# Bartering Bureaucrats: FDI Weakens Governance*

Benjamin Helms† Sonal S. Pandya‡ Sheetal Sekhri§

October 4, 2021

Preliminary Draft
Latest Version

**Abstract**

How does global economic integration shape governance in developing countries? We analyze the effects of foreign direct investment (FDI) on bureaucracies, a critical linchpin of governance largely overlooked in existing research. We overcome the endogeneity between integration and governance by leveraging India's sudden and extensive 2005 FDI liberalization. Politicians' relocation of bureaucrats provides a revealed, real-time measure of politicians' motives vis-à-vis foreign firms. Using multiple identification strategies, we show that state politicians relocate loyal but less competent Indian Administrative Service bureaucrats to FDI-exposed districts. Turnover is pronounced in more corrupt states and in districts with FDI originating from more corrupt countries. Politicians who represent FDI-exposed constituencies see an average 24 percent increase in their personal assets, but only when their party belongs to the state's ruling coalition government. Consistent with worse governance, survey respondents in exposed districts express falling confidence in state politicians. We rule out several threats to inference and plausible alternative mechanisms. Our findings highlight politicians'

*Gaurab Aryal, Gaurav Chiplunkar, Kerem Cosar, Leora Friedberg, and John McLaren provided insightful feedback.

†Department of Politics, University of Virginia; Email:bch5bs@virginia.edu
‡Department of Politics, University of Virginia; Email spandya@virginia.edu
§Department of Economics, University of Virginia; Email: ssekhri@virginia.edu

manipulation of the bureaucracy as a novel mechanism through economic integration undermines governance.

JEL Codes: D72, D73, F23, F63

# 1 Introduction

Global economic integration presents new challenges for governance in developing countries. While integration can stimulate economic prosperity, it constrains governments who, in pursuit of foreign investment, subsidize investors with public funds (Jensen and Malesky 2018) and submit to binding third-party arbitration with foreign firms (Simmons 2014). Though these mechanisms feature prominently in debates over global inequality, the endogeneity of FDI flows to host country governance limits empirical assessments.

We introduce two innovations that allow us to estimate the causal effects of foreign direct investment (FDI) on governance. First, we analyze bureaucratic turnover as a revealed measure of politicians' motives to attract FDI. Where bureaucrats vary in their competence and loyalty to politicians and politicians have discretion to reassign bureaucrats, credit claiming motives suggest that politicians will move competent bureaucrats to areas with FDI. Competent bureaucrats can better provide public goods that MNCs need, such as infrastructure and transparent regulatory approval, and otherwise facilitate MNCs' productivity and positive spillovers to local firms. Rent-seeking motives imply the opposite – politicians relocate loyal bureaucrats who will extract rents on the politician's behalf.

Second, we leverage India's large and sudden FDI liberalization in 2005 to identify FDI's causal effects on the turnover of Indian Administrative Service (IAS) officers. India eliminated all entry barriers into 110 industries. Figure 1 shows a large spike in intended FDI in 2006 and a nearly threefold increase foreign firms' new spending by 2008. This setting overcomes the possible endogenity of FDI location decisions to the quality of local bureaucrats. The IAS has several useful properties for inference. Officer turnover is frequent and at state politicians' discretion. Two-thirds of IAS officers are "direct recruits", selected through a rigorous, centralized screening process, and then quasi-randomly assigned to one state for their entire career. The remaining third are "state recruits", state-level civil servants selected by state politicians to join their state's IAS cadre. We classify direct recruits as competent and state recruits as loyal. Officers' biographical and career details are publicly available, which facilitates tests of several mechanisms.

Our reduced form analysis exploits the concentration of post-liberalization FDI growth in six Indian states, an artefact of FDI's tendency to geographic agglomeration. We harness this temporal and cross-state variation in Indian 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 exposure.

Our findings are consistent with rent-seeking motives. Across analyses, we find that FDI-

exposed districts had more bureaucratic turnover, which was driven by the promotion of state recruits. Near-retirement officers also exhibit more turnover, consistent with their limited opportunities for career advancement through greater competence. Post-liberalization, both state recruits and near-retirement officers have a higher probability of turnover in relatively more corrupt states. Liberalization further increased turnover in the presence of FDI originating from corrupt countries. Competent bureaucrats, as measured by education and exam rankings, exhibit no statistically significant change in turnover. We address possible bias in our difference-in-difference estimation including heterogeneous treatment effects (de Chaisemartin and D'Haultfœuille 2020). We also find no change in turnover among direct recruits posted to their home state, which is inconsistent with the alternative mechanism that state recruits are relocated to FDI-exposed districts because they have more contextual knowledge about their home state.

FDI-induced bureaucratic turnover has wide-ranging consequences. We show that after liberalization, members of the state legislature who represent high state recruit-share districts and whose parties control the state government see a 24 percent increase in their personal assets. These gains accrue to politicians' "moveable" (i.e. liquid) assets, which are more likely to reflect corruption. Additionally, we show that in FDI-exposed districts with higher shares of state recruits, citizens' confidence in state and local politicians declines.

We contribute to research on FDI's effects on governance in a few ways. Whereas existing research finds that unrestricted FDI correlates with less corruption in autocracies (Malesky et al. 2015; Zhu 2017), we show that FDI liberalization can increase corruption in democracies, even as governments remove entry barriers. Our findings suggest that democratic accountability is insufficient to motivate politicians to improve governance. Indeed, one conjecture is that streamlining bureaucratic procedures for foreign firms may be a deliberate strategy to consolidate control over payments from foreign firms. When politicians face weak accountability incentives or owe their re-election to clientelist strategies, they may be more likely to see FDI as a rent-seeking opportunity rather than one that could generate governance improvements. Our findings also suggest that MNCs are more tolerant of corruption than previously appreciated, even if these activities are not explicitly illegal.

We also contribute to a growing literature on the political economy of India's bureaucratic structures (Vaishnav and Khosla 2016). Existing research explores how electoral cycles shape the allocation of bureaucrats (Iyer and Mani 2012), whether career incentives influence bureaucrat performance (Bertrand et al. 2020; Xu et al. 2020), and how bureaucracies shape local public goods provision (Gulzar and Pasquale 2017; Bhavnani and Lee 2018, 2021). We instead explore how external economic forces shape politicians' deployment of the bureaucracy for rent-seeking purposes. We innovate by analyzing the allocation of loyal state

recruits, while other accounts focus solely on directly recruited officers; this is meaningful given that state recruits represent a substantial minority of IAS officers and enter primarily at the pleasure of local politicians.

# 2 Background

Our empirical strategy leverages an extensive FDI liberalization episode in India and investigates its impact on officers serving in the Indian Administrative Service (IAS). We first provide background on FDI promotion in India and this particular episode, as well as information on the recruitment and officer allocation practices of the IAS.

## 2.1 FDI Promotion in India

Sub-nationally, Indian state governments make significant efforts and expend state resources to convince MNCs to locate within their borders. The state of Gujarat, for instance, has hosted a biennial Vibrant Gujarat "investors' summit" since 2003 at which they hope to broker new foreign investments. These summits typically involve international organizations that promote economic development and feature prominent world politicians; US Secretary of State John Kerry spoke at the 2015 iteration.[1] The government prominently publicizes memorandums of understanding signed with foreign firms during these events. State-level economic reforms, such as so-called "single-window" streamlined regulation procedures for foreign firms, are also adopted with an eye toward attracting foreign investment. More broadly, the creation of special economic zones (SEZs) and favorable investment and tax incentives are widely used tools of investment promotion across India (Sharma 2017). States' industrial development bodies play a prominent and controversial role in obtaining land for foreign investors (Levien 2013; Alkon 2018).

## 2.2 FDI Liberalization in India

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. FDI regulations deter investors (Pandya 2014). Ownership restrictions force MNCs into joint ventures with domestic firms typically as minority shareholders, which induces a variety of contractual risks. Government approval requirements increase transactions costs and

[1] *Indian Express*. 2015 (January 12). "Vibrant Gujarat 2015: Kerry lauds Narendra Modi's Sabka Saath, Sabka Vikas slogan." https://indianexpress.com/article/india/india-others/kerry-calls-make-in-india-a-win-win-opportunity/.

introduce uncertainty about the likelihood and timing of approval. Prior to 2005, India retained tight controls on FDI. Despite broad economic liberalization following its 1991 balance of payments crisis, India capped automatic foreign ownership – without government approval – at 51 percent in only 35 industries.[2] India's federal Department of Industrial Promotion and Protection (DIPP) oversees FDI policy and announces policy changes via its *Press Notes* series. MNCs complained that these policies lacked clarity and that approval processes were unpredictable (GAO 2008; OECD 2009).

We harness a large de facto FDI liberalization in 2005. 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 shifted 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.[3] 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 in 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

[2]Prior regulations, dating back to 1974, required government approval for all FDI, capped ownership at 40 percent, and required divestment on fixed timetables (Bhasin 2012).

[3]NCR of Delhi consists of the National Capital Territory of Delhi and adjoining districts in surrounding states: Faridabad, Panipat, Sonipat, Rohtak, Rewari, Alwar, Gautam Buddha Nagar, Ghaziabad, and Gurgaon.

state- and district-level correlates of treatment status for 1962-2001 and find only modest differences between treatment and control areas.[4] No single industry dominates FDI inflows before or after liberalization.[5]

## 2.3 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.[6] 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).[7] 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.[8] 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.[9] An idiosyncratic rule divides Indian states into four groups based on alphabetical order and rotates their rank annually.[10] 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 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.[11] 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.

