Meritocracy in Bureaucracy? Evidence from Pakistan*

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Abstract

Most bureaucracies today are rule-based. This is a result of a powerful intellectual tradition that argues that allowing discretion in decision making could lead to favoritism and collusion, with substantial costs to the organization. This paper studies one particular public sector bureaucracy, the Pakistan Administrative Services (PAS) in Punjab and presents novel evidence that when senior bureaucrats have discretion to promote juniors they do so meritocratically. I create a newly digitized civil servant-month panel data-set (1983-2013) which combines the universe of personnel records of PAS civil servants in Punjab, Pakistan with two key measures of merit of the junior (1) recruitment exam ranking that is publicly observable (2) historical tax collection by juniors that is private information of a particular set of seniors. I exploit two rules within the government to get exogenous variation in both the set of seniors and their power to promote juniors. First, results show that, in the long run, as the promotion power of seniors increase, high merit junior bureaucrats are more likely to be promoted than low merit ones. Second, with increases in the promotion power of seniors they are more likely to pull high merit junior bureaucrats into their own team and promote them, while the effect reverses for low merit juniors. This suggests that self-interest of the person exercising discretion is one mechanism behind meritocracy. Third, as promotion power of senior increases, those juniors who are observationally good performers but not stars according to private information of the senior, have 3 times lower probability of being promoted than those who are top performers in both dimensions. A similar effect is seen for those that are observationally poor performers. This suggests that seniors can decipher not just hidden lemons from the star performers but also hidden gems from the bottom of the performance distribution. These results suggest that there is value from allowing discretion and have wider implications for how we think about the use of subjective judgement in organizations.

JEL codes: O1, M51, D73, D23, J45,

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1 Introduction

Fathers of modern bureaucracy envisaged an ideal system of administration as one which was completely 'dehumanized' (Weber (1922), p.975; Northcote et al. (1854)). Corruption, nepotism and arbitrariness resulting from the exercise of discretion were seen as main impediments to an efficient administration. Later studies also highlighted how discretion could open the door to favoritism or collusion and worsen the information environment (Tirole (1986); Prendergast & Topel (1993); Prendergast & Topel (1996); Xu (2018)). This powerful intellectual tradition has meant that many aspects of the bureaucratic system like mechanical promotions through rules of seniority, fixed wages and tenure at a job are taken for granted as a necessary condition to avoid costs of patronage. However, rule-based administration is not itself cost-less. Consider the specific case of promotions. Non-performance based promotion rules, like seniority, result in lowering of incentives for bureaucrats (Bertrand et al. (2017)). Moreover, promoting on the basis of fixed rules also means discarding local, decentralized information that colleagues and supervisors hold on the type and effort of workers, which is otherwise not easily quantifiable and amenable for use in promotion decisions.

This paper links long run careers of newly recruited bureaucrats to increases in the promotion power of their seniors and asks a simple question: are discretionary promotions meritocratic? Promotions are meritocratic if with increases in promotion power of seniors, high merit new recruits are more likely to be promoted than low merit ones. If discretionary promotions are meritocratic this has implications for our understanding of the rules versus discretion trade-off and the use of subjectivity in decision making in organizations.

This paper also investigates one mechanism for why discretionary promotions can be meritocratic i.e. self-interest of the person exercising discretion. More specifically, I test whether seniors have discretion in the promotion of junior workers coupled with discretion in the choice of their own team members. In such cases, the incentives of the seniors to promote are more in line with that of the organization. This is due to the fact that the kind of workers these seniors pull into their own team and promote will have a direct impact on the their own performance. Investigating not just whether there are meritocratic discretionary promotions but also why there is meritocracy, helps in understanding the specific conditions under which allowing discretion can improve information in organizations.

This study is based in the context of the Pakistan Administrative Services (PAS) civil services in Punjab, Pakistan. Punjab is a province in Pakistan, with a total population of 110 million people (a third of the US).[1] PAS is an elite cadre of civil servants responsible for running all key government departments at the federal and provincial level as well as a number of public

[1]Pakistan is administratively divided into provinces, districts and tehsils.

sector enterprises and companies. Therefore, understanding the allocation of talent within PAS can have significant implications for state effectiveness and welfare on its own.

After recruitment PAS civil servants are part of a central 'pool' of bureaucrats. These bureaucrats are then matched with Assistant Commissioner (AC)[2] jobs in one of the 36 district departments. This job allocation is carried out by the senior civil servants and the chief executive of the province. There are two kinds of promotions of PAS bureaucrats. One is rule-based and the other discretionary. Rule-based promotions are official promotions determined by experience, training and subjective performance evaluation of the civil servant by the immediate bosses. Discretionary promotions, on the other hand, are fast-track promotions. Fast-track promotions allocate junior civil servants to senior positions ahead of the officially stipulated time. The more senior the bureaucrat the higher the chance that they can exercise discretion over fast-track promotions of juniors. This is the core outcome that is used in this study.

To answer the question of whether discretionary promotions are meritocratic, I digitized the universe of personnel records of PAS civil servants. This allows to observe the entire career paths of juniors and their senior work ties. Since work ties can be identified using personnel records, it helps overcome measurement error and subjectivity bias that often arises in network surveys (Jackson (2013)). The senior considered are those that the PAS new recruits work with in the first month of their first job as Assistant Commissioners (AC). I call these seniors work ties. I classify promotion power of work ties using their official promotions, since the higher up the bureaucrat the higher the likelihood that they can exercise discretion over careers of juniors. I restrict attention to just the first set of seniors as these are the set of people with whom the junior bureaucrats have the longest time together in the organization and who have the highest chance of exercising their discretion. Moreover, just considering the first set of seniors helps avoid problems of dynamic link formation and therefore, keeps causal identification tractable. It is worth emphasizing that the outcomes of the juniors are studied, not those of the senior work ties. This helps overcome mechanical correlations that have been discussed at length in the literature (Manski (1993)).

There are three immediate challenges in answering the question of whether discretionary promotions are meritocratic. First, in general, causal identification can be difficult since bureaucrats (both senior and junior) select into who they work with. Second, in this context, promotion power of work ties depend on the subjective performance evaluation they receive, which could be correlated with unobservables of junior workers. Third, classifying a measure of merit that could help identify the true value of allowing discretion to work ties is not straightforward. The ideal would be to have two measures of merit: first, merit that is observable to

[2]The main job of the Assistant Commissioners, among other things, is to collect taxes.

the whole organization; and second, merit that is privately observable only to the work ties. If we find that juniors with the same observable measures of merit are further promoted meritocratically based on the private information of the seniors then this helps understand whether there is additional value added by allowing discretion.

This paper's setting of the PAS civil services in Punjab, Pakistan helps overcome all three challenges. To address the first challenge, initial job allocation rules of the government are exploited. The method of initial allocation is that new recruits can be assigned jobs that are either vacant or where the incumbent AC has spent at least one year on the job.[3] This rule gives a set of potential positions that any cohort of newly recruited PAS civil servants could have been allocated in their first job. Potential work ties are classified as all the civil servants that are working in district departments with a vacancy at the time of first job of new recruits.

The second challenge is addressed by using the minimum length of service rules of the government to create rule-based measures of seniority of the potential work ties. Minimum length of service rules stipulate that a bureaucrat can be promoted once if they have completed five years in the government, twice if they have completed twelve years, thrice if they have completed 17 years and four times if they have 22 years of experience in the government.[4] Using both the initial allocation and promotion rules of the government, allows a classification of a cohort-based, time varying measure: promotion power of potential work ties. It is defined as the average rule-based seniority, over time, of the first set of potential work ties of newly recruited cohorts of PAS civil servants.

To address the third challenge, I digitized, for the first time, two different measures of merit, i.e. both a publicly observable measure of merit and a measure of merit only privately observable to the first work ties. The publicly observable measure of merit this study uses is a civil servant ranking based on their recruitment exam from 1973-2013 which is published in newspapers. High (low) merit civil servants are classified as those that are in the top (bottom) 10% of their cohort in the recruitment exam. This measure is correlated with performance on the job. A civil servant that is in the top 10% of his or her cohort in the recruitment exam, collects 3% more taxes and is 10% more likely to be awarded an 'outstanding' by their immediate bosses.

To classify a measure of merit that is only privately observable to the work ties, this study uses the tax collection performance of PAS new recruits on their first job from 1983-2013 and exploits a peculiar institutional feature which ensures that only the first work ties are privy to this performance measure. High merit junior workers are classified as those that are in

[3] cf. 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. The idea behind this rule was to give some stability of tenure to existing Assistant Commissioners.

[4] cf. Establishment Division's O.M.No.1/9/80-R.2 dated 2-6-1983

the top 10% of their cohort in tax collection.[5] Exam performance does not perfectly predict tax performance. A top 10% exam performer has a 23% probability of being a top 10% tax collector, while the bottom 10% exam performer still has a 12% chance of being a top10% tax collector. This suggests that the seniors that are privy to the tax collection performance have local information about merit of the juniors. The organization can exploit this local information through allowing discretion to seniors.

The reason it can be argued that the measure is private information of the seniors is as follows. The Central Revenue Agency (BOR) sets annual tax collection targets based on official record of farm sizes and number of farmlands in each area. Seniors at the fist job observe the individual tax performance of the juniors in weekly meetings that all must attend. However, the institutional arrangement is such that what is reported to other tiers of the government and is the aggregate district level performance measure. Information on the individual performance of juniors never makes it to the juniors' formal files or their personnel records.[6] This setting offers a unique opportunity to investigate the exercise of discretion in promotions, based on both publicly and privately observable measures of merit. It helps provide insight into the true value added from allowing discretion in organizations.

Results show that discretionary promotions of junior workers by senior work ties are meritocratic. For every one rank above average increase in the promotion power of the potential work ties, the top 10% exam performer is 30% more likely to get promoted than the mid 80% exam performers. On the other hand, the bottom 10% exam performers are 18% less likely to be fast tracked than the mid 80%. The effect on the top and the bottom 10% exam performers is statistically significantly different from each other. Both the effects are nearly the same as the mean of fast-track promotions and thus are economically significant as well. Moreover, results show that as first work ties have more power to promote juniors, they are more likely to pull into their team and fast-track the top 10% exam performers. A one rank above average increase in the promotion power of potential work ties leads to nearly four times higher probability, relative to the base category, for the top 10% exam performers to start working in the work ties team and be fast tracked there. More importantly, the relative effect is of the same magnitude but negative for the bottom 10% exam performers. An F-test rejects the equality of the differential effects for the top 10% and bottom 10%. Both these effects are larger for the work tie's own team versus teams of others. The effects are statistically significantly different across these two types of teams, suggesting that self-interest of the work tie has an important role to play in the meritocracy of promotion.

This study then investigates whether work ties use their private information meritocrat-

[5] I also present results for top 20% to top 50% of tax collectors.
[6] Section 2.2 describes the institutional setting in greater detail.

ically. Results show that with increases in the promotion power of work ties, those top 10% exam performers that are not top 10% tax collectors are three times less likely to be fast-tracked than those that are star performers in both dimensions. The effects are significantly different across the two categories of performance. These results are also economically significant with the difference between the two being three times the mean of fast-track promotions. More importantly, with a one rank above average increase in the promotion power of the potential work ties, those bottom 10% exam performers who are in the top 10% of tax collectors, have a two times higher probability of being fast-tracked than those who are bottom in both dimensions. Again, the two effects are statistically significantly different from each other. Taken together these results suggest that work ties are not just able to decipher the hidden lemons from the true stars but also the hidden gems from those that are bottom in both dimensions. This sheds light on the true value of discretion in organizations. Results are consistent with the idea that information is generated for the system by senior work ties.

To the best of my knowledge this is the first paper that empirically investigates meritocracy of discretionary promotions using both publicly and privately observable measures of merit, with a potential explanation for why there can be meritocracy. These results challenge: (a) the conventional view of bureaucracies being ossified establishments; and (b) the Weberian ideal of a bureaucracy that is best when stripped of all subjectivity (Weber (1922)). It appears that a case can be made to increase autonomy in bureaucracies rather than reducing it. Moreover, since not just public sector bureaucracies bring together the labor of multiple workers, the potential for using local information through discretion has broader implications even for private sector and non-governmental organizations.

The paper contributes to a growing body of evidence on the value of autonomy and discretion in public sector bureaucracies. In Nigeria, Rasul & Rogger (2017) find that increasing bureaucrats' autonomy is positively associated with project completion rates. In Italy, Bandiera et al. (2009) find that more autonomous public bodies have less passive waste from regulatory burden and the same level of corruption. In India, Duflo et al. (2018) show that discretionary inspections by an environmental regulator cause three times more pollution abatement than would the same number of randomly-assigned inspections. Brollo et al. (2017) show that while mayors use discretionary appointments for a variety of reasons, they appoint only high quality party members to senior positions. This paper contributes to this literature by studying the meritocratic effects of discretion in promotions and highlighting the mechanism through which meritocracy operates.

The paper also adds to the rapidly expanding literature on the organizational economics of the state. Dal Bó et al. (2013) and Ashraf et al. (2018) study selection of public sector workers.

There have been many studies that focus on understanding the incentives of these workers (Iyer & Mani (2012); Banerjee et al. (2012); Ashraf et al. (2014); Bertrand et al. (2017); Khan et al. (2016); Khan et al. (2018); Xu (2018); Callen et al. (2013); Finan et al. (2015)). To the best of my knowledge this paper is the first that studies the persistent effects of promotion power of first work ties on long run promotions of junior bureaucrats. In contrast to investigating selection of public servants into recruitment, this paper holds selection constant and studies the allocation of talent through discretionary promotions. The two papers that investigate promotions in large bureaucracies are Xu (2018) and Jia et al. (2015): Xu (2018) studies how discretion affected the promotion and incentives of governors in the British colonial administration from 1854-1966 and finds that discretion has a high cost to the organization. On the other hand, Jia et al. (2015) study the promotions of Chinese state officials and find that discretion can help the organization promote the best performers. Results in this paper complement these two studies by first considering a different agent exercising discretion on promotions i.e. existing workplace work ties and then highlighting the incentives of the person exercising discretion as an important part of the relationship. The more closely aligned are the incentives of the person exercising discretion to those of the organization, the higher the chance that discretion can make use of local information rather than distorting it. Moreover, this paper also sheds light on the use of private information under discretion.

The paper is organized as follows. Section 2 describes the institutional context and data. Sections 3 to 5 present the key results: Section 3 investigates whether promotions are meritocratic when first work ties get more discretion in the organization. Section 4 asks why that can be the case and section 5 investigates whether the first work ties use their private information meritocratically in promotion decisions. Section 6 concludes.

2 Background and Data

2.1 The Pakistan Administrative Services (PAS)

The focus of this study is on Pakistan Administrative Services (PAS) civil servants in Punjab, Pakistan. Figure 1 shows the map of Pakistan with Punjab highlighted in orange. Punjab is a province in Pakistan with a total population of 110 million people (55% of total population in Pakistan), which is nearly one-third of the population in the US.

The Pakistan Administrative Services (PAS), a successor of the Indian Civil Service (ICS), is an elite group of federal civil servants. They run all key government departments at both the federal and provincial level. The most senior civil service positions - the Secretary of Cabinet at the federal and provincial levels, the Chief Secretary of all the four provinces, heads of

most provincial and federal government departments - are in general occupied by PAS officers. PAS civil servants are responsible for designing health, education and taxation policy of the government as well as implementing various key projects of the government and international financial institutions like the World Bank and United Nations. They also occupy key positions in public sector enterprises, autonomous bodies and state-run companies.

Pakistan Administrative Services (PAS) recruitment is through a competitive exam conducted by the Federal Public Service Commission (FPSC). They start their career in rank 17 and can get promoted all the way to rank 22.[7] Figure 2 presents the time-line of the initial career of a PAS new recruit. On recruitment, PAS civil servants undergo 18 months of academic training which is followed by 6 months of on-the-job training.[8] Training is centrally administrated by the Civil Services Academy as well as the Pakistan Administrative Services (PAS) Academy. The length of training and the dates of start and end of training are determined centrally by these training institutions.

After 24 months of recruitment, new recruits are allocated their first job. 75% of PAS new recruits start their first job as Assistant Commissioners (AC), in one of the 36 district departments in Punjab, where they mainly collect taxes.[9] While the first allocation is centrally decided, new recruits can potentially select into a particular district departments through informal negotiations. Two-thirds of the time in rank 17 is spent working as an Assistant Commissioner.[10]

It is this group that the study focuses on. The main reasons are: first, it allows to exploit initial allocation rules; and second, it helps in classifying a measure of merit that is privately observable only to the work ties. The initial allocation rules that gives a set of potential work ties, is based on the Tenure/Transfer Policy of the government. This policy states that new recruits can only be allocated jobs that are vacant or where the incumbent civil servant has spent at least 1 year.[11]

The job allocation process in this setting is centralized. On recruitment, civil servants become part of a central pool of people. On the other hand, there is a pool of jobs that are rank and department specific. The role of the human resources is to match a civil servant to a job. Civil servants are assigned to jobs by the chief executive of the province (Chief Minister (CM)) and senior civil servants working in the Services and General Administration Department

[7] For the purpose of the analysis I normalize these ranks to 0-5.
[8] This has historically ranged from 18 weeks to 37 weeks.
[9] As per Inter-provincial Transfers of DMG/PSP Officers, Government of Pakistan, Cabinet Secretariat, Establishment Division, 10^{th} April, 1988, (5/9/86-E.5) PAS civil servants are meant to work as an Assistant Commissioners (AC) at the very start of their career
[10] 22 months out of a total of 33 months that are spent in rank 17.
[11] cf.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.

(S&GAD) and the secretariat of the Chief Minister. The total number of jobs are determined by the government through pre-specified rules. In general, new job creation is not easy and has to be ratified by multiple committees.

There are two kinds of promotions in this setting. One are the official promotions. As discussed, these are non discretionary ones and are based on experience, training and subjective performance evaluation of the civil servants by their immediate bosses. Fixed rules determine how these are quantified for use in official promotion decisions. The second kind of promotions are fast track promotions. Fast track promotions are when higher ranked jobs are allocated to junior civil servants ahead of the official time. These are at the discretion of the chief executive of the province and other senior civil servants. As discussed, this means that the higher up the official, the higher the likelihood that he or she will have discretion over fast-track promotions of juniors.

2.2 Data

The data for this study is based on a large-scale digitization effort to construct a civil servant - month panel data-set from 1983-2013. This study combines newly digitized data from six sources: universe of personnel records of PAS civil servants that have ever worked in Punjab, from 1953-2013, from the Services and General Administration Department (S&GAD); recruitment exam ranking of civil servants by the Federal Public Service Commission (FPSC) from 1973-2012[12]; historical tax collection records from the Central Revenue Agency i.e. Board of Revenue (BOR) from 1983-2013[13]; Assistant Commissioner (AC) incumbency board data of 138 tehsils (out of a total of 141), observed from when each tehsil was created, ranging from 1946-2016[14] (see figure A1, A2, A3, A4, A5 and A6 for details).

The universe of PAS that ever historically worked in Punjab is 785. Out of these there is information on the first job of 414 civil servants. 75% (310 civil servants) of these 414 civil servants were allocated AC positions as their first ones. For 163 of these 310 civil servants there is any information on their historical tax collection. This is the subset of civil servants on whom the main analysis of the study is based. For 115 of these 163, this study has information on their tax collection in the very first job when they worked with their first work ties. This subset is used for the analysis in section 5.

[12]There is a 10% quota for people from the armed services in civil services of Pakistan. Government policy is that these new recruits from the armed forces are arbitrarily awarded the same exam rank as the top person that enters the system through the competitive exam. In the main analysis there are 20 such people, while in the analysis in section 5 there are 12 such people. For the purpose of the study they are treated the same as the median person.

[13]All the available tax record of the BOR were accessed.

[14]Photographs of AC incumbency boards were shared by the AC offices after telephonic requests.

The constraint on the data-set comes from the tax collection records. Attrition in the tax data is random. It is a result of the Board of Revenue's record keeping, the physical state of their building and a function of the various clerical staff members over the years.

2.2.1 Key variables

Promotion power of work ties. I use seniority based on official promotions of work ties as a proxy for how much power the work ties have on promotions of junior workers. Work ties are defined as everybody that a newly recruited PAS worker worked with in the first month of the first job. These set of first work ties remain fixed. What varies over time is their average official promotions which are based on experience, training and subjective performance evaluation. As discussed, I restrict attention to the first set of work ties as these are the set of people with whom the junior workers have the longest time together in the organization and who have the highest chance of exercising their discretion. Moreover, using first ties helps overcome problems of dynamic link formation and keep causal identification tractable. I want to emphasize that I am studying outcomes of these newly recruited junior workers and not the first work ties.

