

Does Ability Matter for Discretionary Promotions in Bureaucracies? Evidence from Pakistan*

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Abstract

Bureaucracies often design rules and constrain discretion to avoid corruption and patronage. I examine discretionary promotions of junior Pakistan Administrative Services (PAS) bureaucrats by their seniors and ask whether seniors promote on the basis of their social ties with the juniors or their ability. I compiled unique data on the abilities of junior officers, including both publicly available recruitment exam rank and information on job performance that is private to senior officials. Utilizing an instrumental variables approach, the findings show that seniors promote on the basis of their private information on the junior's ability rather than public information or social ties. The effects are heterogeneous across teams suggesting that meritocracy is not the norm and seniors care about their reputation as referrers of junior bureaucrats. These results suggest that rather than limiting discretion, policy makers can focus on increasing an alignment of incentives of the decision-makers with the organization. (*Word count: 9980 words*)

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A well-functioning state, capable of delivering public goods, mitigating externalities, safeguarding property rights, and encouraging productive investments, is widely regarded as a fundamental driver of economic development. Historically, such a “developmental state” was considered a critical factor in the rapid development of East Asia, including Japan, Korea, Singapore, and Taiwan (Johnson, 1982; Wade, 1990; Amsden, 1989). Numerous studies emphasized that the state’s success in promoting development hinges on the presence of a professional Weberian bureaucracy: characterized by standardized, rule-based decision-making processes (Evans, 1995; Evans and Rauch, 1999; Kohli, 2004).

Discretionary decisions, which deviate from the Weberian ideals of rule-based decisions, are frequently perceived as fertile ground for patronage or corruption, particularly in environments marked by pervasive corruption. This includes instances where selections are influenced by bribes (Weaver, 2021) or patronage (Colonnelli, Prem and Teso, 2020; Fisman et al., 2018; Riaño, 2021); discretionary bureaucratic transfers based on connections to the ruling elite (Wade, 1985; Iyer and Mani, 2012; Akhtari, Moreira and Trucco, 2022; Brierley, 2020), resulting in bureaucrats engaging in activities to influence performance ratings (De Janvry et al., 2023). Such a culture is argued to attract dishonest individuals to pursue careers in government bureaucracies, exacerbating issues of corruption (Hanna and Wang, 2017).¹

In environments entrenched with corruption, discretion is presumed to undermine meritocracy and rule-based decision-making given its elevated status. However, a critical factor determining whether discretionary decisions lean towards meritocratic or corrupt outcomes lies in the alignment of incentives between the principal and the agents making these decisions. Even in highly corrupt contexts, there exists the possibility for these incentives to align.

Consider the scenario of senior bureaucrats responsible for promoting junior colleagues. Seniors, who have more tenure and higher ranks, may prioritize their reputation among peers or be concerned about the performance of juniors in their teams, especially if their career progression hinges on this performance. Consequently, these seniors might avoid promoting low-ability bureaucrats in any team, including their own or others’. In such instances, the incentives of the seniors align with the organization’s goals of promoting high-ability juniors. Allowing discretion, rather than restricting it, can thereby enhance talent allocation within the bureaucracy.

This study investigates the discretionary promotions of junior bureaucrats by their senior officials and poses the question: Do seniors base promotions on social ties with

¹See for instance work by Rose-Ackerman (1999); Niehaus and Sukhtankar (2013); Corbacho et al. (2016); Debnath, Nilayamgode and Sekhri (2023). Olken and Pande (2012); Finan, Olken and Pande (2017) provide excellent reviews.

juniors or on their abilities? If senior bureaucrats prioritize meritocratic promotion (based on ability), it implies the presence of institutional setups within public sector bureaucracies in developing nations where discretion can effectively enhance allocation. This suggests an opportunity to broaden the spectrum of policy options. In corrupt settings, rather than simply limiting discretion, policy can focus on increasing an alignment of incentives of the principle and the decision-makers.

The study is based in the context of the Pakistan Administrative Services (PAS) that is an elite group of federal civil servants responsible for delivering a wide variety of public goods and services. PAS bureaucrats are recruited through a competitive exam carried out by the Federal Public Services Commission (FPSC) and their first job is in the revenue department where they collect taxes against targets in sub-districts. Their initial job placements are determined by the availability of existing vacancies and the tenure of the incumbents currently in the sub-districts across Punjab.

In most respects PAS is a typical bureaucracy. Bureaucrats have “official” rule-based careers that depend on their seniority, mandatory training and a threshold based on subjective evaluations. However, these bureaucrats also have parallel careers based on fast-track discretionary promotions by senior bureaucrats. Fast-track promotions evolved as a more flexible institution to overcome constraints imposed by rules.² Seniors of any rank can requisition the services of a junior bureaucrat for a higher post in their department or team. Alternatively, any senior could refer a junior to another senior for a higher post in their teams. The higher a bureaucrat gets in the organizational hierarchy the more power they can exercise on the careers of junior bureaucrats. While seniors face no explicit incentives to base promotions on ability, there can be implicit incentives in the context.

The paper investigates whether the effect of the power of seniors on fast-track promotions of juniors are mediated through the ability of juniors or their social ties with the seniors. To address this question I digitized four main data and created an unbalanced bureaucrat-month year panel from 1983-2013: (1) the recruitment exam rankings of bureaucrats; (2) tax collection performance of bureaucrats in revenue circles across Punjab; (3) career records of bureaucrats, (4) incumbency boards from across sub-districts of Punjab that shows the time periods when the revenue positions were vacant and the incumbents’ tenure in each position.

The recruitment exam ranking is a measure of the junior’s ability that is publicly observed, while tax collection is a measure of the junior’s ability that is privately observed only by a set of seniors. Junior’s tax performance never makes it to the juniors’ career

²Studying the same context, [Ali \(2022\)](#) refers to such fast-track promotions as “extra-legal” appointments by seniors that exploit a loop-hole or ambiguity in the rules and have become a practice in the bureaucracy.

files or promotion documents. It is possible that the degree of meritocracy using private information is tamed by what others know, for instance, seniors might hesitate promoting on the basis of their private signal of the junior's ability if the publicly available signal is not strong. Since the paper uses data on both types of signals, it can provide insights into how these two types of information feed into discretionary decision-making.

To characterise social ties, following the literature (Fisman et al., 2018; Jia, Kudamatsu and Seim, 2015; Fisman et al., 2020), I consider a shared hometown as a social tie between a senior and a junior bureaucrat. This data is based on the career records.

As a first step, the paper explores whether any of these measures exhibit a correlation with other measures of service delivery in the field. Results show that the magnitude of the effect is the largest and exhibits the desired trend in only the case of the junior's tax performance. This suggests that promotions based on this measure would be more meritocratic than those based on the other measures.

Subsequently, the paper proceeds to categorize the senior officials who exercise power over the juniors' careers. The analysis of career records enables me to observe the group of junior bureaucrats with whom senior officials have worked with during their own careers. Since the rules I use for a causal identification (described below) only apply to the first job of the juniors, the seniors are restricted to those that have worked with these juniors in their first job. For each time period, the discretion or power of the (first) seniors is defined as their average rank in the organization based on official rules.

In order to identify a causal effect the paper employs an instrumental variables strategy using two sources of variation: a cross-sectional variation and a time variation. The government's job allocation rules dictate that newly-recruited bureaucrats can be assigned first jobs when the position is vacant or when the incumbent has spent at least one year on the job. Using the incumbency board data combined with the career records allows me to classify for each cohort a set of *potential* first seniors with whom junior bureaucrats could have worked in their first job.

I combine this variation with a *theoretical* time variation in the rise of these potential seniors. The rules of the government stipulate that any bureaucrat can get one official promotion at five, twelve, seventeen, and twenty-two years after entering the service. For each potential senior, this rule helps build their theoretical promotion in the organization over time. The instrumental variable, power of potential seniors combines both sources of variation and is defined as the average theoretical rank of the potential seniors.

To provide support to the exclusion restriction of the instrument I carry out a series of tests on the vacancies at the time of the first job of the juniors. I also show that the junior's abilities and their social ties with the seniors are not an outcome of the instrument

and that the characteristics of the first job are not correlated with the likelihood of a junior being classified as a top tax performer. These tests notwithstanding, in all specifications I include cohort fixed effects to account for any cohort specific heterogeneity, month-year fixed effects to control for time trends, as well as controls for experience, official rank of the junior, languages spoken, gender, whether the job is in the field or the secretariat, a time trend of the first job.

Results show that discretionary promotions are meritocratic: as the seniors have more power over the careers of juniors, above-median tax collectors are fast-tracked at a higher rate than those who are below median. The effects are statistically significant and economically meaningful (70% of the mean of fast-track promotions). On the other hand, the exam rank does not play any role in promotions (the effects are a precisely estimated zero), while an additional social tie with the seniors results in a *lower* likelihood of being fast-tracked as those seniors gain power.³ The effects for top tax collectors are statistically significantly different from those on social ties or exam rank in all the specifications. Together these results suggest that allowing discretion to seniors can improve allocation of talent in the bureaucracy.

These results are surprising given that a "meritocratic favoritism" or favoritism towards the high ability does not appear to be the norm in this context. According to the Corruption Perception Index (2019), Pakistan ranks below average, with a score of thirty-two out of one hundred (least corrupt) in perceived levels of public sector corruption. I explore the incentives for such meritocratic decisions further by studying discretionary promotion decisions for different types of teams. If seniors face high career incentives based on the performance of their team, then they would not like to allocate high-ranking positions in their teams to low ability juniors. On the other hand, since they are also involved in referring juniors to other seniors for promotions they might care about their reputation (as a referrer) among other bureaucrats. If that is the case then we should observe ability-based promotions in other teams.

The results from this investigation yield two primary insights: first, the impact on promotions varies significantly across teams, indicating that merit-based promotions are not the norm. Second, promotions appear to be meritocratic, based on tax performance, in other teams but not within the seniors' own team. The latter results are consistent with the seniors caring more about their reputation with other seniors than their careers.⁴ The

³This suggests that top-tier positions are scarce: when these positions are assigned to individuals exhibiting exceptional tax performance, they might be reallocated away from those with whom senior members maintain social connections.

⁴These results can also be a function of how power is defined in the context. While discretion increases with an increase in rank in the organization, career incentives fall (Holmström, 1999; Dewatripont, Jewitt and Tirole, 1999a,b). As opposed to career incentives, reputation benefits do not dilute with career advancement.

results help shed light on the puzzle of ability-based promotions within a public sector bureaucracy like the PAS.

1 Discretion and embeddedness of bureaucrats

The paper contributes to the comparative literature on bureaucracies. While the previous work on “developmental state” has investigated the importance of the organization of bureaucracies from a macro perspective (see [Pepinsky, Pierskalla and Sacks \(2017\)](#); [Dahlström and Lapuente \(2022\)](#) for a review), recent work using micro data has started opening up the black box of the state. Multiple studies have investigated ways to improve recruitment of bureaucrats ([Dal Bó, Finan and Rossi, 2013](#); [Ashraf et al., 2020](#); [Deserranno, 2019](#); [Dahis, Schiavon and Scot, 2023](#); [Moreira and Pérez, 2021](#)). However, there is very little attention paid to promotions in such organizations in low-income countries. This is despite the fact that in most bureaucracies there is one point of entry after which talent is allocated through promotions, with important implications for policy innovations ([Teodoro, 2009](#)).

A few exceptions include [Jia, Kudamatsu and Seim \(2015\)](#) who studied promotions within Chinese political set up and show that a political system known for patronage can still select competent leaders. [Landry, Lü and Duan \(2018\)](#) corroborated the findings of [Jia, Kudamatsu and Seim \(2015\)](#), yet highlighted that this meritocratic selection is predominantly operational at the lower administrative levels. Conversely, [Jiang \(2018\)](#) argued against viewing connections and performance outcomes as distinctly separate entities.

This paper complements this literature in three ways. First, instead of studying the role of connections between politicians, this study focuses on connections between bureaucrats in a context that closely resembles that of other contemporary bureaucracies in developing countries with a distinct separation between political and bureaucratic leadership. Second, to the best of my knowledge, this is the first study where there exists a clear understanding of the visibility of ability measures to decision-makers and how these measures compare to social connections in the decision-making process. This provides insights into how information from various sources is weighed in discretionary decisions when compared to the influence of social connections. Moreover, several of the world’s developed countries as well as the largest developing countries, including China, Brazil and India, utilize competitive exams for bureaucratic recruitment ([Elman, 2000](#); [Bai and Jia, 2016](#); [Dahis, Schiavon and Scot, 2023](#); [Moreira and Pérez, 2021](#); [Bertrand et al., 2020](#)). Demonstrating the process of making discretionary promotion decisions based on exam ranks in comparison

These can be reaped both within and outside the civil services even at later stages of the career.

to other measures of ability (and social ties) helps provide insights into its usefulness for talent allocation in bureaucracies. Finally, the measures of ability used in this study are less likely to be outcomes of discretion of the seniors and are arguably more of a direct measure of a bureaucrat's ability.⁵

Overall results in this paper complements a growing body of work that questions the use of rule-based decision making (Kelman, 1990, 2005; Bandiera, Prat and Valletti, 2009) and shows the importance of discretion of bureaucrats in public sector bureaucracies for project completion (Rasul and Rogger, 2018), environmental regulation (Duflo et al., 2018), procurement prices (Bandiera et al., 2020), value-added in SOE (Kala, 2019), and accountability (Aman-Rana, Wantchekon and Kovo, 2023).