[4] See our discussion in the Appendix and Appendix Tables A.1 and A.2 for results.

[5] Industry FDI inflow patterns available on request.

[6] 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.

[7] Members of reserved groups, such as Scheduled Castes and Tribes, may enter up to 35 years of age.

[8] `https://www.hindustantimes.com/delhi/govt-for-change-in-rules-for-promotion-in-ias-ips/story-ysn6EtDi4D98fFQ39OCuVL.html`

[9] Smaller states and territories are combined into a single "cadre."

[10] 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.

[11] In some some states, the title is district inspector.

After four years, officers are eligible for promotion to district magistrate. Officers are eligible for further promotion 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 direct recruits are assigned to their state, nor can they fire IAS officers.[12] 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.[13] 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.[14] 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.

[12]Firing IAS officers is extremely difficult and rare. Temporary suspensions do infrequently occur for serious misconduct or non-performance.

[13]Officers continue to serve in state-level positions after being empaneled until they are selected for a posting.

[14]The age was 58 prior to 1998.

# 3 FDI and Governance: Theoretical Framework

Our theoretical framework clarifies how FDI shapes politicians' incentives to strengthen governance. The relationship between politicians and bureaucrats embodies a principal-agent dynamic. Politicians (principals) and bureaucrats (agents) have divergent preferences and politicians can only imperfectly monitor bureaucrats' actions.

## 3.1 Politicians

Politicians seek to remain in office. Electoral pressure influences politicians' management of the bureaucracy. Gulzar and Pasquale (2017) show superior implementation of development projects in India when local bureaucrats answer to a single politician, a result they attribute to politicians' stronger incentives to motivate high performance when they can claim full credit for public goods. Pierskalla et al. (2021) find that democratization in Indonesia worsened the career prospects of women and religious minority civil servants, reflecting the ascendance of conservative Islamic political parties.

## 3.2 Bureaucrats

Bureaucrats differ in the strength of their career incentives. Where politicians have discretion over bureaucrats' careers, the threat of transfer to less desirable locations or posts incentivizes bureaucrats to comply with politicians' preferences (Wade 1985; Brierley 2020). Bureaucrats also vary in their "embeddedness" within the community they serve. Though superior local information and connections could boost efficiency, most evidence concludes the opposite. Xu et al. (2020) find that Indian bureaucrats serving in their home states are perceived as more corrupt and prone to political capture. Bhavnani and Lee (2018) find worse public goods provision in Indian districts led by home state IAS officers when their accountability to citizens is weak.

We posit that bureaucrats with weaker prospects for meritocratic advancement are more likely to be loyal to politicians. Iyer and Mani (2012) find that less capable IAS officers experience more turnover in election years and greater variability in the prestige of their postings as compared to more competent officers. Bertrand et al. (2020) show that career-constrained IAS officers are perceived to be less effective and more likely to be disciplined.

## 3.3 What FDI Means for Politicians

FDI is foreign investment by multinational corporations (MNCs) to produce goods and services across multiple countries via foreign subsidiaries. MNCs pursue FDI for their most

skill- and technology-intensive activities, activities they wish to keep internal to the firm. Politicians in developed and developing countries alike covet FDI as a source of skilled jobs and advanced technologies that can produce productivity spillovers and generally fuel economic growth (Alfaro 2017) and facilitate export upgrading (Harding and Javorcik 2012).

Politicians may see FDI as an opportunity to claim credit for improved economic performance. To the extent that voters evaluate incumbent politicians retrospectively, FDI provides a particularly clear external validation of politicians' competence. Some evidence suggests that voters are more likely to endorse politicians who make visible efforts to attract investment, even those efforts are unsuccessful (Jensen et al. 2014). The presence of competent bureaucrats maximizes the local economic returns to FDI. In countries like India, MNCs rely directly on local bureaucrats for regulatory approvals and indirectly through their reliance on public infrastructure. Asher and Novosad (2017) find political favoritism drives improved firm performance in India, driven by politicians' influence over regulation. Moreover, public goods, such as education, build capacity for local firms to absorb productivity spillovers from MNCs (Borensztein et al. 1998). Further, politicians may attract more FDI by cultivating a reputation for sound governance. In developing countries, meritocratic recruitment of bureaucrats correlates with less political risk (Rauch and Evans 2000).

Alternately, politicians may view as an opportunity for corruption. We define corruption broadly to encompass all uses of public office for private gain. Current research on FDI's effect on corruption emphasizes entry barriers and rents accruing to MNCs. With higher entry barriers, firms may be willing to pay higher bribes for market access (Malesky et al. 2015). From politicians' perspective, MNCs may be attractive targets for corruption. Firms are large, arguably more reliant on government guidance due to the lack of familiarity with the area; they have to establish local supplier relationship anew. Corruption can be consistent with FDI promotion. Indeed, FDI promotion successfully attracts FDI only when host countries have burdensome bureaucratic procedures (Harding and Javorcik 2011).

This framework gives us several testable implications to distinguish between the two hypothesis which we take to the data:

- FDI prompts bureaucratic turnover
- Credit Claiming Hypothesis: If politicians seek to claim credit for FDI, they will move bureaucrats with stronger career concerns to FDI-exposed districts
- Corruption Hypothesis: If politicians view FDI as an opportunity for corruption, they will move bureaucrats with weaker career concerns to FDI-exposed districts
- If corruption motivates politicians:

- turnover will be greater in more corrupt states and when FDI originates from more corrupt countries
- state politicians' assets will grow in FDI-exposed districts if the politician is from the CM's party.

# 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.

## 4.1 FDI and FDI Liberalization

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.[15] 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.[16] 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.

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 ownership allowed via the automatic route.[17] We use these FDI regulations data to construct a measure of district-year exposure to FDI liberalization.[18]

[15] CMIE obtains this information through press reports, government filings, and direct correspondence with firms.

[16] CapEx data are also less likely to capture Indian firms' use of foreign tax havens, which inflates official FDI estimates.

[17] In some industries, higher percentage ownership is allowed through the government route.

[18] 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.

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 only 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, roughly 35 percent of a district's economy is open to FDI.

## 4.2 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 Ministry of Personnel, Public Grievances, and Pensions via an online portal.[19] 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.[20] Our main sample is limited to officers serving in district-level positions as our unit of analysis is a district.[21]

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 promotion from a 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 IAS 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 analysis.

**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,

[19] 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.

[20] While the data stretch from immediately following Indian independence to the present day, coverage of earlier years is thin.

[21] Officers posted to state and central government positions are excluded.

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.[22] 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 positions are recruited from the state civil services, while 2/3 enter through direct recruitment. $NearRetirement_{it}$, a time-varying indicator variable that 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.[23]

**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.[24] $SameCadreDomicile_i$ 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.[25]

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

[22]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).

[23]We account for change in mandatory retirement age from 58 to 60 in 1998.

[24]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.

[25]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.

class degrees and 20 percent hold foreign degrees, compared to just 10 and 3 percent, respectively, for state-recruited officers. These differences suggest a significant baseline quality gap between directly recruited and state-recruited officers.

### 4.3 Control Variables

We use data from the 1991 and 2001 rounds of the decennial Indian Census to construct a series of district-level control variables related to both 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.

## 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 and to examine the effect of ex ante corruption on bureaucratic reorganization. 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.

### 5.1 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.[26]

We estimate the following empirical model:

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

[26]We also include officer-level fixed effects in supplementary models.

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 $t$;[27] 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 clustered by both district and state to ensure robustness.

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. Finally, there is a 7.5 percentage point decrease in the probability of being demoted, yet recall that demotions represent a very small proportion of job turnover incidence. 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.

## 5.2 Event Study Analysis

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

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

[27] IAS officers are organized in seven salary tiers based on seniority.

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. In the top panel we use district-clustered standard errors, but we ensure robustness to clustering by state in the bottom panel. 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 discern any differential pre-trends by treatment status, and the timing of the increase in the turnover corresponds with liberalization. The results are virtually identical when we cluster standard errors by state.

## 5.3 Possibility of Bias in DID Estimation

Recent advances in econometric literature identify a potential source of bias in DID research designs that exploit differential treatment timing across units (i.e. staggered roll-out designs). Since observations treated earlier 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 our 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.[28] 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-

[28]We implement this estimator using the *did_multiplegt* command in Stata.

trends using this same estimator and present the results in Appendix Figure A.1; there is no evidence of differential trends.

## 5.4 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:

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

where $FDI_{jt-1}$ is the count of new FDI projects district $j$ receives at time $t-1$; $LiberalizationExposure_{jt-2}$ 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:

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

where $\widehat{FDI_{jt-1}}$ is the predicted number of new FDI projects from Equation 3 and $\epsilon_{ijt}$ is the error term. We cluster standard errors by both district and 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 job 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, an effect that is statistically significant at $p < .01$. 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.

## 5.5 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:

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

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.[29] The bureaucratic reorganization caused by liberalization primarily involved the reallocation of state-recruited officers, who are an additional 17.2 percentage points more 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.[30] The top panel of Figure 5 shows the results of an identical event study model expressed in Equation 2 for state-recruited bureaucrats only. We again calculate confidence intervals based on district-clustered standard errors, but in Appendix Figure A.2, we instead cluster by state. For each year between 1996 and 2004, the estimates for state-recruited bureaucrats are small and statistically insignificant.[31] We again observe a sharp and statistically significant increase in the probability of turnover for state-recruited bureaucrats immediately following liberalization; this effect stays relatively constant thereafter. One year in the post-liberalization period (2008) is statistically significant at $p < .1$ while all others are significant at $p < .05$.[32]

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 career concerns. We estimate the same triple difference model specified in Equation 5 but replace $StateRecruited_i$ with $NearRetirement_{it}$. We present these results in Table 4. There

[29] All constituent interactions are also included but suppressed from the results.