The source for the variable promotion power of work ties is the personnel records of the civil servants (see figure A1). These records allows a classification of who works with whom, when and where and to observe the official promotion of each civil servant. From there it is possible to build adjacency matrix of the first work ties and combine these with the official promotion of each person to quantify the average promotion power of first work ties for each time period. I define promotion power of work ties as the average official rank, over time, of the first set of work ties. An added advantage of using personnel records is that I can objectively classify the set of first work ties. This helps overcome measurement error and subjectivity bias that is common in network surveys and that has been highlighted in the literature (Jackson (2013)).

Fast-track and official promotions. Figures 3 and 4 plot the actual and official careers of a sample of cohorts from the 80s, 90s and 2000s. The red dotted line is the mean seniority based on official promotion of a cohort. The blue dotted line is the mean seniority based on discretionary or fast track promotions. Once a civil servant is officially promoted he or she can't be demoted. However, that is not the case for fast-track promotions. These are at the discretion of the senior civil servants and the chief executive of the province. Being fast-tracked does not confer a right and so fast-tracked bureaucrats can be demoted as well. This study investigates the effect of promotion power of work ties on both fast-track and official promotions of newly recruited PAS civil servants.

Fast-track promotions are quantified as a dummy that turns on 1 whenever actual seniority is higher than the official seniority of the civil servant i.e. when the blue line is above the

red line. On the other hand, official promotions are quantified as a dummy that turns on one whenever the civil servant is officially promoted from one rank to the next.

The source for both these variables is the personnel records of the civil servants (see figure A1). From there one can observe the date of official promotion of a civil servant and so that can be used to quantify a dummy for official promotions. To classify fast-track promotions, information in personnel records is used on the various jobs that civil servants are allocated (see figure A1). To classify the rank of the job, notifications of job ranks by the Services and General Administration Department (S&GAD) are used. Quantifying the rank of the job allows knowing the actual seniority that the civil servant enjoys in a given time period. Whenever the actual seniority is higher than the official one, the civil servants are classified as fast-tracked.

Working in team of first work ties (long-run, second job onward). Work ties are determined in the first month of the first job. Once the work ties are determined, first job is excluded from the analysis and the next 12 years of the worker and their work ties is used for investigation in the study. Working in team of first work ties is classified as a dummy for whether in the long-run the new recruits and and their work ties from the first job end up systematically working together in a given month in their future jobs. The source of this variable is the personnel records of civil servant from S&GAD which allows to observe where each person worked and when (see figure A1).

Publicly observable measure of merit: Recruitment exam ranking. The first measure of merit I use is ranking of new recruits within a cohort based on their recruitment exam ranking. These results are publicly available and are published in the national newspapers. Archival records of newspapers with this information was not easily available. Therefore, these records were digitized after getting access to the data from a central agency that is responsible for recruiting PAS civil servants i.e. the Federal Public Service Commission (FPSC). As discussed, recruitment exam ranking is a measure of merit that is positively correlated with measures of performance on the job. The top 10% in recruitment exam actually collect 3% more taxes and are 10% more likely to be awarded 'outstanding' in subjective evaluations by their bosses. High (low) merit civil servants are quantified as a dummy that turns on 1 whenever a civil servant is in the top (bottom) 10% or bottom 10% of a cohort in the recruitment exam.

Privately observable measure of merit: Tax collection. To quantify a measure of merit that is privately observable to the work ties, tax performance of the new recruits in their first job as Assistant Commissioners is used. The source of this variable is the historical records of the Board of Revenue that were digitized for the first time.

The Central Revenue Agency i.e. the Board of Revenue (BOR) sets annual tax collection

targets based on official record of farm sizes and number of farmlands of the area (see table B4 and B5 where I test for this and find that that is indeed the case). Each new recruit working as an Assistant Commissioner (AC) reports back how much they collected against the annual target, in weekly meetings with other district officials i.e. first work ties.

The first work ties are privy to the tax performance of the new recruits as they work together. However, once the tax performance has been discussed at the district department level, a letter is sent to the Central Revenue Agency (BOR), with an overall aggregate measure for the district and the tax performance of each new recruit attached only as an annex. These are administratively handled at the BOR by the clerical staff, who only use the district averages and share them with the officials at the BOR. The individual performance of the new recruits never makes it to official decision making levels and never reaches their individual personnel record files. There is neither knowledge of these records nor a demand for them at the higher tiers

This was confirmed in multiple meetings with different officials in the BOR and S&GAD. Tax performance is classified as a dummy that turns on 1 whenever a new recruit is in the top 10% of the cohort in tax collection against the set target. I also report results using top 20%, 30%, 40% and 50% to understand whether the effect varies across the tax collection distribution.

2.2.2 Descriptive Statistics

Table 1 presents descriptive statistics of the key variables at the civil servant - month level while table 2 presents descriptive statistics at the cohort level. The promotion power of the work ties ($\overline{Power}$) is measured in ranks of seniority. This variable ranges from 0-5, 0 being the junior most rank and 5 being the most senior. The average promotion power of work ties is 0.92.

As expected, there are more fast-track promotions than official promotions. There is only a 1% chance that a civil servant will be officially promoted in a month. While there is a 27% chance that a civil servant will be fast-tracked in a month. There is a 31% chance that the junior worker will work, in the long run, with the work ties they met in the first job. Civil servants collect on average, in a month, 8% of the annual tax target set by the Central Revenue Agency (BOR). This means in a year, on average, the target is met. Since this tax is collected only at the start of their career and there is attrition in the tax collection data the observations are 1495.

I classify cohorts according to the date of end of their training. This allows me to classify the potential set of work ties without introducing measurement error. This is the definition of cohorts on which I cluster the error terms and this is used to control for time invariant heterogeneity. Table 2 shows that there are 80 newly recruit cohorts. On average there are 2

civil servants per cohort and a cohort inherits a total of 28 people in their first job in the first month.[15] The total number of potential work ties is on average 169 for a cohort. This suggests that the number of potential work ties of a cohort are on average 6 times the number of actual work ties.

3 Are promotions meritocratic?

As a simple first step this study tests the heterogeneity of fast-track promotions based on exam and tax performance. Results are shown in Table 3.

In line with the common image of bureaucracies, results show that, in fact, fast-track promotions are not meritocratic. Neither exam nor tax performance differentially predict these promotions. In column (1) of table 3 the promotions of the top and bottom 10% exam performers are not different from the mid 80% and neither are they different from each other. The p-value of an F-test testing the equality of the effect for the top 10% and bottom 10% exam performers is 0.48. In column (2), where fast-track promotions are regressed on tax performance there is no statistically significant differential effect according to tax performance either. This p-value of an F-test testing the equality of the effect for the top 10% and bottom 10% tax performers is 0.10. These results suggest that fast-track promotions are not meritocratic on average. However, underneath this average effect lies heterogeneity according to discretion or promotion power of the work ties. I explore this further in the next subsection.

3.1 Are promotions meritocratic when work ties have discretion?

This subsection explores whether fast-track promotions of junior workers are meritocratic when their first work ties get more power over their promotion decisions. The estimation is a continuous treatment difference-in-difference, with a test for heterogeneous effect of promotion power of work ties according to merit of juniors. In the estimation, across time, I compare promotions of high merit juniors to low merit juniors, in cohorts that experienced more of a change in the promotion power of their work ties to those that experienced less or no change. The OLS estimation is as follows.

$$y_{ict} = \kappa_c + \kappa_t + \gamma Exam\ Top\ 10_{ic} + \delta Exam\ Bottom\ 10_{ic} + \pi\overline{Power}_{ict} + \phi\overline{Power}_{ict} * Exam\ Top\ 10_{ic} + \theta\overline{Power}_{ict} * Exam\ Bottom\ 10_{ic} + \mu X_{ict} + \epsilon_{ict} \quad (1)$$

[15] The number of work ties for a cohort are created by summing over all people in the cohort.

y_{ict} is the probability of fast-track promotion of new recruit i, of cohort c, at time t. $\overline{Power}_{ict}$ is the mean promotion power of work ties that junior workers met in the first month of their first job.

Promotion power is measured through seniority, based on official promotions of the work ties. This official promotion is based on their experience, training and subjective performance evaluation. Exam top 10%, bottom 10% are dummy variables that turn on 1 whenever a new recruit i, of cohort c, is in the top (bottom) 10% of their cohort in the recruitment exam. I control for time invariant, cohort specific, heterogeneity using cohort fixed effects κ_c. For example, time-invariant confounders from the first job or the number of first work ties are controlled for using κ_c. Time varying characteristics, that are similar for all cohorts, but vary over time are captured by κ_t. For example, policies of the government on recruitment that affect all cohorts equally, are accounted for by κ_t.

However, that still leaves the question of time varying characteristics of the first job that could co-vary with promotion power of work ties and fast-track promotions of juniors and might systematically vary between different levels of exam performers. To account for any such effects, in all specifications, I control for a time trend of the first job. I also control for official promotions of the new recruit and their experience as that could be correlated with promotion power of work ties and also affect fast-track promotions. Error terms are clustered at the cohort level as that is the level at which first work ties are allocated (Abadie et al. (2017)).

OLS results: Are promotions meritocratic when work ties have discretion?

Column (1)-(2) of table 4 present the OLS results of the effect of promotion power of work ties on fast-track promotions and column (3) presents the effect on official promotions. To help in the interpretation of the interaction effects, demeaned values of the promotion power of work ties are used, after subtracting the average for each junior worker. Table 4, column (1) reports results without any controls, while the rest include cohort and time fixed effects, a time trend of the first job, official promotions of the juniors and their experience. Results in table 4, column (1) show that promotion power of work ties is on average positively associated with probability of fast-track promotion of junior workers. A one rank above average increase in the promotion power of work ties results in a 9% increase in fast-track promotions of junior bureaucrats. The effect is statistically significant and precisely estimated. This confirms that as the seniority, measured through official promotions of work ties, increases their promotion power over fast-track promotions of juniors increases.

The average effect in column (1) masks heterogeneity of the effect according to merit of the junior workers. Results in column (2) show that promotions of junior workers, through discretion

of first work ties, are in fact meritocratic. Column (2) show that a one rank above average increase in the promotion power of first work ties is associated with 33% higher probability of the top 10% exam performers to be fast-tracked than the mid 80%; while the bottom 10% exam performers are 16% less likely to be fast tracked than the mid 80%. The differential effect for the bottom 10% is nearly statistically significant. At the bottom of the table I report the p-values from an F-test of the equality of the coefficients α and β. The p-value is zero. The effects on the top and the bottom 10% are also economically significant. The total effect of the promotion power of work ties on fast-track promotions of top 10% and bottom 10% junior workers is nearly the same as the mean of fast-track promotions.

Table 4, column (3) tests the effect of seniority of work ties on non-discretionary, official promotions. For every one rank above average increase in the promotion power of the first work ties the top 10% exam performers have a 1% higher probability of being officially promoted than the mid 80%. However, the effect on the mid 80% and the bottom 10% is a precisely estimated zero. The promotions that are based on rigid rules are in fact not affected by discretion of work ties which is consistent with the fact that rules of promotion are in fact followed.

Identifying variation: Promotion power of potential work ties

Despite controls and fixed effects, there are still two main challenges to a causal effect from the previous OLS estimation. First, workers (both senior & junior) select into who they work with. Second, promotion power of work ties depends on subjective performance evaluation of the first work ties and that could be correlated with unobservables of the junior workers. Therefore, it is hard to argue that the effects from table 4 are causal. Basing this study in the context of Punjab, Pakistan helps overcome both challenges.

To overcome the first challenge, this study exploits initial allocation rules of the government. Initial allocation rules state that new recruits can only be allocated their first job in a district department where there is a vacancy or where the incumbent AC has worked at least a year.[16] This provides a set of potential work ties that each cohort of new recruits could have been allocated in the first month of their first job. The set of potential work ties are the people in district departments with potential open positions at the time of first job of new recruits. What further aids a causal identification is that end of on-the-job training of the PAS new recruits is centrally decided. On average, the new recruits cannot choose the timing of the start of their entry-level job and hence cannot select into a set of potential work ties.

Departments with vacancies have people of varying promotion power working in them.

[16] cf.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 6 shows this cross-sectional variation in promotion power of potential work ties. The mean cross-sectional variation in promotion power of ties, represented by the red dotted line, is 2.1. Figure 7 shows the cross-sectional correlation between promotion power of actual and potential work ties for all the cohorts in the data. The axis are in units of ranks. We can see that in the cross-section the two measures of promotion power are positively correlated.

To observe district departments that had places available for cohorts of new recruits, this study digitized data from incumbency boards from Assistant Commissioner (AC) offices throughout Punjab (figure A6 shows an example of an incumbency board). Each incumbency board has the name of the civil servant and the dates when he or she held the job. From these it is possible to quantify the tenure of nearly all the Assistant Commissioner (AC) offices in the Punjab. The incumbency boards also allowed to quantify the dates when the position was vacant. I combine this information with the date of end of training of new recruits, observed through the personnel records of civil servants. This allows me to build adjacency matrices and know the potential work ties of newly recruited cohorts of PAS civil servants.

Incumbency boards are a tradition from colonial times. It is a status symbol for the civil servant and every new civil servant takes pride in ensuring his/her name is up on the board with the dates of their tenure. Therefore, the data is reliable. Figure 5 provides a snapshot of potential departmental vacancies for the 80 cohorts in my sample. The 36 district departments are the rows, while columns are all the cohorts. A green box represents a district department that had a position available for a new recruit. While red represents that it is not available for new recruits.

The second challenge to a causal identification stemmed from the fact that promotion power, as defined by official seniority of the work ties, depended on subjective performance evaluation of the work tie by his or her immediate bosses. To overcome this challenge the government's minimum length of service rules for promotion are used. This helps create a rule-based measure of seniority of the set of potential first work ties. The minimum length of service rule stipulates how the experience of a civil servant can translate into their promotion i.e. civil servants are eligible for one promotion after every 5, 12, 17 and 22 years of entry.[17] The career of a civil servant, according to this rule, is like a step function, shown in figure 8.

Combining both the initial allocation and the minimum length of service rules, this study is able to classify a cohort-month level variable: promotion power of potential first work ties of new recruits. It is defined, in each time period, as the average, rule-based seniority of potential work ties that the cohorts of new recruits could have worked with in the first month of their first job. Promotion power of potential work ties, measured in ranks of seniority, ranges from

[17]Establishment Division's O.M.No.1/9/80-R.2 dated 2-6-1983

0-4 as those are the ranks on which the minimum length of service rules for promotion apply.

Figure 9 shows the time variation in mean promotion power of potential work ties, across years, for a sample of three cohorts from the 1980s, 90s and 2000s. The figure shows that promotion power of ties doesn't just go up but it can come down as well. This can be the case when, for instance, work ties retire. Table 1 presents descriptive statistics of the variable. The mean promotion power as measured in ranks of seniority is 1.94, which suggests that potential work ties are more senior and have more power to promote juniors on average than the actual first work ties of new recruits.

Discussion on identifying assumptions. The analysis rests on the assumption that vacancies and tenures of incumbents are not systematically decided based on unobservables of newly recruited cohorts. For instance, if a star cohort is about to finish training, it is possible that the chief executive or the senior civil servants vacate a specific district department to make way for the new recruits in that cohort. This would violate the identifying assumption. I test for this. Table B1, B2 show that there is no correlation between date of end of training and vacancies. It remains the case whether I define vacancies in large districts and whether I define the end of training as the day that training ends or as the month that training ends. This still leaves the concern that the quality of the potential places might be systematically different for different cohorts. Therefore, characteristics of the potential job match could be arguably correlated with promotion power of potential work ties and fast-track promotions. Table B3 shows that vacancies are not systematically created in a subset of district departments and vacancies and tenure are not predicted by time-varying district characteristics. While it is hard to think of any first job specific characteristics that could be correlated with rule-based promotion power of potential work ties, in nearly all specifications I control for time trend of the first job.

Reduced form: Are promotions meritocratic when work ties have discretion?

Table 5 presents results from a pooled difference-in-difference. For exposition, just for these results, promotion power of potential work ties is classified as two dummies. Above (below) average promotion power of potential work ties is a dummy that turns on 1 whenever the promotion power of the potential first work ties is above (below) average for a year. The cells contain the probability of fast-track promotions of junior workers, conditional on being in a particular group. P-values are in parenthesis. This table uses pooled data and can, therefore, highlight the overall net effect of allowing discretion to work ties, across all cohorts. This brings us closer to understanding the aggregate effects of discretion.

First, for all exam ranks, promotion power as measured in ranks of seniority matters for their fast-track promotions. The top 10% exam performers have a 50% higher chance of being

fast-tracked when their work ties have above average promotion power. This effect is 10% and 5% for the mid 80% and bottom 10% exam performers respectively. Overall, in contrast to table 3 and in line with the OLS results in table 4, results in table 5 suggest that on net, discretionary promotions are meritocratic. Those new recruits who are top 10% exam performers and who have potential work ties with more discretion, have 74% probability of being fast-tracked. This effect reduces for the mid 80% by 38%. There is little or no difference in the probability of fast track promotions of top 10% and mid 80% new recruits when their first work ties don't enjoy as much discretion and have below average promotion power. This results in an overall difference-in-difference of 40%. Results are consistent with the idea that while overall fast-track promotions are not meritocratic, it is in fact discretion over promotions that result in meritocracy.

Table 6 presents results from the same difference-in-difference but for the bottom 10% exam performers instead of the top 10%. While the average difference-in-difference is negative it is not statistically significantly different from zero. Those bottom 10% exam performers, with work ties with above average promotion power, have a 19% probability of fast-track promotions. This probability is 17% lower than the mid 80% exam performers. If we consider those whose potential first work ties have below average promotion power, then the difference is 12% lower for bottom 10% than the mid 80%. This results in a negative overall difference-in-difference of 5%.

Next, instead of pooling the data, I implement a reduced form estimation with cohort and time fixed effects. In this estimation, across time, I compare cohorts that experienced more of a change in promotion power of their potential work ties to those that experienced less or no change and test for heterogeneity of the effect based on exam ranking of the new recruits. The reduced form estimation is as follows:

$$y_{ict} = \kappa_c + \kappa_t + \gamma Exam\ Top\ 10_{ic} + \delta Exam\ Bottom\ 10_{ic} + \pi \overline{Power}^{p}_{ct} + \phi \overline{Power}^{p}_{ct} * Exam\ Top\ 10_{ic} + \theta \overline{Power}^{p}_{ct} * Exam\ Bottom\ 10_{ic} + \mu X_{ict} + \epsilon_{ict} \quad (2)$$

where all the variables are the same as in equation 1, except $\overline{Power}^{p}_{ct}$, which is the promotion power, over time, of potential work ties of the new recruits.

Table 8 columns (7)-(8) report the reduced form results. Column (1)-(3) report the OLS results for comparison. Conditional on the exclusion and monotonicity assumptions, I also present the IV results in columns (4)-(6). Table 7 reports the first stage estimates from the IV. Table 8, columns (3), (6) and (9) study official promotions while the rest investigate fast-track

promotions. Columns (1), (4) and (7) report results without controls while all the other results include controls and cohort and time fixed effects.

There are two main takeaways from these set of results. First, like the pooled difference-in-difference results, discretionary promotions are in fact meritocratic. When promotion power of potential work ties rises, top 10% exam performers are more likely to be fast-tracked than the mid 80% while bottom 10% exam performers are relatively less likely to be promoted. Moreover another surprising aspect is that the effect materializes for discretionary promotions only. Those promotions that are based on rules of experience, training and subjective performance evaluation and not on discretion, are not affected by the discretion of the first set of work ties of junior workers.

The reduced form and the IV effects are similar to the OLS estimates. The average effects of promotion power of potential work ties on fast track promotions is positive. It is very precisely estimated in the OLS, IV and reduced form estimates in column (1), (4) and (7) respectively. This confirms that promotion power of work ties, as measured through their seniority in the organization, predicts fast-track promotion of junior workers. However, the average effect masks considerable heterogeneity according to merit of the junior workers. Column (8) shows that with a one rank above average increase in the promotion power of the potential work ties, the top 10% exam performers are 30% more likely to be fast-tracked than the mid 80%. On the other hand, the bottom 10% exam performer is 18% less likely to be fast tracked than the mid 80%. The differential effect for the bottom 10% is marginally statistically significant, but not very precisely estimated. The F-test of the equality of the coefficients α and β has a p-value of 0. The differential effect for the top 10% (bottom 10%) exam performers is the same (two-thirds) as that of the mean of fast-track promotions, suggesting that the effects are not just statistically but also economically significant.