This paper also relates to the literature that emphasizes the importance of “embeddedness” of bureaucrats i.e., bureaucrats' social relationships with others (Granovetter, 1985) (see Ashraf and Bandiera (2018) for a review).⁶ While existing studies have focused on bureaucrats' (downward) embeddedness or their relationship with citizens (Tsai, 2007; Mangla, 2015; Ricks, 2016; Bhavnani and Lee, 2018; Aman-Rana and Minaudier, 2023), and their (upward) embeddedness with the politicians (Toral, 2022; Hassan, 2020), this paper highlights the importance of intra-organization embeddedness of bureaucrats for talent allocation.

2 Theory

Information frictions pose a significant challenge in public sector bureaucracies (Dixit, 2002; Pepinsky, Pierskalla and Sacks, 2017; Finan, Olken and Pande, 2017; Brierley et al., 2023). Within the Principal-Agent paradigm, studies have demonstrated the potential for collusion between informed parties within hierarchical structures to act against the interests of the principal (Tirole, 1986). While the allocation of decision-making authority is itself a vital organizational choice aimed at mitigating such collusion,⁷ this paper focuses on analyzing the outcomes when promotion decisions have already been delegated to

⁵To ensure that tax collection is not determined by the seniors or their discretion, I consider the junior's tax performance on their very first job and only use the time-invariant component of that performance. All the analysis excludes this first job.

⁶Jiang (2018) show the importance of embeddedness of city leaders in China for economic performance.

⁷Bendor, Glazer and Hammond (2001) describes how rational principals delegate decisions to agents that have similar goals. Dessein (2002) shows that a principal would delegate decisions to better informed agents rather than communicate with such agents if their preferences are not too misaligned. Studying delegation in the United States, Epstein and O'Halloran (1999) posit that preference alignment between Congress and the executive branch leads to greater delegation. Gailmard and Patty (2007) show the importance of discretion for the development of bureaucratic expertise.

senior bureaucrats. Specifically, it seeks to determine whether these promotions are based on merit and, if so, the conditions under which such meritocracy is likely to manifest.

Consider a simplified version of the real-world promotion decision problem within a three-tiered organization. There are junior bureaucrats that have to be allocated high rank positions; senior bureaucrats that have private information on the ability of the junior bureaucrats; and a politician who would like to promote only on the basis of the ability of juniors but has less information than the senior bureaucrats.

The politician faces a classic adverse selection problem i.e., she cannot tell apart a low and a high ability junior and therefore, cannot condition the promotion on junior's true ability directly. The politician delegates the promotion decision to the senior bureaucrats so that she can benefit from the superior local information of the seniors on the ability of the juniors, however, seniors can collude with juniors with whom they have social ties⁸ and disregard their information on the junior's ability in their promotion decisions.

The use of local and private information is what makes organizations decide to delegate decisions. However, an added layer of complexity arises when there is a mix of imperfectly correlated public and private information on the junior's ability. Unlike the senior's private information, publicly available information is observed by the principal as well as the senior.⁹ It is possible that the degree of meritocracy using private information is tamed by what others know, for instance, seniors might hesitate promoting on the basis of their private signal of the junior's ability if the publicly available signal is not strong. As the paper incorporates data from both types of signals of ability, it can offer understanding into how these distinct information types contribute to discretionary decision-making.

A key parameter that determines whether the senior bureaucrats will make allocations based on ability rather than their social ties is the congruence of their preferences with the politician based on their incentives. While bureaucracies like the PAS do not employ explicit incentives to align incentives, implicit incentives have been shown to be important (Ali, 2022; Mohmand, 2019). Two such incentives could be: *their career concerns and their concerns for their reputation as referrers of juniors in the bureaucracy.*

Studies have shown that career incentives are a driver of performance and innovation

⁸Several studies show that social ties can shape actions of agents in organizations (Mayo, 1933; Roy, 1952; Roethlisberger and Dickson, 1939; Ashraf and Bandiera, 2018). Social ties within the workplace may stem from reciprocal relations, either intrinsic or instrumental, between senior and junior colleagues, as exemplified by Sobel (2005) and Tirole (1986). These connections can manifest as genuine friendships between senior and junior bureaucrats or as acts of altruism by seniors toward juniors hailing from their hometown, as highlighted by Rotemberg (1994) and Tabellini (2008).

⁹Such a scenario is common in many organizations, for instance, hiring or tenure decisions of academics in which the seniors that have worked closely with the junior academics have more information about the junior's ability, but there are also public signals like the number and quality of publications.

in public sector organizations (Teodoro, 2009; Dahlström and Lapuente, 2022). In the case of the PAS bureaucracy, substantial career incentives exist; nevertheless, counteracting factors are also at play. On one hand, politicians' chances of reelection are contingent on the effective delivery of services and resources, often relying on cooperative bureaucrats (Mohmand, 2019). Furthermore, Ali (2022) contends that in Punjab, politicians and bureaucrats collaboratively foster improved performance and establish "networks of effectiveness" through the expedited promotions of bureaucrats. Conversely, as seniors ascend within the organizational hierarchy, they exercise greater discretion at a time when career incentives may no longer hold the same level of significance (Dewatripont, Jewitt and Tirole, 1999a,b).

Theoretically, if the performance of junior team members significantly influences the career progression of senior bureaucrats, this can serve as a subtle incentive for seniors to prioritize promotions based on individual abilities rather than social connections (Prendergast and Topel, 1993). If this holds true, then the seniors' preferences are more aligned with the principle for ability-based promotions within their own team. It follows that a greater degree of meritocratic promotions should be observed within the senior teams when discretion is exercised.

On the other hand, bureaucratic reputation concerns can also be a driver of meritocracy and can play a key role in aligning the seniors' incentives. While existing studies have focused on the importance of organizational reputation - a multi dimensional object (Carpenter and Krause, 2012; Bellodi, 2022) - in the public sector and shown that such reputation is an important determinant of the autonomy enjoyed by such organizations (Carpenter, 2000, 2002, 2004, 2014), this paper focuses on individual bureaucrat's reputation concerns. Studies have argued that bureaucrats care about how others perceive them (Leaver, 2009; Raffler, 2022; Mattsson, 2022). In this context, since seniors refer juniors for promotions, referring a low ability junior to another senior official might cost in terms of reputation. If this cost is high enough then that can be sufficient to align incentives for meritocratic promotions. It follows that if this is the case then we should observe that with seniors' increased discretion juniors' promotions would be meritocratic in teams that do not include the seniors themselves.

The main contribution of the paper lies in the fact that it investigates the relative significance of career or reputation incentives within the same context and can empirically differentiate between three key factors that play a role in discretionary decisions — social ties, publicly accessible information, and information known solely to the senior.

3 Context and Data

3.1 Pakistan Administrative Services (PAS) bureaucracy

PAS, a small yet influential federal civil servant group, holds significant sway within the government. Occupying top civil service roles across federal and provincial levels, including positions like Secretary of Cabinet and Chief Secretary, PAS officers play crucial roles. Consequently, how talent is distributed in this bureaucracy significantly impacts the delivery of public services to 230 million people.

Recruitment and initial allocations. PAS recruitment occurs through a competitive exam conducted by the Federal Public Service Commission (FPSC). Figure 1 outlines the initial career timeline for a new PAS recruit. After recruitment, these bureaucrats undergo eighteen months of academic training, followed by a six-month on-the-job training period.¹⁰ The Civil Services Academy and PAS Academy centrally administer this training, with its duration and schedule guided by the federal government. Following twenty-four months of training, new recruits are assigned their first job.

Initially, PAS recruits typically commence their careers as heads of revenue administration in Punjab's sub-districts.¹¹ Their primary responsibilities involve overseeing tax collection and supervising teams of revenue officials.¹²

The initial allocation of PAS bureaucrats to their first revenue administration roles is guided by the Tenure/Transfer Policy of the government.¹³ As per this policy, new recruits can only be placed in vacant positions or where the incumbent bureaucrat has served for at least a year. I leverage this policy to capture variations in the senior bureaucrat set.

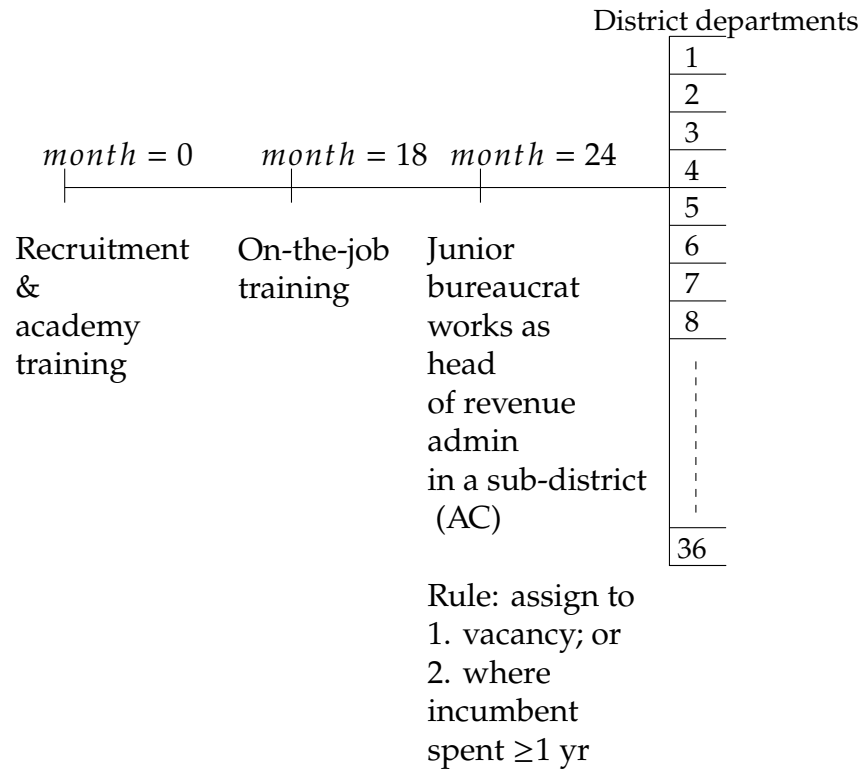
¹⁰This training period historically ranged from eighteen weeks to thirty-seven weeks.

¹¹After this, they have the opportunity to work in various government departments such as health, education, finance, or manage significant government projects in collaboration with international financial institutions like the World Bank and United Nations.

¹²While overseeing the revenue administration is their primary role, additional tasks assigned to these junior bureaucrats are determined by higher political administration levels and uniformly distributed across the province, disregarding differences in individual abilities or influence of their seniors. Moreover, success in these tasks, similar to tax collection, relies on effective management of revenue officials. Encouragingly, results in Figure 4 indicate a positive correlation between tax-related abilities and other performance dimensions.

¹³Such as the Punjab Government Transfer Policy 1980; Inter-Provincial Transfers of DMG/PSP Officers 1988; Government of Punjab Circular Letter 2004; Guidelines for Transfer of Assistant Commissioners 2013.

Figure 1: Timeline of the initial career of junior bureaucrats



Promotions. In this context, there exist two types of promotions: official promotions and fast-track promotions. Official promotions adhere to specific experience-based rules.¹⁴ The regulations state that a bureaucrat is entitled to official promotions at five, twelve, seventeen, and twenty-two years after joining the service.¹⁵

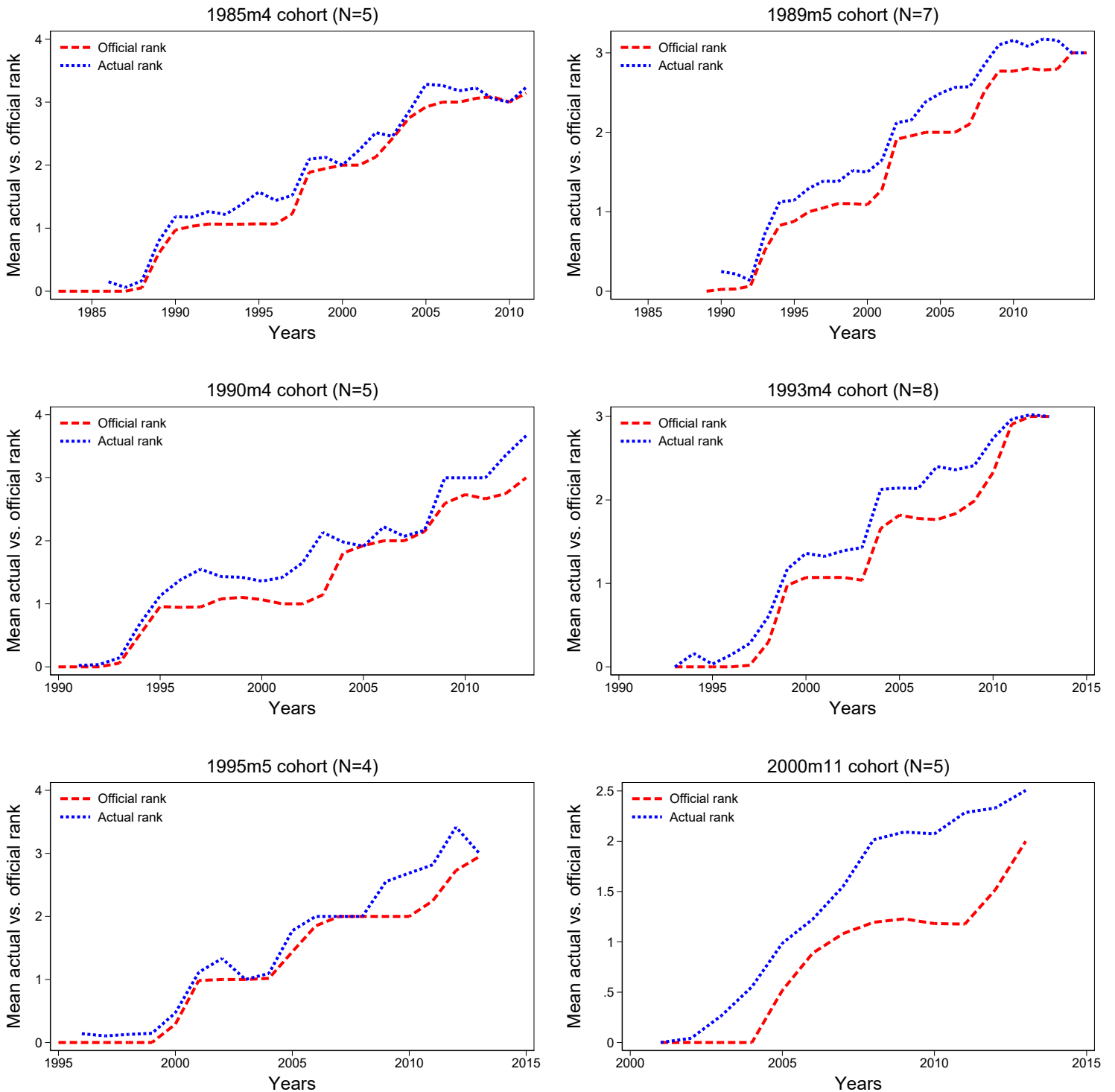
On the contrary, fast-track promotions involve allocating higher-ranked positions to junior bureaucrats regardless of their official promotion status. The government determines the rank of a job at its creation, and this rank usually remains unchanged. While official promotions become a guaranteed right and cannot be reversed, fast-track promotions can be revoked at any point. Figure 2 illustrates the career trajectories of a subset of cohorts from the 1980s to the 2000s.