[30] Appendix Table A.6 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.

[31] An F-test for joint significance of the pre-period coefficients fails to reject the null hypothesis that the coefficients are equal to zero ($F = 0.0.185, p = 0.67$).

[32] An F-test for joint significance of the post-period coefficients rejects the null hypothesis that the coefficients are equal to zero ($F = 6.39, p = 0.012$).

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.[33] The double interaction ($Treated_{jt} * Post_t$) continues to be positive and statistically significant.

The bottom panel of Figure 5 depicts an analogous event study for near-retirement bureaucrats only.[34] For each year between 1996 and 2004, the estimates for near-retirement bureaucrats are small and statistically insignificant.[35] We again observe a sharp increase in the probability of turnover for state-recruited bureaucrats immediately following liberalization; this effect stays relatively constant thereafter. One year in the post-liberalization period (2006) is statistically significant at $p < .1$ while all others are significant at $p < .05$.[36] An F-test for joint significance of the post-period coefficients rejects the null hypothesis that the coefficients are equal to zero ($F = 7.16, p = 0.007$).

It is possible that migration between districts, as well as simultaneous changes in trade liberalization, could bias our estimates. In Appendix Table A.10, we use data from the Indian Human Development Survey (IHDS) rounds in 2005 and 2012 and ensure that people did not differentially migrate across districts with respect to liberalization exposure or the presence of relatively more state-recruited bureaucrats. In Appendix Table A.11, we add an additional control variable for the average tariff rate weighted by a district's pre-treatment industrial composition. While higher average tariff rates appear to be associated with an increased probability of turnover, the effect of exposure to FDI on turnover – and differential turnover for state-recruited officers – remains virtually identical.

## 5.6 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

[33] See Appendix Table A.7 for these results.

[34] Appendix Figure A.2 shows an analogous event study estimation when clustering standard errors by state rather than district.

[35] An F-test for joint significance of the pre-period coefficients fails to reject the null hypothesis that the coefficients are equal to zero ($F = 0.07, p = 0.79$).

[36] When clustering by state (see Appendix Figure A.2), one year in the post-liberalization period (2006) is not statistically significant at conventional levels. An additional year (2008) is statistically significant at $p < .1$. An F-test for joint significance of the post-period coefficients when clustering by state yields a p-value of 0.054.

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: $Top20Exam_i$, an indicator for whether officer $i$ scored in the top 20 of her cohort on the entry exam; $SameDomicile_i$, an indicator for whether officer $i$ is assigned to the same cadre as her domicile; $FirstClassDegree_i$, an indicator for whether officer $i$ received a first class degree; and $ForeignDegree_i$, 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 5 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. 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.

## 5.7 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. This movement is consistent with a rent-seeking strategy rather than credit-claiming. 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-treatment (2005) data from Transparency India on the rankings of Indian states by their level of corruption (Transparency International India 2005).[37] Higher numerical ranks reflect greater levels of corruption. We have notable variation in ex ante levels of corruption among treated states.[38]

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-recruited bureaucrats. These results are displayed in Table 6. We find that the system-

[37]These rankings are based on survey data that Transparency India collects in each state, calculating an overall corruption score and ranking states accordingly.

[38]Gujarat is ranked 3rd, Andhra Pradesh 4th, Maharashtra 5th, Delhi 11th, Tamil Nadu 12th, and Karnataka 17th.

atic 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.8, where turnover does not systematically vary with respect to state-level corruption. However, a very similar pattern emerges when we limit the sample to near-retirement officers in Appendix Table A.9, 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.[39] 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.[40] In Table 7, 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.

## 5.8 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

[39]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.

[40]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.

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.[41] 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 times 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 or financial investments) assets, which we leverage.[42] 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:

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

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

[41] See `https://adrindia.org/about-adr/who-we-are` for asset disclosure records for all elections since 2003.

[42] Summary statistics for politicians' financial assets is available in Appendix Table A.3.

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 both district and state.

Table 8 presents our results. Panel A shows the results for total logged assets, while panels B and C show the results separately 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 who are in 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. These results indicate that incumbent politicians who are part of the government responsible for reshuffling relatively more loyal bureaucrats see larger increase in their private asset growth as a result of FDI inflows. Asset growth for this subset of politician is a clear observable implication of FDI inducing rent-seeking behavior on the part of incumbents.

## 5.9 Confidence in Politicians Falls

Finally, we investigate whether FDI-induced bureaucratic reorganization 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. These results are further consistent with the proposition that liberalization weakens, rather than strengthens, bureaucratic governance.

# 6 Conclusion

This study highlights how politicians' incentives shape the welfare consequences of global economic integration. We show that FDI liberalization motivated Indian state politicians to relocate career-constrained bureaucrats to FDI-exposed districts. These bureaucrats, for whom the mandatory retirement age forecloses the income and prestige enjoyed in bureaucracy's highest ranks, are more likely to facilitate corruption between politicians and foreign firms. State recruits, who are less competent but more loyal to politicians, and near-retirement bureaucrats are more likely to be promoted into posts in FDI-exposed districts. Both effects are pronounced in more corrupt states and in the presence of FDI originating from more corrupt countries. State politicians in FDI-exposed districts experience large asset growth but only when their party controls the state government. We also show that citizens in FDI-exposed areas report less confidence in politicians, consistent with a deterioration in governance.

We note additional observable implications of our argument. MNCs' willingness to engage in corruption should vary with their motive for investment. Firms producing for export, as measured by their industries' related-party export share prior to liberalization, should be less tolerant of corruption given their greater flexibility in location choices. Indeed, India's large market is likely why firms are willing to engage in corruption in the absence of monopoly rents. Thus, we expect turnover of career-constrained bureaucrats to be attenuated in the presence of FDI in export-oriented production. Though We focus on district-level bureaucrats, an implication of our argument is politicians should place higher ranking career-constrained bureaucrats in postings where they can extract rents from MNCs. Specifically, we expect a higher share of state recruits and near-retirement officers in states' industrial development authorities. Deeper investigation of public goods provision in FDI-exposed areas can establish the broader welfare consequences of less skilled bureaucrats. Finally, understanding how politicians' deploy the spoils of corruption would grow our understanding of

how globalization shapes democracy. One possibility is that politicians channel ill-gotten wealth to support clientelistic political strategies.

# References


**Alfaro, Laura**, "Gains from Foreign Direct Investment: Macro and Micro Approaches," *The World Bank Economic Review*, March 2017, *30*, S2–S15.

**Alkon, Meir**, "Do Special Economic Zones Induce Developmental Spillovers? Evidence from India's States," *World Development*, July 2018, *107*, 396–409.

**Asher, Sam and Paul Novosad**, "Politics and Local Economic Growth: Evidence from India," *American Economic Journal: Applied Economics*, January 2017, *9* (1), 229–273.

**Bertrand, Marianne, Robin Burgess, Arunish Chawla, and Guo Xu**, "The Glittering Prizes: Career Incentives and Bureaucrat Performance," *Review of Economic Studies*, 2020, *87* (2), 626–655.

**Bhasin, Niti**, *Foreign Direct Investment (FDI) in India: Policies, Conditions and Procedures*, New Century Publications, 2012.

**Bhavnani, Rikhil and Alexander Lee**, "Local Embeddedness and Bureaucratic Performance: Evidence from India," *Journal of Politics*, 2018, *80* (1), 71–87.

_ **and** _ , "Does Affirmative Action Worsen Bureaucratic Performance? Evidence from the Indian Administrative Service," *American Journal of Political Science*, 2021, *65* (1), 5–20.

**Bobonis, Gustavo J. and Howard J. Shatz**, "Agglomeration, Adjustment, and State Policies in the Location of Foreign Direct Investment in the United States," *Review of Economics and Statistics*, 2007, *89* (1), 30–43.

**Borensztein, E., J. De Gregorio, and J-W. Lee**, "How Does Foreign Direct Investment Affect Economic Growth?," *Journal of International Economics*, June 1998, *45* (1), 115–135.

**Brierley, Sarah**, "Unprincipled Principals: Co-opted Bureaucrats and Corruption in Ghana," *American Journal of Political Science*, 2020, *64* (2), 209–222.

**Callaway, Brantly and Pedro H.C. Sant'Anna**, "Difference-in-Difference with Multiple Time Periods," *Journal of Econometrics*, 2021, *Forthcoming.*

**Chakrabarti, Rajesh, Krishnamurthy Subramanian, and Sesha Meka**, "Localization of FDI Flows: Evidence on Infrastructure as a Critical Determinant," *Journal of Law, Finance, and Accounting*, 2017, *2* (1), 205–246.

**de Chaisemartin, Clément and Xavier D'Haultfœuille**, "Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects," *American Economic Review*, 2020, *110* (9), 2964–2996.

**DIPP**, "DIPP Press Release Archive, S No. 50, December 23," Technical Report, Government of India, Ministry of Commerce & Industry, 2005.

**Enamorado, Ted, Benjamin Fifield, and Kouske Imai**, "Using a Probabilistic Model to Assist Merging of Large-Scale Administrative Records," *American Political Science Review*, 2019, *113* (2), 353–371.