The IV estimates in column (5) are a little bigger than the reduced form estimates in column (8). A one rank above average increase in the promotion power of first work ties leads to a 36% higher probability for the top 10% exam performers to be fast-tracked than the mid 80%. The differential effect for the bottom 10% exam performers is a negative 20%. The effect is nearly statistically significant. The OLS estimates of the effect are a little larger than both the reduced form and IV estimates, suggesting that there is positive selection on promotion power of first work ties.

First stage results in table 7 suggest that there is no differential effect of promotion power of potential work ties on promotion power of actual work ties at the first job. I report the Angrist-Pischke (2008) F-statistic at the bottom of the table.[18] The F-statistic provides some

[18]For a single regressor AP F-statistic and Kleibergen-Paap Wald F-test are the same. However, I report AP

evidence that promotion power of potential work ties is relevant in predicting promotion power of actual work ties.

Figure 10 plots the predicted probability of fast-track promotions from the reduced form model in column (8) of table 8. On the y-axis is the effect on probability of fast-track promotions and on the x-axis is promotion power of potential work ties which is measured in ranks of seniority. Each dot is the predicted probability from the model in column (8) of table 8 and the bars are 90% confidence intervals. Promotion power measured in ranks of seniority ranges from 0-4 so that 0 seniority would mean someone who is just recruited and hasn't been promoted even once, while a seniority of 4 suggests the potential work ties has a very high rank in the organization. Pictorially, figure 10 presents the same idea. Fast-track promotions, through increases in discretion of first work ties, are meritocratic.

There is no effect of promotion power of work ties on the probability of being officially promoted both in the reduced form and IV. In fact, all the effects are a precisely estimated zero. Figure 11 plots the predicted probability of official promotions from the reduced form model in column (9) of table 8 and shows that there is no effect of promotion power of potential work ties on the probability of official promotions.

Results in this section suggest that promotions are meritocratic when work ties enjoy discretion over promotions. This begs the question of why we see meritocracy of discretionary promotions. The next section takes up this line of inquiry and suggests one potential mechanism for why discretion can result in meritocratic promotions, i.e. self interest of the person exercising discretion.

4 Why are discretionary promotions meritocratic?

This section investigates one potential reason for why promotions are meritocratic. Holmstrom (1978), Holmstrom et al. (1982) argue that individuals are given more discretion in decision making when their preferences are aligned with those of the principal. Prendergast & Topel (1993) and Prendergast & Topel (1996) provide conditions under which discretion can result in the use of local information rather than a worsening of the information environment.

> Favoritism is accentuated when the supervisor is not responsible for the performance of the subordinate. A means of aligning the supervisor's incentives with those of the organization is to tie rewards to promotion and to make the supervisor responsible for the output of the job to which his subordinates are promoted...the firm can reduce

F-statistic since it tests whether even one of the endogenous regressors is under or weakly identified and offers more transparency.

favoritism by requiring that supervisors maintain responsibility for their promoted subordinates. (Prendergast & Topel (1993) p.360)

This study tests for whether work ties promote meritocratically in self interest. More precisely, whether they promote meritocratically because work ties don't just have discretion in promotions of junior workers, but because they have additional discretion over choice of team members. Since the type of people promoted in the work tie's team has a direct affect on their own performance, the chances that a bottom (top) performer is pulled into the work tie's team and promoted are low (high).[19]

A complementary reason behind meritocracy is also investigated. If with promotion power of the potential first work ties, only high exam performing new recruits move across other teams and get fast-track promotions there, then that is consistent with the idea that: first, there are referrals; and second, reputation of the referrer matters. The outcome of interest is an interaction of two dummy variables:

$$Pr(working\ in\ work\ tie's\ team\ (T))\ X\ Pr(fast-track\ promotion\ (P))$$

This results in the following four sub-categories of outcomes:

- j=1 $\implies$ not in work tie's team (T=0) & not fast-tracked (P=0); which I classify as the base outcome
- j=2 $\implies$ in work tie's team (T=1) & not fast-tracked (P=0)
- j=3 $\implies$ not in work tie's team (T=0) & fast-tracked (P=1)
- j=4 $\implies$ in work tie's team (T=1) & is fast-tracked (P=1)

A multinomial logit estimation is implemented to understand the relative probabilities of the effect of promotion power of work ties on these outcomes.[20] The outcomes that will be of interest are: j=3, i.e. when the first work ties become senior, in the long run, and have promotion power do we see the junior workers moving across other teams and getting fast tracked there; and j=4, i.e. when the first work ties become senior, in the long run, and have promotion power do we see the junior workers being pulled to start work in the team of the first work tie and get fast

[19] This analysis rests on the premise that senior work ties care about their own performance. In a way this tests also sheds light on how this particular Pakistani bureaucracy works i.e. whether senior work ties care about their performance.

[20] While I also implement a simple linear regression with this interaction as an outcome (see appendix tables B6 and B7 for details) it does not allow me to exploit the richness of the data. Particularly j=3 will be missed in a simple linear regression. Moreover, with a multinomial logit I will have a clear base category rather than the linear case where the base is an amalgam of 3 categories (j=1-3).

tracked there. While j=3 sheds light on referrals and reputation concerns on referrals, j=4 sheds light on self interest of the first work tie as a mechanism for meritocracy.

The estimation of interest is as follows:

$$Pr(w_{ict} = j|z = \alpha_c, \alpha_t, \overline{Power}_{ict}, \overline{Power}_{ict} * ExamTop/Bottom10_i, X_{ict}) = \frac{exp(z`\gamma_j)}{1 + \sum_{l=1}^{J} exp(z`\gamma_l)} \tag{3}$$

$\overline{Power}_{ict}$ is the mean promotion power of first work ties of the junior workers i, in cohort c, month t. Exam top 10%, bottom 10% are dummy variables that turn on 1 whenever a new recruit i, of cohort c, is in the top (bottom) 10% of their cohort in the recruitment exam. In all specification I control for cohort and time fixed effects, a time trend of the first job, seniority of the junior workers, their experience and a dummy for whether the job is in the district department or the secretariat.

I exploit exogenous variation in promotion power of first work ties through changes in promotion power of potential work ties and estimate the following reduced form:

$$Pr(w_{ict} = j|z = \theta_c, \theta_t, \overline{Power}^{p}_{ct}, \overline{Power}^{p}_{ct} * ExamTop/Bottom10_i, X_{ict}) = \frac{exp(z`\gamma_j)}{1 + \sum_{l=1}^{J} exp(z`\gamma_l)} \tag{4}$$

where all the variables are the same except $\overline{Power}^{p}_{ct}$, which is the promotion power of potential work ties of new recruits. Error terms are clustered at the cohort level as that is the level at which potential work ties are allocated (Abadie et al. (2017)).

Figure 12 presents descriptive evidence on the long-run probability of the junior workers working in the team of their first work ties, split by exam performance. Data suggests that in the long-run, the top 10% have a 56% probability of working in the team of their first work ties. A probability of 56% translates into approximately 7 years, out of a total of 12 years of their career, spent working in the team of the people that new recruits met in their first job. The percentage is lower for the mid 80% exam performers and the bottom 10%.

Figure 13 presents descriptive evidence by exam performance, on the average time that the junior workers are fast-tracked in the team of the first work ties. If we take an average top 10% exam performer, data suggests that they will spend 21% of their career fast tracked in the team of the work ties they first met on their first job. The percentage is 16% for the mid 80% and 9% for the bottom 10% exam performers.

Figure 14 presents similar evidence but according to the share of people that are ever fast-tracked rather than the time spent fast-tracked. The share of people ever fast-tracked are split into two categories i.e. overall and in the team of the first work ties of junior workers. It is a dummy that turns on 1 if a junior worker has ever been fast-tracked in their entire long-run career, after the first job. This will be an over-estimate for how many fast-track promotions there are in the system, since it turns on 1 even if a worker has been fast-tracked in one out of 12 years of their average long run career. Figure 14 shows that 81% people of the top 10% exam performer are ever fast tracked, while 77% and 61% of the mid 80% and bottom 10% exam performers are ever fast-tracked in their careers. When I restrict attention to the share of people fast tracked in the team of the first work ties, the average is 50%, 42% and 25% for the top 10%, mid 80% and bottom 10% exam performers respectively. Although these are not marginal effect of promotion power of potential work ties, these still suggest that: first, fast track promotions in the team of the work ties are meritocratic; and second, a large (small) share of the overall fast-track promotions take place in the long run in the first work tie's team for the top 10% (bottom 10%) exam performers.

Figure 15 presents estimates from the implementation of equation 4 as a linear model (detailed estimates are reported in table B7). It plots the long-run predicted probability of starting work in first work tie's team and being fast-tracked there. This is from the reduced form model in table B7, column (6). On the x-axis is promotion power of potential work ties which is measured in ranks of seniority. Each dot is the predicted probability for the different exam performers and the bars are 90% confidence intervals. In the linear model, I find that in the long run, with an above average increase in promotion power of first potential work ties, the top 10% exam performers differentially move into the team of their work tie and get fast-tracked there. The effect for the bottom 10% is negative but not statistically significant. The OLS and IV estimates in column (2) and (4) respectively in table B7 are similar but the OLS differential effect for the top 10% exam performers is not as precisely estimated. Below results from the multinomial model in equation 3 and 4 are presented. These have a well defined reference category and can help exploit the richness of the data.

Results: Why are discretionary promotions meritocratic?

Table 9 and 10 present the main multinomial results on why discretionary promotions are meritocratic. The base category in the analysis is the long run probability of not being in the team of the first work tie and not being fast tracked. The first three columns of table 9 report results for a simple multinomial logit without accounting for any potential endogeneity of $\overline{Power}_{ict}$. While columns (4)-(6) report multinomial IV results using a control function

approach. This was implemented following standard techniques suggested by Petrin & Train (2010) and Imbens & Wooldridge (2007). Table 10 presents the reduced form results. Score bootstrap p-values, as suggested by Kline & Santos (2012) and implemented through Roodman (2018)'s program in Stata, are reported in parenthesis. The coefficients reported are probabilities relative to the base category. The column titles 2, 3 and 4 refer to the different outcomes (j=2, 3 and 4) from equations 3 and 4. Columns (2) and (5) in table 9 and column (2) in table 10, shed light on whether there are referrals and whether reputation matters on referrals; while columns (3) and (6) in table 9 and column (3) in table 10 investigate whether work ties promote meritocratically in their self interest, i.e. they have discretion in the choice of their teams and fast-track promotions there.

Table 9, column (3) shows that a one rank above average increase in the promotion power of work ties is associated with nearly 2 times higher probability, relative to the base category, for the top 10% exam performers, relative to the mid 80%, to start working in the work ties team and be fast tracked there. The effect is statistically significant and precisely estimated. However, this differential effect is two times larger and more precisely estimated using a control function approach, that accounts for endogeneity of promotion power of work ties. In column (6) of table 9, the effect for the bottom 10% exam performers is of the same magnitude as the top 10% but negative. A one rank above increase in the promotion power of work ties leads to nearly 4 times lower probability, relative to the base category, for the bottom 10% exam performers, relative to the mid 80%, to start working in the work ties team and be fast tracked there. An F-test, at the bottom of the table, testing for equality of the differential effects for the top and the bottom 10% has a p-value of 0. This large negative effect for the bottom 10% is similar in reduced form results in column (3) of table 10.

Overall, with increases in promotion power of work ties, the bottom 10% exam performers have a lower probability of being pulled into the work tie's team and being fast-tracked than the top 10%. This is consistent with self-interest of the work ties being a mechanism for why we see meritocratic promotions. Pulling a low ability worker will negatively impact the work tie's own performance and so the probability that a low performer will be pulled into the work tie's team and promoted is lower. This goes in the opposite direction for the top 10% exam performers.

Results show that there is also a complementary effect that operates through reputation concerns on referrals by work ties. However, it is not as strong as the effect for the work tie's own team. In column (5) of table 9, results show that a one rank above average increase in the promotion power of work ties is associated with nearly 2 times higher probability, relative to the base category, for the top 10% exam performers, relative to the mid 80%, to start working

in teams of others and be fast tracked there. This effect is half of the effect that we find for the work tie's own team. At the bottom of the table, an F-test of the equality of the two relative effects for the two types of teams rejects equality of effects both in table 9 and 10.

In column (5) of table 9, results show that a one rank above average increase in the promotion power of first work ties leads to nearly 1 time lower probability, relative to the base category, for the bottom 10% exam performers, relative to the mid 80%, to start working in other teams and be fast tracked there. This effect is only one-fourth of the effect for the work tie's own team and it is not statistically significant. This holds across results in column (2) of table 9 as well as the reduced form results in column (2) of table 10. Results suggest that as first work ties get more power over promotion of juniors, there are referrals in other teams and given their meritocratic nature, reputation concerns do matter on referrals. However, compared to the effects in the work tie's own team, these do not appear to be of first order importance.

Taken together, these results are in line with what Prendergast & Topel (1993) argue. Since a bottom performer in the team can negatively impact the work tie's own performance, therefore, as the first work ties get more discretion, they ensure that a bottom 10% performer does not start work in their team or get fast-tracked there. This is the reverse for top 10% exam performers. Both the effects are more pronounced when it comes to the work tie's own team than other teams. Results suggest that self interest plays a key role in determining meritocracy of promotions on discretion. If institutions are such that the incentives of the person exercising discretion are aligned with that of the organization, discretion can help improve the information environment of the organization.

5 Do work ties use their private information meritocratically?

The analysis in the previous sections tested for meritocracy of discretionary promotions using observable measures of merit. However, the true value of allowing discretion to the work ties to promote is to allow them to use their private information on the junior workers in promotion decisions. Testing for this can allow an insight into the true cost of imposing rigid rules that take away subjectivity.

Figure 16 shows the probability of a civil servant being a top 10% tax collector, by exam performance. The figure shows that being a good exam performer differentially predicts better tax collection, however, the correlation is not one-for-one. A top 10% exam performer has a 23% probability of being a top 10% tax collector. The probability for the mid 80% and bottom 10% exam performers is 19% and 12% respectively. This suggests that exam performance does not perfectly predict performance on the job. Therefore, using first work ties to exercise their

discretion can be valuable and help in generating information for the system that is not captured by observables like exam ranking.

Figure 17 shows the probability of fast-track promotion for the top 10% exam performers according to their tax performance and the promotion power of their work ties. Figure 18 shows the same but for the bottom 10% exam performers. It can be seen in figure 17 that as the promotion power of work ties increases, the top 10% tax collectors have a much higher probability of being fast-tracked than if their ties had below average power to promote. This is the opposite for the bottom 90% tax collectors. On the other hand, in figure 18 as the promotion power of work ties goes up, those bottom 10% exam performers that are top 10% tax collectors have a 16% higher probability of being fast-tracked than the bottom 90% tax collectors. This reverses when the promotion power of ties is below average.

Before I proceed to the estimation and results, some institutional features are worth mentioning. First, in this setting while higher seniority would mean higher promotion power, work ties never enjoy complete discretion on promotion decisions of juniors. Fast-track promotion decisions are made by more than one senior civil servants, under the final authority of the chief executive of the province. While the rest of the decision makers only observe the personnel records of the junior workers and their exam ranking, it is just the first work ties that also observe tax performance of junior workers in addition. Therefore, the use of this private information by the senior work ties is not cost-less. Any effects we observe operate in a constrained environment and can be thought of as the lower bound on the true effects of allowing complete discretion.

In what follows a test is implemented for whether the two kinds of performance measures are complements with the promotion power of work ties, in promotions of junior workers. More specifically, the study investigates whether junior workers with the same observable levels of exam performance, have a different long run career trajectory depending on the private information of the first work ties. The following OLS triple interaction specification is implemented:

$$\begin{aligned} y_{ict} = \tau_c + \tau_t + \phi X_{ict} + \chi Exam\ Top\ 10_{ic} + \kappa Exam\ Mid\ 80_{ic} + \delta \overline{Tax}_{ic} + \theta \overline{Power}_{ict} + \mu \overline{Power}_{ict} * \overline{Tax}_{ic} \\ + \beta \overline{Power}_{ict} * Exam\ Top\ 10_{ic} + \alpha \overline{Power}_{ict} * Exam\ Top\ 10_{ic} * \overline{Tax}_{ic} \\ + \gamma \overline{Power}_{ict} * Exam\ Mid\ 80_{ic} + \pi \overline{Power}_{ict} * Exam\ Mid\ 80_{ic} * \overline{Tax}_{ic} + u_{ict} \quad (5) \end{aligned}$$

where y_{ict} is the probability of fast-track promotion of new recruit i, of cohort c, at time t. $\overline{Power}_{ict}$ is the promotion power of work ties. It is measured as the average, long-run, seniority based on official promotions of work ties of the junior workers. Exam top (bottom) 10% is a

dummy that turn on 1 whenever a new recruit i, of cohort c, is in the top (bottom) 10% of their cohort in the recruitment exam. Mid 80% is defined similarly for those that are in the mid 80% of their cohort in the recruitment exam. $\overline{Tax}_{ic}$ is a dummy that turns on 1 whenever the new recruit i, of cohort c, is in the top 10% of their cohort in tax collection. I show results for other classifications of top tax collectors as 20%, 30%, 40% and 50%. In all specifications, cohort and time fixed effects as well as a time trend of the first job, experience and official seniority of the junior workers are included as controls. I use promotion power of potential work ties ($\overline{Power}^{p}_{ct}$) to induce a source of exogenous variation in promotion power of work ties ($\overline{Power}_{ict}$).

This study is interested in testing whether $\theta \neq \mu$, $\beta \neq \alpha$ and whether $\gamma \neq \pi$. If we find that $\theta < \mu$, $\gamma < \pi$ and $\beta < \alpha$ for the bottom 10%, mid 80% and top 10% exam performers respectively, then that would suggest that in the long run, over and above observable measures of merit, first work ties use their private information meritocratically and improve the information environment of the organization.

Results: Do work ties use their private information meritocratically?

Tables 11 presents the OLS results, while table 12 and 14 show the reduced form and IV results respectively. The first stage from the IV is in table 13. Columns (1)-(5) use different definitions of $\overline{Tax}$. In column (1), in all tables, I report results defining $\overline{Tax} = top10\%$ tax collectors in their cohort. This definition of $\overline{Tax}$ is replaced with top 20, top 30, top 40 and top 50% tax collectors as we move across columns respectively. The omitted category is bottom 10% exam and bottom 90%, 80%, 70%, 60% and 50% tax performers respectively across columns (1)-(5).

Results in all tables suggest that work ties use their private information meritocratically. The first work ties use their private information to differentiate between new recruits with the same observable measures of merit. The career trajectory of those top 10% exam performers who perform very high on tax collection is not the same as the career trajectory of those that don't perform so well. This effect is meritocratic and $\beta < \alpha$. In table 11 column (1), OLS results show that a one rank above average increase in the promotion power of the first work ties is associated with a 70% higher probability of the top 10% exam and tax performers to be fast-tracked than the base category. While this probability is 48% for those top 10% exam performers that are not top tax collectors. Both effects are precisely estimated and highly statistically significant. The effects are also economically significant. It is two times the mean for the very star performers, while for those top 10% exam performers that don't perform so well in tax collection, it is nearly the same as the mean of fast-track promotions. For top 10% exam performers, the difference in the differential effect when they collect high taxes to when they don't perform so well, is 70%-48%=22%. This is nearly two-thirds the mean effect. The

reduced form and IV results, in column (1) table 12 and 14 respectively, are very similar except that coefficients are larger. I report p-values from an f-test that tests whether $\alpha = \beta$ and I can reject that the coefficients are equal in all specifications. The p-value in the OLS is 0.12 suggesting that the effects are nearly statistically different from each other.

Results are similar when we focus on bottom 10% exam performers. Those bottom 10% exam performers that are top 10% tax collectors have a better career trajectory than low performers on both dimensions. Those bottom 10% exam performers who are top 10% tax collectors are fast-tracked at nearly the same level as the mid 80% exam performers. However, those bottom 10% exam performers that are not top 10% tax collectors have a negative probability of being fast tracked. In all the results in table 11, 14 and 12, the p-value of the F-test for $\mu = \theta$ is nearly zero. This effect is meritocratic and $\theta < \mu$.

There appears to be no effect of the private information of the first work ties for the mid 80% exam performers. The p-value of the F-test for $\gamma = \pi$, reported at the bottom of the table, is 0.31 in the OLS. This is similar in the reduced form and IV.

One way to think about why private information of the first work ties only plays a role to differentiate junior workers at the top and the bottom of the exam performance distribution is to go back to the institutional environment in which these work ties are exercising their discretion. Work ties don't enjoy complete discretion over promotions and the use of private information in this setting is not cost-less. Coupled with the fact that there are in general only a few positions open for promotions, this private information is used to differentiate within the top 10% exam performers only, while at the same time keeping from promoting those that are bottom performers in both dimensions. Results can be thought of as a lower bound for when there is complete discretion allowed to work ties over promotion decisions.