Seniors of any rank can formally (in writing) or informally (via phone or in-person) request a junior bureaucrat’s services for a higher position in their department or team. These requests are submitted to the Services and General Administration Department, where bureaucrats from grade 17 to grade 22 deliberate and provide their opinions through case

¹⁴These rules necessitate completing mandatory training and receiving evaluations by immediate superiors above certain predefined thresholds.

¹⁵Establishment Division’s O.M.No.1/9/80-R.2 dated 2-6-1983, Minimum Length of Service Rules.

Figure 2: Examples of two types of careers in the PAS



Notes: The blue line shows the actual career of bureaucrats based on their fast-track promotions, while the red line shows their official careers based on rules of promotions.

files. The final approval comes from the province's Chief Secretary (a grade 22 bureaucrat) or, for fast-track promotions to grade 20 and above, from the Chief Minister. Similarly, any senior can recommend a junior to another senior with whom the junior has not previously worked. If the referral is deemed favorable, the new senior can then request the junior's services for their team through the Services and General Administration Department, following a similar process. The higher a senior bureaucrat climbs in the organizational hierarchy, the higher the likelihood that their referrals and requisition requests will receive favorable consideration.

Bureaucrats' tax collection performance. Junior bureaucrats lead teams responsible for collecting agricultural income taxes in revenue circles within a sub-district, aiming to meet annual collection targets. Taxes are imposed based on the higher value between cultivated area and farmer profits, collected at village and revenue circle levels by a team of revenue officers supervised by junior bureaucrats. Senior bureaucrats oversee this work at the district level. Proficiency in tax collection reflects the crucial skill of team management, a cornerstone of an official's future bureaucratic career.

While seniors in the district assess individual tax collection performances in regular meetings, the organization only observes district-level aggregated performance data. Seniors relay the overall district performance, including each junior's performance, to the Board of Revenue (BOR) in reports. Despite this detailed assessment, the individual performance records of juniors are stashed away in the BOR building's basement record room (see Figure 3). This information fails to make it into the juniors' career files.

Further substantiating this, government reports such as the National Commission for Government Reforms (Husain, 2012, p.189, para 74) highlight the absence of objective measures in performance evaluation and promotions within civil services. Numerous studies (Cheema and Sayeed, 2006; Hanif, Jabeen and Jadoon, 2016; Tanwir and Chaudhry, 2016) also confirm the lack of concrete performance indicators in evaluations or for promotion within this bureaucracy.

This absence of precise performance measures determining official careers is not unique to the Pakistan Administrative Services, as similar patterns have been observed in other public sector organizations in developing countries like the Indian Administrative Services (Bertrand et al., 2020) and the Chinese local government (Su et al., 2012; Jiang, 2018).

Figure 3: The tax collection records in the Board of Revenue's (BOR) record room



3.2 Data and main variables

This study draws upon four primary datasets, newly digitized for this research: (1) career charts data from the SGAD providing comprehensive details about the backgrounds and careers of PAS and provincial services bureaucrats; (2) PAS bureaucrats' recruitment exam rankings sourced from the Federal Public Service Commission (FPSC); (3) historical tax collection data from revenue circles across Punjab obtained from the Board of Revenue; and (4) incumbency boards retrieved from the junior tax collectors' office. Examples of the data are presented in Appendix Section C. Further, Appendix Section 1.1 elaborates on the string matching exercise conducted, resulting in the bureaucrat-month panel data crucial for the primary analysis. Appendix Section 1.2 details the sample used in the analysis, demonstrating its representativeness and substantiating conclusions through p -values derived from 1100 replications of the Wild cluster bootstrap-t procedure, clustered at the cohort level.

Career records of bureaucrats Career records encompass extensive details such as name, date of birth, religion, bureaucracy group, home district, qualifications, training, foreign visits, official promotion¹⁶ dates and ranks, and a comprehensive service record, including job dates, designations, department or team, district, and subjective evaluations by immediate superiors.

These records, sourced from the Services and General Administration Department (SGAD), form the basis for defining three key variables: fast-track promotions, seniors' discretion, and social ties between seniors and juniors. Fast-track promotions are denoted by a binary variable indicating instances where a junior is promoted to a higher-ranked job than their official rank permits.¹⁷ Figure A.1 shows the variation in fast-track promotions across different cohorts. The discretion of seniors is created by averaging their ranks based on official promotions,¹⁸ showcasing their influence over juniors' careers. For causal identification (described below) only seniors from the first job of juniors are considered. Figure A.2 shows the variation in the power of first seniors across cohorts. Social ties are quantified by counting the number of seniors (from the junior's first job) sharing the junior's hometown.¹⁹

Recruitment exam ranking Derived from the Federal Public Service Commission's (FPSC) internal records, this dataset includes bureaucrats' names, the year of the exam, and their rank within their cohort. I leverage this information to gauge a junior's publicly observed ability, where a higher rank indicates *lower* ability.

Tax collection I conducted archival research at the Board of Revenue's record room to access tax collection data in various sub-districts of Punjab. This data, spanning from 1983 to 2013, details monthly tax collections in revenue circles, including information on taxes collected, annual targets, remissions, suspensions, and irrecoverable taxes.²⁰ The dataset forms an unbalanced panel of revenue circles and months.

¹⁶A sample of dates of promotions in the career charts were double-checked from seniority lists issued by the Establishment Division, and available online at: <http://establishment.gov.pk/>.

¹⁷Job ranks, as designated by the government, were personally obtained and manually assigned after reviewing the government-issued notifications.

¹⁸Defining their rank based on official rather than fast-track promotions helps in utilizing variations adhering to promotion rules to construct the instrument for power (see Section 4.1 for details, and Figure 6 for a visual representation of official promotions based on the established rules).

¹⁹The average number of seniors that share a hometown with juniors is one, with the maximum being 12. For reference, the number of seniors from the first job are 13 on average.

²⁰The data encompasses ongoing fiscal year collections and arrears from past years, but I solely utilize information from the current fiscal year to better reflect the junior's performance due to minimal incentives for tax collection against arrears.

Top tax collectors are defined in the very first job of the junior bureaucrats, when they work with their first set of seniors. Top 50% tax collectors is a dummy that takes the value of one for those juniors whose tax collection (as a percentage of the annual targets) is above median for their cohort. Like the exam rank variable, this classification remains fixed for each junior bureaucrat and does not change over time.

Incumbency boards and vacancies To identify the senior officials available to the new cohort of junior bureaucrats during their initial employment, it was essential to assess the positions accessible at that time. I personally acquired and digitized data from incumbency boards across every tax collector's office in Punjab.²¹

These boards detail the individuals who held each position along with their respective tenures, providing insights into vacancies and tenures of tax collectors within the sub-district. Merging this data with bureaucrats' career records - on the dates when training ended for each cohort - facilitates the creation of cross-sectional variation in the instrumental variable (explained in detail in Section 4.1).

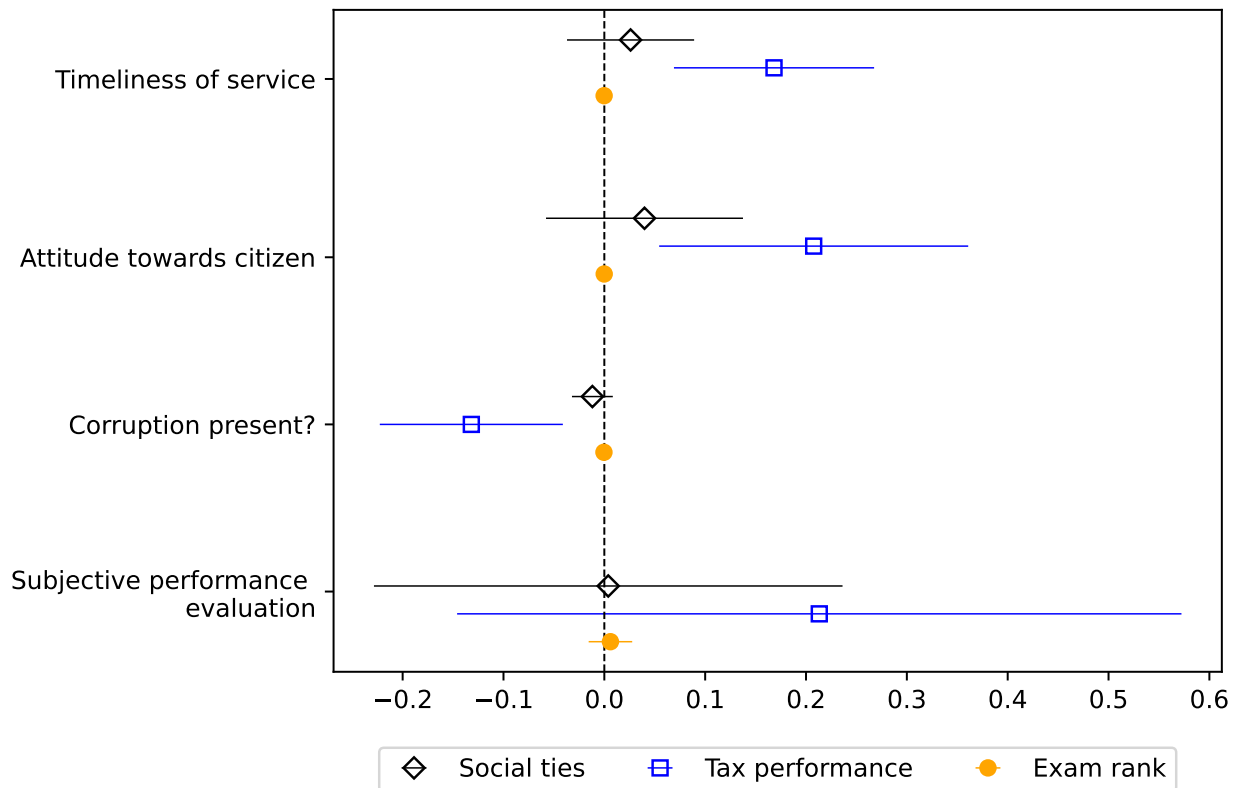
3.3 Correlates of service delivery: social ties or ability

To understand whether social ties or exam or tax-based ability capture anything meaningful I present correlations of these measures with four other measures of performance: whether the timeliness of service provided by the revenue department improved when the junior was in charge; whether they felt that the attitude of the revenue departmental employees improved; whether there is any corruption in the department; and whether the junior is evaluated as "very good" or an "outstanding" worker in their subjective performance evaluation. For detailed information on data sources and available samples, refer to Appendix Section 1.3.

Figure 4 plots the coefficients and the 95% confidence intervals from the regression of these outcomes on social ties, exam and tax performance. One clear pattern emerges: the effects' magnitude is largest and exhibits the desired trend in the case of ability based on tax performance, implying that promotions rooted in this measure may be more meritocratic than those based on social ties or exam rank.

²¹I contacted each office in sub-districts via telephone, and the staff shared pictures of these boards, maintaining this colonial-era tradition. Given their significance as a status symbol for bureaucrats, individuals take pride in having their names and tenure displayed on these boards, ensuring data consistency and reliability.

Figure 4: Correlation of the ability and social ties measures with other dimensions of service delivery



Notes. The figure plots coefficients and 95% confidence intervals from a regression of timeliness of service, attitude towards citizens, corruption and subjective performance evaluation on social ties, exam and tax-based ability. The first three regressions included district and month-year fixed effects and are based on the set of citizens who received services from the junior bureaucrats' subordinates. The last specification includes a month-year fixed effect and data is restricted to when the junior heads the revenue department in the sub-district. All standard errors were clustered at the cohort level.

4 Whether ability or social ties matter for fast-track promotions of juniors?

4.1 Empirical Strategy

The study investigates how the effect of the power of seniors on fast-track promotions differs by the mediating variables: junior's ability and their social ties with the seniors. To identify a causal effect the study requires that the power of senior is exogenous,²² the ability and social ties measures are not an outcome of the power of the seniors, and that there are no other omitted variables that are correlated with how the power of seniors impacts careers of juniors based on their ability or social ties with the seniors. Below I first describe the instrumental variable strategy, followed by a detailed discussion of the identifying assumptions.

Instrument: power of potential seniors. The instrument uses exogenous variation in the seniors as well as their discretion and therefore has two sources of variation: a cross-sectional variation and a time variation.