**Fisman, Raymond, Florian Schulz, and Vikrant Vig**, "The Private Returns to Public Office," *Journal of Political Economy*, August 2014, *122* (4), 806–862.

**GAO**, "Foreign Investment: Laws and Policies Regulating Foreign Investment in 10 Countries," Technical Report, U.S. Government Accountability Office, 2008.

**Goodman-Bacon, Andrew**, "Difference-in-Differences with Variation in Treatment Timing," *Journal of Econometrics*, 2021, *Forthcoming.*

**Gulzar, Saad and Benjamin T. Pasquale**, "Politicians, Bureaucrats, and Development: Evidence from India," *American Political Science Review*, 2017, *111* (1), 162–183.

**Harding, Torfinn and Beata S. Javorcik**, "Roll Out the Red Carpet and They Will Come: Investment Promotion and FDI Inflows," *The Economic Journal*, 2011, *121* (557), 1445–1476.

**_ and _** , "Foreign Direct Investment and Export Upgrading," *The Review of Economics and Statistics*, November 2012, *94* (4), 964–980.

**Head, Keith, John Ries, and Deborah Swenson**, "Agglomeration Benefits and Location Choice: Evidence from Japanese Manufacturing Investments in the United States," *Journal of International Economics*, 1995, *38* (3-4), 223–247.

**Iyer, Lakshmi and Anandi Mani**, "Traveling Agents: Political Change and Bureaucratic Turnover in India," *Review of Economics and Statistics*, 2012, *94* (3), 723–739.

**Jensen, Nathan M. and Edmund J. Malesky**, *Incentives to Pander: How Politicians Use Corporate Welfare for Political Gain*, Cambridge University Press, 2018.

**_ , Edmund Malesky, Mariana Medina, and Ugur Ozdemir**, "Pass the Bucks: Credit, Blame, and the Global Competition for Investment1," *International Studies Quarterly*, September 2014, *58* (3), 433–447.

**Levien, Michael**, "Regimes of Dispossession: From Steel Towns to Special Economic Zones," *Development and Change*, 2013, *44* (2), 381–407.

**Malesky, Edmund J., Dimitar D. Gueorguiev, and Nathan M. Jensen**, "Monopoly Money: Foreign Investment and Bribery in Vietnam, a Survey Experiment," *American Journal of Political Science*, 2015, *59* (2), 419–439.

**Mukherjee, Atri**, "Regional Inequality in Foreign Direct Investment Flows to India: The Problem and the Prospects," *Reserve Bank of India Occasional Paper*, 2011, *32.*

**Mukim, Megha and Peter Nunnenkamp**, "The Location Choices of Foreign Investors: A District-level Analysis in India," *The World Economy*, 2012, *35* (7), 886–918.

**OECD**, *OECD Investment Policy Reviews: India 2009*, Paris: Organisation for Economic Co-operation and Development, 2009.

**Pandya, Sonal S.**, *Trading Spaces: Foreign Direct Investment Regulation, 1970-2000*, New York, NY: Cambridge University Press, 2014.

**Pierskalla, Jan H., Adam Lauretig, Andrew S. Rosenberg, and Audrey Sacks**, "Democratization and Representative Bureaucracy: An Analysis of Promotion Patterns in Indonesia's Civil Service, 1980–2015," *American Journal of Political Science*, 2021, *65* (2), 261–277.

**Potter, David C.**, *India's Political Administrators: From ICS to IAS*, Oxford: Oxford University Press, 1996.

**Rauch, James E. and Peter B. Evans**, "Bureaucratic Structure and Bureaucratic Performance in Less Developed Countries," *Journal of Public Economics*, January 2000, *75* (1), 49–71.

**Sharma, Chanchal Kumar**, "Federalism and Foreign Direct Investment: How Political Affiliation Determines the Spatial Distribution of FDI – Evidence from India," Working paper 307, German Institute of Global and Area Studies 2017.

**Simmons, Beth A.**, "Bargaining over BITs, Arbitrating Awards: The Regime for Protection and Promotion of International Investment," 2014, *World Politics* (1), 12–46.

**Transparency International India**, "India Corruption Study 2005," Technical Report, Transparency International India, New Delhi 2005.

**U.S. Department of State**, "2007 Investment Climate Statement – India," 2007. Retrieved from: https://2001-2009.state.gov/e/eeb/ifd/2007/80739.htm.

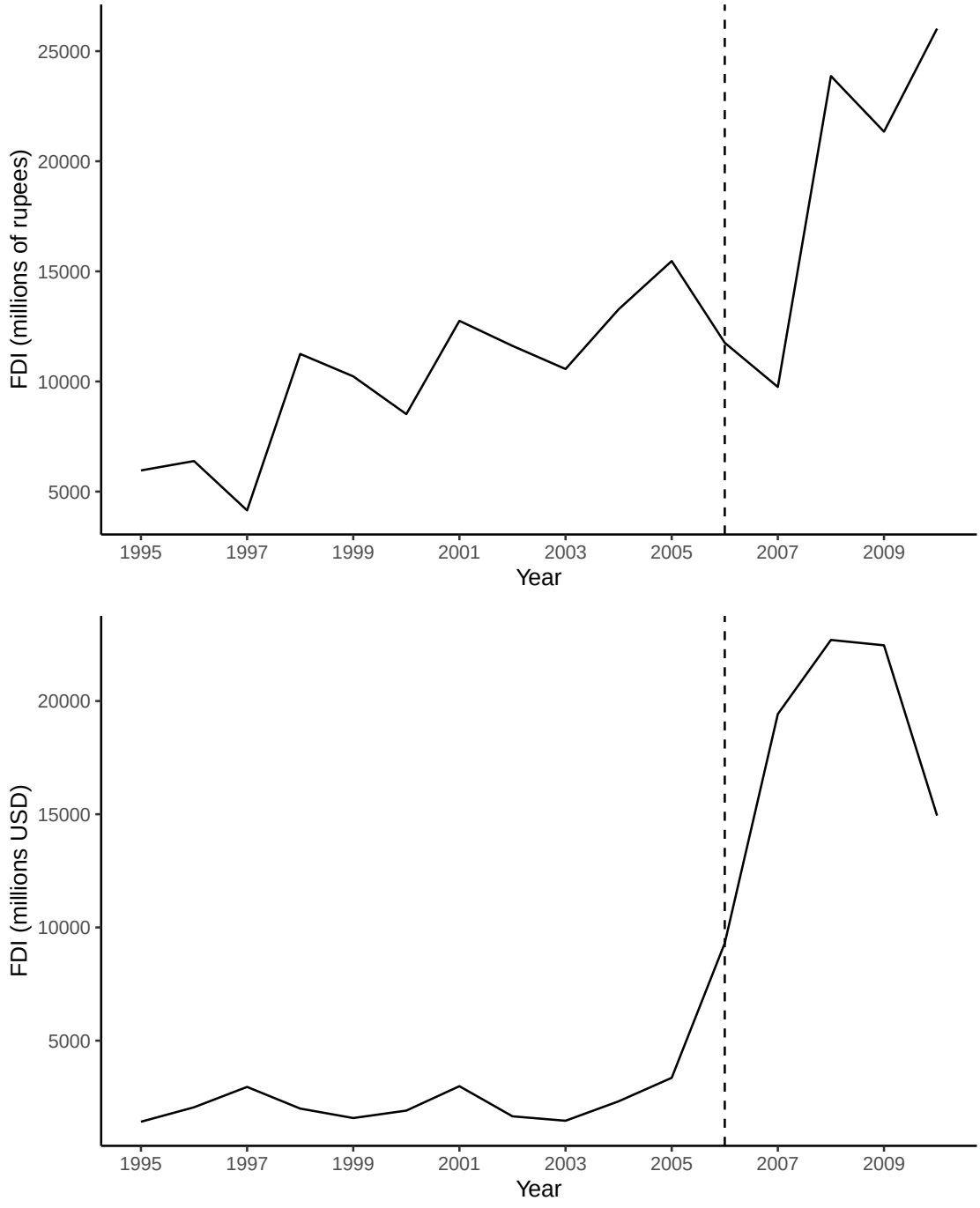
**Vaishnav, Milan and Saksham Khosla**, "The Indian Administrative Service Meets Big Data," Technical report, Carnegie Endowment for International Peace 2016.

**Wade, Robert**, "The Market for Public Office: Why the Indian State is Not Better at Development," *World Development*, April 1985, *13* (4), 467–497.

**Xu, Guo, Marianne Bertrand, and Robin Burgess**, "Organization of the State: Home Assignment and Bureaucrat Performance," Unpublished manuscript 2020.