If we consider different definitions of $\overline{Tax}$, we can see that for top 10% exam performers the effect is most prominent when we define $\overline{Tax}$ as top 10% and top 20%. In tables 14 and 12, as we define $\overline{Tax}$ as top 30, 40 and 50%, results are in the same direction, however, an F-test of $\alpha = \beta$ for top 10% exam performers fails to reject equality. It is consistent with the fact that there are in general only a few positions available for promotions. Only the highest tax performers get noticed and get treated differently from the rest. What is more significant is that the bottom 10% are only given a chance if they collect top 10% taxes. If they are in the top 20% of tax collectors, bottom 10% exam performers are not fast-tracked differentially better than those who are bottom in both dimensions. This holds if we define $\overline{Tax}$ as top 30, 40 and 50%. This again is suggestive of the fact that the use of private information is costly in this setting. Convincing others about the star quality of someone with poor observable performance, is worthwhile if the person is a true gem. However, if they don't outshine it might

not be worthwhile for the senior work ties to expend their energy in fast-tracking them.

Figure 19 plots predicted probabilities with the 90% confidence interval from reduced form results in column (1) of table 12. Predicted probabilities for both top 10% exam and tax collectors (red line) as well as those that are top 10% exam performers but bottom 90% tax collectors (blue dotted line) are plotted. The x axis is promotion power of potential work ties measured in ranks from 0-4, where 0 is the lowest rank and 4 is the senior rank. The omitted category is the bottom 10% exam performers with a bottom 90% tax performance. Figure 19 presents what we already saw in table 12. Top 10% exam performers that are not top 10% tax collectors do not enjoy as high a probability of fast-track promotions as the star performer on both dimensions. The effects are large and statistically significantly different from each other.

Figure 20 shows a similar relation but for the bottom 10% exam performers. This figure shows that senior work ties exercise their discretion to meritocratically promote those bottom 10% exam performers that are top 10% tax collectors. The probability of fast-track promotions of a bottom 10% exam and top 10% tax collector is relatively higher than those that are bottom in both dimensions.

Taken together these results suggest that the first work ties do use their private information meritocratically. Having a higher tax collection is rewarded on top of high exam performance that is observable. However, what is more significant is that the work ties use their private information to fast-track hidden gems in the system, i.e. those juniors who have poor observables but very high tax collection. These results are consistent with the idea that work ties help improve the information environment in the organization and that there is value added from allowing discretion to work ties over promotions of juniors.[21]

6 Conclusion

> "strong institutions, and the closely related issue of efficient political administration, are essential to effective development. Well executed policies that are slightly misguided are much more effective than absolutely correct but poorly executed ones." (Larry Summers in Besley & Zagha (2005) p.7)

State institutions and the bureaucrats that execute policy are increasingly seen as a key determinant of economic development (Besley & Persson (2009); Besley & Persson (2010)).

[21] In line with the fact that the effect does not materialize for most of the exam distribution, we should not expect the tax performance to matter on its own. Appendix tables B9 and B8 show that that is the case. While above average promotion power of work ties coupled with high exam performance continues to be a predictor of fast-track promotions, the heterogeneous effect of above average promotion power of work ties according to tax performance does not. These average effects, however, mask the heterogeneity of effect which has been discussed before.

By studying the promotions of civil servants that design and implement policy for 110 million people, this paper contributes to the rapidly expanding literature on organization economics of the state.[22]

This study speaks to the debates on rules vs. discretion in organizations. By investigating whether promotions are meritocratic, based on both public and privately observable measures of merit, it allows a lens into the true cost of rigid rules that take away discretion. This study complements the literature and can potentially explain and bring together conflicting results on the effect of discretion in organizations. The results in this paper highlight that maybe what needs to be investigated is the self interest of the person exercising discretion and whether that is aligned with the organization's. If that is the case then fears of collusion and corruption that keep organizations from using discretion might be over blown.

While the effects of allowing discretion might not have a universal answer, the results in the paper highlight that we can design specific organizational systems that make discretion work to improve the information environment of the organization. For instance, one way would be to allow work ties discretion in not just promotions but also discretion in the choice of their teams. This could result in the work ties exercising discretion meritocratically in their own self interest. What the unique setting of the paper allows us to learn is more general than just public sector bureaucracies. There is decentralized information relevant for personnel management decisions in most organizations, both public and private. Allowing discretion of promotions and teams to work ties of junior workers can also help private organizations use local information and select the best performers.

Further work would need to investigate whether junior workers promoted through discretion of work ties perform better after being promoted. Various interpretations of the Peter Principle suggest that workers who are good in one job are not necessarily good in the job into which they are promoted (Lazear (2004) and Benson et al. (2018)). However, given the amount of time workers spend with each other, it is quite possible that work ties can observe the more permanent component of ability of junior workers. Allowing discretion to such ties could help organizations promote on the basis of this permanent rather than temporary component of ability, potentially avoiding pitfalls of the Peter Principle.

[22] See for example Iyer & Mani (2012); Banerjee et al. (2012); Dal Bó et al. (2013); Callen et al. (2013); Ashraf et al. (2014); Finan et al. (2015); Jia et al. (2015); Callen et al. (2015); Khan et al. (2016); Bertrand et al. (2017); Khan et al. (2018); Xu (2018) and Ashraf et al. (2018)

Tables

Table 1: Descriptive statistics

	Mean	Std Dev	Min	Max	person x month
Promotion power of work ties ($\overline{Power}$)	0.92	0.82	0	5	14113
Promotion power of potential work ties ($\overline{Power}^p$)	1.94	0.80	0	4	14029
Career Progression					
Official promotions	0.01	0.11	0	1	14518
Fast-track promotions	0.27	0.44	0	1	12829
Teams					
Working in team of work ties (second job onward)	0.31	0.46	0	1	12388
Performance					
Tax performance	8.12	13.54	0	100	1495

Note: Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Official promotions are promotions that are based on experience, training and subjective performance evaluation of the bureaucrat by the immediate bosses. It is defined as a dummy that turns on one whenever the bureaucrat is officially promoted to the next rank, zero otherwise. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Working in work tie's team is defined as a dummy that turns on one whenever the juniors are working in the team of their first work ties, after their first interaction at the first job. Tax performance is Agricultural Income Tax (AIT) collected as a percentage of annual tax target set by the Central Revenue Agency (BOR).

Table 2: Descriptive statistics of cohorts

	Mean	Std Dev	Min	Max	Cohorts
Civil servants per cohort	2	2	1	10	80
Actual work ties per cohort	28	39	2	200	80
Potential work ties per cohort	169	59	44	268	80

Note: Cohorts are defined as those civil servants that complete their training together. Actual work ties are those civil servants with whom the newly recruited PAS civil servants worked with in the first month of the first job. Potential work ties are those civil servants with whom the newly recruited PAS bureaucrats could have worked with in the first month of the first job, based on a initial allocation rules of the government. The rule states that new recruits can only be allocated their first jobs where an Assistant Commissioner position is vacant or where the incumbent has worked for at least one year.

Table 3: Are fast-track promotions meritocratic?

	Fast-track promotions	
	(1)	(2)
Exam Top 10% (α)	-0.03	
	(0.04)	
Exam Bottom 10% (β)	-0.07	
	(0.05)	
Tax Top 10% (α)		0.04
		(0.05)
Tax Bottom 10% (β)		-0.06
		(0.05)
Constant	0.28***	0.27***
	(0.02)	(0.04)
Ho: α=β (p-value)	0.48	0.10
Mean	0.27	0.27
person x mon	18447	8222
Cohorts	101	62

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Tax performance is from the first job of a newly recruited civil servant. Tax top (bottom) 10% is a dummy that turns on one when the civil servant is in the top (bottom) 10% of the cohort in tax collection. The omitted category is mid 80% tax collection. The Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Tax (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers.

Table 4: OLS - Are discretionary promotions of juniors meritocratic?

	Fast-track promotions		Official promotions
	(1)	(2)	(3)
$\overline{Power}$	0.09**	-0.10**	0.00
	(0.04)	(0.04)	(0.00)
Exam Top 10%		0.01	-0.00
		(0.03)	(0.00)
Exam Bottom 10%		-0.11	0.00
		(0.07)	(0.00)
$\overline{Power}$ × Exam Top 10% (α)		0.33***	0.01**
		(0.09)	(0.00)
$\overline{Power}$ × Exam Bottom 10% (β)		-0.16	-0.00
		(0.10)	(0.00)
Ho: α=β (p-value)		0.00	0.04
Mean	0.27	0.27	0.01
person x mon	12457	12130	13783
Cohorts	80	78	78

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Official promotions are promotions that are based on experience, training and subjective performance evaluation of the bureaucrat by the immediate bosses. It is defined as a dummy that turns on one whenever the bureaucrat is officially promoted to the next rank, zero otherwise. Promotion power of work ties ($\overline{Power}$) is the promotion power of first work ties. It is measured as the average official seniority, over time, of the set of work ties of newly recruited PAS civil servants that they got in the first month of the first job. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Experience of the new recruit,time trend of the first job, cohort & time FE included in all specifications, except column (1). Official seniority is added as a control in columns (2). All specifications exclude first month of first job.

Table 5: Diff-in-diff: Probability of fast-track promotions of juniors

	Exam performance		Difference
	Top 10%	Mid 80%	
Promotion power of potential work ties			
Above average power	0.74***	0.36***	0.38***
	(0.00)	(0.00)	(0.00)
Below average power	0.24***	0.26***	-0.02
	(0.00)	(0.00)	(0.72)
Difference	0.5***	0.10**	0.40**
	(0.00)	(0.01)	(0.01)

* p<0.1, ** p<0.05, *** p<0.01.

Note: P-value in parenthesis. The unit of observation is a civil servant-month. Each cell is the mean of fast-track promotions. The estimates are from a pooled reduced form of fast-track promotions on promotion power of potential work ties and exam performance. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Above (below) average promotion power is classified as a dummy that turns on 1 whenever promotion power of potential work ties ($\overline{Power}^p$) is above (below) the average promotion power of a given year. It remains zero otherwise. Exam top 10% is a dummy that turns on one for those civil servants that were the top 10% of their cohort in the recruitment exam. Mid 80% exam performers are defined accordingly as a dummy that turns on one for those civil servants that were the mid 80% of their cohort in the recruitment exam. Standard errors are clustered at the cohort level.

Table 6: Diff-in-diff: Probability of fast-track promotions of juniors

	Exam performance		Difference
	Bottom 10%	Mid 80%	
Promotion power of potential work ties			
Above average power	0.19	0.36***	-0.17
	(0.10)	(0.00)	(0.16)
Below average power	0.14***	0.26***	-0.12**
	(0.00)	(0.00)	(0.01)
Difference	0.05	0.10***	-0.05
	(0.73)	(0.00)	(0.70)

* p<0.1, ** p<0.05, *** p<0.01.

Note: P-value in parenthesis. The unit of observation is a civil servant-month. Each cell is the mean of fast-track promotions. The estimates are from a pooled reduced form of fast-track promotions on seniority and exam performance. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Above (below) average promotion power is classified as a dummy that turns on 1 whenever promotion power of potential work ties ($\overline{Power}^p$) is above (below) the average promotion power of a given year. It remains zero otherwise. Exam bottom 10% is a dummy that turns on one for those civil servants that were the bottom 10% of their cohort in the recruitment exam. Mid 80% exam performers are defined accordingly as a dummy that turns on one for those civil servants that were the mid 80% of their cohort in the recruitment exam. Standard errors are clustered at the cohort level.

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Table 7: First stage - Are discretionary promotions of juniors meritocratic?

	Promotion power of work ties ($\overline{power}$)		
	(1)	(2)	(3)
$\overline{Power}^p$	0.78***	0.84***	0.83***
	(0.04)	(0.05)	(0.06)
$\overline{Power}^p$ × Exam Top 10% (α)		-0.04	-0.03
		(0.09)	(0.10)
$\overline{Power}^p$ × Exam Bottom 10% (β)		0.02	0.02
		(0.08)	(0.08)
Exam Top 10%		0.02	0.00
		(0.02)	(0.02)
Exam Bottom 10%		0.02	0.02
		(0.02)	(0.02)
AP F Statistic-I	379	253	240
AP F Statistic-II		74	96
AP F Statistic-III		245	191
person x mon	12457	12130	13781
Cohorts	80	78	78

Note: The unit of observation is a civil servant-month. Column (1) and (2) report the first stage for an IV with fast-track promotions as an outcome, while column (3) considers official promotions as an outcome. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Angrist & Pischke (2009) f-stat is reported for each endogenous variable at the bottom. AP F-statistic-I is for $\overline{Power}$, second f-stat is for $\overline{Power} * ExamTop10\%$ and third is for $\overline{Power} * ExamBottom10\%$ as an endogenous variable. Experience of the new recruit,time trend of the first job, cohort & time FE included in all specifications, except column (1). Official seniority is added as a control in columns (2). All specifications exclude first month of first job.

Table 8: Second stage - Are discretionary promotions of juniors meritocratic?

	OLS			IV			Reduced Form		
	Fast-track promotions		Official promotions	Fast-track promotions		Official promotions	Fast-track promotions		Official promotions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\overline{Power}$	0.09**	-0.10**	0.00	0.17***	-0.18***	-0.00			
	(0.04)	(0.04)	(0.00)	(0.05)	(0.05)	(0.00)			
Exam Top 10%		0.01	-0.00		0.01	-0.00		0.02	-0.00
		(0.03)	(0.00)		(0.03)	(0.00)		(0.03)	(0.00)
Exam Bot 10%		-0.11	0.00		-0.11*	0.00		-0.12*	0.00
		(0.07)	(0.00)		(0.06)	(0.00)		(0.06)	(0.00)
$\overline{Power}$ × Exam Top 10% (α)		0.33***	0.01**		0.36***	0.00			
		(0.09)	(0.00)		(0.09)	(0.01)			
$\overline{Power}$ × Exam Bot 10% (β)		-0.16	-0.00		-0.20	-0.00			
		(0.10)	(0.00)		(0.12)	(0.00)			
$\overline{Power}^p$							0.13***	-0.16***	-0.01
							(0.04)	(0.04)	(0.00)
$\overline{Power}^p$ × Exam Top 10% (α)								0.30***	0.00
								(0.08)	(0.01)
$\overline{Power}^p$ × Exam Bot 10% (β)								-0.18*	-0.00
								(0.10)	(0.00)
Ho: α=β (p-value)		0.00	0.04		0.00	0.35		0.00	0.27
Mean	0.27	0.27	0.01	0.27	0.27	0.01	0.27	0.27	0.01
person x mon	12457	12130	13783	12457	12130	13781	12542	12215	13872
Cohorts	80	78	78	80	78	78	80	78	78

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.[h!]

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Official promotions are promotions that are based on experience, training and subjective performance evaluation of the bureaucrat by the immediate bosses. It is defined as a dummy that turns on one whenever the bureaucrat is officially promoted to the next rank, zero otherwise. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Experience of the new recruit,time trend of the first job, cohort & time FE included in all specifications, except column (1), (4) and (7). Official seniority is added as a control in columns (2), (5) and (8). All specifications exclude first month of first job.

Table 9: Multinomial Logit - Why are discretionary promotions meritocratic?

	Base category: not in work tie's team & not fast-track promoted					
	2	3	4	2	3	4
	Start work in work tie's team & Not promoted	Start work in other team & Promoted	Start work in work tie's team & Promoted	Start work in work tie's team & Not promoted	Start work in other team & Promoted	Start work in work tie's team & Promoted
	(1)	(2)	(3)	(4)	(5)	(6)
				IV-control function		
$\overline{Power}$	0.45	-0.86***	0.53	0.29	-1.54**	-0.04
	[0.29]	[0.00]	[0.43]	[0.52]	[0.01]	[0.96]
Exam Top 10%	0.46	-0.37	0.97	0.51	-0.25	0.80
	[0.35]	[0.31]	[0.11]	[0.33]	[0.45]	[0.20]
Exam Bottom 10%	0.10	-0.87	-3.51***	0.07	-0.86	-3.54***
	[0.80]	[0.22]	[0.00]	[0.85]	[0.20]	[0.00]
$\overline{Power}$*Exam Top 10% (α)	-0.15	2.34***	2.28**	0.41	2.29**	4.06***
	[0.87]	[0.00]	[0.01]	[0.77]	[0.01]	[0.00]
$\overline{Power}$*Exam Bottom 10% (β)	0.75	-0.93	-4.17***	0.23	-1.11	-4.44***
	[0.41]	[0.58]	[0.00]	[0.79]	[0.47]	[0.00]
Ho: α=β (p-value)	0.41	0.04	0.00	0.92	0.03	0.00
Ho: 3.α=4.α (p-value)	0.94			0.00		
Ho: 3.β=4.β (p-value)	0.01			0.01		
person x mon	11897			11897		
Cohorts	78			78		

* p<0.1, ** p<0.05, *** p<0.01. Score bootstrap p-values (Kline & Santos (2012);Roodman (2018)) in parentheses.

Note: The unit of observation is a civil servant-month. The outcome is an interaction of Pr(working in work tie's team) x Pr(fast-track promotion). I define Pr(working in work tie's team) as a dummy that turns on one whenever the juniors are working in the team of their first work ties, after their first interaction in the first job of the new recruits. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. Official seniority, experience, time trend of the first job of the junior workers, type of department juniors work in, cohort & time FE are included in all specifications. All specifications exclude first month of first job.

Table 10: Multinomial Logit - Why are discretionary promotions meritocratic?

	Base category: not in work tie's team & not fast-track promoted		
	2	3	4
	Start work in work tie's team & Not promoted	Start work in other teams & Promoted	Start work in work tie's team & Promoted
	(1)	(2)	(3)
		Reduced Form	
$\overline{Power}^p$	0.20	-1.27**	-0.09
	[0.60]	[0.02]	[0.91]
Exam Top 10%	0.59	-0.21	0.95
	[0.29]	[0.54]	[0.16]
Exam Bottom 10%	0.09	-0.90	-3.47***
	[0.83]	[0.17]	[0.00]
$\overline{Power}^p$*Exam Top 10% (α)	0.45	2.06**	3.39***
	[0.71]	[0.01]	[0.00]
$\overline{Power}^p$*Exam Bottom 10% (β)	0.10	-0.92	-3.77***
	[0.92]	[0.43]	[0.00]
Ho: α=β (p-value)	0.82	0.01	0.00
Ho: 3.α=4.α (p-value)	0.02		
Ho: 3.β=4.β (p-value)	0.01		
person x mon	11897		
Cohorts	78		

* p<0.1, ** p<0.05, *** p<0.01. Score bootstrap p-values (Kline & Santos (2012);Roodman (2018)) in parentheses.

Note: The unit of observation is a civil servant-month. The outcome is an interaction of Pr(working in work tie's team) x Pr(fast-track promotion). I define Pr(working in work tie's team) as a dummy that turns on one whenever the juniors are working in the team of their first work ties, after their first interaction in the first job of the new recruits. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. Official seniority, experience, time trend of the first job of the junior workers, type of department juniors work in, cohort & time FE are included in all specifications. All specifications exclude first month of first job.

Table 11: OLS - Do work ties use pvt. info meritocratically?

	Fast-track promotions (second job onwards)				
	$\overline{Tax}$=Top 10%	$\overline{Tax}$=Top 20%	$\overline{Tax}$=Top 30%	$\overline{Tax}$=Top 40%	$\overline{Tax}$=Top 50%
	(1)	(2)	(3)	(4)	(5)
$\overline{Power}$*Exam Top10%*$\overline{Tax}$ (α)	0.70***	0.62*	0.47	0.22	0.53*
	(0.10)	(0.34)	(0.43)	(0.31)	(0.28)
$\overline{Power}$*Exam Top10% (β)	0.48***	0.42	0.45	0.57	0.68**
	(0.11)	(0.30)	(0.30)	(0.35)	(0.33)
$\overline{Power}$*Exam Mid80%*$\overline{Tax}$(π)	0.13*	0.07	0.12	0.15	0.25
	(0.07)	(0.38)	(0.40)	(0.38)	(0.37)
$\overline{Power}$*Exam Mid80% (γ)	0.20***	0.12	0.09	0.15	0.35
	(0.07)	(0.38)	(0.39)	(0.39)	(0.37)
$\overline{Power}$*Exam Bot10%*$\overline{Tax}$ (μ)	0.27***	0.01	0.02	0.07	0.20
	(0.08)	(0.38)	(0.39)	(0.39)	(0.38)
$\overline{Power}$ (θ)	-0.18**	-0.10	-0.11	-0.15	-0.27
	(0.07)	(0.38)	(0.40)	(0.38)	(0.37)
Exam Top10%	0.21**	0.23**	0.19*	0.19*	0.16
	(0.09)	(0.09)	(0.11)	(0.11)	(0.10)
Exam Mid80%	0.15*	0.18**	0.17*	0.16*	0.15*
	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)
$\overline{Tax}$	0.15***	0.15***	0.13***	0.10*	0.10*
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
Ho: α=β (p-value)	0.12	0.14	0.93	0.09	0.39
Ho: γ=π (p-value)	0.31	0.39	0.75	0.98	0.14
Ho: μ=θ (p-value)	0.00	0.89	0.87	0.78	0.53
Mean	0.33	0.33	0.33	0.33	0.33
person x mon	6460	6460	6460	6460	6460
Cohorts	57	57	57	57	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

Table 12: Reduced form - Do work ties use pvt. info meritocratically?