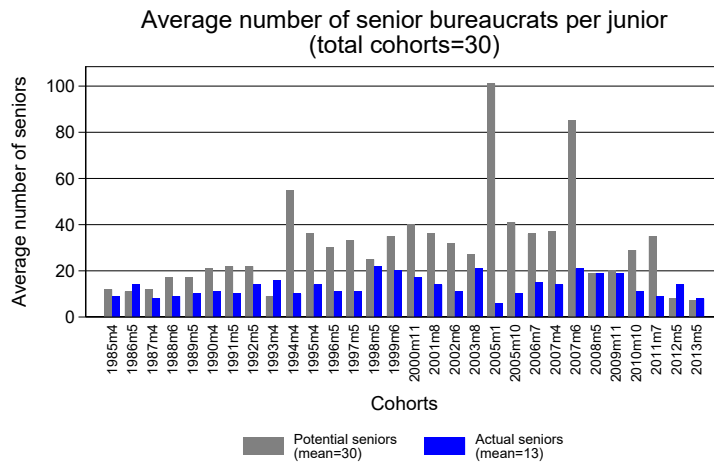
I exploit the government's job allocation rules for the cross-sectional variation in seniors across cohorts of juniors. These rules dictate that newly recruited bureaucrats can be assigned first jobs when the position is vacant or when the incumbent has spent at least one year on the job. Potential seniors are bureaucrats working in districts with open positions at the time of the junior cohorts' end of training and the beginning of their first job, and they are the same for the whole cohort.

Figure 5 shows the average number of potential and actual seniors per junior across thirty cohorts from 1985-2013. The mean number of potential seniors is 30, while the mean number of seniors in the first job is thirteen.

I combine this cross-sectional variation with a *theoretical* time variation in the rise of these potential seniors. The government's rule stipulates that a bureaucrat will get

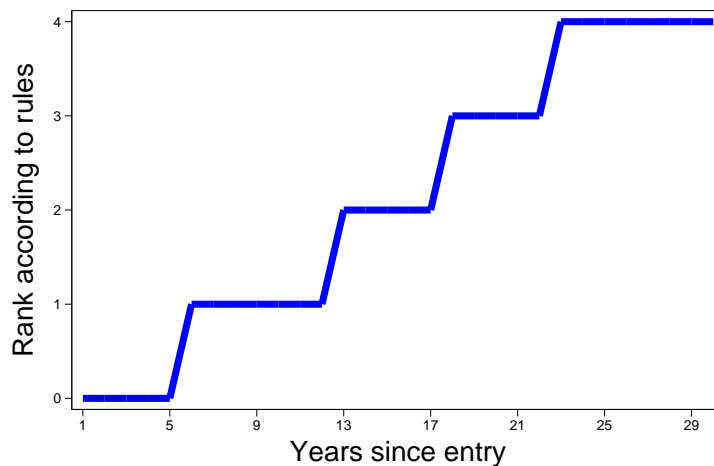
²²Note that it is important to use identifying variation, which not only exogenously allocates seniors to juniors, but also ensures that their discretion over the careers of the juniors (which is based on their rank in the organization) is also orthogonal to the unobservables of the junior. Even conditional on fixed effects and controls, seniors from the first job may not be randomly allocated to the juniors. For instance, there could be positive selection bias (Fisman et al., 2020) or homophily (McPherson, Smith-Lovin and Cook, 2001; Currarini, Jackson and Pin, 2009). If juniors with better unobserved ability are also the ones with a better career and a higher chance of being matched with star seniors then the estimates based on a simple OLS can be an overestimate of the true effect. Even if seniors were randomly allocated, their discretion may still not be random. One potential reason that this may be the case is if the performance of the junior determines the senior's performance evaluation and hence their official promotions and their discretion.

Figure 5: Average number of senior bureaucrats per junior bureaucrats.



one official promotion at five, twelve, seventeen, and twenty-two years after entering the service. According to this rule, the career of a bureaucrat is like a step function, as shown in Figure 6. For *each potential senior*, this rule helps build their theoretical promotions in the organization.

Figure 6: Theoretical rank of seniors according to the Minimum Length of Service Rules



The instrumental variable, power of potential seniors ($\overline{Power^p}$), combines both sources of variation and is the average, rule-based rank of potential seniors that the cohorts of juniors could have worked with in their first job.

Figure A.3 shows the power of potential seniors across cohorts, while Figure A.4 shows the time variation in the measure across a sample of four cohorts from the 1970s, 1980s,

1990s, and 2000s. The figure shows that the power of seniors does not just go up; it can come down as well. This can be the case when, for instance, seniors retire. Figure A.5 shows the correlation between the power of actual and potential seniors for different cohort of juniors. The figure suggests that the measure is highly correlated.

Identifying assumptions. The main assumption for the instrument to be valid is that the Exclusion Restriction holds i.e., the power of potential seniors does not directly affect a junior's fast-track promotion through, for example, their unobserved ability.

One example of a violation of the Exclusion Restriction can be if vacancies are created for specific cohorts of juniors, who also enjoy better careers. This would suggest that power of potential seniors is directly correlated with promotions and does not affect careers through the power of actual seniors. This manipulation of vacancies can happen either through the manipulation of when training ends for these juniors or more directly.

I find that neither is true in this setting. First, a central agency, rather than the juniors, selects the month and year when the juniors begin their first jobs. The start of the first job is based on the time that training ends and the time duration of training is fixed many months in advance of the actual training, by central agency for the whole cohort as per rules. Second, I test whether the quantity of vacancies change around the date when training ended and the junior cohort's first job began. Appendix Table B.1 shows that it is not the case. Third, I also test whether any systematic characteristics of the district determine vacancy and tenure of incumbents. Table B.2 presents the results. Results show that conditional on district and time fixed effects there are no systematic differences between districts with higher vacancies or districts with a longer tenure of incumbents.

I investigate whether the power of potential seniors determines the junior's ability or their social ties. Appendix Figure A.6 plots coefficients (and 95% confidence intervals) from a regression of the covariates (standardized) on a dummy variable for whether the power of potential seniors is above median. It shows that there are no systematic differences across power of seniors in almost all baseline characteristics, except gender and languages spoken.²³ Most importantly, the power of potential seniors does not determine the tax or exam performance of juniors at baseline and it is uncorrelated with our measure of social ties. The insignificance and low magnitude of the rest of the coefficients is also reassuring.

Finally, Table B.3 shows results from a regression of the characteristics of the first job on a dummy variable for whether the junior is a top 50% tax collector. To estimate the effects I collapsed the data at the level of the first job of the junior bureaucrat. Cohort fixed effects are included and standard errors are clustered at the cohort level. [Cameron, Gelbach and](#)

²³All specifications include these as controls.

Miller, 2008 bootstrap p -values clustered at the cohort level are also presented in brackets. Results show that there is no correlation between the probability of being identified as a top tax collector in the first job and the size of the tax collection target or historical tax arrears in that job. The magnitude of the effect is close to zero with a p -value of almost 0.5. Being identified as a top tax collector is also uncorrelated with the probability of that job being in a large city. Despite this, to be more conservative, in all specifications I included a control for time trend of the first job.

Estimation. The OLS estimation for the effect of power of the seniors on careers of the junior i , in cohort c and month-year t is as follows:

$$\begin{aligned} Fast - track_{ict} = & \pi \overline{Power}_{ct} \times Tax_i + \alpha \overline{Power}_{ct} \times Exam\ rank_i + \beta \overline{Power}_{ct} \times Social\ ties_i \\ & + \theta \overline{Power}_{ct} + \gamma Tax_i + \eta Exam\ rank_i + \xi Social\ ties_i \\ & + \kappa_c + \kappa_t + \rho X_{ict} + \epsilon_{ict} \quad (1) \end{aligned}$$

where $Fast - track_{ict}$ is a dummy variable that takes a value of one whenever the junior bureaucrat is fast-tracked and remains zero otherwise. \overline{Power}_{ct} is the mean official rank of seniors from the first job of a cohort c , in month-year t .²⁴ Tax_i is a dummy variables that takes a value of one if the junior is in the top 50% of their cohort in tax collection in their first job. $Exam\ rank_i$ is the junior's rank in the civil services recruitment exam and the higher the rank the lower the ability of the junior. $Social\ ties_i$ are the number of seniors from the first job with whom the junior shares a hometown. κ_c and κ_t are cohort and month-year fixed effects. Cohort fixed effects control for any time invariant, cohort specific, unobserved heterogeneity such as the total number of seniors in the first job and other time-invariant characteristics of the first job of the juniors. Time-varying characteristics that are similar for all cohorts are captured by κ_t . For example, any policies of the government on the creation of new jobs in higher ranks that affect all cohorts equally are accounted for by the time fixed effects. X_{ict} includes controls such as the annual time trend of the first job, a dummy variable for female bureaucrats, the total number of languages spoken by juniors, the experience, experience squared and the official rank of the junior, and a dummy variable for whether the job is in the field offices. The error term is clustered at the cohort level, as that is the level at which the juniors' first seniors (treatment) are allocated (Abadie et al., 2017).

²⁴Since seniors with a mean official rank of zero is very rare, to keep the results meaningful, I center \overline{Power}_{ct} by subtracting the mean of the variable for each junior.

Using the power of potential seniors as an instrument, the first stage for the main endogenous regression \overline{Power} and the reduced form estimation are as follows:

$$\begin{aligned} \overline{Power}_{ct} = & \nu \overline{Power}_{ct}^p \times Tax_i + \sigma \overline{Power}_{ct}^p \times Exam\ rank_i + \kappa \overline{Power}_{ct}^p \times Social\ ties_i \\ & + \tau \overline{Power}_{ct}^p + \phi Tax_i + \pi Exam\ rank_i + \gamma Social\ ties_i \\ & + \alpha_c + \alpha_t + \rho X_{ict} + v_{ict} \end{aligned} \quad (2)$$

$$\begin{aligned} Fast - track_{ict} = & \rho \overline{Power}_{ct}^p \times Tax_i + \beta \overline{Power}_{ct}^p \times Exam\ rank_i + \lambda \overline{Power}_{ct}^p \times Social\ ties_i \\ & + \omega \overline{Power}_{ct}^p + \delta Tax_i + \mu Exam\ rank_i + \alpha Social\ ties_i \\ & + \tau_c + \tau_t + \zeta X_{ict} + u_{ict} \end{aligned} \quad (3)$$

where all the variables are defined in the same way as in Equation 1, except for the instrument: power of potential seniors (\overline{Power}_{ct}^p) which is the average rule-based rank of potential seniors. The error term is clustered at the cohort level.

The Kleibergen-Paap F -statistic from a first-stage regression of power of seniors on the power of potential seniors is 37, suggesting that the instrument is sufficiently correlated with the endogenous regressor and potentially does not suffer from a weak instrument bias.

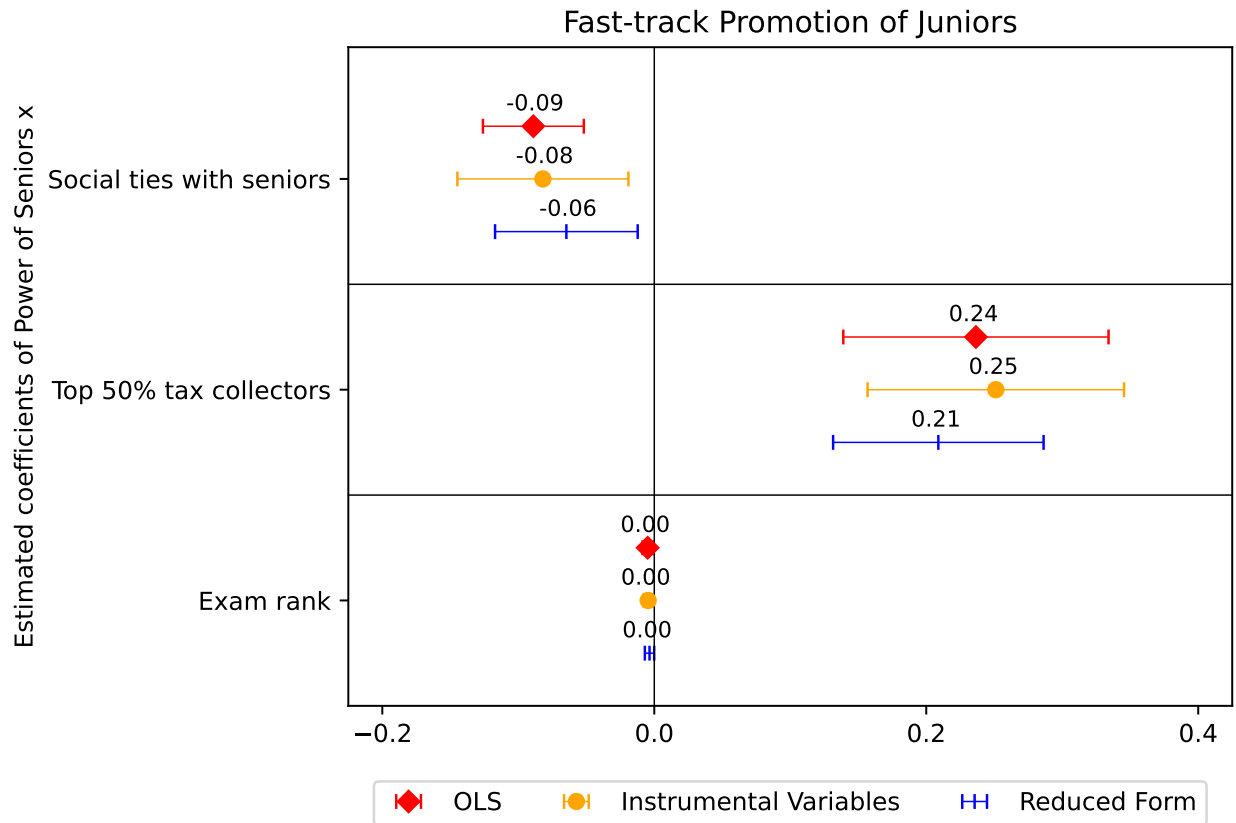
4.2 Main Results

Figure 7 plots the coefficients and the 95% confidence intervals from the interaction of the power of (potential) seniors with social ties, and tax and exam rank of the juniors, respectively. OLS (red, diamond), IV (orange, circle) and a reduced form (blue, cross) estimation are all presented. The unit of observation is a bureaucrat-month year.