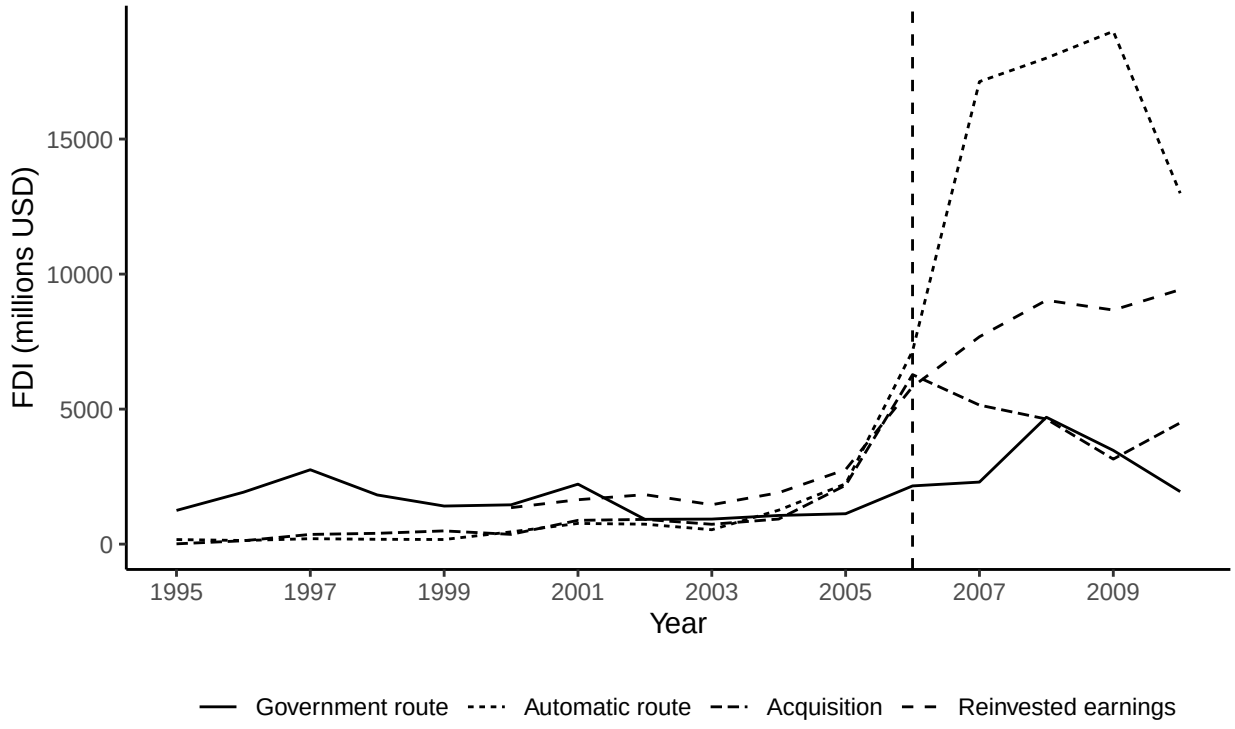
**Zhu, Boliang**, "MNCs, Rents, and Corruption: Evidence from China," *American Journal of Political Science*, 2017, *61* (1), 84–99.

Figure 1: FDI in India Over Time



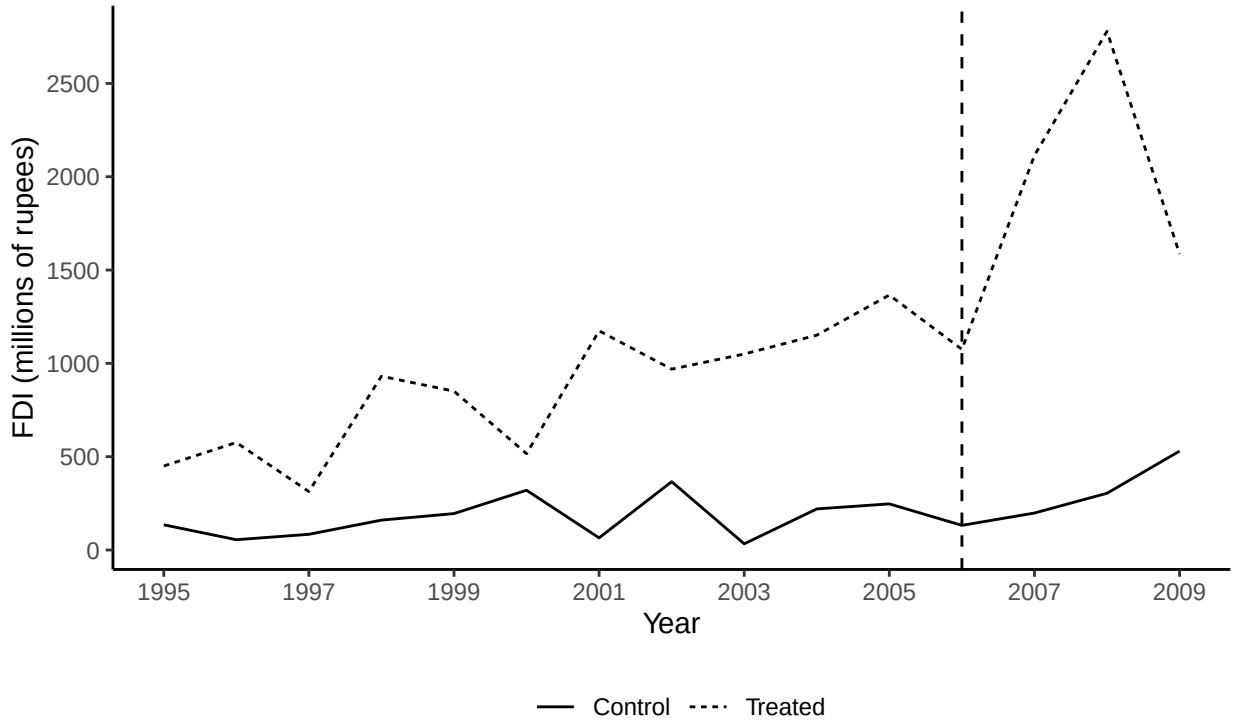

Top panel: inflation-adjusted value of new completed FDI projects in India (source: CapEx). Bottom panel: inflation-adjusted value of intended FDI in India (source: Reserve Bank of India).

Figure 2: FDI in India Over Time by Entry Route



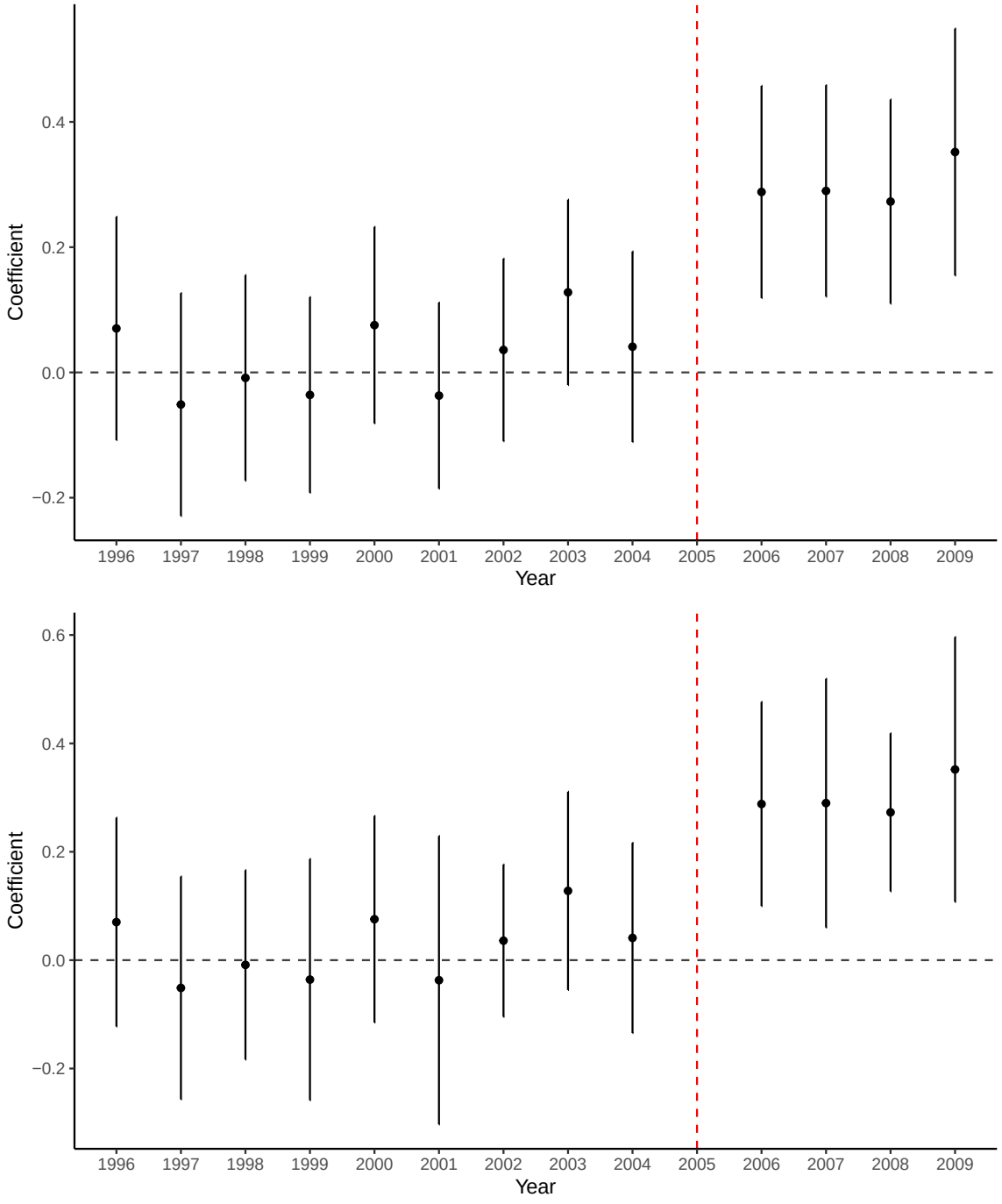

Source: 2012 RBI Bulletin.