	Fast-track promotions (second job onwards)				
	$\overline{Tax}$=Top 10%	$\overline{Tax}$=Top 20%	$\overline{Tax}$=Top 30%	$\overline{Tax}$=Top 40%	$\overline{Tax}$=Top 50%
	(1)	(2)	(3)	(4)	(5)
$\overline{Power}^p$*Exam Top10%*$\overline{Tax}$ (α)	1.48***	1.51***	0.75	0.86**	0.68
	(0.19)	(0.35)	(0.61)	(0.43)	(0.48)
$\overline{Power}^p$*Exam Top10% (β)	0.50***	0.54	0.57	0.57	0.51
	(0.10)	(0.37)	(0.42)	(0.40)	(0.46)
$\overline{Power}^p$*Exam Mid80%*$\overline{Tax}$(π)	0.23***	0.27	0.31	0.34	0.30
	(0.08)	(0.42)	(0.46)	(0.45)	(0.49)
$\overline{Power}^p$*Exam Mid80% (γ)	0.26***	0.30	0.27	0.32	0.41
	(0.09)	(0.42)	(0.47)	(0.46)	(0.51)
$\overline{Power}^p$*Exam Bot10%*$\overline{Tax}$ (μ)	0.29**	0.09	0.10	0.14	0.13
	(0.12)	(0.41)	(0.46)	(0.45)	(0.49)
$\overline{Power}^p$ (θ)	-0.31**	-0.35	-0.36	-0.40	-0.37
	(0.12)	(0.42)	(0.46)	(0.45)	(0.49)
Exam Top10%	0.22**	0.24***	0.21**	0.18**	0.18**
	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)
Exam Mid80%	0.16*	0.19**	0.17**	0.16*	0.16**
	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)
$\overline{Tax}$	0.14***	0.13***	0.12***	0.08	0.09*
	(0.04)	(0.05)	(0.03)	(0.05)	(0.05)
Ho: α=β (p-value)	0.00	0.00	0.74	0.22	0.48
Ho: γ=π (p-value)	0.62	0.73	0.54	0.77	0.13
Ho: μ=θ (p-value)	0.00	0.60	0.62	0.54	0.61
Mean	0.34	0.34	0.34	0.34	0.34
person x mon	6531	6531	6531	6531	6531
Cohorts	57	57	57	57	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

Table 13: First stage - Do work ties use pvt. info meritocratically?

	Promotion power of work ties ($\overline{Power}$)				
	$\overline{Tax}$=Top 10%	$\overline{Tax}$=Top 20%	$\overline{Tax}$=Top 30%	$\overline{Tax}$=Top 40%	$\overline{Tax}$=Top 50%
	(1)	(2)	(3)	(4)	(5)
$\overline{Power}^p$*Exam Top10%*$\overline{Tax}$ (α)	1.65***	1.65***	0.48	0.66*	0.76***
	(0.01)	(0.01)	(0.82)	(0.37)	(0.09)
$\overline{Power}^p$*Exam Top10% (β)	-0.00	-0.00	-0.01	-0.02	-0.00
	(0.00)	(0.00)	(0.01)	(0.02)	(0.01)
$\overline{Power}^p$*Exam Mid80%*$\overline{Tax}$(π)	0.00	-0.00	-0.01	-0.01	0.01
	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)
$\overline{Power}^p$*Exam Mid80% (γ)	0.00	0.00	-0.01	-0.01	0.01
	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)
$\overline{Power}^p$*Exam Bot10%*$\overline{Tax}$ (μ)	0.00	-0.00	-0.01	-0.01	0.01
	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)
$\overline{Power}^p$ (θ)	-0.00	-0.00	0.01	-0.02	-0.04
	(0.00)	(0.00)	(0.01)	(0.03)	(0.03)
Exam Top10%	0.00	0.00	0.01	0.03	0.02*
	(0.00)	(0.00)	(0.01)	(0.02)	(0.01)
Exam Mid80%	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
$\overline{Tax}$	-0.00	-0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
AP F Statistic-I	65401	282815	516	674	4446
AP F Statistic-II	2024	736	4555	10041	9346
AP F Statistic-III	496	64	41	173	135
AP F Statistic-IV	419	121	392	1544	776
AP F Statistic-V	10115	8847	6859	6074	8359
AP F Statistic-VI	69	89	78	73	94
person x mon	6460	6460	6460	6460	6460
Cohorts	57	57	57	57	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Angrist & Pischke (2009) f-stat is reported for each endogenous variable at the bottom. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

Table 14: Second stage - Do work ties use pvt. info meritocratically?

	Fast-track promotions (second job onwards)				
	$\overline{Tax}$=Top 10%	$\overline{Tax}$=Top 20%	$\overline{Tax}$=Top 30%	$\overline{Tax}$=Top 40%	$\overline{Tax}$=Top 50%
	(1)	(2)	(3)	(4)	(5)
$\overline{Power}$*Exam Top10%*$\overline{Tax}$ (α)	1.12***	1.24**	1.42	1.29**	0.86
	(0.20)	(0.52)	(0.89)	(0.49)	(0.53)
$\overline{Power}$*Exam Top10% (β)	0.60***	0.73	0.74	0.74	0.58
	(0.10)	(0.49)	(0.54)	(0.50)	(0.50)
$\overline{Power}$*Exam Mid80%*$\overline{Tax}$(π)	0.23**	0.36	0.41	0.44	0.33
	(0.09)	(0.55)	(0.59)	(0.56)	(0.55)
$\overline{Power}$*Exam Mid80% (γ)	0.31***	0.43	0.37	0.42	0.47
	(0.10)	(0.55)	(0.60)	(0.58)	(0.58)
$\overline{Power}$*Exam Bot10%*$\overline{Tax}$ (μ)	0.35***	0.21	0.20	0.26	0.17
	(0.11)	(0.54)	(0.59)	(0.56)	(0.55)
$\overline{Power}$ (θ)	-0.38**	-0.51	-0.51	-0.54	-0.45
	(0.17)	(0.55)	(0.60)	(0.56)	(0.55)
Exam Top10%	0.21**	0.23**	0.19*	0.16	0.17*
	(0.09)	(0.09)	(0.11)	(0.10)	(0.09)
Exam Mid80%	0.16*	0.18**	0.17*	0.16*	0.16*
	(0.08)	(0.08)	(0.09)	(0.09)	(0.08)
$\overline{Tax}$	0.14***	0.14***	0.12***	0.07	0.09
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
Ho: α=β (p-value)	0.01	0.01	0.33	0.03	0.26
Ho: γ=π (p-value)	0.31	0.40	0.70	0.84	0.11
Ho: μ=θ (p-value)	0.01	0.51	0.55	0.47	0.57
Mean	0.33	0.33	0.33	0.33	0.33
person x mon	6460	6460	6460	6460	6460
Cohorts	57	57	57	57	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

Figures

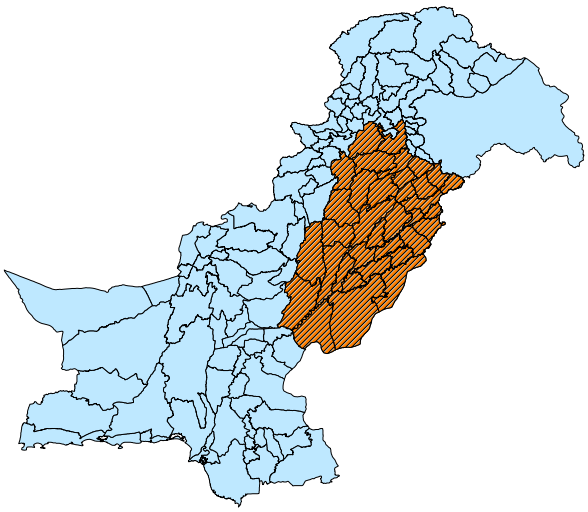


Figure 1: Pakistan

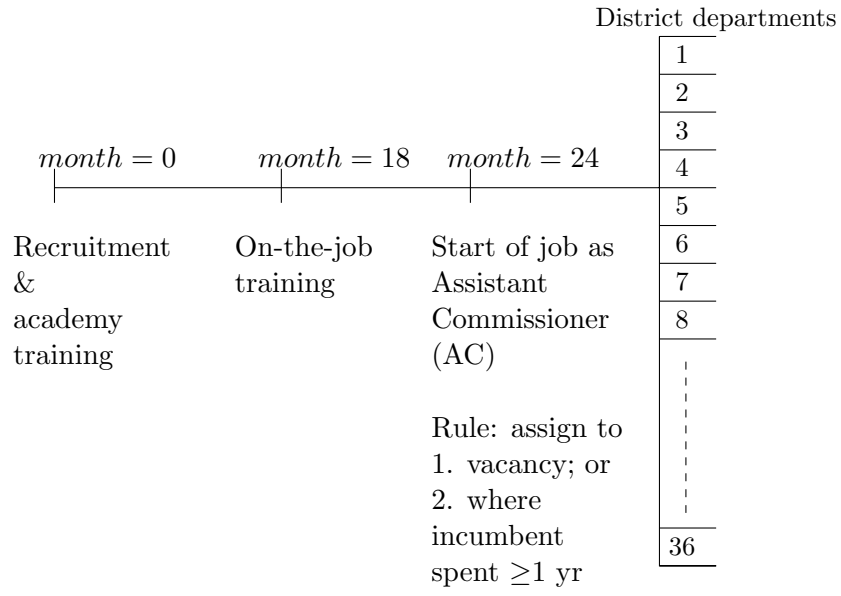


Figure 2: Timeline of the initial career of PAS new recruits

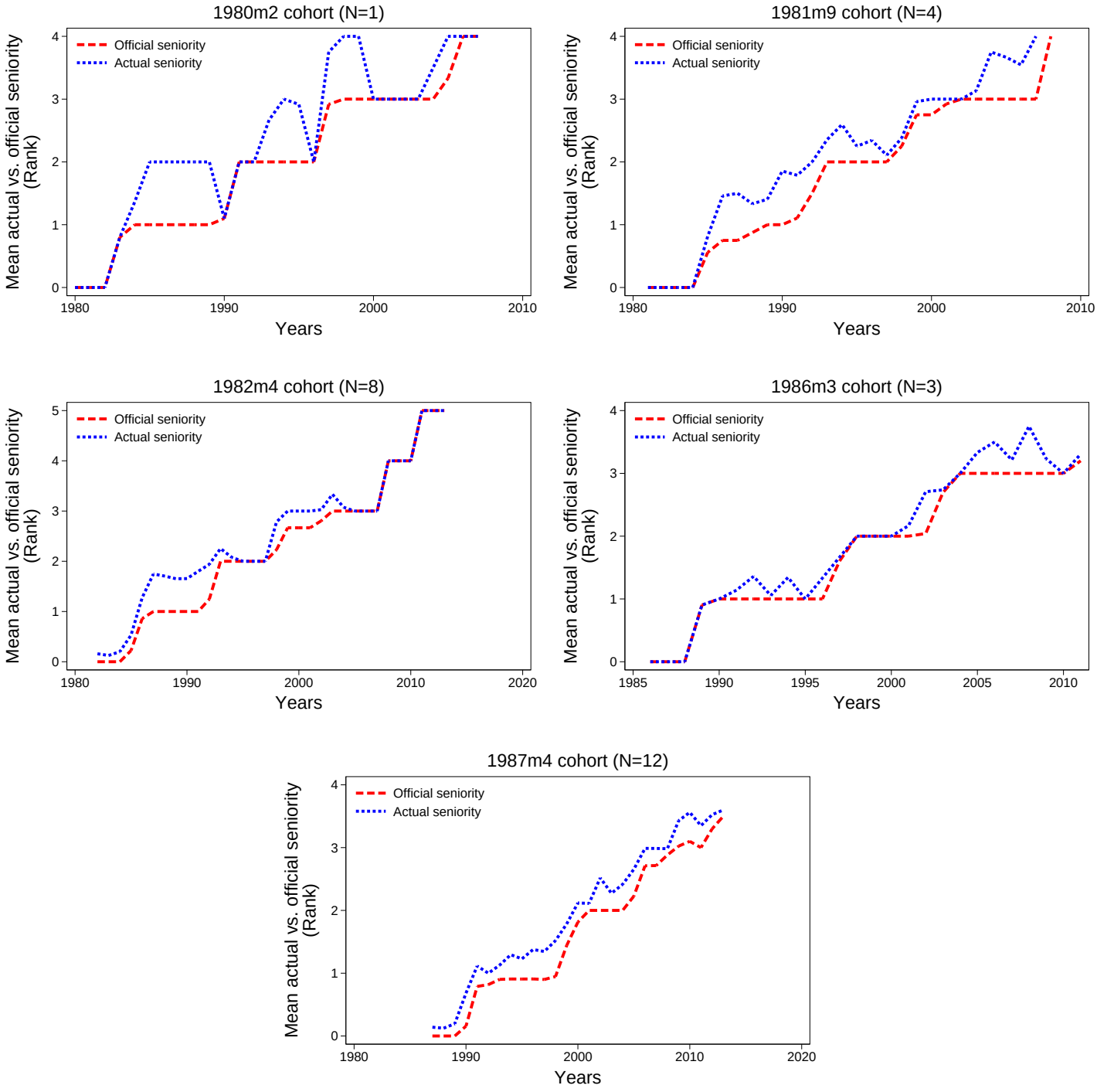


Figure 3: Official vs. actual seniority: The blue line is the actual seniority of a cohort while the red line is their official seniority. Official seniority is based on official promotions. Official promotions are those that are based on experience, training and subjective performance evaluation of a bureaucrat by his or her immediate bosses. Actual seniority can differ from official seniority at the discretion of senior civil servants and chief executive of the province.

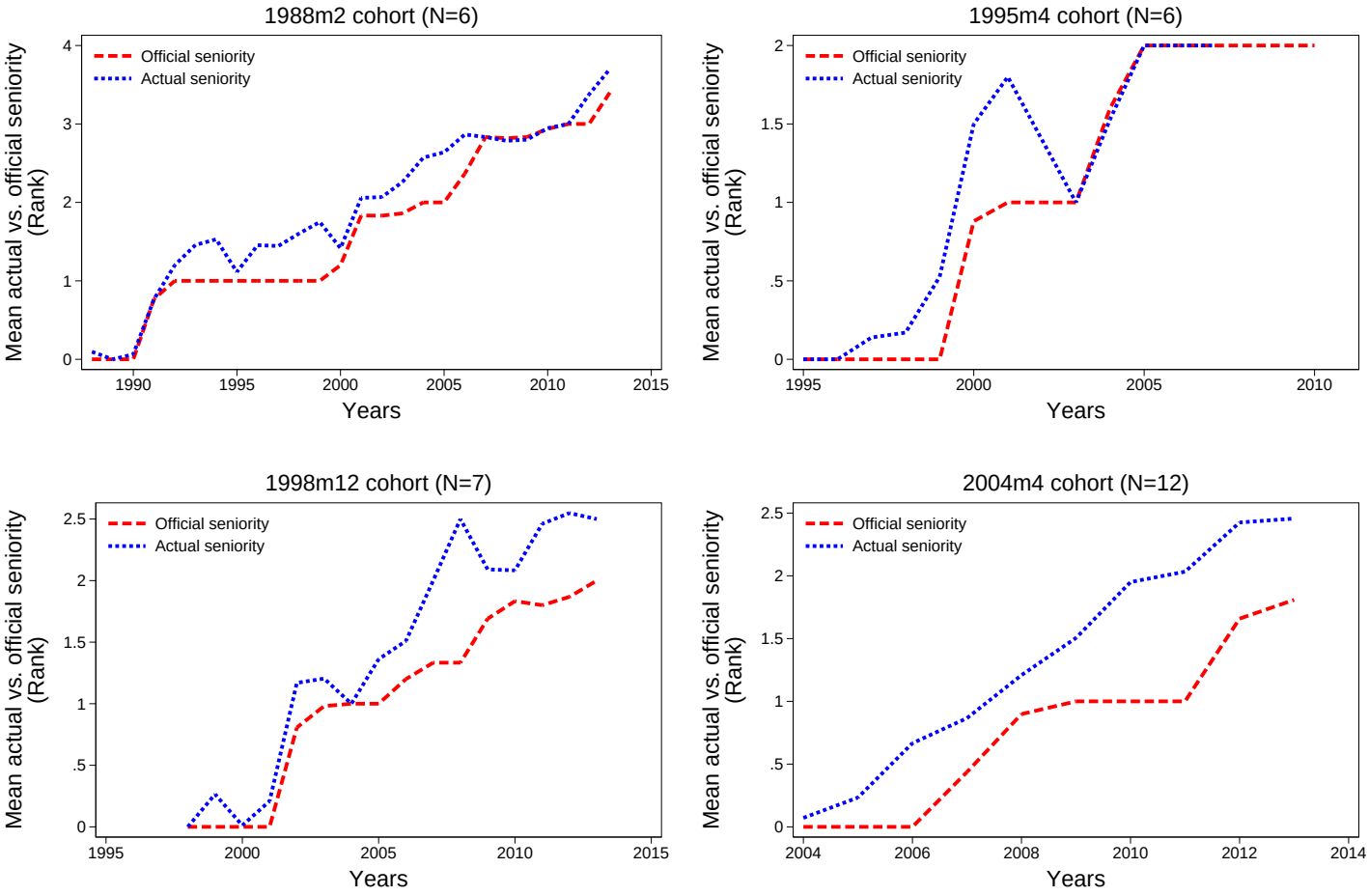
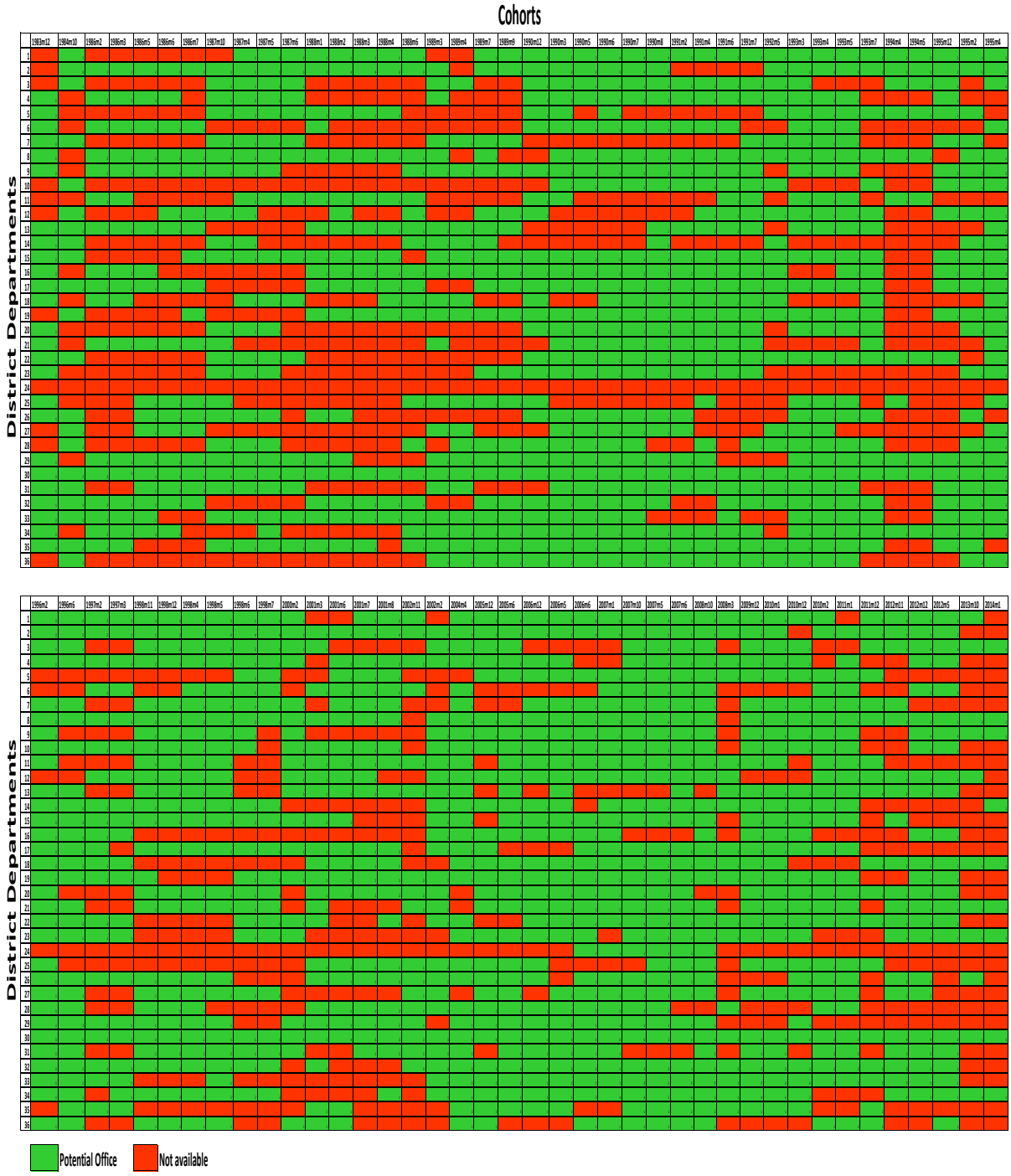


Figure 4: Official vs. actual seniority: The blue line is the actual seniority of a cohort while the red line is their official seniority. Official seniority is based on official promotions. Official promotions are those that are based on experience, training and subjective performance evaluation of a bureaucrat by his or her immediate bosses. Actual seniority can differ from official seniority at the discretion of senior civil servants and chief executive of the province.