The results show that as the seniors have more power over the careers of juniors, above-median tax collectors are fast-tracked at a higher rate than those who are below median. The effects are statistically significant and economically meaningful (70% of the mean of fast-track promotions).

Ability measured through exam rank does not seem to play an important role in discretionary promotions by seniors. In all specifications the effects are a precisely estimated zero. On the other hand, an additional tie with the seniors results in a *lower* likelihood of

Figure 7: The effect of power of seniors on careers of juniors based on their social ties and ability



being fast-tracked as those seniors gain power. The effects are statistically significant and hold irrespective of the specification. A limited number of highly ranked positions could explain these results. If these positions are allocated to individuals with exceptional tax performance, they may be diverted from those with whom seniors have social connections.

The effects for top tax collectors are statistically significantly different from those on social ties or exam rank in all the specifications. Since only performance on tax collection carries important information about service delivery (Figure 4) these results suggest that allowing discretion to seniors can improve allocation of talent in the bureaucracy.

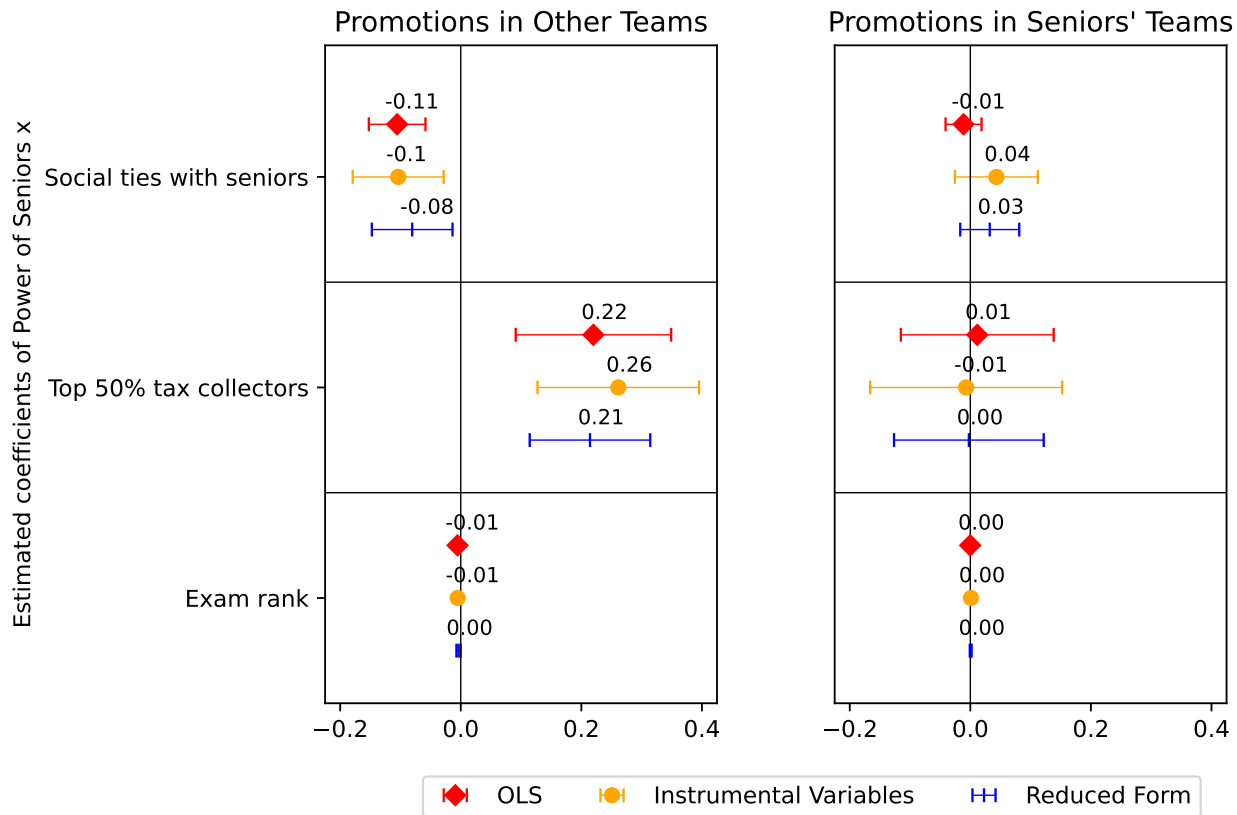
These results are unusual, especially in light of the extensive literature highlighting organizational shortcomings within public sector bureaucracies in developing countries, characterized by misallocation of human resources driven by connections and patronage.

To further understand the results I explore promotions across different types of teams to shed further light on the incentives of the seniors.

5 Mechanism: reputation or career concerns of seniors

In this section I investigate whether fast-track promotions are meritocratic across all teams. The presence of heterogeneity can not only illuminate the incentives of the seniors for meritocratic promotions but also assist in determining if there exists an organizational norm that favors high performers.

Figure 8: The effect of the power of seniors on promotions of juniors in teams of different types



In a bureaucracy such as PAS, where explicit incentives for merit-based promotions are absent and where there is no competitive market for its services, the conjecture is that implicit incentives result in meritocratic promotions. Seniors could care about the performance of their teams since it can affect their future careers, suggesting that they would promote meritocratically in their own teams; on the other hand, seniors could care about their reputation. For instance, referral of a low ability junior could cost in terms of their reputation.

I test the strength of these incentives, using the same estimation strategy as in Section

4.1, but changing the outcomes. I consider the separate effects on fast-track promotions in the seniors' teams and teams of other seniors. Teams of seniors are defined as those in which any of the seniors from the first job worked in any position in the long-run and other teams are those comprising of bureaucrats none of which are from the first job of the junior.

Figure 8 plots the OLS (red, diamond), IV (orange, circle) and reduced form (blue, cross) estimates and 95% confidence intervals. Each coefficient represents the interaction of the power of (potential) seniors with social ties, and tax and exam rank of the juniors, respectively.

There are two main takeaways: the effects on promotions are heterogeneous across teams suggesting that meritocratic promotions are not the norm, and promotions are meritocratic (based on tax performance) in other teams and not the seniors own teams. The latter results are consistent with the seniors caring more about their reputation with other seniors than their careers.²⁵

The findings offer valuable insights into the conundrum of merit-based promotions within a public sector bureaucracy such as the PAS. They suggest that rather than solely limiting discretion, these bureaucracies could enhance decision-making by assessing the alignment of decision-makers' incentives. Thoughtful application of discretion in situations where these incentives are aligned has the potential to enhance resource allocations.

Alternative interpretations. An different interpretation of the results is power of the seniors captures their increasing ability to recognize and value high-ability juniors. A related argument can be that as these seniors rise they are able to mentor the more able juniors, making them perform better and earn promotions.

While plausible, both explanations seem unlikely in this context. First, the IV exploits the Minimum Length of Service Rules that allow the senior's rank to rise every five, twelve, seventeen, and twenty-two years after entering the service. It appears unlikely that the senior only becomes capable of assessing talent at these distinct points in their career. Second, the heterogeneity of the effects across different teams suggests that these channels are not at work.

²⁵This can be a function of how power is defined in the context. While discretion increases with an increase in rank in the organization, career incentives fall. As opposed to career incentives, reputation benefits do not dilute with career advancement. These can be reaped both within and outside the civil services even at later stages of the career.

Conclusion

This paper investigates whether senior bureaucrats base promotion decisions on social connections or the abilities of junior employees. Leveraging a unique newly-digitized dataset, this study distinguishes between whether seniors have publicly observed information on juniors' abilities or hold private information.

Utilizing instrumental variables estimation, the findings reveal that senior officials predominantly rely on their private information regarding juniors' abilities for promotion decisions, rather than considering publicly available information or social connections. These surprising results highlight a meritocratic promotion system despite the absence of explicit incentives. It indicates the potential influence of bureaucrats' reputation concerns in promoting meritocracy.

This paper, therefore adds to the existing body of literature by suggesting that, even in corrupt contexts, within the public sector bureaucracies of developing nations, there exist institutional mechanisms where discretionary decision-making can improve talent allocation. These results speak to the debates on rules versus discretion especially in public sector organizations. If the principal and the decision-makers' incentives are sufficiently aligned then relying on discretionary allocations can also be useful.

This paper focuses on an elite bureaucracy characterized by training and competitive selection processes. However, it remains an open question whether comparable outcomes can be observed within different contexts, such as front-line professionals like teachers and healthcare workers. How can bureaucracies create institutions that allow reputation of the bureaucrats to be an important determinant of meritocracy are questions for future research.

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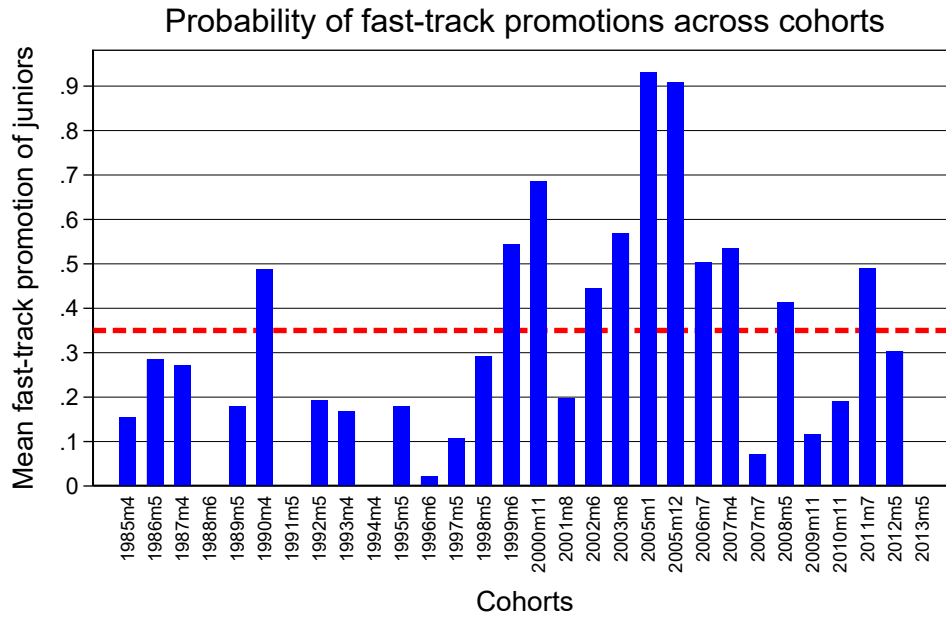
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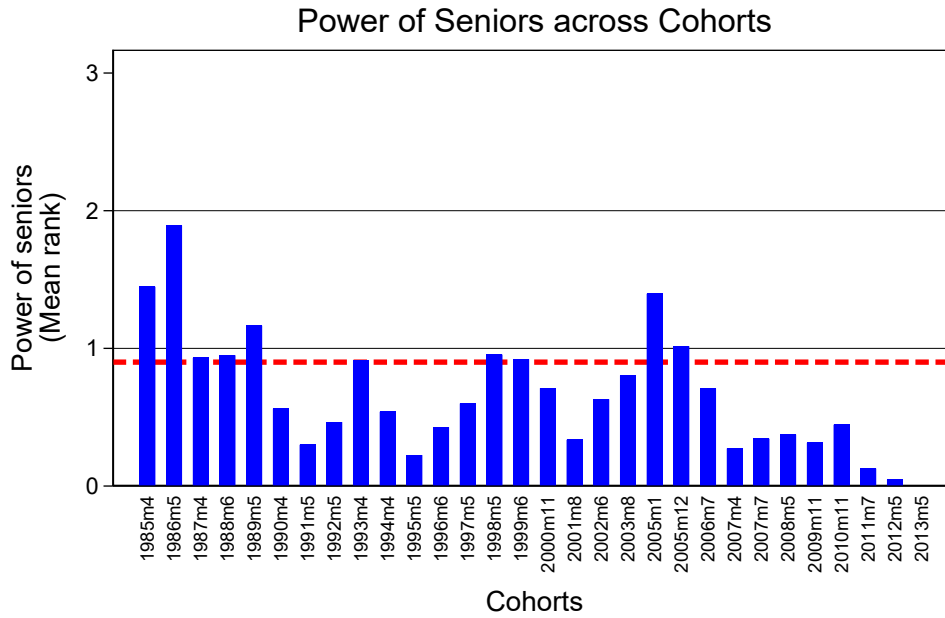
A Appendix Figures

Figure A.1: Fast-track promotions of juniors across cohorts



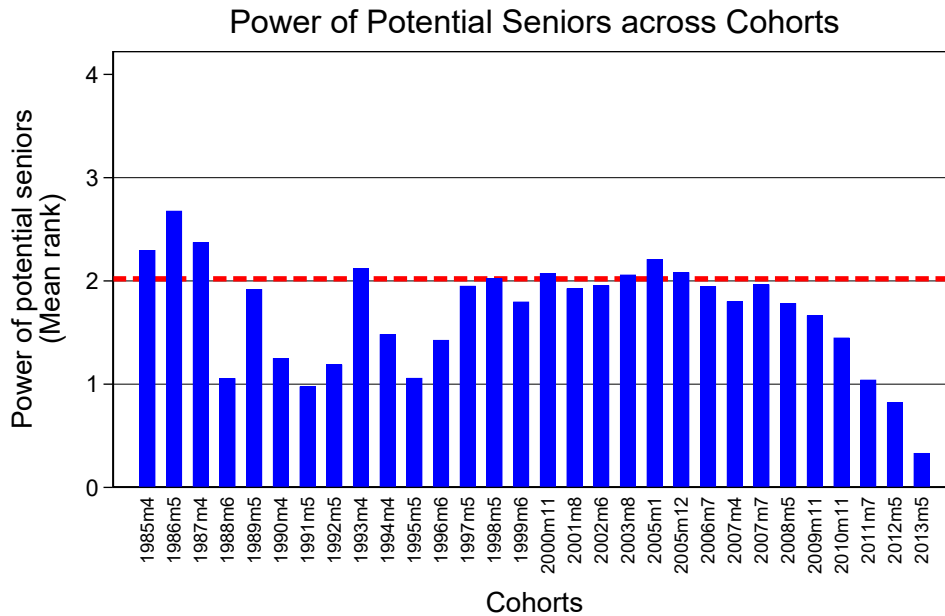
Notes. Red dotted line is the mean of fast-track promotions.