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



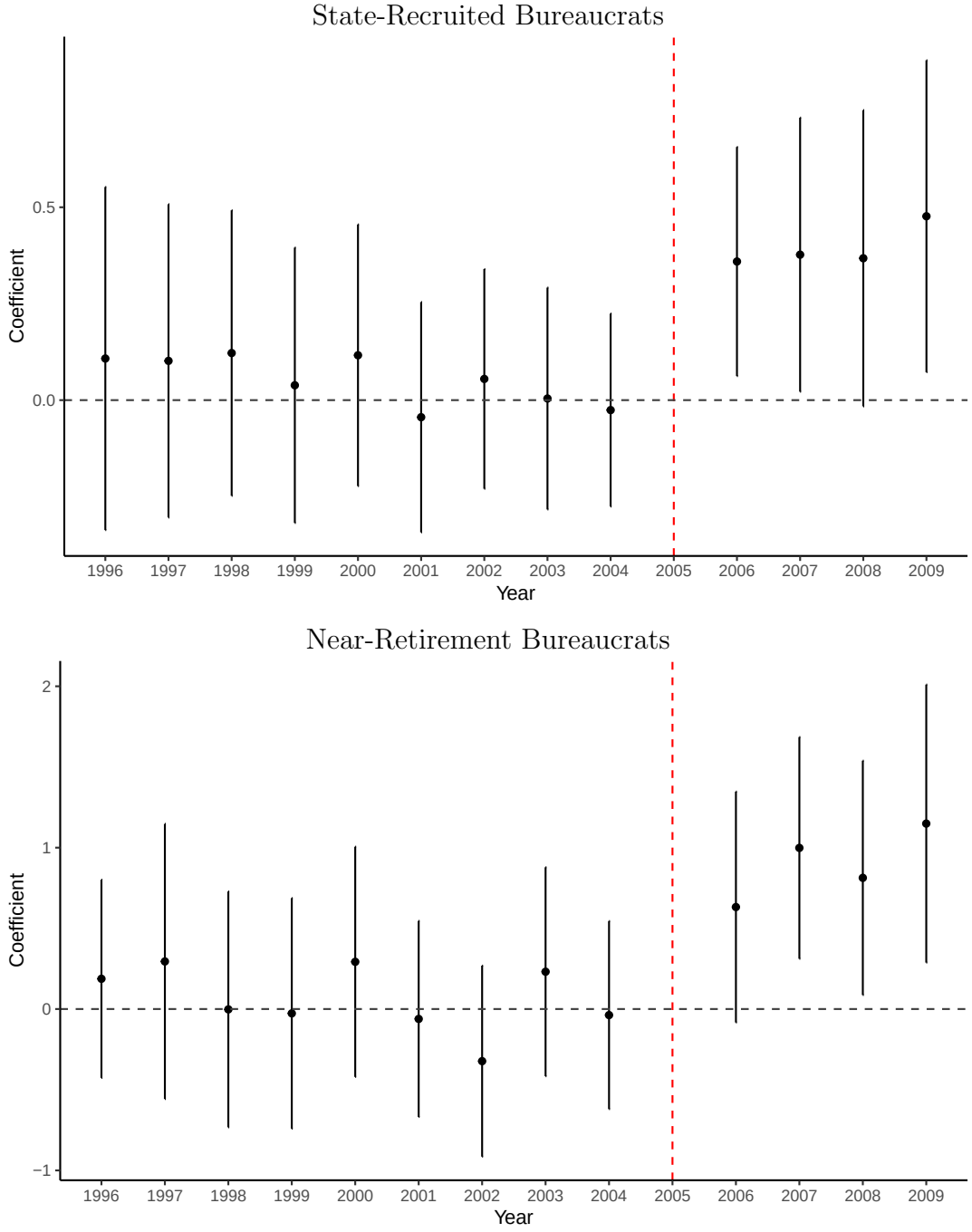

Source: CapEx.

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. Top panel: standard errors clustered by district . Bottom panel: 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 Loyal Bureaucrats




Notes: year-by-year coefficient of interaction between treatment and year indicators on turnover with 95 percent confidence intervals. Standard errors clustered by district. 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

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t$ | 0.137 | 0.237 | 0.196 | 0.036 | −0.075 |
| | $(0.037)^{***}$ | $(0.053)^{***}$ | $(0.050)^{***}$ | (0.038) | $(0.022)^{***}$ |
| | $[0.043]^{***}$ | $[0.053]^{***}$ | $[0.067]^{***}$ | [0.031] | $[0.031]^{**}$ |
| 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 (district) and [state]. 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

| | *Dependent variable:* | |
|---|---|---|
| | $FDI_{jt-1}$ | $Turnover_{ijt}$ |
| | 1st stage | 2nd stage |
| | (1) | (2) |
| $AvgFDIAllowed_{jt-2}$ | 0.017 | |
| | $(0.006)^{***}$ | |
| | $[0.005]^{***}$ | |
| $FDI_{jt-1}$ | | 0.360 |
| | | $(0.193)^{*}$ |
| | | $[0.182]^{**}$ |
| 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 (district) and [state]. 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

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $StateRecruited_i$ | 0.177 | 0.172 | 0.036 | 0.130 | 0.028 |
| | $(0.054)^{***}$ | $(0.054)^{***}$ | (0.051) | $(0.042)^{***}$ | (0.026) |
| | $[0.047]^{***}$ | $[0.049]^{***}$ | [0.068] | $[0.057]^{**}$ | [0.045 |
| $Treated_{ij} * Post_t$ | 0.060 | 0.165 | 0.177 | −0.016 | −0.079 |
| | (0.042) | $(0.056)^{***}$ | $(0.051)^{***}$ | (0.041) | $(0.023)^{***}$ |
| | [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 (district) and [state]. 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 Near-Retirement Bureaucrats

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $NearRetirement_{it}$ | 0.160 | 0.164 | 0.029 | 0.128 | 0.045 |
| | (0.068)** | (0.068)** | (0.070) | (0.052)** | (0.029) |
| | [0.111] | [0.106] | [0.095] | [0.057]** | [0.035] |
| $Treated_{ij} * Post_t$ | 0.105 | 0.203 | 0.183 | 0.015 | −0.079 |
| | (0.037)*** | (0.052)*** | (0.050)*** | (0.038) | (0.023)*** |
| | [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 | ✗ | ✓ | ✓ | ✓ | ✓ |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. 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: FDI and Turnover of Competent Bureaucrats

| | *Dependent variable: $Turnover_{ijt}$* | | | | | |
|---|---|---|---|---|---|---|
| | Direct recruits (1) | Direct recruits (2) | Direct recruits (3) | State recruits (4) | Direct recruits (5) | State recruits (6) |
| $Treated_{ij} * Post_t *$ $Top20Exam_i$ | −0.098 | | | | | |
| | (0.090) [0.101] | | | | | |
| $Treated_{ij} * Post_t *$ $SameDomicile_i$ | | −0.022 | | | | |
| | | (0.090) [0.052] | | | | |
| $Treated_{ij} * Post_t *$ $FirstClassDegree_i$ | | | 0.044 | −0.341 | | |
| | | | (0.079) [0.072] | (0.225) [0.182]* | | |
| $Treated_{ij} * Post_t *$ $ForeignDegree_i$ | | | | | −0.144 | −0.299 |
| | | | | | (0.097) [0.078]* | (0.240) [0.191] |
| $Treated_{ij} * Post_t$ | 0.104 | 0.139 | 0.098 | 0.408 | 0.150 | 0.399 |
| | (0.091) [0.111] | (0.071)* [0.067]** | (0.097) [0.095] | (0.116)*** [0.131]*** | (0.071)** [0.066]** | (0.117)*** [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 (district) and [state]. 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 6: State-Level Corruption and Turnover of State-Recruited Bureaucrats

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $StateCorruptionRank_j$ | 0.029 | 0.045 | 0.041 | −0.010 | 0.018 |
| | (0.016)* | (0.018)** | (0.016)** | (0.015) | (0.010)* |
| | [0.011]*** | [0.013]*** | [0.025] | [0.019] | [0.011] |
| $Treated_{ij} * Post_t$ | 0.014 | −0.021 | −0.122 | 0.184 | −0.203 |
| | (0.167) | (0.195) | (0.178) | (0.165) | (0.104)* |
| | [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 | ✗ | ✓ | ✓ | ✓ | ✓ |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. 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 7: Origin Country Corruption and Turnover of State-Recruited Bureaucrats

| | *Dependent variable:* $Turnover_{ijt}$ |
|---|---|
| | (1) |
| $StateRecruited_i * Post_t *$ $OriginCountryCorruption_{jt-1}$ | 0.192 |
| | $(0.093)^{**}$ |
| | $[0.036]^{***}$ |
| $Post_t * OriginCountryCorruption_{jt-1}$ | $-0.240$ |
| | $(0.083)^{***}$ |
| | $[0.080]^{***}$ |
| Observations | 699 |
| Number of districts | 89 |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. 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 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 | 0.119 | 0.057 |
| | (0.033)** | (0.073) | (0.067) |
| | [0.034]** | [0.067]* | [0.052] |
| $CumulFDI_{jt} * Incumbent_{ijt-}$ | −0.023 | -0.059 | −0.002 |
| | (0.014) | (0.041) | (0.040) |
| | [0.013]* | [0.035] | [0.033] |
| $CumulFDI_{jt}$ | 0.021 | 0.027 | 0.005 |
| | (0.011)* | (0.009)*** | (0.034) |
| | [0.012] | [0.011]** | [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 | 0.214 | −0.063 |
| | (0.077) | (0.074)*** | (0.078) |
| | [0.084] | [0.082]** | [0.080] |
| $CumulFDI_{jt} * Incumbent_{ijt-}$ | −0.081 | −0.141 | −0.009 |
| | (0.012)*** | (0.043)*** | (0.028) |
| | [0.011]*** | [0.038]*** | [0.024] |
| $CumulFDI_{jt}$ | 0.051 | 0.073 | −0.014 |
| | (0.020)** | (0.013)*** | (0.028) |
| | [0.021]** | [0.015]*** | [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 | 0.100 | 0.020 |
| | (0.037) | (0.088) | (0.061) |
| | [0.033] | [0.077] | [0.048] |
| $CumulFDI_{jt} * Incumbent_{ijt-}$ | 0.004 | -0.076 | 0.026 |
| | (0.020) | (0.054) | (0.035) |
| | [0.053] | [0.095]* | [0.107] |
| $CumulFDI_{jt}$ | 0.032 | 0.033 | 0.020 |
| | (0.008)*** | (0.008)*** | (0.030) |
| | [0.010]*** | [0.010]*** | [0.031] |
| Observations | 677 | 295 | 382 |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. 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.