Figure 5: Potential positions that new recruits could have been allocated in the first job (green=available; red=not available)



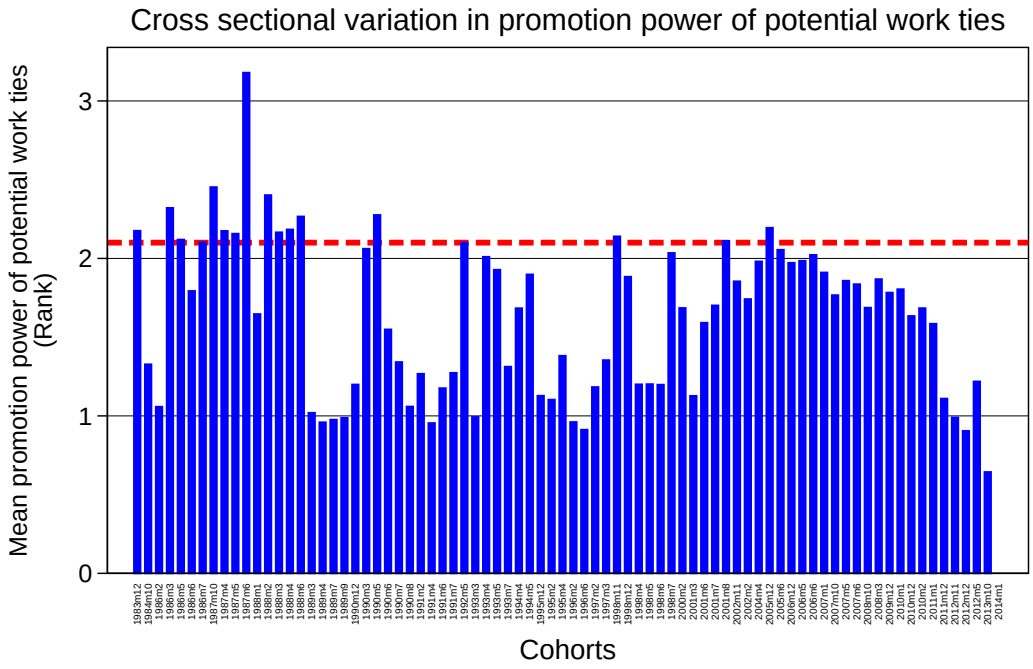


Figure 6: Cross sectional variation in mean promotion power of potential first work ties of cohorts

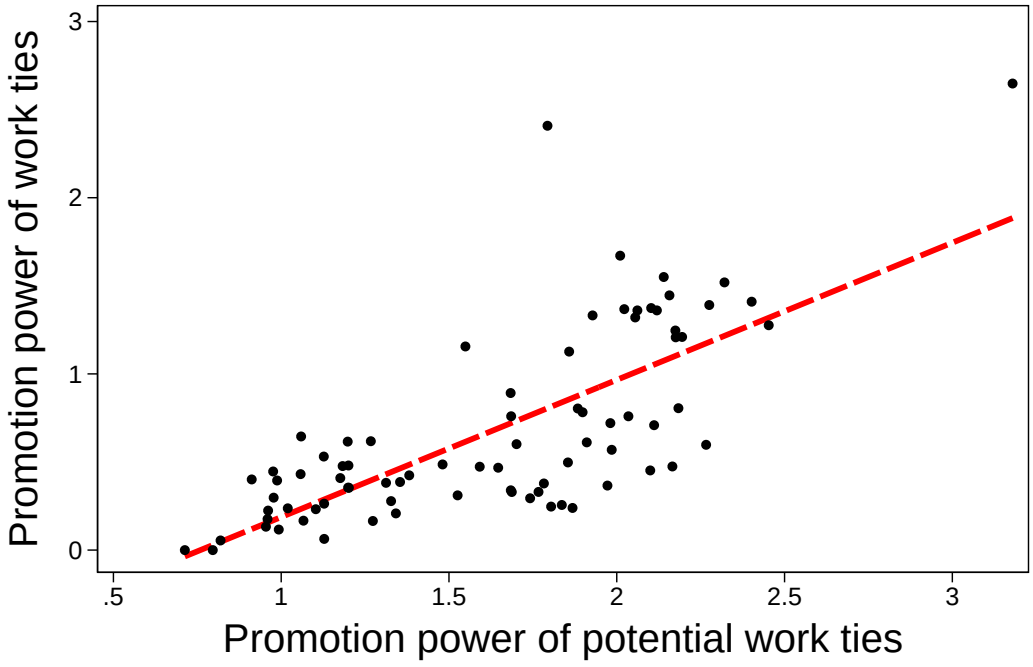


Figure 7: Cross sectional correlation between promotion power of potential and actual first work ties

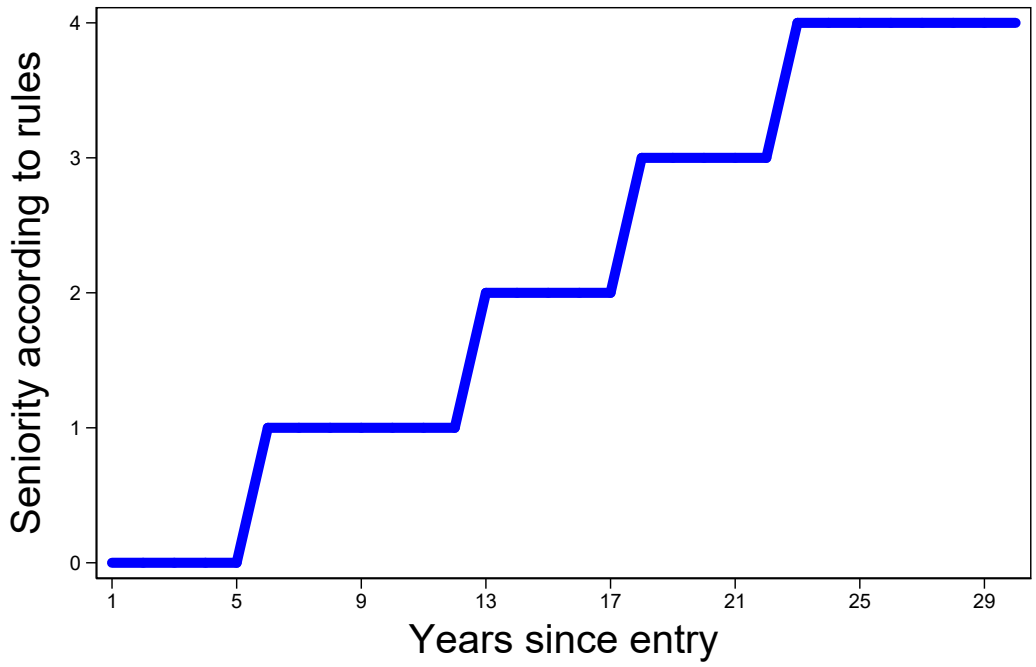


Figure 8: Promotion power of potential first work ties over time - using minimum length of service rules

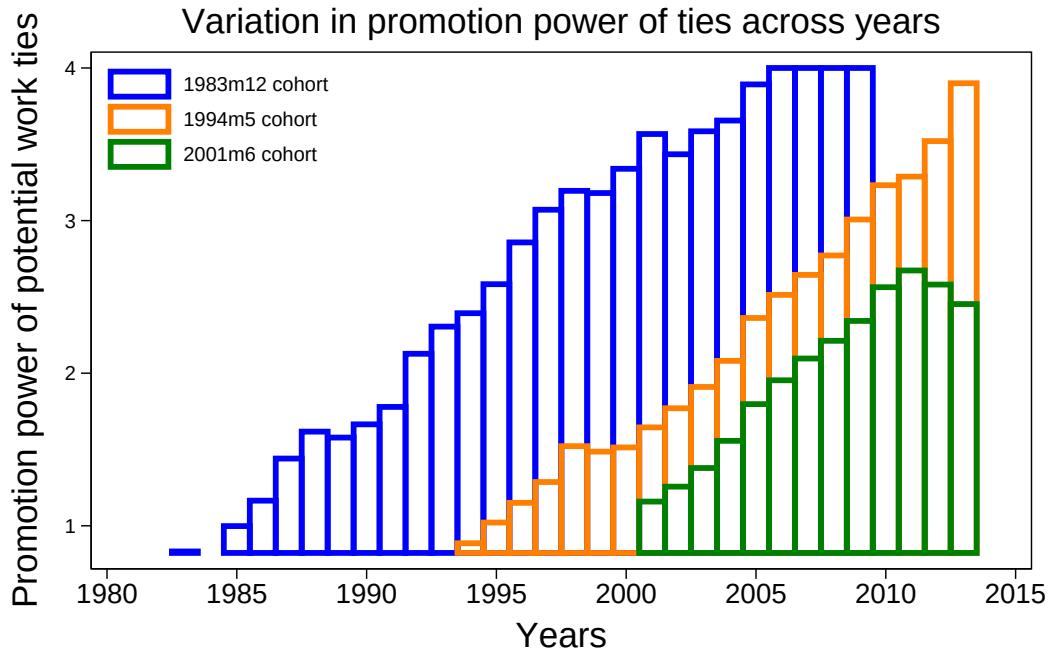


Figure 9: Variation in promotion power of potential work ties, from the first job, for a sample of cohorts

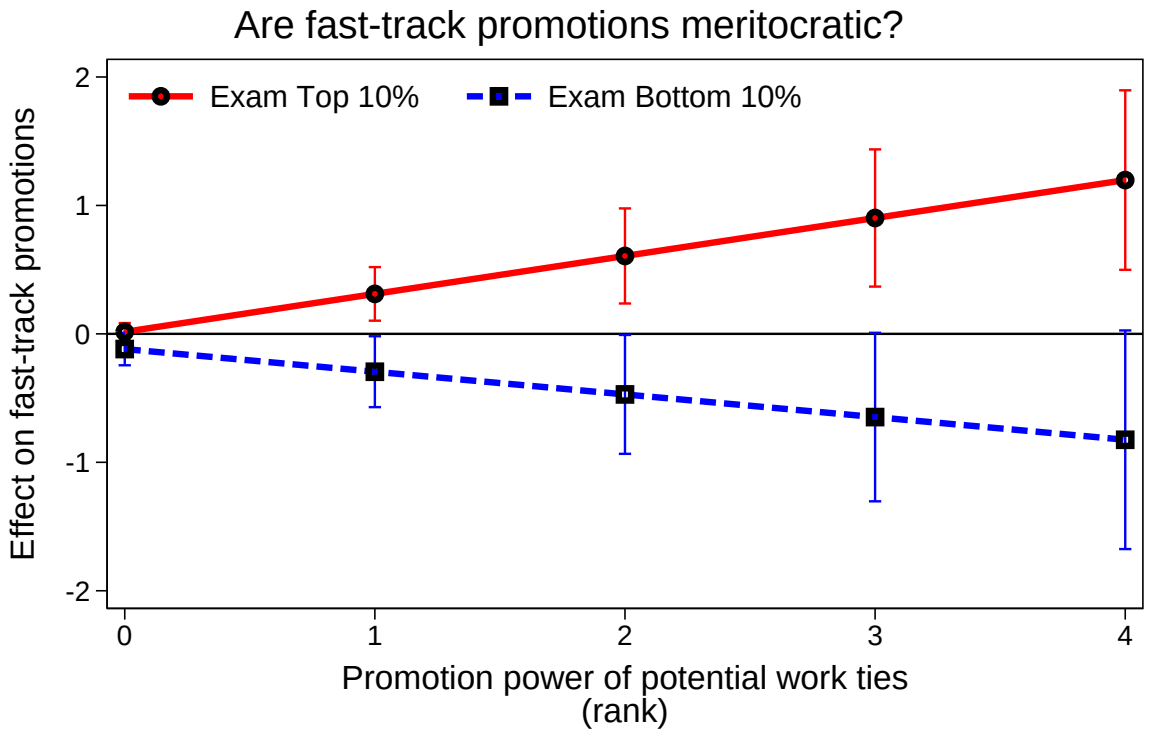


Figure 10: The figure plots the predicted probability of fast-track promotions from the reduced form model in column (8) of table 8. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. Each dot is the predicted probability and the bars are 90% confidence intervals. Promotion power of potential work ties ($\overline{Power}^{p}$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers.

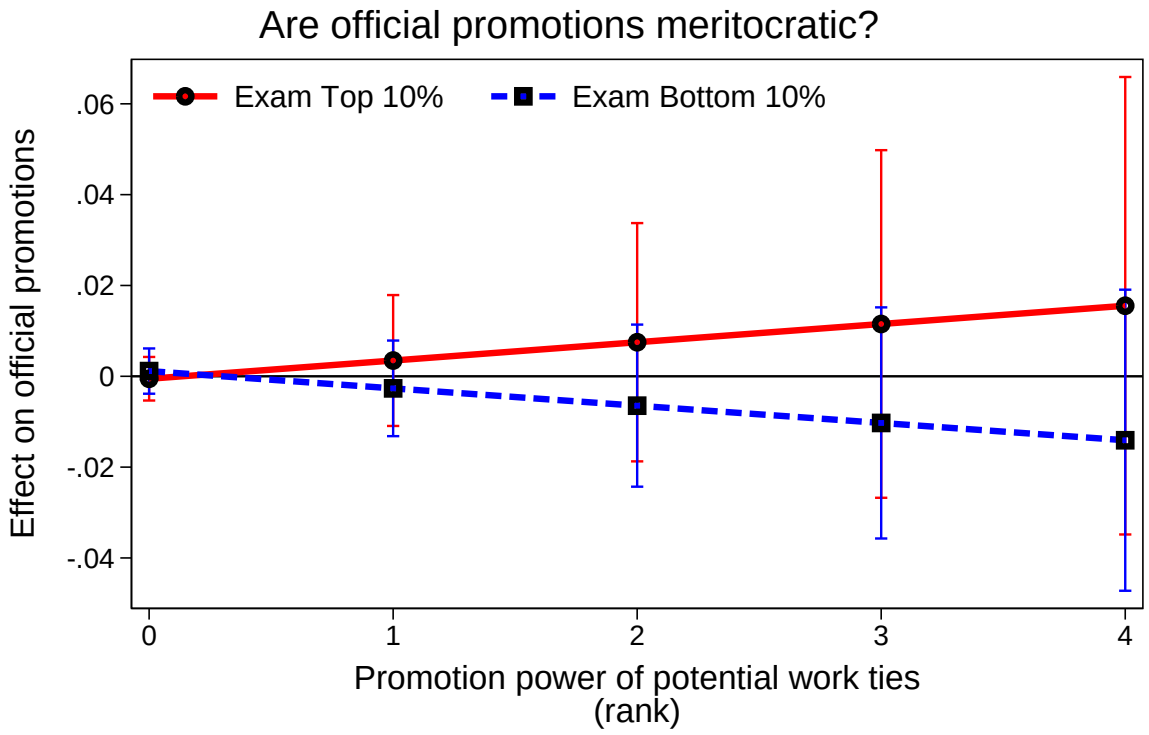


Figure 11: The figure plots the predicted probability of official promotions from the reduced form model in column(9) of table 8. Official promotions are promotions that are based on experience, training and subjective performance evaluation of the bureaucrat by the immediate bosses. Each dot is the predicted probability and the bars are 90% confidence intervals. Promotion power of potential work ties ($\overline{Power}^{p}$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers.

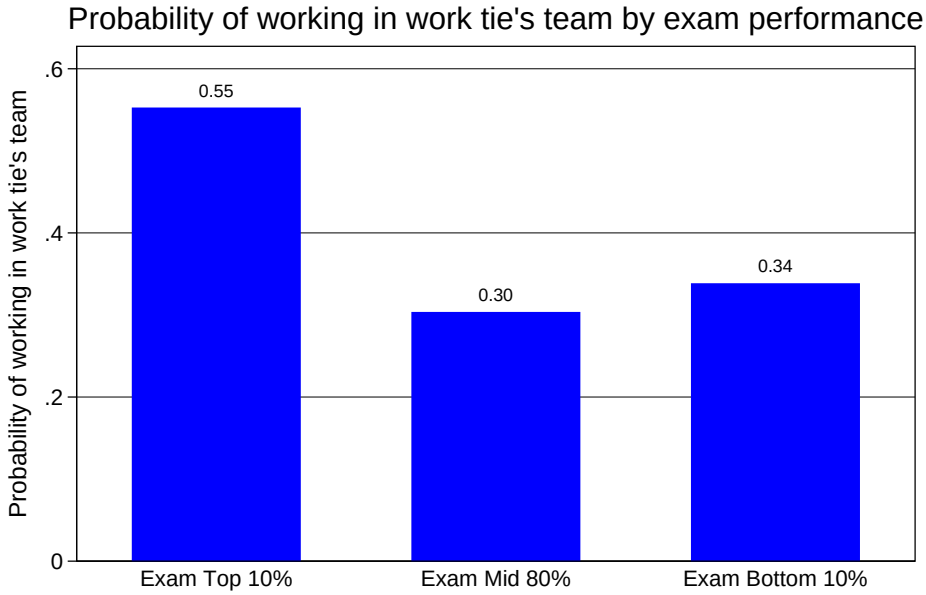


Figure 12: The figure shows in the long run, the average time spent by juniors in the team of the first work ties, by exam performance. I exclude the first job where junior workers meet their first work ties and see what is the probability that in the rest of the long run career of the first work ties and junior workers they systematically work together

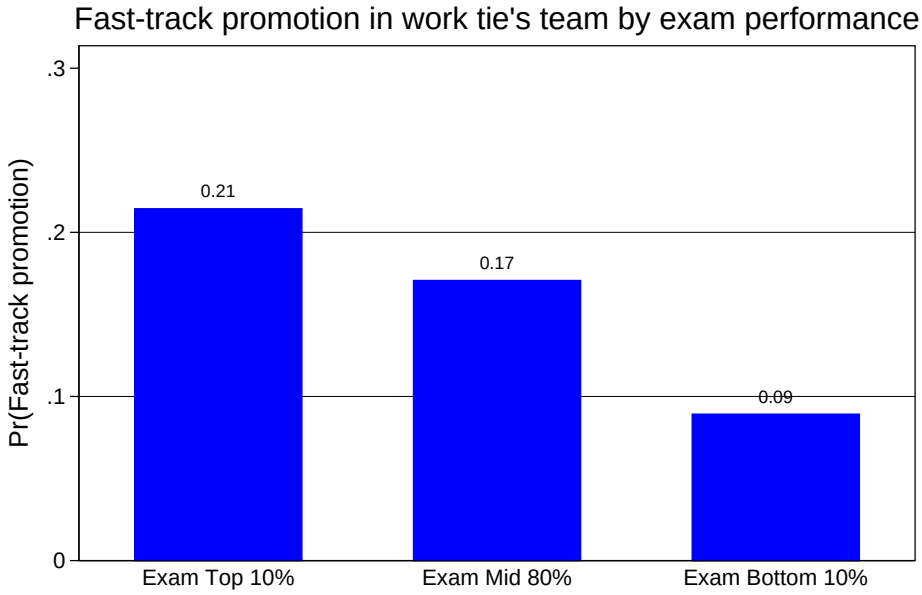


Figure 13: The figure shows the average time that in the long run, the junior workers remain fast-tracked in the team of the first work ties, by exam performance. I exclude the first job where junior workers meet their first work ties and see what is the probability that in the rest of the long run career of the first work ties and junior workers, the junior workers stay fast-tracked in the team of their first work ties

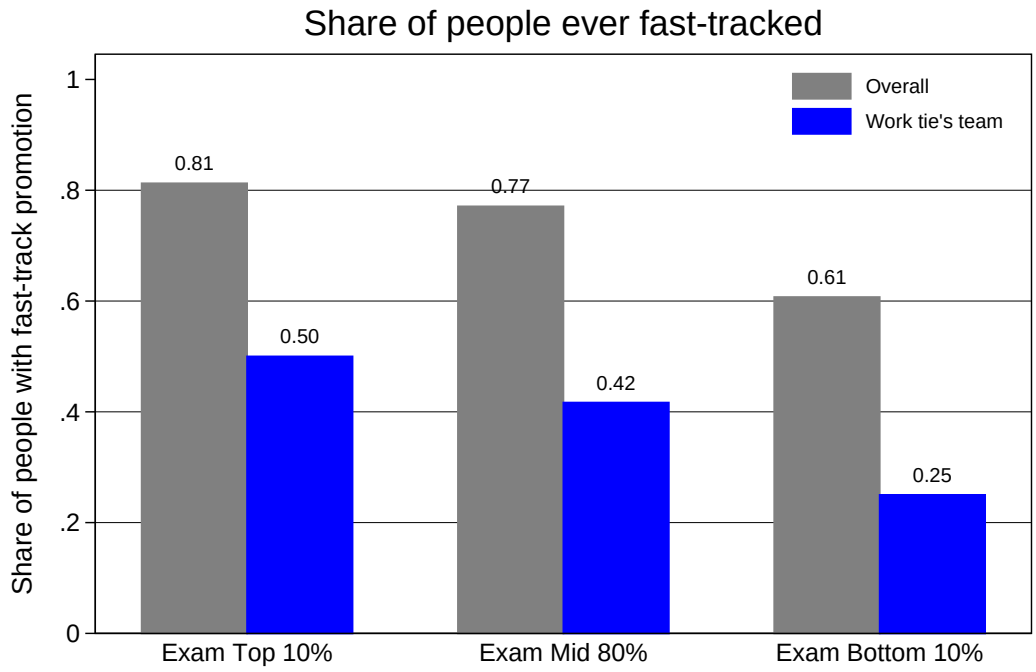


Figure 14: The figure shows the share of civil servants that were ever fast tracked. If the civil servant has been fast-tracked for even one month, they will be counted to have been ever fast-tracked.