Figure A.2: Promotion power of seniors across cohorts



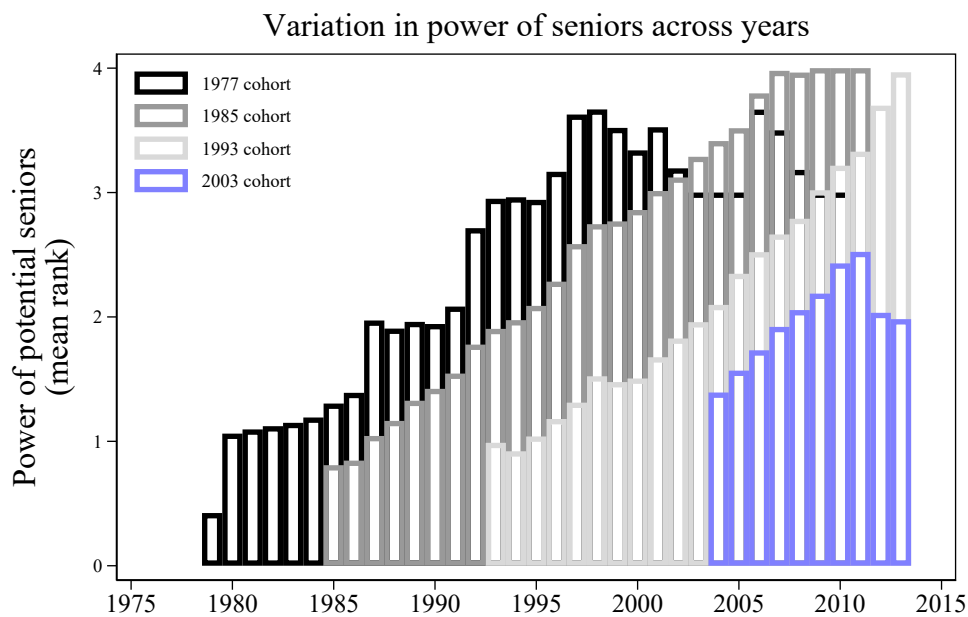
Notes. Red dotted line is the mean power of seniors. The rank of the bureaucrats varies from 0-5, zero being the lowest rank and five being the highest rank.

Figure A.3: Promotion power of potential seniors across cohorts



Notes. The rank of the potential seniors varies from 0-4 (the ranks on which Minimum Length of Service Rules apply), zero being the lowest rank and four being the highest rank.

Figure A.4: Time variation in promotion power of potential seniors



Notes. While the power of seniors is ranked from 0-5, the power of potential seniors is measured between 0-4. This is because these are the ranks to which the Minimum Length of Service Rules apply.

Figure A.5: Cross sectional correlation between promotion power of potential and actual seniors

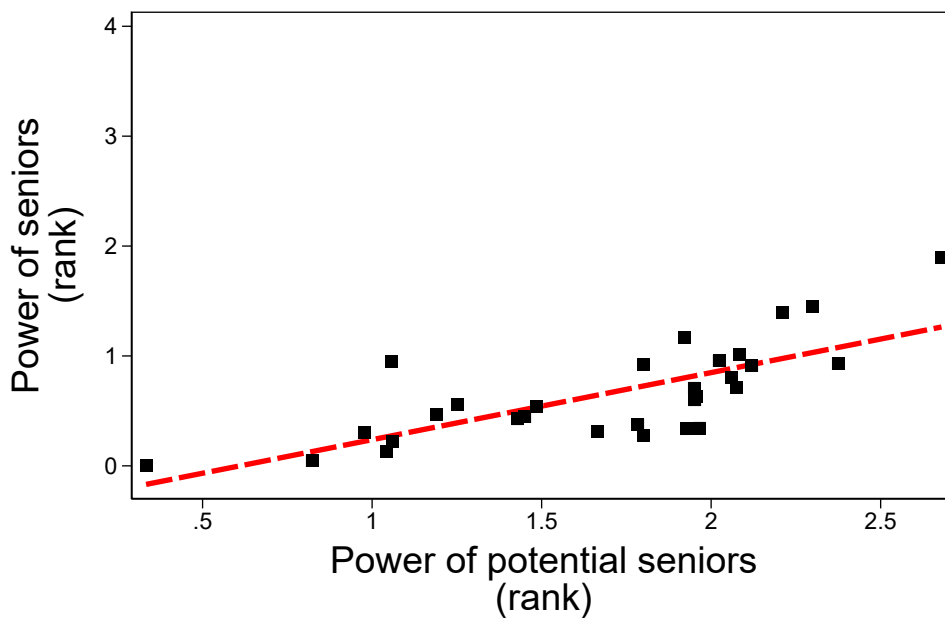
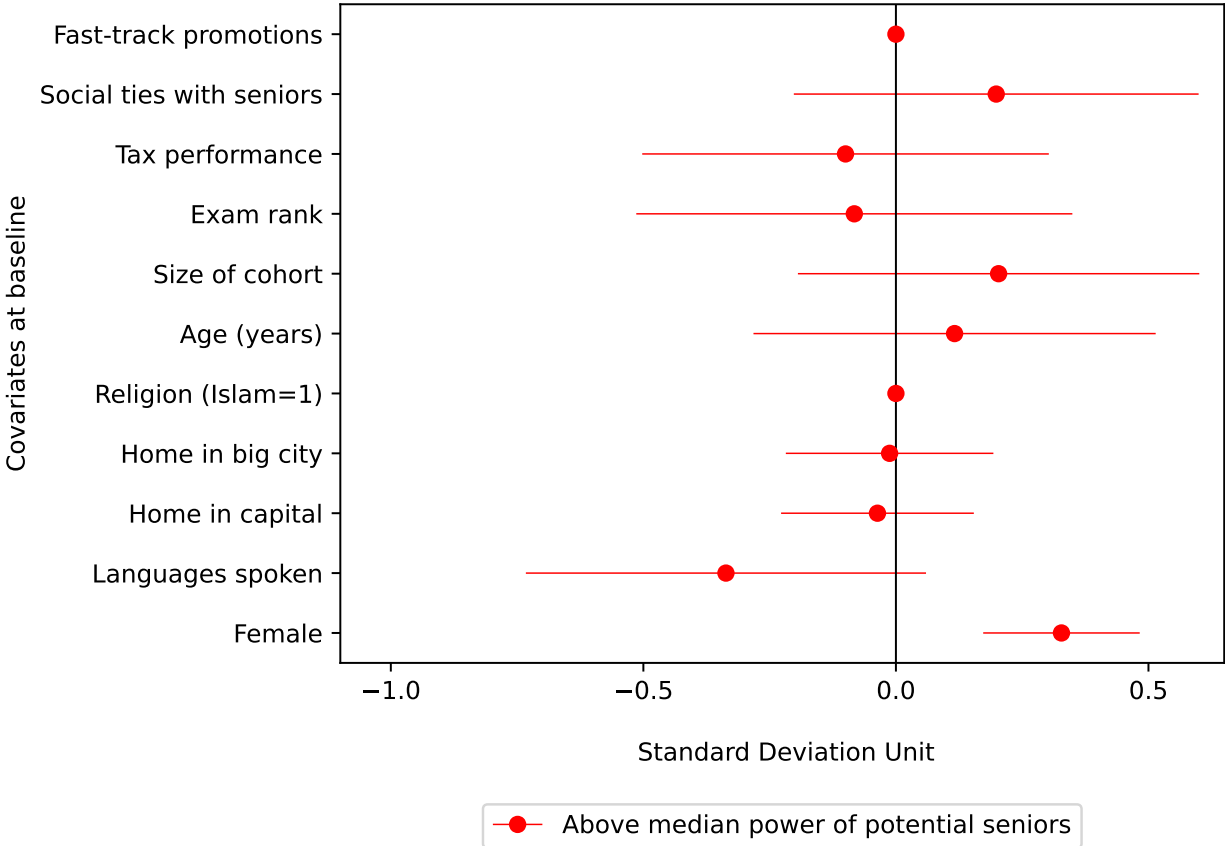


Figure A.6: Balance test of junior's characteristics at baseline by power of potential seniors



B Appendix Tables

Table B.1: Correlation between end of training and vacancies

	Dependent variable: Vacancies			
	All districts		Large districts	
	(1)	(2)	(3)	(4)
Training end	-0.001 (0.001)	-0.000 (0.001)	-0.001 (0.002)	-0.000 (0.002)
Year FE	Yes	Yes	Yes	Yes
Tehsil FE	No	Yes	No	Yes
Observations	1173784	1173784	387492	387492

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the tehsil level.
Notes: The unit of observation is a tehsil-month. Training end (dummy) turns on 1 a month before the end of on-the-job training of newly recruited civil servants. It stays zero otherwise. Vacancy is a dummy that turns on 1 whenever the position is vacant in a tehsil. It remains zero otherwise. Large districts include Rawalpindi, Lahore, Multan, Gujranwala, Faisalabad, Sargodha, Bahawalpur and Sialkot.

Table B.2: Correlation between district characteristics, vacancies and tenure

	Dependent variable:			
	Vacancies (% per year)		Tenure (days per year)	
	(1)	(2)	(3)	(4)
Whether districts has large city (dummy)	1.638 (1.394)	6.939 (25.704)	-188.110** (79.934)	398.320 (674.876)
Real wage (PKR)	0.027 (0.034)	0.062 (0.046)	0.734 (0.770)	0.154 (0.994)
Total population estimates (million)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Literacy (%)	-0.039 (0.062)	-0.066 (0.076)	0.217 (2.601)	-0.503 (3.966)
Rural employment (%)	-0.006 (0.054)	-0.066 (0.081)	-0.945 (2.290)	0.995 (2.372)
Number of hospitals	0.080 (0.228)	-0.922 (0.887)	11.576 (10.084)	-28.166 (55.007)
Number of Rural Health Centers	-0.044 (0.124)	0.058 (0.437)	0.756 (7.137)	16.330 (20.036)
Number of new electricity connections	-0.031 (0.044)	-0.037 (0.064)	1.774* (1.024)	-0.002 (2.908)
Number of primary schools	-0.001 (0.001)	0.002 (0.006)	0.092 (0.077)	-0.139 (0.296)
Primary school enrolment	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Terrorist attack (dummy)	0.657 (1.530)	0.748 (2.166)	-2.959 (37.311)	-16.524 (46.020)
Year FE	Yes	Yes	Yes	Yes
District FE	No	Yes	No	Yes
Observations	167	167	167	167

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the district level.

Notes: The unit of observation is a district-year from 2005-2009. AC vacancy is defined as a percentage of time in a year that AC position remained vacant in a given district. AC tenure is days spent at an AC job on average. Districts with large cities include Rawalpindi, Lahore, Multan, Gujranwala, Faisalabad, Sargodha, Bahawalpur and Sialkot. The provincial capital is Lahore. Data on all variables except terrorism is from the Pakistan Bureau of Statistics. Terrorist attacks data is from the Global Terrorism Data-set.

Table B.3: **Correlation between characteristics of the first job and the probability of being a top tax performer**

Dependent variable:	Top 50% tax collector			
	(1)	(2)	(3)	(4)
Tax target in the first job (million PKR)	-0.005 (0.006) [0.499]			-0.002 (0.007) [0.675]
Tax target arrears in the first job (million PKR)		-0.003 (0.007) [0.559]		-0.005 (0.011) [0.582]
First job in a large city			-0.145 (0.141) [0.212]	-0.182 (0.158) [0.154]
Controls	No	No	No	No
Cohort fixed effects	Yes	Yes	Yes	Yes
Obs	87	83	87	83
Cohorts	30	29	30	29

* p<0.1, ** p<0.05, *** p<0.01. [Cameron, Gelbach and Miller, 2008](#) wild bootstrap p-values, clustered at cohort level, in parenthesis.

Notes: The unit of observation is a civil servant. All specifications are restricted to the time in the first job. Top 50% tax collector is a dummy that turns on 1 whenever the junior is in the top 50% of their cohort in tax performance, in the first job. Tax target in the first job is measured in million PKR and is the target allocated to a tehsil for agricultural income tax collection. Tax target arrears in the first job is measured in million PKR and is the amount of agricultural income tax that has historically not been collected in a tehsil. First job in large city is a dummy that turns on 1 if the junior was allocated to work in a large city in their first job. Large cities are defined as those that are designated as city-district by the government i.e. Faisalabad, Gujranwala, Lahore, Multan, Rawalpindi.