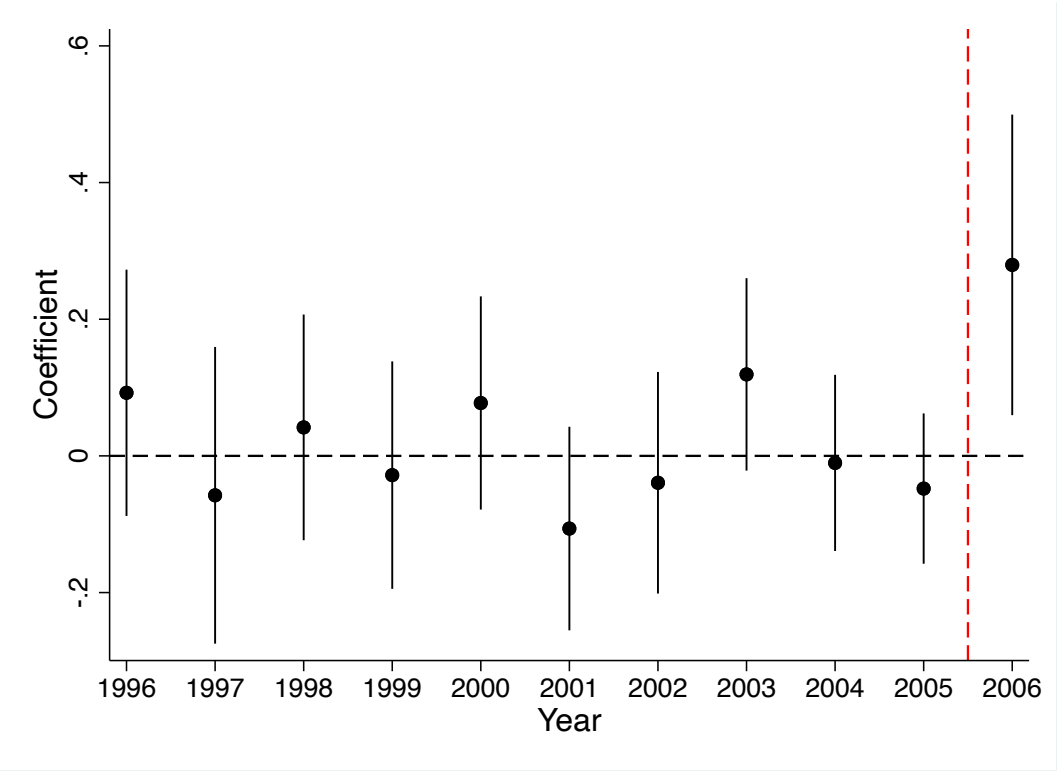
# A Appendix

### List of Figures



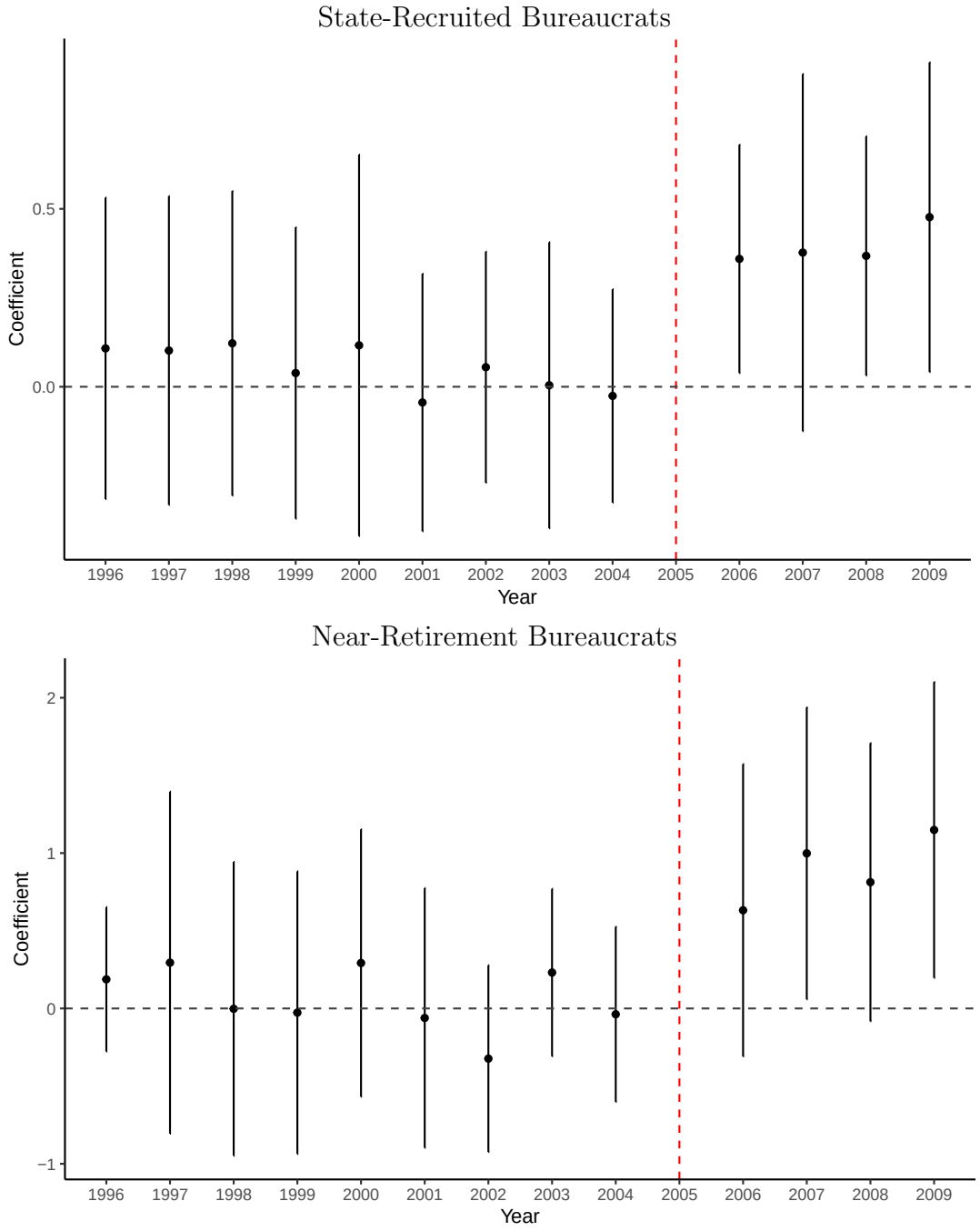
### List of Tables

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'Haultfœuille (2020). Implemented using *did_multiplegt* command in Stata. Robust standard errors clustered by district. 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).

Appendix Figure A.2: Year-by-Year Treatment Estimates for Loyal Bureaucrats - State-Clustered Standard Errors




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).

## 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.[43] 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.[44] 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.[45]

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.[46] Rainfall and temperature data are from the University of Delaware series.[47] 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.

[43] 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`. We consider state-level FDI correlates because analogous district-level data are unavailable.

[44] Model estimates in Appendix Table A.1.

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

[46] Data is used for 1991 and 2001.

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

Notes: ***p<0.01, **p<0.05, *p<0.1; standard errors in parentheses are clustered at the district level.