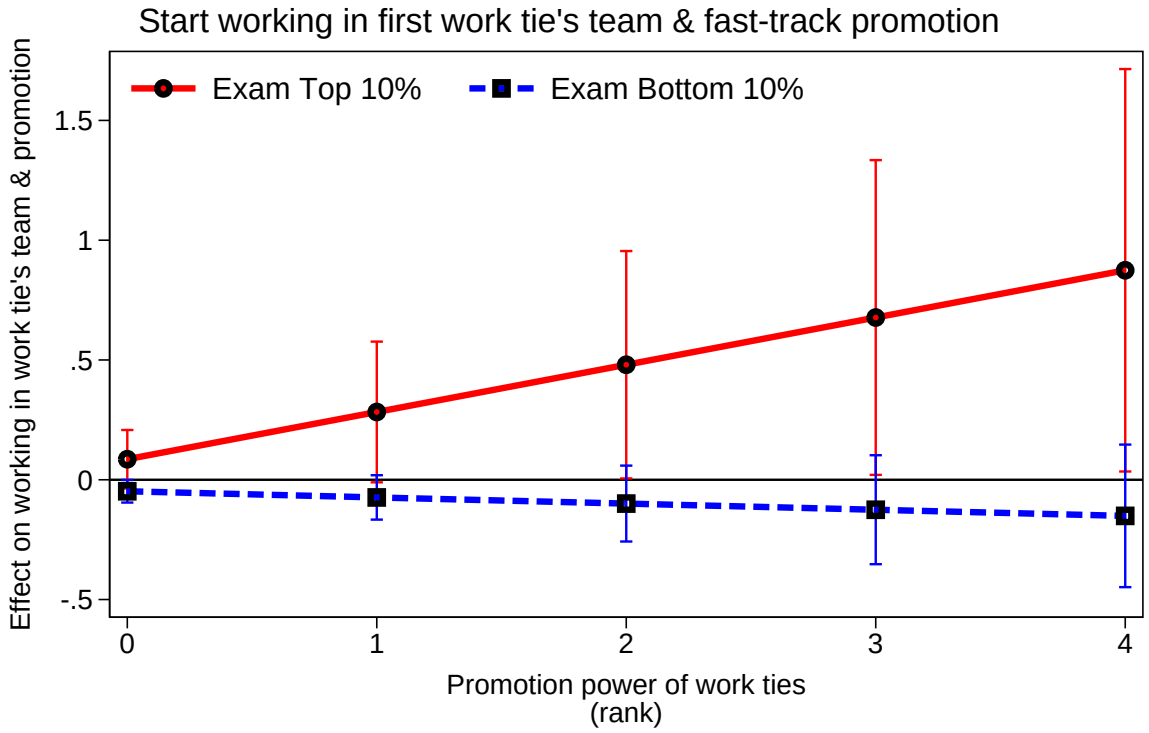


Figure 15: The figure plots the predicted probability from the linear reduced form model in column(6) of table B7. Each dot is the predicted probability and the bars are 90% confidence intervals. The outcome variable is of an interaction of Pr(working in work ties' team) x Pr(fast-track promotion). Pr(working in work ties' team) as a dummy that turns on one whenever the juniors are working in the team of their first work ties, in the long run, after their first interaction in the first job of the new recruits. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Promotion power of potential work ties ($\overline{Power}^{p}$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers.

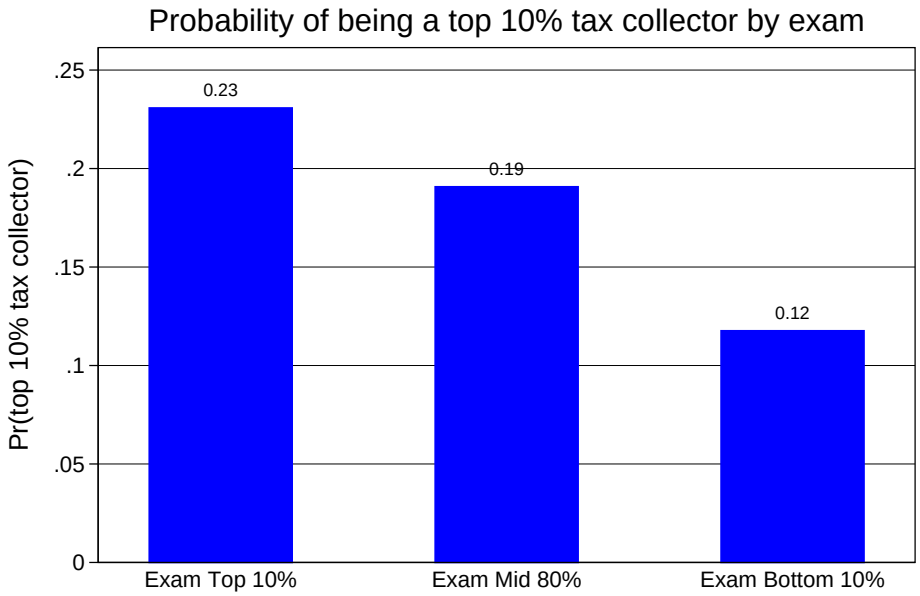


Figure 16: Percentage of civil servants that are top 10% tax collectors by exam performance

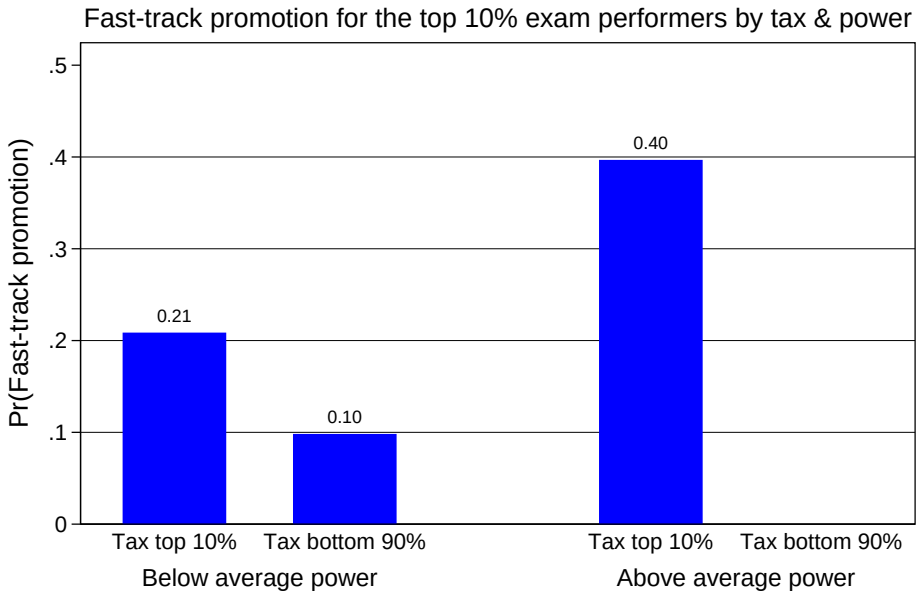


Figure 17: The figure plots the probability of fast-track promotion of top 10% exam performers by their tax performance and the power of their first work ties to promote. While exam performance is observable by the organization, tax performance is private information of the first seniors. Power is measured as the average rule-based promotion (according to minimum length of service rules) of the first set of potential seniors.

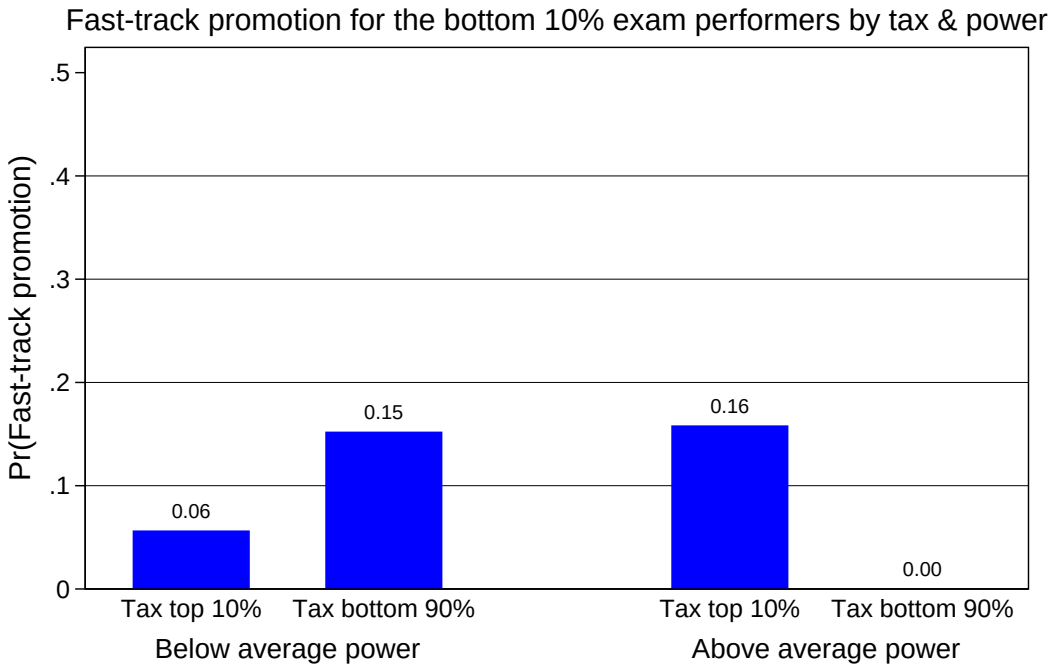


Figure 18: The figure plots the probability of fast-track promotion of bottom 10% exam performers by their tax performance and the power of their first work ties to promote. While exam performance is observable by the organization, tax performance is private information of the first seniors. Power is measured as the average rule-based promotion (according to minimum length of service rules) of the first set of potential senior work ties.

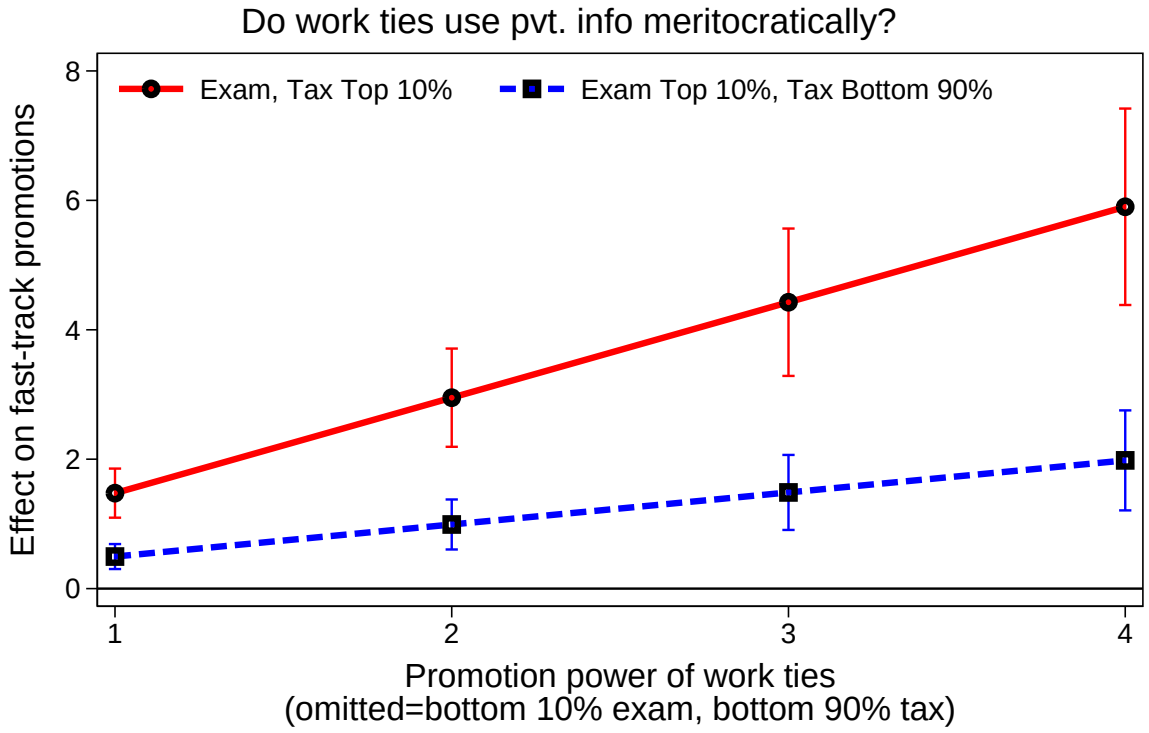


Figure 19: The figure plots the predicted probability from the reduced form model in column (1) of table 12. Each dot is the predicted probability and the bars are 90% confidence intervals. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. Promotion power of potential work ties ($\overline{Power}^{p}$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10% of the cohort in tax collection. Tax performance by junior workers at first job is the private information of the first work ties. It is not observed by others and it is not on the official file of the junior workers.

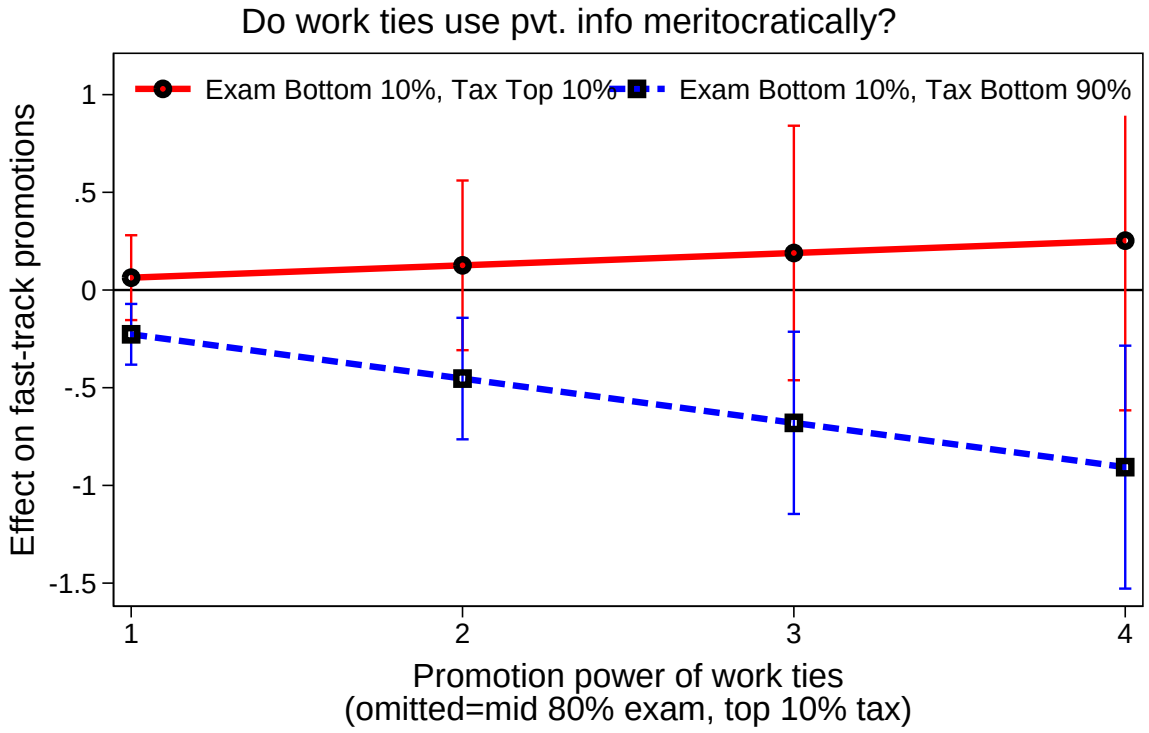


Figure 20: The figure plots the predicted probability from the reduced form model in column (1) of table 12. Each dot is the predicted probability and the bars are 90% confidence intervals. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. Promotion power of potential work ties ($\overline{Power}^{p}$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10% of the cohort in tax collection. Tax performance by junior workers at first job is the private information of the first work ties. It is not observed by others and it is not on the official file of the junior workers.