C Data Sources

Figure C.1: Career record of bureaucrats from Services and General Administration Department (S & GAD)

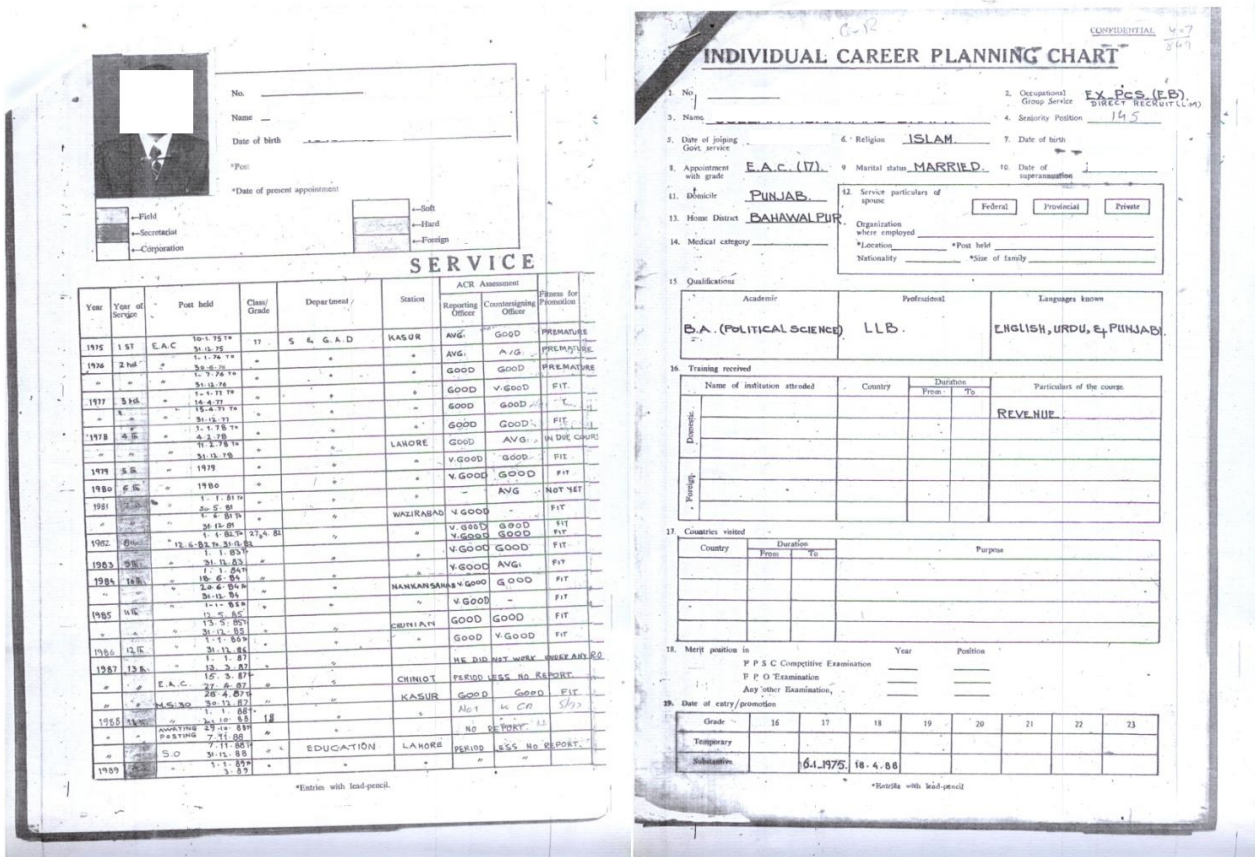


Figure C.2: Recruitment exam ranking of PAS bureaucrats published in newspapers

FEDERAL PUBLIC SERVICE COMMISSION

Aga Khan Road, F-5/1

Islamabad the 10th May, 2017.

PRESS NOTE

Subject: - **FINAL RESULT OF COMPETITIVE EXAMINATION (CSS), 2016 FOR RECRUITMENT TO POSTS IN BS-17 UNDER FEDERAL GOVERNMENT.**

No.F.2/4/2017-CE. The roll numbers and names of 199 candidates who have finally qualified the CSS Competitive Examination 2016, are given below in order of merit. Out of them 193 have been recommended by the FPSC for appointment to posts in BS-17 under the Federal Government in the Groups/Services mentioned against each:-

Merit No.	Roll No.	Name	Domicile	Group/Service allocated
1	19052	MALEEHA JESAR	PUNJAB	PAS
2	12639	QURAT UL AIN ZAFAR	PUNJAB	PAS
3	2329	MARIYA JAV AID	PUNJAB	PAS
4	1560	MUHAMMAD EJAZ SARWAR	PUNJAB	PAS
5	14428	ZOHA SHAKIR	PUNJAB	PAS
6	13321	SAYEDA TEHNIYAT BUKHARI	PUNJAB	PAS
7	10316	HAMOOD UR REHMAN	PUNJAB	PAS
8	13932	TAYYAB HAYAT	PUNJAB	PAS
9	15699	AHMED SHAH	K.P.K.	PSP
10	14782	AMEER TAIMOOR	PUNJAB	PAS
11	11051	MARHABA NEMAT	PUNJAB	PAS
12	2521	SAMMAN ABBAS	PUNJAB	PAS
13	11014	MAJIK MUHAMMAD DANISH	PUNJAB	FSP
14	12632	QUDSIA NAZ	PUNJAB	PAS
15	13416	SHAHMEER KHALID	PUNJAB	PSP
16	6409	UBAID UR RAHMAN DOGAR	PUNJAB	PAS
17	14055	UMMAR AWAIS	PUNJAB	PAS
18	4235	DANYAL HASNAIN	PUNJAB	FSP
19	1625	MUHAMMAD SHAHAB ASLAM	PUNJAB	PAS
20	12288	MUHAMMED ARSLAN SALEEM	PUNJAB	PAS
21	3962	ANISHA HISHAM	SINDH URBAN	PAS
22	8815	ABIDA FAREED	PUNJAB	PAS
23	5189	MUHAMMAD HASSAAN AHSAN	PUNJAB	PAS
24	3704	ABDUL QADEER	PUNJAB	PAS
25	3251	NAWAB SAMEER HUSSAIN LAGHARI	SINDH URBAN	PAS
26	12766	RANA HUSSAIN TAHIR	PUNJAB	PSP
27	12738	RAMEESHA JAV AID	PUNJAB	PAS
28	5770	SAAD ARSHAD	PUNJAB	PSP
29	11957	MUHAMMAD SAAD BUTT	PUNJAB	FSP
30	6613	ZEB UN NISA NASIR	PUNJAB	PAS
31	9390	AQEELA NIAZ NAQVI	PUNJAB	PSP
32	4193	BEENISH FATIMA	PUNJAB	PSP
33	9724	BILAL AHMAD	PUNJAB	PSP
34	2693	ABDUL SAMAD NIZAMANI	SINDH RURAL	PAS
35	5005	MOMIN AZIZ QURESHI	PUNJAB	FSP
36	11400	MUHAMMAD AHMAD ZAHEER	PUNJAB	PCS
37	4495	HASAN ABBAS	PUNJAB	FSP
38	656	MUHAMMAD ALI ASIF	PUNJAB	PCS

Figure C.3: The BOR tax collection pro forma

AGRICULTURAL INCOME TAX DISTRICT MUZAFFARGARH,
FOR THE MONTH OF September, 2007.
PREVIOUS A-I-T,

S. No.	Name of Tehsil	Demand	Suspension	Net Demand Recoverable	Previous Recovery	Current Recovery	Total Recovery	Balance	Percentage Month	Total
1-	M. Garh	171,02,682	—	171,02,682	76,650	9,300	85,950	1,70,16,732	—	1%
2-	Kot Addu	2,83,53,571	—	2,83,53,571	87,793	38,100	1,25,893	2,82,27,678	—	—
3-	Alipur	2,79,273	—	2,79,273	34,150	44,706	78,856	2,00,417	2%	4%
4-	Jatoi	1,83,96,542	—	1,83,96,542	5,010	9,500	59,510	1,83,37,032	—	—
<u>Total A</u>		<u>6,59,32,068</u>	<u>—</u>	<u>6,59,32,068</u>	<u>2,48,603</u>	<u>1,01,606</u>	<u>3,50,209</u>	<u>6,55,81,859</u>	<u>—</u>	<u>1%</u>

CURRENT A-I-T,

1-	M. Garh	—	—	—	—	—	—	—	—	—
2-	Kot Addu	—	—	—	—	—	—	—	—	—
3-	Alipur	—	—	—	—	—	—	—	—	—
4-	Jatoi	—	—	—	—	—	—	—	—	—
<u>Total B</u>		<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>G.Total A+B</u>		<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Figure C.4: The BOR tax collection pro forma verified by District Accounts Officer

(نورنگہ کیس)

STATEMENT SHOWING THE RECOVERY POSITION OF AGRICULTURAL INCOME TAX UNDER HEAD 011630001173 FOR THE MONTH OF December, 2007 District D.G.KI

Head of Account No. 011630001173	Demand	Remission	Suspension	Net Demand	Previous Recovery	Recovery during month	Total recovery	Balance
A.I.T. (Previous)	96,64,766	—	63,68,392	32,96,374	24,82,954	1,14,322	25,97,276	6,99,098
A.I.T. (Current)	—	—	—	—	—	—	—	—
Total	96,64,766	—	63,68,392	32,96,374	24,82,954	1,14,322	25,97,276	6,99,098

verified for Rs. = 114322/- (One lac, fourteen thousand = three hundred & twenty two only)

District Officer (Revenue)
Dera Ghazi Khan

Figure C.5: An example of an incumbency board: Assistant Commissioner Multan.

ASSISTANT COMMISSIONER CITY SUB DIVISION		
NAME	FROM	TO
CH. SHAFAT AHMAD	11.3.89	10.1.91
CH. HABIB HUSSAIN KHAN	10.1.90	14.7.90
JAVAD HANIF KHAN	14.7.90	20.6.92
FARUKH AHMAD KHAN	20.6.92	11.8.95
KANWAR AZMAT ALI	11.8.95	7.5.94
FARUKAHMAD KHAN	7.5.94	7.4.95
DR. RIAZ AHMAD MEMAN DMG	7.4.95	15.2.97
QAZI ISHAQ AHMAD QURESHI	15.2.97	31.3.97
MALIK ALTAF HUSSAIN	31.3.97	12.11.97
MUHAMMAD ASLAM QASMI	12.11.97	19.5.99
G. AKBAR KHAN KHICHI	19.5.99	3.2.2000
ZAHID AKHTAR ZAMAN DMG	3.2.2000	5.5.2001
NASRULLAH LEGHARI	5.5.2001	18.8.2001
ABDUL WAHAB SOOMRO DMG	18.8.2001	14.8.2001
DY DISTRICT OFFICER (REV) CITY MULTAN		
ABDUL WAHAB SOOMRO DMG	15.8.2001	23.12.01
NASRULLAH LEGHARI	23.12.01	18.10.05
MANZOOR AHMAD KHAN	18.10.05	15.4.04
NASRULLAH LEGHARI	15.4.04	19.1.05
YAWAR HUSSAIN DMG	24.1.05	24.12.05
TANWIR IQBAL TARASSUM	17.1.06	15.2.07
RAJA SHAH ZAMAN KHORO...	14.2.07	1.6.08
TANWIR IQBAL TABASSUM	26.6.08	11.11.08
NOSHEEN JAMSHAD DMG	25.11.08	15.8.10
KAUSAR KHAN DMG	16.8.10	20.4.11

ASSISTANT COMMISSIONER CITY SUB DIVISION MULTAN		
NAME	FROM	TO
KAUSAR KHAN DMG	21.4.11	12.5.12
ASIM SALEEM PMS	12.5.12	11.4.13
MISS SADIA MEHR DMG/PAS	11.4.13	28.11.13
ASHFAQ-UR-REHMAN KHAN	29.11.13	27.11.14
MALIK ATTA-UL-HAQ PMS	27.11.14	

Part I

Appendix

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1 Appendix for Online Publication

1.1 Details on string matching the careers, tax and exam rank data

There are no unique bureaucrat level identifiers in data on the bureaucrats' careers, their recruitment exam rank or their performance in tax collection. I, therefore, carried out a detailed string matching exercise to create the bureaucrat-month panel data that forms the basis of the study.

The exam rank data was matched with the bureaucrats' careers data on the bureaucrat's name and their cohort defined as the year of their recruitment exam.²⁶ This data was then further verified through interviews with bureaucrats, newspaper archives and information on other online forums (like <http://www.cssforum.com.pk>). This helped confirm the cohort that a bureaucrat belonged to.

To classify a junior as a top tax performer, the tax collection records had to be merged with the junior bureaucrats' careers. The tax records are at the revenue circle-month level and does not contain details of the junior bureaucrats that are the focus of this study.²⁷ I, therefore, aggregated the revenue circle-month level tax data to the subdistrict-month level, since this is the administrative level at which the junior bureaucrats worked. The string names of different sub-districts were then manually cleaned and each sub-district was allocated unique codes. A similar exercise was conducted for the career charts data. These two datasets were then merged on these sub-district codes and months. I only used the tax performance data from the first job of the juniors since this was the job at which performance was observed by the very first seniors of these juniors.²⁸

1.2 Sample used in the main analysis

There are three constraints on the sample used in the main analysis in the study. First, recruitment exam rank is only available for PAS bureaucrats. Second, some of the tax collection records were destroyed due to flooding in one of the basement record rooms of the Board of Revenue (see Figure 1.I) and therefore tax collection information is only available for 234 PAS bureaucrats. Third, to identify a causal effect I have to rely on the job allocation rules of the government for a junior's first job and therefore I need information on this job. This further restricts the set of juniors I am analyzing to 99 juniors for whom *tax collection performance information is available for their first job*. These 99 juniors are observed for 63.8 months (5.3 years), resulting in a total of 6,316 observations. From these 99 juniors

²⁶In some cases, it was not possible to match bureaucrats across the two datasets if the way the name was written differed across the two records, e.g. "Muhammad Mehmood" versus "M. Mahmud," and there was no cohort information to verify in the career charts data; or if the person retook the recruitment exam multiple times so that the career charts data had one cohort and the FPSC data had another.

