				
	<i>Turnover<sub>ijt</sub></i>	<i>Turnover<sub>ijt</sub></i>	<i>Lateral<sub>ijt</sub></i>	<i>Promotion<sub>ijt</sub></i>	<i>Demotion<sub>ijt</sub></i>
	(1)	(2)	(3)	(4)	(5)
<i>Treated<sub>ij</sub> * Post<sub>t</sub>*</i>	0.059	0.079	0.049	0.025	0.016
<i>StateCorruptionRank<sub>j</sub></i>	[0.028]**	[0.038]**	[0.033]	[0.027]	[0.014]
<i>Treated<sub>ij</sub> * Post<sub>t</sub></i>	-0.128	0.177	0.219	-0.123	-0.032
	[0.450]	[0.615]	[0.395]	[0.433]	[0.218]
Observations	1,711	1,711	1,711	1,711	1,711
Number of districts	361	361	361	361	361
Control for district pop.	✓	✓	✓	✓	✓
Other district controls	X	✓	✓	✓	✓

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Robust standard errors clustered by state in brackets. All models estimated using OLS with district and year fixed effects and district-specific time trends. Sample includes only near-retirement bureaucrats.  $Treated_{ij} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for years 2006 and beyond. District controls include the following variables interacted with year indicators: 1991/2001 logged district population size, Scheduled Caste rate, adult literacy rate, employment rate, and gender ratio (sources: 1991/2001 Census of India).

Appendix Table A.12: FDI, Bureaucratic Reorganization, and Micro-Level Governance Outcomes

	<i>Dependent variable:</i>					
	Electricity	Piped water	Conf. in politicians	Conf. in state govt.	Conf. in panchayat	Receive benefits
	(1)	(2)	(3)	(4)	(5)	(6)
$Treated_{ij} * Post_t^*$	0.077	0.090	-0.021	-0.214	-0.227	-0.114
$StateRecruited_{jt}$	[0.051]	[0.077]	[0.081]	[0.067]***	[0.046]***	[0.108]
$Treated_{ij} * Post_t$	-0.056	-0.010	-0.059	-0.085	0.009	-0.013
	[0.025]**	[0.043]	[0.063]	[0.046]*	[0.041]	[0.056]
Observations	63,582	63,782	63,957	63,957	63,957	63,957
Number of districts	335	335	335	335	335	335

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. Robust standard errors clustered by state in brackets. All models estimated using OLS with household and year fixed effects.  $Treated_{jt} = 1$  for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat.  $Post_t = 1$  for 2012. Household controls include: poverty indicator; household consumption per capita; land owned; access to kisan; member of mahila mandal, union; own motorcycle, color TV, telephone; household size; and highest education obtained.

## B Indian Administrative Service

Famously described as the “steel frame” of India (Potter 1996), the IAS supplies key bureaucrats for district, state, and central governments, and state-owned enterprises.<sup>48</sup> Roughly 5,000 IAS officers serve at a given time, a remarkably small number in comparison to the size of the population they govern.

Officers enter the IAS via two pathways. Two-thirds are direct recruits, selected through a set of competitive nationwide exams. Of the roughly 450,000 applicants in the average year, fewer than 150 are selected. Candidates must be between 21 and 30 years of age in the year of the examination to be eligible (Bertrand et al. 2020).<sup>49</sup> The remaining one-third of officers are state recruits, state-level civil servants nominated to the IAS by their home state. Until 2013, state recruits were not required to take IAS exams.<sup>50</sup> The average entry age for direct recruits is 26, but 43 for state recruits.

Once admitted, direct recruits are assigned to a state through a quasi-random process.<sup>51</sup> An idiosyncratic rule divides Indian states into four groups based on alphabetical order and rotates their rank annually.<sup>52</sup> In a given year, direct recruits are sequentially assigned to states. Within this allocation rule, assignments further reflect the number of state vacancies and affirmative action for recruits from Scheduled Castes and Tribes (SC/ST). Direct recruits with the highest exam ranking can indicate a preference. Most choose their home state but placement is subject to available vacancies. State assignments are career-long; transfers across states are rare. State recruits always become IAS officers in their home state.

Following two years of training, IAS officers begin their careers as deputies to the district magistrate, the chief district-level bureaucrat.<sup>53</sup> District-level IAS officers oversee a wide range of governance functions, including revenue collection, infrastructure development, implementation of government welfare programs, law enforcement, and crisis administration. After four years, officers are eligible for promotion to district magistrate. Officers are eligible for further promotion to state positions at fixed intervals: 9, 13, 16, 25, and 30 years following their entry. Higher levels of promotion have a significant merit component rather than solely relying on seniority (Vaishnav and Khosla 2016).

Chief ministers (CM), states’ highest-ranked elected official, have no control over which

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<sup>48</sup>The IAS is the legacy of civil service that Britain established during the colonial era. See Vaishnav and Khosla (2016) and Bertrand et al. (2020) for detailed descriptions of the contemporary IAS.

<sup>49</sup>Members of reserved groups, such as Scheduled Castes and Tribes, may enter up to 35 years of age.

<sup>50</sup><https://www.hindustantimes.com/delhi/govt-for-change-in-rules-for-promotion-in-ias-ips/story-ysn6EtDi4D98fFQ390CuVL.html>

<sup>51</sup>Smaller states and territories are combined into a single “cadre.”

<sup>52</sup>For example, if groups A,B,C,D are ranked 1-4, respectively in year  $t$ , in year  $t+1$  the rank order shifts to B,C,D,A.

<sup>53</sup>In some some states, the title is district inspector but the job description is identical.

direct recruits are assigned to their state, nor can they fire IAS officers.<sup>54</sup> Salaries associated with pay grades and minimum requirements for promotion are also out of their control. CMs do, however, control officers' job postings and many aspects of officers' career advancement. Turnover refers to IAS officers' reassignment to another post. With respect to the standardized IAS pay scale, turnover can reflect lateral transfer, promotion, or demotion. Turnover is frequent: 57 percent of district-level officers experience turnover at least once annually. On average, most turnover is lateral (64.4 percent), followed by promotion (33.8 percent). Demotions comprise less than two percent of turnover.

### **Career Concerns**

IAS officers are motivated by a range of career concerns. After the first promotion, which is based on years of service, all further promotions are merit-based. Senior IAS officers in the state confidentially evaluate each officer annually and make recommendations to the CM. This process incentivizes competence, as promotion is associated with more prestigious postings and higher pay. After at least 20 years of service, officers are eligible for appointment to prestigious central government posts. In a process called empanelment, the state evaluates officers at the highest state-level pay grade for their suitability for central government posts. If deemed suitable, officers are appointed to central government positions as they become available.<sup>55</sup> Empanelment is a strong signal of competence within the IAS, corresponds to the highest pay grade, and carries considerable social prestige. Officer pensions are based on their pay grade at retirement and empaneled officers can leverage prestige for post-retirement job opportunities.

The IAS has a mandatory retirement age of 60, which has differential effects on the career concerns of direct versus state recruits.<sup>56</sup> State recruits are significantly older than direct recruits. From the outset of their IAS careers, they know they will not achieve the highest levels of service. On average, less than five percent of officers in empaneled positions are state recruits.

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<sup>54</sup>Firing IAS officers is extremely difficult and rare. Temporary suspensions do infrequently occur for serious misconduct or non-performance.

<sup>55</sup>Officers continue to serve in state-level positions after being empaneled until they are selected for a posting.

<sup>56</sup>The age was 58 prior to 1998.