Appendix Table A.3: Summary Statistics

| Variable | Observations | Mean | SD | Min. | Max. |
|---|---|---|---|---|---|
| **IAS Data** | | | | | |
| $Turnover_{ijt}$ | 10,406 | 0.572 | 0.495 | 0 | 1 |
| $Lateral_{ijt}$ | 10,406 | 0.370 | 0.483 | 0 | 1 |
| $Promotion_{ijt}$ | 10,406 | 0.192 | 0.394 | 0 | 1 |
| $Demotion_{ijt}$ | 10,406 | 0.058 | 0.233 | 0 | 1 |
| $StateRecruited_i$ | 10,406 | 0.317 | 0.465 | 0 | 1 |
| $NearRetirement_{it}$ | 10,406 | 0.168 | 0.374 | 0 | 1 |
| $Top20Exam_i$ (direct recruits) | 4,697 | 0.277 | 0.447 | 0 | 1 |
| $SameDomicile_i$ (direct recruits) | 6,690 | 0.275 | 0.446 | 0 | 1 |
| $FirstClassDegree_i$ (direct recruits) | 6,690 | 0.792 | 0.406 | 0 | 1 |
| $FirstClassDegree_i$ (state recruits) | 3,294 | 0.112 | 0.315 | 0 | 1 |
| $ForeignDegree_i$ (direct recruits) | 6,690 | 0.196 | 0.397 | 0 | 1 |
| $ForeignDegree_i$ (state recruits) | 3,294 | 0.029 | 0.167 | 0 | 1 |
| **FDI Data** | | | | | |
| $FDI_{jt-1}$ | 9,794 | 0.200 | 0.999 | 0 | 22 |
| $AvgFDIAllowed_{jt}$ | 9,794 | 35.33 | 10.164 | 13.98 | 72.05 |
| **Census Data** | | | | | |
| $Log(population)_{j1991}$ | 10,406 | 14.56 | 0.605 | 11.88 | 16.11 |
| $Log(population)_{j2001}$ | 10,406 | 14.44 | 0.692 | 11.52 | 16.30 |
| $ScheduledCaste_{j1991}$ | 10,406 | 0.164 | 0.078 | 0 | 0.518 |
| $ScheduledCaste_{j2001}$ | 10,406 | 0.163 | 0.081 | 0 | 0.501 |
| $Literacy_{j1991}$ | 10,406 | 0.426 | 0.129 | 0.145 | 0.851 |
| $Literacy_{j2001}$ | 10,406 | 0.547 | 0.115 | 0.242 | 0.854 |
| $Employment_{j1991}$ | 10,406 | 0.377 | 0.068 | 0.239 | 0.540 |
| $Employment_{j2001}$ | 10,406 | 0.399 | 0.064 | 0.241 | 0.570 |
| $Female_{j1991}$ | 10,406 | 0.481 | 0.015 | 0.441 | 0.547 |
| $Female_{j2001}$ | 10,406 | 0.484 | 0.014 | 0.434 | 0.504 |
| **Country-of-Origin Data** | | | | | |
| $OriginCountryCorruption_{jt-1}$ | 699 | 0.054 | 0.073 | 0.005 | 0.678 |
| **Politician Asset Data** | | | | | |
| $Log(NetAssets)_{pt}$ | 741 | 15.980 | 1.44 | 11.945 | 20.923 |
| $Log(NetAssets)_{pt-}$ | 741 | 15.118 | 1.400 | 11.695 | 20.607 |
| $Log(MovableAssets)_{pt}$ | 731 | 14.550 | 1.494 | 9.616 | 20.768 |
| $Log(MovableAssets)_{pt-}$ | 731 | 13.534 | 1.618 | 6.215 | 18.966 |
| $Log(ImmovableAssets)_{pt}$ | 697 | 15.774 | 1.493 | 11.462 | 20.112 |
| $Log(ImmovableAssets)_{pt-}$ | 697 | 14.904 | 1.438 | 10.309 | 20.606 |
| $ShareStatePromoted_{jt-1}$ | 741 | 0.314 | 0.411 | 0 | 1 |

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

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t$ | 0.102 | 0.275 | 0.200 | 0.079 | −0.073 |
| | $(0.046)^{**}$ | $(0.065)^{***}$ | $(0.058)^{***}$ | $(0.046)^{*}$ | $(0.027)^{***}$ |
| | $[0.052]^{*}$ | $[0.066]^{***}$ | $[0.080]^{**}$ | $[0.034]^{**}$ | $[0.039]^{*}$ |
| 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 (district) and [state]. 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

| | *Dependent variable:* $Turnover_{ijt}$ | |
|---|---|---|
| | (1) | (2) |
| $Treated_{ij} * Post_t$ | 0.262 | 0.280 |
| | $(0.103)^{**}$ | $(0.112)^{**}$ |
| | $[0.130]^{**}$ | $[0.136]^{**}$ |
| Observations | 722 | 722 |
| District time trends | X | ✓ |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. All models estimated using procedure from de Chaisemartin and D'Haultfœuille (2020) and implemented with *did_multiplegt* 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 State-Recruited Bureaucrats - Including Officer Fixed Effects

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $StateRecruited_i$ | 0.140 | 0.139 | −0.038 | 0.186 | 0.087 |
| | (0.078)* | (0.077)* | (0.067) | (0.059)*** | (0.043)** |
| | [0.109] | [0.107] | [0.112] | [0.077]** | [0.072] |
| $Treated_{ij} * Post_t$ | 0.044 | 0.216 | 0.199 | 0.015 | −0.089 |
| | (0.054) | (0.069)*** | (0.061)*** | (0.049) | (0.031)*** |
| | [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 (district) and [state]. 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.7: FDI and Turnover of Near-Retirement Bureaucrats - Including Officer Fixed Effects

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $NearRetirement_{it}$ | 0.004 | 0.020 | −0.079 | 0.081 | 0.180 |
| | (0.117) | (0.117) | (0.091) | (0.078) | (0.055)*** |
| | [0.138] | [0.129] | [0.106] | [0.087] | [0.071]** |
| $Treated_{ij} * Post_t$ | 0.097 | 0.270 | 0.205 | 0.070 | −0.092 |
| | (0.046)** | (0.063)*** | (0.058)*** | (0.047) | (0.028)*** |
| | [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 (district) and [state]. 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: State-Level Corruption and Turnover of Directly Recruited Bureaucrats

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $StateCorruptionRank_j$ | −0.003 | 0.003 | −0.004 | 0.008 | 0.005 |
| | (0.012) | (0.013) | (0.012) | (0.008) | (0.004) |
| | [0.009] | [0.010] | [0.009] | [0.006] | [0.0040] |
| $Treated_{ij} * Post_t$ | 0.047 | 0.104 | 0.200 | −0.108 | −0.116 |
| | (0.110) | (0.122) | (0.114)* | (0.088) | (0.052)** |
| | [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 | ✗ | ✓ | ✓ | ✓ | ✓ |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. 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.9: State-Level Corruption and Turnover of Near-Retirement Bureaucrats

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ | $Lateral_{ijt}$ | $Promotion_{ijt}$ | $Demotion_{ijt}$ |
| | (1) | (2) | (3) | (4) | (5) |
| $Treated_{ij} * Post_t *$ $StateCorruptionRank_j$ | 0.059 | 0.079 | 0.049 | 0.025 | 0.016 |
| | (0.034)* | (0.041)* | (0.032) | (0.021) | (0.018) |
| | [0.028]** | [0.038]** | [0.033] | [0.027] | [0.014] |
| $Treated_{ij} * Post_t$ | −0.128 | 0.177 | 0.219 | −0.123 | −0.032 |
| | (0.330) | (0.431) | (0.300) | (0.302) | (0.179) |
| | [0.45] | [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 (district) and [state]. 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.10: Probability of Having Migrated in Last Five Years

| | *Dependent variable:* $Migrated_{ht}$ | |
|---|---|---|
| | (1) | (2) |
| $Treated_{hj} * Post_t *$ $StateRecruited_{jt-1}$ | −0.017 | −0.016 |
| | (0.021) | (0.020) |
| | [0.015] | [0.014] |
| $Treated_{hj} * Post_t$ | −0.003 | −0.002 |
| | (0.009) | (0.009) |
| | [0.007] | [0.007] |
| Observations | 59,570 | 59,570 |
| Household FEs | ✓ | ✓ |
| Household controls | X | ✓ |

Notes: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. Robust standard errors clustered by (district) and [state]. All models estimated using OLS with household fixed effects. $Treated_{ij} = 1$ for districts in Maharashtra, Karnataka, National Capital Region of Delhi, Tamil Nadu, Andhra Pradesh, and Gujarat. $Post_t = 1$ for 2012. Household controls include below poverty line indicator, household consumption per capita, land owned, access to kisan credit, access to electricity, member of mahila mandal, member of union, number of households members, and highest education attained by any member.

Appendix Table A.11: Controlling for Trade Liberalization

| | *Dependent variable:* | |
|---|---|---|
| | $Turnover_{ijt}$ | $Turnover_{ijt}$ |
| | (1) | (2) |
| $Treated_{ij} * Post_t *$ $StateRecruited_i$ | | 0.205 |
| | | $(0.060)^{***}$ |
| | | $[0.050]^{***}$ |
| $Treated_{ij} * Post_t$ | 0.224 | 0.137 |
| | $(0.072)^{***}$ | $(0.075)^{*}$ |
| | $[0.090]^{**}$ | [0.095] |
| $TariffRate_{jt}$ | 0.038 | 0.039 |
| | $(0.017)^{**}$ | $(0.016)^{**}$ |
| | $[0.018]^{**}$ | $[0.018]^{**}$ |
| 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 (district) and [state]. 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.12: FDI, Bureaucratic Reorganization, and Micro-Level Governance Outcomes

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Electricity | Piped water | Conf. in politicians | Conf. in in state govt. | Conf. in panchayat | Receive benefits |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $Treated_{ij} * Post_t * StateRecruited_{jt}$ | 0.077 | 0.090 | −0.021 | −0.214 | −0.227 | −0.114 |
| | (0.048) | (0.103) | (0.120) | (0.079)*** | (0.078)*** | (0.088) |
| | [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 |
| | (0.021)*** | (0.044) | (0.058) | (0.035)** | (0.037) | (0.036) |
| | [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 (district) and [state]. 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.