²⁷The dataset comprises 558 distinct revenue circles spanning the years from 1983 to 2013, amounting to a total of 30,405 observations.

²⁸When tax data is collapsed at the subdistrict-month year level and combined with the career charts data it results in observing the tax collection performance of 644 bureaucrats. 406 of them are provincial services bureaucrats, while 234 are PAS. For details of the sample used in the study see below.

only 87 juniors also have information on their exam rank. These 87 juniors are observed over 63 months (5.25 years) for a total of 5,482 junior-month observations. They are from 30 cohorts that were recruited to the civil services between 1983 and 2013.²⁹ The sample used in the study is almost 14% of the universe of PAS bureaucrats.³⁰ Since ability measures of the senior are not imperative for the analysis, seniors were drawn from the wider career records. This data has information on 698 PAS and 1,197 provincial services bureaucrats observed over 154 months (12.8 years) and 134 months (11.2 years) respectively, resulting in 270,081 bureaucrat-month year level observations.

Figure 1.I: Flooded Board of Revenue's (BOR) record room and illegible files.



Although the number of juniors is 87, observed across 30 cohorts, I observe them over many months, which reduces the sample size needed to detect an effect (McKenzie, 2012). Moreover, the effect size is large and that further explains the statistical significance of the results. Below I describe the representativeness of the sample and steps taken to ensure that the inference is valid despite the small amount of cross-sectional data.

Representativeness of the sample. To check whether the sample is representative I compare the juniors in the study sample with the broader PAS bureaucracy in a comparable

²⁹Since seniors are defined on the first job, I define a cohort of juniors as a group that started their on-the-job training together.

³⁰The universe of PAS bureaucrats between 1983-2013 is 628.

time to the juniors, i.e., between 1983 and 2013 (368 officers). Table 1.I shows that these 87 juniors are a random subset of the larger PAS bureaucracy and are broadly representative of them. Most importantly, there are no systematic differences in either the fast-track promotions or recruitment exam ranking across the larger samples, suggesting that the study cohorts are not a more able or more talented group than the wider sample. An F-test of joint significance of all the variables has a p -value of 0.3247.

Table 1.I: Representativeness of the PAS sample

	(1) Study Sample (1983-2013)	(2) Full PAS Sample (1983-2013)	(3) Difference (1)-(2)
Fast-track promotions	0.25 (0.23)	0.28 (0.24)	-0.03 (0.03)
Recruitment exam rank	8.25 (5.24)	9.14 (5.80)	-0.89 (0.70)
Size of overall cohort	173.13 (46.22)	167.11 (44.69)	6.02 (5.38)
Age (years)	30.13 (3.52)	30.01 (3.77)	0.11 (0.44)
Gender (female = 1)	0.25 (0.44)	0.15 (0.36)	0.10** (0.04)
Home is in capital city	0.32 (0.47)	0.35 (0.48)	-0.03 (0.06)
Home is in big city	0.46 (0.50)	0.49 (0.50)	-0.04 (0.06)
Number of languages spoken	3.40 (1.15)	3.46 (1.20)	-0.05 (0.14)
Religion (Islam = 1)	1.00 (0.00)	0.99 (0.07)	0.01 (0.01)
Observations	87	368	455

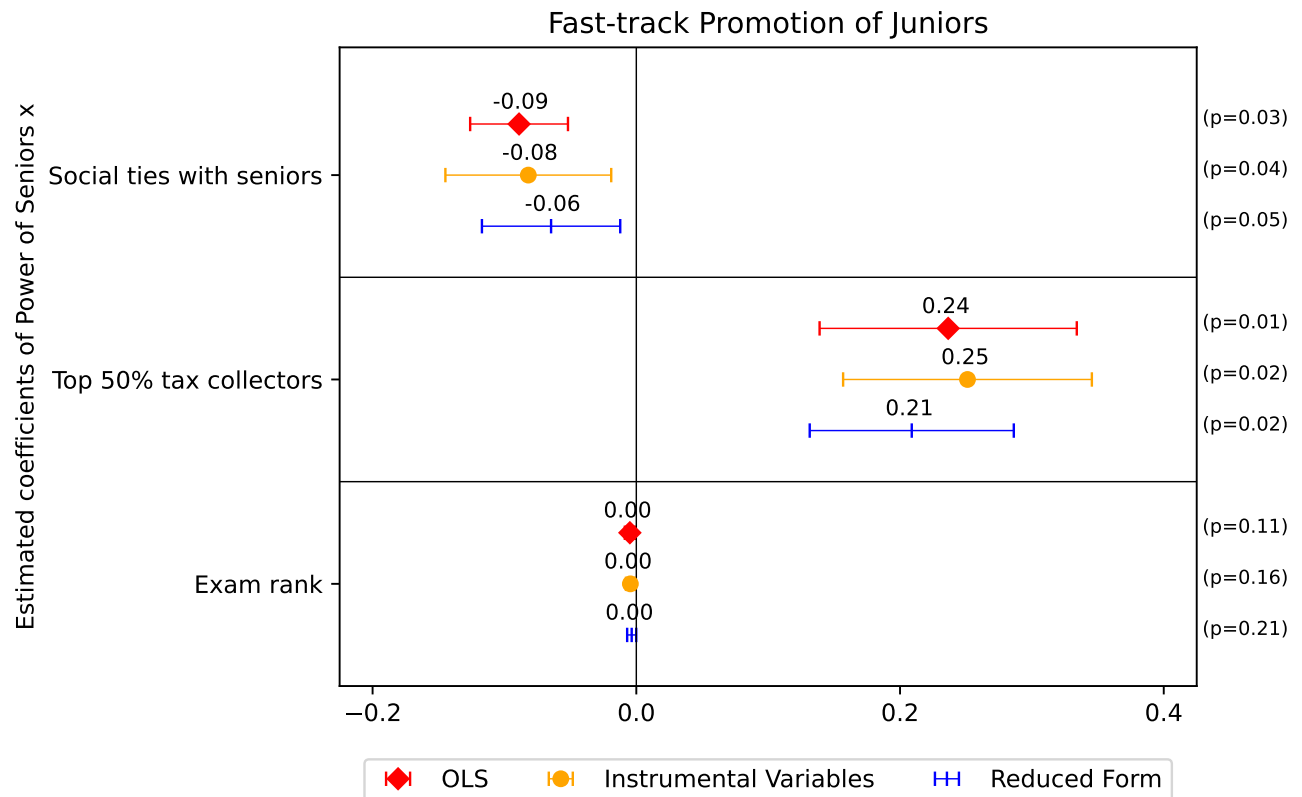
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses. F-stat of a joint significance test is 1.15 (p -value=0.3247).

Statistical inference. Another issue is over using statistical tests that rely on asymptotic arguments in the cross-sectional dimension to justify the normal approximation. By clustering at the cohort level, the standard errors produced might be much smaller, suggesting finite-sample bias due to clustering. Figures 1.II and 1.III replicate the main results but report p -values (on the right) from 1100 replications of the Wild cluster bootstrap- t procedure, clustered at the cohort level. This procedure has been suggested by [Cameron, Gelbach and Miller, 2008](#) for small clusters. It provides asymptotic refinement and leads to improved inference with cluster-robust standard errors, particularly when there are few clusters.³¹ Since then, their method has been used by studies that have had to work with

³¹[Cameron, Gelbach and Miller, 2008](#) show, using Monte Carlo simulations as well as real data, that their procedure works quite well even when the number of clusters is as few as six.

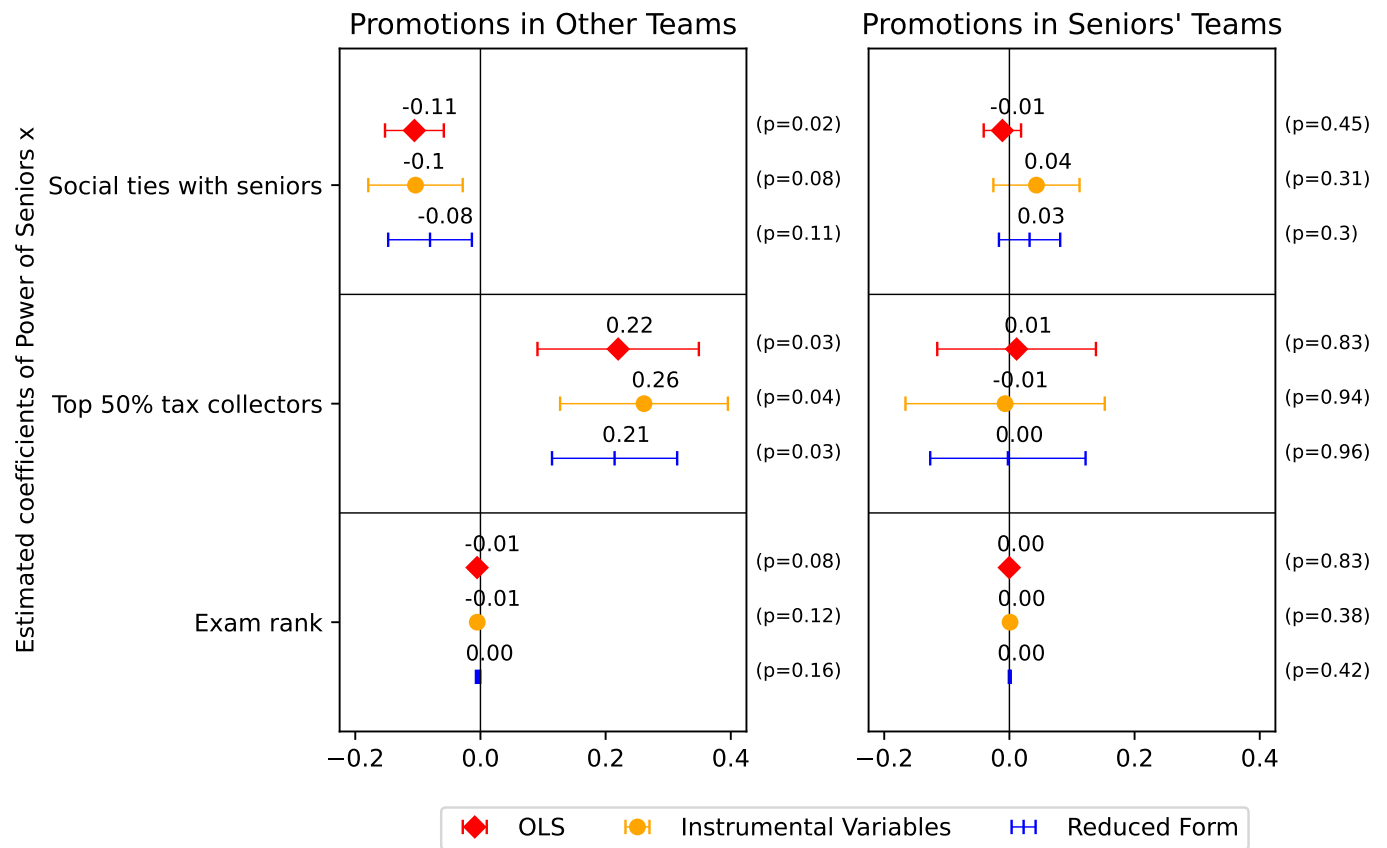
a small number of clusters (Angrist and Pischke, 2009; Bloom et al., 2013; Angrist, Pathak and Walters, 2013). Reassuringly, the p -values from both figures confirm that the conclusions drawn from the main results remain valid, notwithstanding the limited number of cohorts.

Figure 1.II: The effect of power of seniors on careers of juniors based on their social ties and ability (p -values from Wild Cluster Bootstrap t-procedure on the right)



Notes. The unit of observation is a bureaucrat-month year. The estimated coefficients from an OLS, IV and a reduced form estimation are plotted along with 95% confidence intervals.

Figure 1.III: The effect of the power of seniors on promotions of juniors in teams of different types (p -values from Wild Cluster Bootstrap t -procedure on the right)



Notes. The unit of observation is a bureaucrat-month year. The estimated coefficients from an OLS, IV and a reduced form estimation are plotted along with 95% confidence intervals.

1.3 Data sources for investigating correlates of service delivery: social ties or ability

The source for the subjective evaluation data is the career records of juniors. Juniors are classified as average, good, very good, and outstanding. I classify subjective evaluation as a dummy variable that equals one whenever a junior is classified as very good or an outstanding worker. Data on this measure is limited, as career records don't always record performance evaluation. I observe subjective evaluations for nine out of thirty cohorts.

The data on the citizen perception survey is compiled by Oasis Insights (Private) Limited in 2014. This study was commissioned by the World Bank and carried out a ten to fifteen minute telephone survey, aimed at understanding citizen's perceptions of services delivered by the state, as well as the efficacy of the Citizen Feedback Model (CFM) as an accountability mechanism (Masud, 2015; Beschel et al., 2018). The sampling frame was anyone that had used at least one of eleven different services between September 2012 and February 2014. Out of these eleven services, there was one that is relevant for juniors in this study: the issuance of "*fard*" or land titles. These land titles are delivered by the lowest tier of the junior's team. For this particular service, 900 citizens were surveyed. Data on the performance of each junior's team is available for a maximum of four cohorts.