Appendix A: Data details

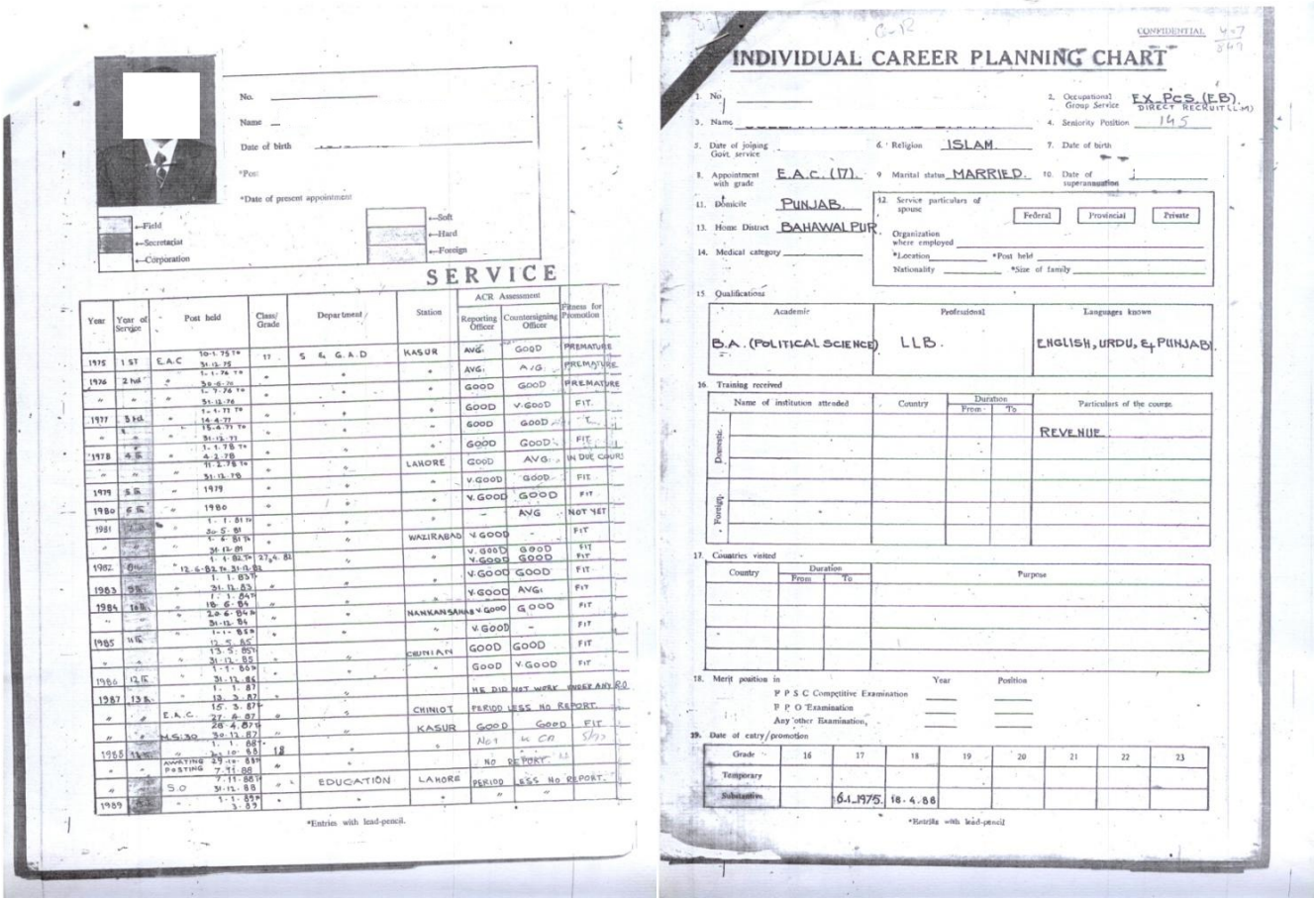


Figure A1: Data source: personnel records of civil servants

FEDERAL PUBLIC SERVICE COMMISSION
Aga Khan Road, F-5/1

Islamabad the 10th May, 2017.

PRESS NOTE

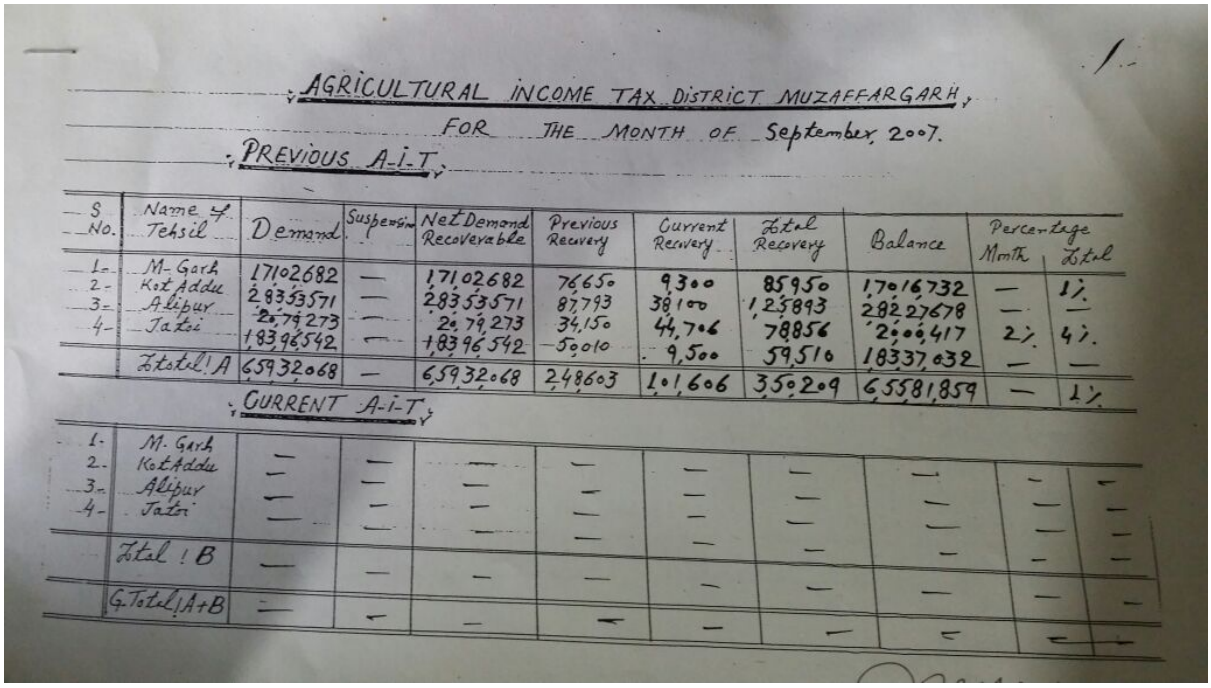
Subject: - **FINAL RESULT OF COMPETITIVE EXAMINATION (CSS), 2016 FOR RECRUITMENT TO POSTS IN BS-17 UNDER FEDERAL GOVERNMENT**.

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 IESAR	PUNJAB	PAS
2	12639	QURAT UL AIN ZAFAR	PUNJAB	PAS
3	2329	MARIYA JAVAID	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	MALIK 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 JAVAID	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 A2: Recruitment exam ranking published in newspapers

Figure A3: Historical tax records and Central Revenue Agency's (BOR) record room



AGRICULTURAL INCOME TAX DISTRICT MUZAFFARGARH,

FOR THE MONTH OF September 2007.

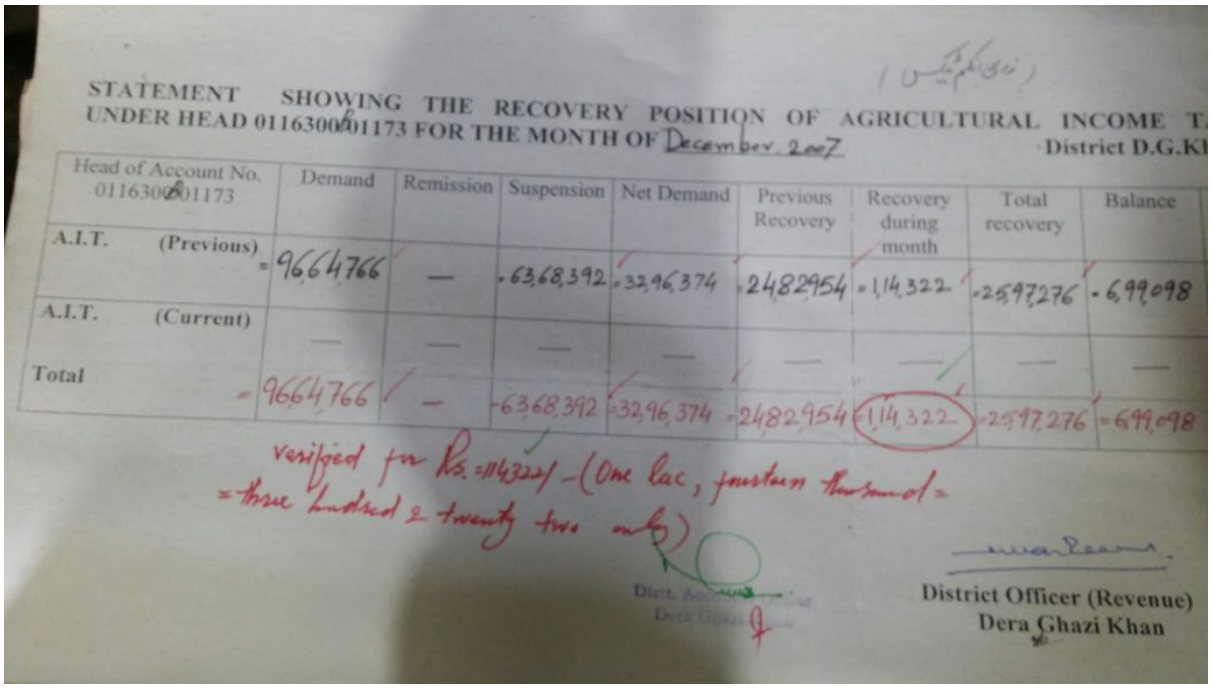
PREVIOUS A-I-T.

S No.	Name of Tehsil	Demand	Suspension	Net Demand Recoverable	Previous Recovery	Current Recovery	Total Recovery	Balance	Percentage Month	Percentage Total
1-	M-Garh	17102682	—	17102682	76650	9300	85950	17016732	—	1%
2-	Kot Addu	28353571	—	28353571	87793	38100	125893	28227678	—	—
3-	Alipur	2079273	—	2079273	34150	44706	78856	2000417	2%	4%
4-	Jatoi	18396542	—	18396542	50010	9500	59510	18337032	—	—
	Total A	65932068	—	65932068	248603	101606	350209	65581859	—	1%

CURRENT A-I-T.

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

Figure A4: The BOR tax collection pro forma



STATEMENT SHOWING THE RECOVERY POSITION OF AGRICULTURAL INCOME T
UNDER HEAD 01163000 01173 FOR THE MONTH OF December 2007 District D.G.K

Head of Account No. 01163000 01173	Demand	Remission	Suspension	Net Demand	Previous Recovery	Recovery during month	Total recovery	Balance
A.I.T. (Previous)	9664766	—	6368392	3296374	2482954	114322	2597276	699098
A.I.T. (Current)	—	—	—	—	—	—	—	—
Total	9664766	—	6368392	3296374	2482954	114322	2597276	699098

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

District Officer (Revenue)
Dera Ghazi Khan

Figure A5: The BOR tax collection pro forma duly verified by District Accounts Officer

Figure A6: An example of an incumbency board. Incumbency boards are a tradition from colonial times. Each incumbency board has the name of the civil servant and the dates when he or she held the job.

Appendix B: Tables

Table B1: Correlation between end of training and vacancies

	Vacancy			
	All districts	All districts	Large districts	Large districts
Training end (dummy)	0.001	0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Observations	1173784	1173784	387492	387492
Year FE	Yes	Yes	Yes	Yes
Tehsil FE	No	Yes	No	Yes

* p<0.10 ** p<0.05 *** p<0.01. Clustered standard errors in parenthesis

Note: The unit of observation is a tehsil-month. Training end (dummy) turns on 1 a day 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. Standard errors are clustered at the tehsil level.

Table B2: Correlation between end of training and vacancies

	Vacancy			
	All districts	All districts	Large districts	Large districts
Training end (dummy)	-0.001	-0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.002)	(0.002)
Observations	1173784	1173784	387492	387492
Year FE	Yes	Yes	Yes	Yes
Tehsil FE	No	Yes	No	Yes

* p<0.10 ** p<0.05 *** p<0.01. Clustered standard errors in parenthesis

Note: 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. Standard errors are clustered at the tehsil level.

Table B3: District characteristics, vacancy and tenure

	Vacancy (%)		Tenure (days)	
	(1)	(2)	(3)	(4)
Districts with large cities	1.64	6.94	-188.11**	398.32
	(1.39)	(25.70)	(79.93)	(674.88)
Provincial capital	-2.33		-60.95	
	(4.21)		(174.86)	
Real wage (Rs.)	0.03	0.06	0.73	0.15
	(0.03)	(0.05)	(0.77)	(0.99)
Population	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Literacy (%)	-0.04	-0.07	0.22	-0.50
	(0.06)	(0.08)	(2.60)	(3.97)
Rural employment (%)	-0.01	-0.07	-0.95	0.99
	(0.05)	(0.08)	(2.29)	(2.37)
Number of hospitals	0.08	-0.92	11.58	-28.17
	(0.23)	(0.89)	(10.08)	(55.01)
Number of Rural Health Centers	-0.04	0.06	0.76	16.33
	(0.12)	(0.44)	(7.14)	(20.04)
New electricity connections	-0.03	-0.04	1.77*	-0.00
	(0.04)	(0.06)	(1.02)	(2.91)
Number of primary schools	-0.00	0.00	0.09	-0.14
	(0.00)	(0.01)	(0.08)	(0.30)
Primary school enrolment	0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Terrorist attack (dummy)	0.66	0.75	-2.96	-16.52
	(1.53)	(2.17)	(37.31)	(46.02)
Observations	167	167	167	167

* p<0.10 ** p<0.05 *** p<0.01. Clustered standard errors in parenthesis

Note: The unit of observation is a district-year. AC vacancy is a dummy that turns on 1 whenever the Assistant Commissioner (AC) position is vacant in a tehsil. It remains zero otherwise. AC tenure is days spent at an AC job. 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. Fiscal yr FE and district FE are included in column (2) and (4). Standard errors are clustered at the district level.

Table B4: The effect of promotion power of work ties on tax targets set by BOR

	Tax Target (Rs. in million)			
	(1)	(2)	(3)	(4)
Promotion power of work ties	-1.44	0.90		
	(2.02)	(1.25)		
Promotion power of potential work ties			-2.02	-0.80
			(1.54)	(0.91)
Observations	1479	1479	1479	1479
Controls & FE	Yes	Yes	Yes	Yes
job location FE	No	Yes	No	Yes

* p<0.10 ** p<0.05 *** p<0.01 . Clustered standard errors in parenthesis
Note: The unit of observation is a civil-servant month. Tax target is the annual target (in rupees) set by the BOR for the Assistant Commissioners. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. All specifications include experience, cohort, month, fiscal yr FE. Standard errors are clustered at the cohort level.

Table B5: Determinants of tax targets

	Tax Targets (Rs. in million)	
	(1)	(2)
Past district tax collected	0.01	0.05
	(0.10)	(0.21)
Election year	-2.77	0.40
	(3.65)	(5.37)
Real wage	-0.01	-0.01
	(0.05)	(0.06)
Population estimates	-0.00	-0.00
	(0.00)	(0.00)
Rural employment	0.32	0.28
	(0.21)	(0.30)
Agriculture production	0.00***	0.00***
	(0.00)	(0.00)
Irrigated area	0.02***	0.04**
	(0.01)	(0.02)
Year FE	Yes	Yes
District FE	No	Yes
Observations	120	120

* p<0.10 ** p<0.05 *** p<0.01. Standard errors in parenthesis
The unit of observation is a district-fiscal year. Tax target is the annual target (in rupees) set by the BOR for the Assistant Commissioners. Data on all explanatory variables is from the Pakistan Bureau of Statistics.

Table B6: First stage - Why are discretionary promotions meritocratic?

	Promotion Power of Work Ties ($\overline{power}$)	
	(1)	(2)
$\overline{Power}^p$	0.77***	0.82***
	(0.04)	(0.05)
$\overline{Power}^p$*Exam Top 10%		-0.02
		(0.09)
$\overline{Power}^p$*Exam Bottom 10%		0.05
		(0.08)
Exam Top 10%		0.03*
		(0.02)
Exam Bottom 10%		0.02
		(0.02)
AP F Statistic-I	384	293
AP F Statistic-II		76
AP F Statistic-III		267
person x mon	12210	11883
Cohorts	80	78

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. The outcome is an interaction of Pr(working in work tie's team) x Pr(fast-track promotion). I define Pr(working in work tie's team) as a dummy that turns on one whenever the juniors are working in the team of their first work ties, after their first interaction in the first job of the new recruits. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. Angrist & Pischke (2009) f-stat is reported for each endogenous variable at the bottom. AP F-statistic-I is for $\overline{Power}$, second f-stat is for $\overline{Power} * ExamTop10\%$ and third is for $\overline{Power} * ExamBottom10\%$ as an endogenous variable. Official seniority, experience, time trend of the first job of the junior workers, type of department juniors work in, cohort & time FE are included in all specifications. All specifications exclude first month of first job.

Table B7: Second stage - Why are discretonary promotions meritocratic?

	New recruit working in work tie's team & fast-track promoted (Second job onwards)					
	OLS		IV		Reduced form	
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{Power}$	0.04***	0.00	0.05**	-0.01		
	(0.01)	(0.02)	(0.02)	(0.04)		
Exam Top 10%		0.08		0.08		0.09
		(0.06)		(0.06)		(0.06)
Exam Bottom 10%		-0.05**		-0.05**		-0.05**
		(0.02)		(0.02)		(0.02)
$\overline{Power}$*Exam Top 10% (α)		0.12		0.24*		
		(0.08)		(0.13)		
$\overline{Power}$*Exam Bottom 10% (β)		-0.02		-0.03		
		(0.03)		(0.04)		
$\overline{Power}^p$					0.04**	-0.01
					(0.01)	(0.03)
$\overline{Power}^p$*Exam Top 10% (α)						0.20**
						(0.09)
$\overline{Power}^p$*Exam Bottom 10% (β)						-0.03
						(0.04)
Ho: α=β (p-value)		0.08		0.04		0.02
Mean	0.05	0.05	0.05	0.05	0.05	0.05
person x mon	12210	11883	12210	11883	12210	11883
Cohorts	80	78	80	78	80	78

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. The outcome is an interaction of Pr(working in work tie's team) x Pr(fast-track promotion). I define Pr(working in work tie's team) as a dummy that turns on one whenever the juniors are working in the team of their first work ties, after their first interaction in the first job of the new recruits. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. Official seniority, experience, time trend of the first job of the junior workers, type of department juniors work in, cohort & time FE are included in all specifications. All specifications exclude first month of first job.

Table B8: First stage - Do colleagues use pvt. info meritocratically?

	Promotion power of work ties ($\overline{power}$)	
	(1)	(2)
$\overline{Power}^p$	0.82***	0.84***
	(0.12)	(0.13)
$\overline{Power}^p$*Tax Top 10% (γ)	-0.10	-0.11
	(0.10)	(0.10)
Tax Top 10%	-0.02	-0.02
	(0.03)	(0.03)
$\overline{Power}^p$*Exam Top 10% (α)		-0.02
		(0.09)
Exam Top 10%		0.01
		(0.02)
AP F Statistic-I	49	50
AP F Statistic-II	102	133
AP F Statistic-III		208
person x mon	6635	6460
Cohorts	58	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Angrist & Pischke (2009) f-stat is reported for each endogenous variable at the bottom. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

Table B9: Second stage - Do colleagues use pvt. info meritocratically?

	Fast-track promotions (second job onward)					
	OLS		IV		Reduced Form	
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{Power}$	0.04	0.01	-0.09	-0.12		
	(0.06)	(0.06)	(0.15)	(0.15)		
Tax Top 10%	0.12***	0.15***	0.11**	0.14***	0.12**	0.14***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)
$\overline{Power}$*Tax Top 10% (γ)	-0.06	-0.03	-0.06	-0.03		
	(0.07)	(0.06)	(0.08)	(0.09)		
Exam Top 10%		0.07		0.07		0.08*
		(0.05)		(0.04)		(0.04)
$\overline{Power}$*Exam Top 10% (α)		0.34***		0.38***		
		(0.12)		(0.12)		
$\overline{Power}^p$					-0.03	-0.07
					(0.12)	(0.13)
$\overline{Power}^p$*Tax Top 10% (γ)					-0.01	0.01
					(0.07)	(0.07)
$\overline{Power}^p$*Exam Top 10% (α)						0.31***
						(0.11)
Ho: γ=α (p-value)		0.01		0.00		0.02
Mean	0.33	0.33	0.33	0.33	0.33	0.34
person x mon	6635	6460	6635	6460	6706	6531
Cohorts	58	57	58	57	58	57

* p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors in parentheses.

Note: The unit of observation is a civil servant-month. Fast-track promotions are promotions at the discretion of the senior civil servants and the chief executive of the province. It is defined as a dummy that turns on one whenever the actual seniority of the civil servant is higher than his or her official seniority. $\overline{Tax}$ is a dummy that turns on one when the civil servant is in the top 10, 20, 30, 40 or 50% of the cohort in tax collection. Promotion power of work ties ($\overline{Power}$) is the average seniority of first work ties of newly recruited PAS civil servants that they got in the first month of the first job. It is measured as the average official promotions, over time, of the set of work ties. Promotion power of potential work ties ($\overline{Power}^p$) is measured as the average rule-based seniority (according to minimum length of service rules), over time, of the first set of potential work ties that the cohorts of newly recruited PAS civil servants could have gotten in their first job in the first month, based on initial allocation rules of the government. Exam top (bottom) 10% is a dummy that turns on one for those civil servants that were the top (bottom) 10% of their cohort in the recruitment exam. The omitted category is mid 80% exam performers. Mean is mean value for the outcome variable in the estimation sample. Official seniority, experience of the new recruit, time trend of the first job, cohort & time FE included in all specifications. All specifications exclude the time at the first job.

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